

# Determinants of Entrepreneurial Intention and the Role of Entrepreneurial Education: An Analysis in the Ecuadorian University Context

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**Keywords:** Entrepreneurial Intention, Entrepreneurial Education Role, Entrepreneurship Education, Innovation, Entrepreneurship Teaching.

**Abstract:** The objectives of this research were, first, to determine the incidence of determining factors in the entrepreneurial intention (EI) of university students, with a mixed model based on the Theory of Planned Behavior (TPB) and the Entrepreneurial Event Model (EEM), and with this, to propose guidelines for the learning process of entrepreneurship that promote entrepreneurial intention in university students. The study, with a quantitative approach, used the selected sampling technique (simple random sampling) from an Ecuadorian public university with a population of 8,500 students. It was revealed that the three dimensions analyzed: "university context", "perceived control" and "entrepreneurial attitude" have a positive and significant impact on entrepreneurial intention. It is expected that the findings will contribute to improve the effectiveness of entrepreneurship programs offered by higher education institutions.

## 1 INTRODUCTION

This study arises as one of the products of the project on innovation management and technology transfer through incubation systems and sustainable business acceleration in the province of Santa Elena, implemented by the School of Administrative Sciences of the Peninsula University of Santa Elena. The objective of this project is to create an ecosystem for the creation of startups in the university context and increase the competitiveness of microenterprises through disruptive innovation (products and/or services, processes, and business models) within a culture of high-value entrepreneurship.

Entrepreneurship and innovation have been preferred allies for Ecuadorians when facing difficult economic situations. It is not surprising therefore that Ecuador is considered one of the most entrepreneurial countries in the world, its rate grew by 4.7% due to

the pandemic, especially in the digital transformation and innovation segments. AEI (2021).

Entrepreneurship has represented one of the great challenges for the economic development of a country. Although it may seem that entrepreneurship has an implicit relationship with people who possess innate qualities, however, its development has been possible thanks to university education, with its curricula and study plans at all levels of education (Arango-Boyer et al., 2020)

In order to strengthen the process of conversion of university students to become entrepreneurs, it is necessary to analyze in greater depth the determining factors associated with entrepreneurial intention in different contexts (Ozaralli & Rivenburgh, 2016). In this regard, there are some theories that demonstrate entrepreneurial intentionality under the influence of socio-cultural aspects that can and should be

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strengthened. (Fragoso, R., Rocha-Junior, W., & Xavier, A. 2019).

It should also be noted that, with regard to the study of entrepreneurial behavior, several authors have focused on the analysis of the intention to become self-employed. (Bird, 1988; Davidsson, 1995; Douglas, 1999; Krueger y Carsrud, 1993; Reitan, 1996; Robinson, Stimpson, Huefner y Hunk, 1991; Shapero y Sokol, 1982).

### 1.1 Theory of Planned Behavior (TPB)

The Theory of Planned Behavior (TPB), by Izek Ajzen (1991), contributes to the ways of predicting, understanding and positively modifying people's behavior, since behavior can be planned. This theory is a successor to the theory of reasoned action, and it was because it was discovered that behavior was not entirely voluntary and under control that this gave rise to the variable of perceived behavioral control, a fundamental element of the TPB, and is closely linked to entrepreneurial intention.

Intention relates to antecedents and subsequent behavior (Kautonen et al., 2011). According to the theory of planned behavior, both intentionality and the different behaviors assumed by a person have three basic determining factors: personal, social context and perceived control.

In the words of Al-Jubari et al. (2019), TPB is oriented to explain and predict human behavior as its basic purpose. There are other theories based on this analogy and characteristics, such as the model proposed by Shapero and Sokol. (1982), set forth below.

### 1.2 Enterprise Event Model (Eem)

Shapero and Sokol's Business Event Model (1982), and it refers to entrepreneurial self-efficacy and is undoubtedly one of the most cited models in the field of entrepreneurship (Al-Jubari et al., 2019; Bandura, 1977; Veciana et al., 2005; Sharahiley, 2020). This model comprises three key elements that have a direct or indirect degree of influence on the entrepreneurial intention of university students to start a business: a) perceived desirability, which refers to the interest that a university student may have in starting a business or startup. According to Tarrats-Pons et al. (2015), this factor is associated with the level of perception of a university student or student about the way of thinking and acting of people representing their closest social circle, in terms of the possibility of starting a business, this gives them a sense of emotional support.

In this regard Sharahiley (2020), added that the *propensity to act* is the inclination and preferences of the students to start their own entrepreneurship, taking as a reference the perceived viability and self-confidence, which will serve as an impulse for the action of entrepreneurship.

It is important to note that TBP has been characterized by various meta-analyses in some countries and were encouraging, such as that attitudes, subjective norms and perceived behavioral control had an impact of 39% variation in terms of entrepreneurship intentions (Schlaegel and Koenig, 2011).

In this regard, Kautonen, et al. (2013) carried out a work on the prediction of intentions and behavior in relation to the creation and implementation of microbusinesses with time series (2006 and 2009) in the economically active population in Finland and as a result it was obtained that both attitude, subjective norms and perceived control of behavior were considered as predictors of high significance in business intention

There is much other research done regarding the validity of the prediction of intentions and behaviors when the variable of business education and training exists (Bae, T.J., S. Qian, C. Miao & J.O. Fiet, 2014).

### 1.3 Combined Model

For the purposes of this study, a model oriented to entrepreneurial intention-action will be built, combining the different variables of the TPB model of planned behavior as developed by Maluk O (2018) and the variables of the Shapero and Sokol's business event model (1982) will be the one that best fits the different combinations that are identified in the measurement models. See figure 1.

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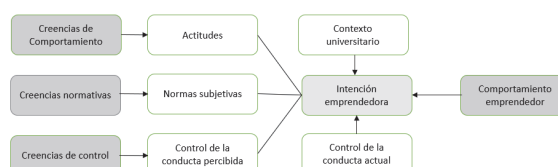


Figure 1: Combined model adapted from Ajzen (1991); Shapero y Sokol (1982).

## 1.4 Education for the Development of Entrepreneurship

Undoubtedly, one of the definitions that best fit entrepreneurship is what is considered a highly critical activity that encompasses the discoveries, identification, evaluation and use of opportunities with certain productive factors oriented to the production process, in an established period. [14].

It has been evidenced the influence that formal business education *tem-prana* has on students, their attitudes, the choice of their career to follow and their intention to undertake. This type of early education allows the development of capacities, skills and abilities, through knowledge and training. Students are more likely to access the business world early and an extension of the labor market is achieved with it (Rauch & Hulsink. 2015).

However, some authors question the effectiveness of academic programs, due to inconsistencies and problems of relevance in the contents (Soria-Barreto et al. 2016; Among the difficulties found are the methodologies used (Westhead et al., 2001) This scenario represents a dilemma for researchers and calls into question the role of entrepreneurial education, that is, whether or not entrepreneurship can be taught.

## 2 METHODOLOGY

This research has a quantitative approach, ranging from the identification of the variables, the analysis of the consistency of the data collection instrument, descriptive analysis of the dimensions, and even the deductive contrast of the hypotheses of the relationship between the variables. For this last process, it is necessary to apply a correlational type of scope in the research.

The total study population was 8,500 students at the Peninsula Santa Elena State University (UPSE, for its acronym in Spanish) during the period 2021-2. Accordingly, a probabilistic sampling was applied, since it seeks to generalize the results obtained from the sample, in order to circumvent the limitations that exist when it is necessary to collect information from the entire population through a census. Starting from a population with homogeneous characteristics, the selected sampling technique was Simple Random Sampling (SRS).

Being quantitative research, the technique applied was the on-line survey. The instrument elaborated from this premise, was elaborated in relation to the dimensions described in the conceptualization of each

study variable, which are: *University context, Entrepreneurial attitude, Perceived control, and Entrepreneurial intention.*

For a better description and methodological treatment, three phases are required:

The first is to demonstrate the statistical confidence of the instrument applied, by means of Cronbach's Alpha test.

Cronbach's Alpha is a method for determining the reliability and trustworthiness of a set of data so that the theoretical construct is as relevant as possible. The result of applying this indicator admits values between zero and one; for values close to one, the higher the internal consistency of the group of variables and dimensions; and for a lower consistency, for values close to zero, the higher the internal consistency of the group of variables and dimensions (Welch & Comer. 1988).

For authors such as George & Mallery (2003), suggest intervals based on the result of the indicator, and thus verify the general condition of the instrument. The values have the following scale: excellent, good, acceptable, questionable, poor and unacceptable.

The second phase provides statistical evidence of the relationships or not of the study dimensions, through the application of the Pearson or Spearman correlation test, depending on the parametric normality or not of the variables described in the data collection instrument.

The hypotheses to be formulated for the parametric or non-parametric contrast of the data are as follows:

Ho: Data derived from the survey instrument are from a normal distribution (parametric).

Ha: Data derived from the survey instrument are not from a normal distribution (non-parametric).

Based on the significance, if it is greater than 0.05, the null hypothesis (Ho) is accepted; if it is less, the alternative hypothesis is accepted (Ha).

To evaluate the relationship between the study variables, tests are applied based on the normality results. If the data are parametric, Pearson's test is applied, but if the data turn out to be non-parametric, Spearman's test is applied.

The hypotheses to be formulated for the contrast of the relationship between variables are as follows:

First reference: University Context and Entrepreneurial Intention.

Ho: There is no relationship between the dimensions University Context and Entrepreneurial Intention; Significance > 0.05.

Ha: There is a relationship between the dimensions University Context and Entrepreneurial Intention; Significance < 0.05.

Second reference: Entrepreneurial Attitude and Entrepreneurial Intention.

Ho: No relationship between the dimensions Entrepreneurial Attitude and Entrepreneurial Intention; Significance > 0.05.

Ha: There is a relationship between the dimensions Entrepreneurial Attitude and Entrepreneurial Intention; Significance < 0.05.

Third reference: Perceived Control and Entrepreneurial Intention.

Ho: No relationship between the dimensions Perceived Control and Entrepreneurial Intention; Significance > 0.05.

Ha: There is a relationship between the dimensions Perceived Control and Entrepreneurial Intention; Significance < 0.05.

Based on the significance, if it is greater than 0.05, the null hypothesis (Ho) is accepted; if it is less, the alternative hypothesis (Ha) is accepted.

The third phase, the aim is to develop a logistic probability model (logit) that determines the probability in which the conditions of the *university context*, *entrepreneurial attitude*, perceived control explain a tendency for the student to have a *higher entrepreneurial intention*

### 3 RESULTS AND DISCUSSION

To determine the sample before collecting information, it is necessary to apply the MAS technique. The following are the results:

The following are the results:

$$n = \frac{N * Z^2 * p * q}{e^2 * (N - 1) + Z^2 * p * q} \tag{1}$$

Where:

N; Population: 8,500

Z; Z-value of normal distribution: 1.96

P; Probability of success: 0.5

Q; Probability of failure: 0.5

E: Statistical error: 0.05

The result of applying formula (1) is 368 university students. To guarantee the representativeness of the sample and therefore minimize the error at the moment of generalizing population data, it is necessary to distribute the selection of the sample elements randomly by careers. In addition, since this was an on-line survey, the responses exceeded this

number as a sample, which also guarantees this generalizing context.

According to the first phase, where the statistical consistency of the data collection instrument is evidenced, it is necessary to determine the Cronbach's Alpha indicator. The results are as follows:

Table 1: Reliability statistics.

Cronbach's Alpha
0.953

Source: Data processed through the SPSS program based on the data obtained in the in-situ data collection.

According to the results, the value of Cronbach's Alpha is greater than 0.8, which indicates that the reliability of each of the questions in the instrument is "Excellent", which statistically demonstrates that the results and interpretations derived from the instrument will be consistent, providing significant information.

In the second phase, the correlation test of variables will be applied. For this purpose, it is determined whether the instrument data are parametric or non-parametric, since this depends on the type of test to be applied. The following are the results:

Table 2: Normality test.

Variables	Kolmogorov-Smirnov	
	Statistical	Significance
University context	0.256	0.000
Entrepreneurial attitude	0.145	0.000
Perceived control	0.115	0.000
Entrepreneurial intent	0.112	0.000

Source: Data processed through the SPSS program based on the data obtained in the in-situ data collection. The Kolmogorov-Smirnov test is applied when data are equal to or greater than 50.

According to the results, the data derived from each item of the information gathering instrument turn out to be non-parametric, since the null hypothesis (Ho) is rejected in favor of the alternative (Ha), that is, they do not come from a normal distribution, since the significance of the two variables under study is less than 0.05.

Since the results do not come from a normal distribution, to contrast the correlation between the variables under study, Spearman's test analysis is applied. The following are the results:

First Reference: University Context and Entrepreneurial Intention.

Table 3: Spearman correlation test.

Variable 1	Criteria	Variable 2
		Entrepreneurial intent
University context	Spearman's Rho	0.540*
	Significance	0.000
	N	1,078

Source: Data processed through the SPSS program based on the data obtained in the in-situ data collection.

\* The indicator is a value between 1 and -1, the closer it is to 1, the higher the positive-direct correlation; if it is close to -1, the higher the negative-indirect correlation.

According to the results of the significance of Spearman's Rho, the null hypothesis (Ho) is rejected in favor of the alternative hypothesis (Ha), i.e. there is a medium direct relationship between the variables "University context" and "Entrepreneurial intention"; which indicates that, if the university context is strengthened, with projects with an entrepreneurial approach, it can be positively stimulated by increasing the intention of students to become entrepreneurs.

**Second Reference:** Entrepreneurial Attitude and Entrepreneurial Intention.

Table 4: Spearman correlation test.

Variable 1	Criteria	Variable 2
		Entrepreneurial intent
Entrepreneurial attitude	Spearman's Rho	0.731*
	Significance	0.000
	N	1,078

Source: Data processed through the SPSS program based on the data obtained in the in-situ data collection.

\* The indicator is a value between 1 and -1, the closer it is to 1, the higher the positive-direct correlation; if it is close to -1, the higher the negative-indirect correlation.

According to the results of the significance of Spearman's Rho, the null hypothesis (Ho) is rejected in favor of the alternative hypothesis (Ha), that is, there is a direct medium relationship between the variables "Entrepreneurial attitude" and "Entrepreneurial intention"; which indicates that, if actions are proposed to stimulate good entrepreneurial attitude, this will cause the student's intention to become an entrepreneur to increase.

**Third Reference:** Perceived Control and Entrepreneurial Intention.

Table 5: Spearman correlation test.

Variable 1	Criteria	Variable 2
		Entrepreneurial intent
Perceived control	Spearman's Rho	0.732*
	Significance	0.000
	N	1,078

Source: Data processed through the SPSS program based on the data obtained in the in-situ data collection.

\* The indicator is a value between 1 and -1, the closer it is to 1, the higher the positive-direct correlation; if it is close to -1, the higher the negative-indirect correlation.

According to the results of the significance of Spearman's Rho, the null hypothesis (Ho) is rejected in favor of the alternative hypothesis (Ha), i.e. there is a direct medium relationship between the variables "Perceived control" and "Entrepreneurial intention"; which indicates that, if a perceived control in entrepreneurial matters is adequately strengthened, the entrepreneurial intention of the student will increase significantly.

Finally, in the third phase, the main logistic probability model is determined. The following are the references:

Based on Novales A. (2005), Binomial Logit models are linear references between a dependent variable and one or more independent variables in which, according to their significance, they would explain the dependent variable. The relationships between this system do not refer to magnitudes but only to the direction of forces or direction of action, which is evidenced by the sign of the independent variable. As long as it has a positive sign, it is suggested that the greater the incidence of this variable, the higher the value of the probability of occurrence of the dichotomous dependent variable increases, and if it has a negative sign, the relationship is contrary to this statement.

In this sense, a binomial logistic probability model is used to explain the behavior of the dimensions under study.

**Dependent Variable:** Entrepreneurial intent

**Coding:** 1: Has entrepreneurial intentions; 0: No entrepreneurial intentions.

**Coefficient Estimates:**

Table 6: Estimates of the coefficients of the independent variables.

		Coefficients	Sig.
Variables	University context	0.45	0.03
	Entrepreneurial attitude	0.63	0.00
	Perceived control	0.419	0.12

Source: Data provided by the IBM SPSS for Windows program for the development of the binomial logistic probability method for the Entrepreneurial Intention dimension.

As mentioned in the methodology reflected in, in the probability models the coefficients do not reflect the magnitudes of change on the dichotomous dependent variable, but only the relationship between them, i.e. direct or indirect (positive or negative).

According to the results, the three dimensions contribute significantly to increase the probability that students have the intention to become entrepreneurs (dependent variable).

For the calculation of the probabilities, the initial data of the dimensions and the coefficients of the equation must be replaced in the exponential transformation expression 2.

$$Prob \left( \frac{p}{1+p} \right) = \frac{\exp \left( \frac{p}{1+p} \right)}{1 + \exp \left( \frac{p}{1+p} \right)} \quad (2)$$

The results:

Table 7: Estimates of the coefficients of the independent variables in probabilities

		ln(p/1+p)	Probabilities
Variables	University context	-0.254	0.437
	Entrepreneurial attitude	-0.744	0.322
	Perceived control	-0.590	0.357

Source: Data provided by IBM SPSS for Windows for the development of the binomial logistic probability method for the Entrepreneurial Intention dimension.

## 4 CONCLUSIONS

Based on the results, the following main conclusions can be drawn:

The three dimensions analyzed throughout this research contributed in a relevant way to an increase in the probability that students have a greater intention to undertake are, in their order:

The "university context" contributed with 43.70%, "perceived control" with 35.70%, "entrepreneurial attitude" with 32.20%.

This indicates that, if the university context is strengthened, with projects with an entrepreneurial approach, it can be positively stimulated by increasing the students' entrepreneurial intention. Likewise, if a perceived control in entrepreneurial matters is adequately strengthened, the student's entrepreneurial intention will increase significantly and finally, it is concluded that if actions are proposed to stimulate a good entrepreneurial attitude, this will cause the student's entrepreneurial intention to

increase. 2) The validity of the combined model (Theory of Planned Behavior -TPB and Enterprise Event Model -EEM) was reinforced as the basis for explaining the intention of the behavior in this study.

University entrepreneurship education can have notable effects on entrepreneurial intention, but it will have a greater initial response in students with certain proactive characteristics. Therefore, a previous diagnosis of the students can help predict the real impact of the contents, especially of the entrepreneurship subjects, on entrepreneurial intention.

This study aims to provide certain valid guidelines for the development of appropriate training programs in entrepreneurship and innovation, with a hybrid modality, which promotes the development of individual and collective capacities, abilities and skills in entrepreneurship and innovation, with a comprehensive approach, not only from an economic, administrative and/or accounting point of view, but also considering all the contexts: social, cultural and technological.

The reflections derived from the results of the study indicate that the most important way in the model is the one that goes from attitudes towards entrepreneurial intention

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