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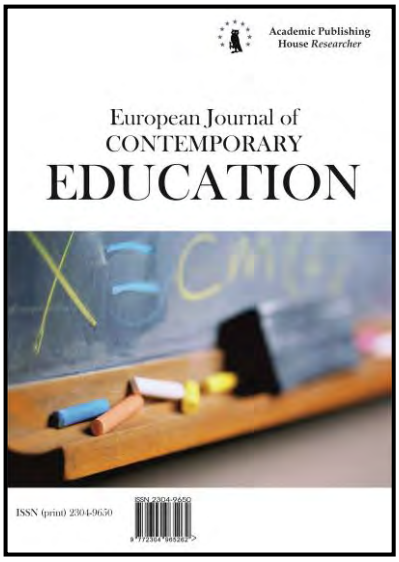

Academic Stress, Risk Taking Propensity and Internal Locus of Control in Mexican and Bolivian University Entrepreneurs

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Abstract

Although, the study of the relationship between the University and entrepreneurship has been on the increase, special attention should be given to the subject of University entrepreneurship. In this regard, despite studies have emerged that have tried to differentiate the entrepreneur from who is not, the characterization of this type of entrepreneur is not yet clear. An entrepreneur is an individual that combines, at the same time, University studies with the generation and management of his/her own business. The variables that can help describe the characteristics of this type of entrepreneur can be academic stress, internal locus of control and risk taking propensity. This study used a quantitative, descriptive-comparative and correlational method. Through a sample of 356 University students from Mexico and Bolivia, it was possible to find significant differences between University entrepreneurs (n = 154) and non-entrepreneur students (n = 202). In addition, the results show that entrepreneurs have a lower level of academic stress compared to non-entrepreneurial students, which can be explained by the first group having high levels of internal locus of control and risk taking propensity. This demonstrates the need to study University entrepreneur from his/her own context using a particular approach.

Keywords: university entrepreneur, academic stress, internal locus of control, psychology or entrepreneurship.

1. Introduction

The study of entrepreneurship has been on the increase within the academic community (Venkataraman, 1997; Shane, Venkataraman, 2000; Montiel et al., 2012). This can be shown in the bibliometric study carried out by Ferreira et al. (2015), who found that during the years 1981 to 2010, the publication on entrepreneurship in top ranked journals grew widely, especially after 2003. In another meta-analysis, Montiel et al. (2012) found that psychology is one of the main disciplines that explain the intellectual structure of entrepreneurial research. This may be because

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researchers have tried to understand the entrepreneur from two basic perspectives. On the one hand, the first perspective is based on their behavior, that is, what the entrepreneur does (e.g., Gartner, 1988; Venkataraman, 1997; Schumpeter, 2003); while, on the other hand, there is the posture that focuses on his personality (e.g., McClelland, 1961; Viinikainen, et al., 2017; López-Núñez et al., 2020; Freeman et al., 2019).

In order to understand the entrepreneur, there is need to first of all, understand it from the individual perspective, which is characterized by the ability to self-employ (Blanchflower, Oswald, 1998). Under this same aspect, through individual differences, especially from a psychological perspective, it is possible to highlight that an entrepreneur has certain characteristics that differentiates him from the employee (McClelland, 1961; Kets de Vries, 1985; Kets de Vries, 1996; Akhtar et al., 2012; Karabey, 2012; Hessels et al., 2018). In this context, it is important to highlight that three of the variables that have been used to characterize the entrepreneur have been the risk taking (Lüthje, Franke, 2003; Tyszka et al., 2011; Karabey, 2012; Ahunov, Yusupov, 2017; Antoncic et al., 2018; Lopera, Marchand, 2018); locus of control (Mueller, Thomas, 2001; Wang et al., 2010; Pinger et al., 2018; Islam, 2019); and stress (Chu et al., 2011; Kollmann et al., 2019; Wach et al., 2020). These aspects seem to be different for the entrepreneur from other groups, however, this is not entirely clear.

Literature Review and Hypotheses

First of all, risk plays a very important role in entrepreneurial decision-making (Lopera, Marchand, 2018). For this reason, there is empirical evidence that addresses risk within entrepreneurial behavior from different perspectives: risk perception (Stroe et al., 2018), risk attitudes (Tyszka et al., 2011; Ahunov, Yusupov, 2017), Risk Taking Propensity (Antoncic et al., 2018), perceived risks (Forlani, Mullins, 2000), and risk preference (Karabey, 2012) as well as risk taking (Lopera, Marchand, 2018).

In essence, entrepreneurs are more likely to risk taking decisions than employees (Lopera, Marchand, 2018). However, there is no consensus on this within the academic community. For example, Tyszka et al. (2012), showed that empirical evidence that supports entrepreneurs do not have a greater attitude towards risk than other groups. This can be explained through the environment. Then, cultural elements between countries can affect entrepreneurial risk taking (Antoncic et al., 2018), which has been studied in Israel, USA and Hungary (Malach-Pines et al., 2005); while Ozaralli and Rivenburgh (2016), compared risk taking propensity in students from USA and Turkey.

Locus of control and entrepreneurship are variables with a very deep relationship. In fact, locus of control research is important to enable the understanding of different aspects related to human behavior (Wang et al., 2010), and entrepreneurial behavior (Frese, Gielnik, 2014). This enabled this variable to become one of the most studied psychological contributions in entrepreneurship research (Mueller, Thomas, 2001), especially, the internal locus of control, which is when an individual considers that the outcome of his life are due to his own effort and abilities (APA, 2010). Therefore, this has been used for better understanding of decision making (Pinger et al., 2018), and entrepreneurial intention (Lüthje, Franke, 2003; Asante, Affum-Osei, 2019).

Finally, despite entrepreneurship has been associated with well-being (Sánchez-García et al., 2018), another characteristic aspect of entrepreneurial behavior is stress. This is defined as "a state of psychological or physiological response to internal or external forces or events that includes changes that affect almost all body systems" (APA, 2010: 196). In addition, stress depends on individual differences (Kollmann et al., 2019). In fact, entrepreneurs must face stressful challenges (Wach et al., 2020). According to Chu et al. (2011), stress is associated with the success factors of entrepreneurs, citing evidence obtained in China. However, Baron et al. (2016) found that entrepreneurs experience lower levels of stress; this is explained through Attraction-Selection-Attrition (ASA) theory (Schneider, 1987; Schneider et al., 1995), arguing that entrepreneurs are distinguished by being stress tolerant.

As previously stated, the evidence that addresses the research variables – i.e., risk taking, internal locus of control, and stress– demonstrates that these aspects play a relevant role in characterizing entrepreneurs. But there are still different questions to answer: Are there significant differences among these variables when comparing entrepreneurs with other groups? And, what role does context play in explaining these variables? In order to answer previous questions, it was highlighted that if there is a context in which the understanding of entrepreneurial behavior still

has many areas of opportunity, it is the University entrepreneur. Then, what is the role of business education today? To answer this last question, it is necessary to take into consideration academic entrepreneurship, entrepreneurial education and, finally, the University entrepreneur.

The study of academic entrepreneurship is on the increase (Kakouris, Georgiadis, 2016). In fact, its biggest increase commenced since 2014 in Top Journals (Skute, 2019), becoming one of the main topics of study when examining the relationship between University and industry (Skute et al., 2019). In addition, Kakouris and Georgiadis (2016), through a bibliometric study, found that publications on entrepreneurial education have increased in recent years. Although, personal characteristics are important for the success of an entrepreneur, the environment also plays a relevant role, especially the entrepreneurial education (Bauman, Lucy, 2020) and academic environment (Bercovitz, Feldman, 2008). These elements are based on the premise that entrepreneurship can be learned (Viinikaine et al., 2017; López-Núñez et al., 2020). That is why the training of entrepreneurs is becoming an important aspect of University teaching (Etzkowitz, 2013).

Although progress has been made in understanding entrepreneurship, it is still not entirely clear how the University entrepreneur is characterized (Bergmann et al., 2016). This is most evident when studying stress. As previously stated, the role of stress in entrepreneurial behavior is unclear, and there is little evidence to clarify the role of academic stress in the life of the University entrepreneur (e.g., Rueda et al., 2012). Therefore, it is still unclear how entrepreneurial students experience academic stress. From these elements, are there differences with respect to academic stress among University entrepreneurs compared to non-entrepreneurial students? In this regard, the first research hypothesis emerged:

H_1 = University entrepreneurs have higher levels of academic stress than non-entrepreneurial students.

On the other hand, although certain bibliometric studies have found that within the elements that define personality traits of entrepreneurs, it is possible to find the place of control and risk taking (e.g., Frese, Gielnik, 2014; Kerr et al., 2017). Empirical evidence explaining how these variables distinguish the University entrepreneur and how these are associated with each other is lacking. Therefore, the following research questions arise: are there statistical differences with respect to internal locus of control and risk-taking propensity between University entrepreneurs and non-entrepreneur students? How internal locus of control and risk taking are associated with academic stress? And finally, how both variables influence academic stress? To answer these questions, the hypotheses are presented below:

H_2 = University entrepreneurs have higher levels of internal locus of control and risk taking propensity than non-entrepreneurial students.

H_3= The greater the internal locus of control, the lower the academic stress

H_4 = The greater the risk taking propensity, the lower the academic stress

H_5 = Internal locus of control and risk taking propensity negatively influence academic stress.

As empirical evidence, this phenomenon was studied within Latin American countries from two perspectives: research and context. First, certain elements are considered: a) entrepreneurship is a topic least explored in Latin America (Villegas, Amorós, 2019); b) although, the interest in studying entrepreneurship in Latin America has increased in recent years (Ketelhöhn, Ogliastri, 2013), understanding entrepreneurial behavior in this region can be complex because some studies have found difficulties in explaining this phenomenon with foreign theoretical models (e.g., Guzmán-Alfonso, Guzmán-Cuevas, 2012). Therefore, this could require a particular vision of the Latin American context; and, c) There are few studies that have described these variables among University students (e.g., Contreras et al., 2017). Regarding the context: a) this region, according to the Global Entrepreneurship Monitor (GEM, 2018), presents the high levels of entrepreneurial activity; b) Latin American entrepreneurs have experienced problems being competitive (Vidal, 2008; Lederman et al., 2014); e) and, finally, these countries have tried to strengthen business education programs (Sánchez et al., 2017).

Then, why this research in Mexico and Bolivia? Although, the study of entrepreneurship in Mexico is increasing (e.g., Vidal, 2008; Vargas-Hernández, Reza, 2010; González, Husted, 2011) it is important to note that most of the publications on entrepreneurship come from US, UK, and Canada (Ferreira et al., 2015); while regarding Bolivia, empirical evidence has emphasized business incubation (e.g., Alba, 2015).

Taking into account that Global Entrepreneurship Monitor (GEM), is one of the main tools to understanding the behavior of the entrepreneur in Latin America (Amorós, 2011), it was reported that Mexico during the year 2017, ranked 17th in the world ranking of entrepreneurial activity (GEM, 2018); while Bolivia, according to GEM (2014), which was presented by Querezaju et al. (2015) has stood out for obtaining a sixth place among the evaluated countries, and third in the region, using TEA measurement (Total early-stage entrepreneurial activity), which consists of the percentage of the population between 18 and 64 years old that starts a business. This shows that these countries are recognized globally in terms of entrepreneurship.

Regarding the research variables, there is little empirical evidence of the relationship between risk and entrepreneurship in 14 western European countries (Ahunov, Yusupov 2017); as well as internal locus of control and entrepreneurship in nine countries (Mueller, Thomas, 2001). In this regard, more research is required to consolidate this area of knowledge from an international perspective, especially in Latin America, where there are many research opportunities (López, Álvarez, 2018). In this context, entrepreneurial education could be an alternative to reduce youth unemployment problems (Sánchez et al., 2017). In addition, there are few studies on entrepreneurship among Latin American students (e.g., Contreras et al., 2017). In the case of Mexico, education has played an important role in the development of entrepreneurial oriented human capital (González, Husted, 2011). For this reason, considering the peculiarity of this region, the study was conducted in two countries: Mexico and Bolivia. Thus, the last research question and hypothesis are proposed: Are there significant differences in business practice between University students from Bolivia and Mexico?

H_6= There are significant differences in business practice between University students from Bolivia and Mexico?

2. Materials and methods

A quantitative, descriptive, comparative and correlational research was carried out. A non-probability sample consisting of 356 University students was obtained: Mexico (n = 187) and Bolivia (n = 169). The sample was characterized by 154 University entrepreneurs and 202 non-entrepreneurial students. Other sociodemographic data obtained are shown below: a) gender: male (n = 146) and Female (n = 210); b) educational programs (management [25 %], finance [25 %], tourism [12.1 %], accounting [10.4 %], and others [27.5 %]); c) and semesters (1-10).

Instruments

Regarding the measurement of academic stress, a five-item instrument was shaped based on some indicators from the questionnaire proposed by García-Ros et al. (2012). The items measured the stress associated with these elements: a) try to pass the exams, b) professional goals, c) scholarships, d) academic overload, and e) grades. A Likert scale with 5 points was used with these options: 1 (*None*), 2 (*Low*), 3 (*Regular*), 4 (*Moderate*) y 5 (*High*). In internal locus of control and Risk-taking propensity, an adaptation to Spanish derived from the questionnaire proposed by Lüthje and Franke (2003) was used, where, in both cases, two items were taken. A 5 point Likert scale was used for both variables, in which the options were: 1 (*Totally disagree*), 2 (*disagree*), 3 (*Neither agree nor disagree*), 4 (*Agree*) and 5 (*Totally agree*). It should be noted that the values were inverted in the second variable.

Validity and Reliability

In order to measure the convergent validation of the three variables, Average variance extracted (AVE) was tested, where levels above .50 were found in all cases, which according to Hair et al. (2014), are favorable levels. On the other hand, regarding reliability, favorable Cronbach's alpha coefficients were obtained: academic stress (α = .676), internal locus of control (α = .731) and risk taking propensity (α = .60). It is important to note that .60 is the lowest level of acceptance for this test (Hair et al., 2014).

Research Process

The research was carried out in the northwest region of Mexico, as well as in the Department of Santa Cruz de la Sierra in Bolivia. After obtaining approval from the authorities of the participating Universities, the questionnaires were self-administered by University students from both countries who decided to participate in the research. In order to test the four hypotheses, the following statistical tests were applied: Mann-Whitney U test for independent samples (H_1 y H_2), correlation (H_3 y H_4) and multiple linear regression (H_5) and X^2 (H_6). The results are shown below.

3. Results and discussion

In order to support hypothesis 1, two analyzes were tested. Firstly, University entrepreneurs showed lower levels in three items of academic stress, except scholarships (see Table 1). A more robust result can be observed in Table 2, where significant results were observed when comparing academic stress among both groups. It is important to note that, regarding academic overload and grades, no significant results were found. These findings empirically verify the hypotheses. In addition, these try to provide empirical evidence on two least studied topics: University entrepreneur's personality (Bergmann et al., 2016), especially how this individual, performing two activities at the same time (student and entrepreneur) live academic stress (Rueda et al., 2012). The results suggest that, the interpretation of the role of stress in the entrepreneur's life depends on their individual differences (Kollmann et al., 2019), despite facing stressful challenges daily (Wach et al., 2020). In effect, University entrepreneurs experienced lower levels of academic stress than non-entrepreneurial students. This agrees with Baron et al. (2016), who through ASA theory (Schneider, 1987; Schneider et al., 1995), argued that entrepreneurs have a high level of stress tolerance.

Table 1. Comparison of academic stress between entrepreneurs and non-entrepreneurs

	University Entrepreneurs (n = 154)		**Non-entrepreneurs (n = 202)**		
	M	**SD**	**M**	**SD**	***p***
Try to pass the exams	3.56	1.06	3.81	1.01	.020
Professional goals	3.22	1.27	3.70	1.16	.000
Scholarships	2.82	1.33	3.16	1.34	.018
Academic overload	3.63	1.16	3.74	1.17	.333
Grades	3.24	1.27	3.37	1.22	.391

Regarding hypothesis 2, the results show that University entrepreneurs have higher values of Internal locus of control and Risk taking propensity, aspects that characterized the Personality Traits of Entrepreneurs in general (Frese, Gielnik, 2014; Kerr et al., 2017). These findings empirically check the hypotheses (Table 2). However, more empirical evidence is required to understand the University entrepreneur in Latin America, who has characteristics that do not coincide with the dominant culture of the region. For example, revisiting both stress and Risk-taking propensity, from a cultural approach, this region has been distinguished for having a low tolerance to uncertainty (Hofstede, Hofstede, 2005).

Table 2. Comparison of variables

Variables	**University Entrepreneurs** (n = 154)		**Non-entrepreneurs** (n = 202)		
	M	***SD***	***M***	***SD***	***p***
Academic Stress	3.30	.790	3.56	.865	.001
Internal locus of control	3.79	.918	3.25	1.03	.000
Risk taking propensity	4.30	.720	4.12	.697	.006

After performing correlation, the results showed that academic stress is negatively associated with internal locus of control and the risk taking propensity; then, when these variables have high levels, academic stress will decrease (Table 3). In this regard, the third hypothesis was tested. In addition, multiple regression was carried out using three models. After using control variables, it was found that gender, semester and country, affected the dependent variable. Academic stress was negatively influenced by Internal locus of control (β = -.113; $p \leq .05$; R^2 = 7.8 %) and Risk taking propensity (β = -.114; $p \leq .05$; R^2 = 9.1 %), respectively. It is important to note that there are no collinearity problems, because the Variance inflation factor (VIF) of the three models was lower

than 10, that according to Hair et al. (2014) is acceptable. This can be corroborated in the correlation coefficients, where values less than 0.80 are acceptable (Field, 2009).

Table 3. Correlation of variables

Variables	*M*	*SD*	1	2	3
1. Academic Stress	3.44	.841	1		
2. Internal locus of control	3.48	1.02	-.123*	1	
3. Risk taking propensity	4.15	.644	-.122*	.055	1

* $p \leq .05$ (2-tailed).

Positive psychology can promote understanding of entrepreneurship (Juhdi, Juhdi, 2013), through which Internal locus of control and risk taking propensity can be considered as strengths that favor the entrepreneurial practices of University students, and can allow efficient stress management. This agrees with Chu et al. (2011), who discovered that stress promotes business success. If the ASA theory (Schneider, 1987), argued that individuals can determine context, then, the University entrepreneur, in order to attend both the school and their own business, through high levels of Internal locus of control and Risk taking propensity, presents certain strengths that make him different from other University students.

Table 4. Regression coefficients on academic stress

Variables	Model 1	Model 2	Model 3
-Control Variables			
Gender	-.195***	-.195***	-.197***
	(.089)	(.088)	(.088)
Educational programs	.024	.025	.031
	(.019)	(.019)	(.018)
Semester	-.179**	-.176**	-.163**
	(.017)	(.017)	(.017)
Country	.158*	.145	.148*
	(.127)	(.127)	(.126)
-Risk taking propensity		-.113*	-.106*
		(.061)	(-.061)
-Internal locus of control			-.114*
			(.043)
R^2	6.6%	7.8%	9.1%
Adjusted R^2	5.5%	6.5%	7.5%
F	6.157***	4.801*	4.883*
VIF	1.018	1.009	1.030

(Standard error)
VIF = Variance Inflation Factor

Finally, using X^2, some differences were found among countries regarding the practice of entrepreneurship. This result empirically supports the proposed hypothesis and, at the same time, coincides with the results reported by the GEM (2018) for Mexico, and the GEM (Querezaju et al., 2015) for Bolivia, in which the reports showed that Bolivia has high levels of TEA measurement. It is important to note that, due to the type of sampling (non-probabilistic), these findings cannot be generalized, especially, for this last test. However, this is for the purpose of showing a summary of what is happening in this region.

Table 5. Differences between Mexico and Bolivia

Groups and Variables	**México** (n = 187)		**Bolivia** (n = 169)			
	n	%	n	%	df	X^2
University Entrepreneurs	71	46	83	54	1	4.42*
Non-Entrepreneurs	116	57.5	86	42.5		
Academic Stress	n	%	n	%	df	X^2
1	9	5	0	0.0	20	36.41*
2	30	16	12	7.1		
3	48	26	69	40.8		
4	81	43	73	43.2		
5	19	10	15	8.9		
Internal Locus of Control	n	%	n	%	df	X^2
1	9	4.8	0	0	8	36.96***
2	28	15	11	6.5		
3	54	28.9	42	24.8		
4	49	26.2	78	46.2		
5	47	25.1	38	22.5		
Risk Taking Propensity	n	%	n	%	df	X^2
2	2	1	2	1	9	11.96
3	23	12	29	17		
4	89	48	93	55		
5	73	39	45	27		

* $p \leq .05$; *** $p \leq .001$.

4. Conclusion

The University entrepreneur plays a very important role, and he/she is perceived as an individual who has created a company while studying at a University (Bergmann et al., 2016). Studies on this topic have emphasized the influence of external factors on the University entrepreneur: i.e., University and regional context (Bergmann, 2017), as well as industry and government (Etzkowitz, Leydesdorff, 1997); however, much remains to be studied about the internal aspect of this type of entrepreneur.

From a theoretical approach, the understanding of entrepreneurship has been complemented by the intervention of different disciplines. In this context, psychology has intervened to enable better understanding of the entrepreneur's personality and behavior. These aspects are vital in understanding who an entrepreneur is. In this regard, Venkataraman (1997) stated that the essence of entrepreneurship is found in the relationship between opportunities and individuals. In order to be successful, these opportunities must be discovered and, later exploited; however, for the latter to happen, there must be certain individual differences (Shane, Venkataraman, 2000). It is important to point out these differences that will become skills (Lazear, 2005), and which will enable an individual to create a company (Gartner, 1988).

Actually, there are gaps in the study of entrepreneurship (Low, 2001). An example of this, is the University entrepreneur, who cannot be studied as a common entrepreneur. The study of entrepreneur requires a particular theoretical and empirical approach. For this reason, proposals for entrepreneurial education have emerged (e.g., Kakouris, Georgiadis, 2016; Fellnhofer, 2019); entrepreneurial University (e.g., Etzkowitz, Leydesdorff, 1997; Etzkowitz et al., 2000; Etzkowitz, 2013; Guerrero-Cano et al., 2006; Ndofirepi, 2020); and the academic entrepreneur (e.g., Bercovitz, Feldman, 2008; Abreu, Grinevich, 2013; Skute, 2019); similarly, a study of the characteristics of a University entrepreneur must be exhaustively studied. Although, some studies have emerged that have tried to differentiate the entrepreneur from who is not (e.g., Gartner, 1988, Blanchflower, 1998), the University entrepreneur requires his/her own field of study. However,

although the study of the University entrepreneur requires independence, there is need to consider it from a psychological perspective.

After reviewing the empirical evidence on the psychology of entrepreneurship, it could be observed that, according to a bibliometrics carried out by Frese and Gielnik (2014), a study of the entrepreneur's personal attributes has attracted the attention of many researchers, where it was found that three of the most characteristic elements of the entrepreneur's personality are stress, locus of control and risk propensity.

Despite there is no complete consensus on the interpretation of these variables within entrepreneurial behavior, this may be a starting point for other theoretical approximations. Both risk taking and internal locus of control, being characteristics of the entrepreneur's personality could be interpreted under the positive psychology (Juhdi, Juhdi, 2013), that focus on human strengths (Seligman, Pawelski, 2003), and allows the development of business activity.

In conclusion, within the present investigation, it was possible to empirically test the six hypotheses. In essence, from a theoretical approach, the contribution to this document is based on two aspects. First of all, a topic least studied within the academic community was addressed: the University entrepreneur. On the other hand, entrepreneurial behavior can be understood theoretically from positive psychology (Juhdi, Juhdi, 2013), and the ASA Theory (Schneider et al., 1995), in which – together – it is possible to support the understanding of the University entrepreneur, who as an individual has certain characteristics that make him different, where certain strengths of his/her personality traits stand out, this determines the context.

Regarding the empirical test, the following results are presented: a) the University entrepreneurs present lower levels of stress than non-entrepreneurial students; b) in addition, University entrepreneurs have higher values of internal locus of control and risk-taking propensity; c) the low stress levels of the University entrepreneur can be explained through internal locus of control and risk-taking propensity, that regulate academic stress; d) in a region such as Latin America, where entrepreneurship has become an economic alternative to avoiding unemployment, especially for young people (Sánchez et al., 2017), it was possible to determine that the contextual part also play a relevant role in understanding the University entrepreneur.

Within the limitations of the study, the sample used stands out. It is recommended for future research to carry out a probabilistic study that best represents the reality of both countries. Although, this research used students from Mexico and Bolivia as case study, in order to present the reality of Latin America, there is need to collect data from other countries in the region. Finally, considering that the characterization of the University entrepreneur is not yet clear, it is recommended to increase the empirical evidence, especially by conducting studies that describe the internal aspects (personality and attributes), as well as the external aspects that determine the University entrepreneur, who is distinguished because, at the same time, he/she is studying at the University, and he/she has also started his own company (Bergmann et al., 2016). Based on this context, it would be relevant to study how the University has influenced entrepreneurial decisions; this is done in order to know the impact of the University system on entrepreneurship.

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