ENTREPRENEURSHIP INTENTION SCORING

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ABSTRACT

It is quite important that university students be interested in entrepreneurship as a career option, that they adopt entrepreneurship with their hearts and minds and that entrepreneurship courses be provided on the basis of the principle of developing their self-efficacy. This paper focuses on scoring the intentions of students who participate in entrepreneurship training. Using a number of contextual and personal variables related to courses and programs in entrepreneurship, the evaluation of entrepreneurship intention can be evaluated. The theoretical level is based on the studies of Ajzen (1991) and the model of the entrepreneurial event of Shapero (1982), entrepreneurship using a psychosocial model such as the intent theory of planned behaviour. These models usually lead to the fact that to start a business you must have strong positive feeling without thinking about starting at the reality of this desirable and achievable action. Our model's validation is based on a qualitative and quantitative study conducted on 120 students following the path of entrepreneurship. The sample was chosen in such a way that these students are in the year of graduation in specialized masters and they will frequent the world of work soon. In this paper, we propose two models. The first model evaluates courses and instructor impact to entrepreneurship intention; the manager satisfaction was calculated by applying the second model. The study found a significant positive correlation between entrepreneurial intention and entrepreneurship education, confirming the important role played by such entrepreneurship education on entrepreneurial intention.

Keywords: Entrepreneurial Intention, Entrepreneurship Model, Entrepreneurship Education, Classification, Scoring.

INTRODUCTION

In Tunisia, entrepreneurship consists of three consecutive and progressive segments. The first corresponds to the second year of an applied or fundamental program that processes the training module, "entrepreneurial culture". This segment occurs throughout the first half of the academic year to encourage students to become tomorrow's entrepreneurs. The interest in entrepreneurship education is not limited to increasing the number of new businesses. In fact, this course enables student awareness of the key concepts of entrepreneurs (behaviours, motivations and actions).

During the second semester of the same year, the teacher primarily stimulates the entrepreneurial intention and simulates the stages of business creation as a source of ideas and an analysis of opportunities, planning, decision, organization and control. Finally, in the first half of the third year, the program is structured around an accompanying development of a business plan. In fact, the timely business plan has become an indispensable tool in business creation.

In the second semester, students (third year level) are invited to prepare a training report in an environment that operates in an industry such as their individual specialty. The students can also opt to develop a business plan, after creating an innovative idea that is feasible and bankable

using structured finance. In this case, students will benefit from the support provided by a scholar and a professional coach.

The unemployment crisis has changed the scientific pedagogy, which was based on public education and has greatly weakened the culture of success that the world of education attempts to build. Recently, specific courses in entrepreneurship have appeared. In fact, we find that the education system currently deploys a dual-purpose system: Achieving the greatest number of students in entrepreneurship and, to a lesser degree, specializing and assisting those who want to move towards entrepreneurial careers (Hockerts, 2017). The basic premise of our paper is that entrepreneurship can be taught in either educational or training programs. Entrepreneurship is not only a practical or research field but also a teaching field. Entrepreneurship may have effects on the attitudes, norms and motivations of students regarding their career choices (Miralles et al., 2016). Most university-level programs are intended to increase entrepreneurial awareness and to prepare aspiring entrepreneurs (Weber, 2012). The goal of entrepreneurship awareness education is to allow students to ameliorate entrepreneurial skills and to support them in choosing a career.

This paper has been structured in four sections. The first contains the entrepreneurship training in universities. The research context and description of variables is presented in the second section. The third section describes the modelling to measure the entrepreneurship intention's impact. Finally, we describe the second model, which evaluates the manager's satisfaction to measure the entrepreneurship intention.

Finally, we must note that the results must be seen with caution. The reduced size of the sample, may contribute to the lack of statistical significance. Also, the lack of attention to the EE components and attempts to evaluate EE influence on students' previous EI, which by their nature relate to the past and cannot be influenced by the EE in the present time, is a serious limitation to these results. These limitations should be avoided in future studies in order to achieve results with more statistical robustness.

LITERATURE REVIEW

The literature on entrepreneurial intentions has rapidly grown since the publishing of the seminal works by Shapero some 30 years ago (Abert, 1984; Shapero & Sokol, 1982).

Since the early nineties, we have seen an explosion of research using entrepreneurial intention models as a framework, thereby confirming the applicability of the concept in various settings. Nevertheless, despite the existence of alternative models, there is some evidence of the compatibility of these intention-based models (Boyd & Vozikis, 1994; Krueger et al., 2000).

Additionally, with the publication of an increasing number of studies based on the concept of EI, new applications, mismatches and specifications have emerged (Carsrud & Brännback, 2011; Krueger, 2007; Krueger, 2009; Krueger & Day, 2010). The vast majority of this research lacks systematization and categorization, with a tendency to start anew with every study. There is therefore a risk of the field stagnating and lacking robustness (Fayolle & Liñán, 2014).

Entrepreneurship education has not achieved sufficient maturity either in theory or in practice. Early courses on entrepreneurship have started in the United States in 1940s. Since those times, entrepreneurship education has increased considerably in the developed world (Do Paço et al., 2015). The number of universities and colleges with entrepreneurship courses in their curricula has clearly increased in the United States since the late 1960s.

Furthermore, as stated by (Wood, 2011), entrepreneurship education is not a single event, but rather a continuous process comprised of a series of events. In consequence, the role of education and training in entrepreneurship and in the identification of endowment of entrepreneurial potential at a young age, are becoming evident for students, politicians and educators (Rasheed, 2000).

One of the critics in entrepreneurship courses, pointed by (Neck & Greene, 2011), is the fact that they are focused in the exploitation of opportunities assuming that the opportunity has been already identified. Thus, very little time and attention is given to creativity and idea generation process. Accordingly Jusoh et al. (2011) in their analysis about training needs of education in entrepreneurs found that in entrepreneurial skills training there is a lack in areas such as how to enhance creativity and innovation.

Although the alleged benefits of entrepreneurship education have been much celebrated by researchers and educators, there has been little rigorous research on its effects (Peterman & Kennedy, 2003). In fact, entrepreneurship education ranks high on policy agendas in Europe and the US, but little research is available to assess its impact and their effects are still poorly understood. Several previous studies find a positive impact of entrepreneurship education courses or programs (Peterman & Kennedy, 2003; Fayolle et al., 2006; Raposo et al., 2008; Rodrigues et al., 2009).

RESEARCH CONTEXT AND VARIABLES

Data collection

This study attempts to describe and explain the formation of the entrepreneurial aspirations of 120 students enrolled in programs or courses in entrepreneurship. The basic idea of our research is to understand the influence of programs or entrepreneurial training programs on the entrepreneurial intention of students. This sample was chosen because these students are only months from entering the work force and express a variety of different career intentions.

We use SPSS for statistical analysis of all quantitative data collected. We perform multiple regressions using Excel. According to (Evrard, Pras & Roux, 2003), the choice of the explanatory method suitable for the statistical processing of data depends on how the dependent variable and the explanatory variables are measured.

Description of variables

To measure the impact of training on students, we create a model to apply to any number of students. This model can help banks, state decision makers and instructors to ameliorate course content. Moreover, the result of our study provides the intention's impact, which can be used by managers or decision makers to select students to integrate into an enterprise.

Therefore, the main objective of our work is to establish a model and an algorithm to select the appropriate students from among those who are compatible with the entrepreneurship profile.

To implement the model, it is important to define all variables that can interact to bias the decision. These variables are classified into two types

- Dependent variable: This variable is the nexus of the result. Therefore, this variable contains the value that can make the model's decision parameters.

- Independent variables: These variables construct the model and all values that bias the entrepreneurship intention.
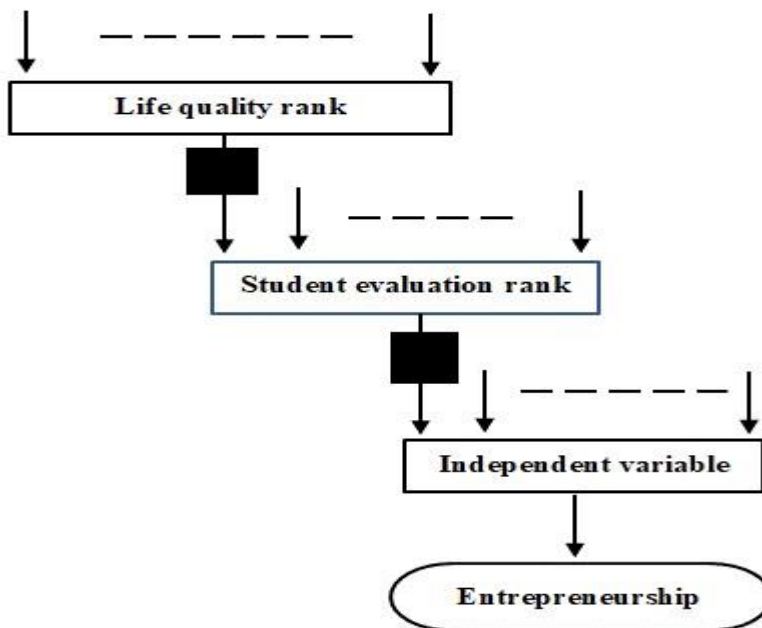

FIGURE 1

FLOWCHART OF VARIABLES

In Figure 1, we clearly show the relation between each type of chosen variable. Therefore, the life quality rank will be input as a variable to determine the student evaluation rank. The latter rank will be input as an independent variable.

Dependent Variable:

The entrepreneurial intention is one of the "measurement units" that represents the presence, more or less, of a "history" and "predisposition" to entrepreneurship (Miralles, Giones & Riverola, 2016). Ajzen (1991) defines intention as an indicator "of the will to try, the effort that one is prepared to agree to behave in a certain way".

In the literature, many authors have used models of intention inspired by the Ajzen model to explain entrepreneurship, particularly among students, to identify the intention to create; these authors include: Salhi & Boujelbene (2012); Audet (2004); Tae Jun, Shanshan, Chao & James (2014). Admittedly, these authors confirmed that the entrepreneurial intention is regularly altered into three components.

In our research: The perceived desirability→the perceived feasibility→the social norm.

The factors are described as follows:

a) Perceived desirability: The desirability represents the degree of attraction a person feels toward the creation of a company. The desirability was measured using a single item: "The idea for your business you want on a scale from 'not at all attractive' to 'very attractive'" (Krueger, 2009).

b) Perceived feasibility: The feasibility refers to the perceived degree to which students believe they can start a business. The perceived feasibility was also measured using a single item: "Do you need to think that being able to create your business? Respond on a scale from 'not at all able' to 'very capable". This

concept is very similar to Bandura's self-efficacy model and represents an individual's confidence in his or her ability to perform the actions required to achieve a certain outcome (Bandura, 1977) and the belief in a personal capacity to perform the task (Zellweger, Nason, Nordqvist & Brush, 2013).

c) Social norm: The social norm, as we have built into this model, is a composite variable built from a sum of three products: Friends, family and colleagues.

Independent variables:

The entrepreneurial intention returns to state the influence of several types of variables. Entrepreneurial attitudes are reflected in the existence of an idea or a business project and the quest for better information structuring. There also needs to be a motivation for starting a business that supports the entrepreneurial intention (need for achievement or quest for independence). The entrepreneurial curriculum is approached by the specific teachings of business creation and late perceptions of accessibility to resources.

a) Entrepreneurial attitudes: Entrepreneurial attitudes are indicated by the existence of an idea or a business project and the research of information to help the actor formalize their findings.

- The idea or the business project (IP): Therefore, the formation of the entrepreneurial intention requires one to formulate and structure an idea or a project that would explain the entrepreneurial attitudes of students. The possession of an idea or project is a crucial step in the formation of entrepreneurial intentions in students.

- Information retrieval (IR): According to Fayolle & Liñán (2014), information retrieval means that the intention is stronger because the individuals initiate a process through which they seek to overcome barriers to business creation.

b) The motivation for starting a business: The motivation for starting a business is essentially composed of the need for achievement and the quest for autonomy.

- The need for achievement (NA): Individuals retain the need for achievement motivation as students near graduation and thus near the decision on their career choice.

- The search for autonomy (SA): The second variable, which appears similar to a motivation, differentiates students who may have an entrepreneurial intention, which is the quest for autonomy. This statement means being one's own boss and having a say in the everyday aspects of one's career.

c) The entrepreneurial curriculum (EC): Training programs in entrepreneurship, particularly in phases of specialization and support, are factors that can enhance the perceptions of students' entrepreneurial skills.

d) Accessibility to resources (AR): The students' perceptions of ease or difficulty of access to the information, advice and financial resources to refine and eventually realize their ideas or projects are components of perceptions of behavioural control that can affect the entrepreneurial intention.

e) Student evaluation rank (SER): This variable measures the weight and impact of a student on the entrepreneurship intention; indeed, it measures whether a student has certain requirements or qualifications that can directly impact his intention to create an enterprise. For example, let student "X" have a parent who is a businessperson. This student can be encouraged by that parent and can be helped to find financial assistance as the first step in the professional world, which is creating an enterprise.

The "Student evaluation rank" is based on 9 variables: Age, specialty and number of traineeship, sex and salary of parents, entrepreneurship grade, association life, parents' posts and life quality rank.

This rank is obtained after providing a model to estimate the quality of life of each student. This rank is in the range, [1-10].

The life quality rank is based on 5 variables: House propriety, bank credit, car number, number of children and real estate acquired by parents.

Our work is focused on entrepreneurship; therefore, we do not model the quality of life in this work. To develop our model, it is important to evaluate the life quality rank, which is in the range, [1-10].

Assume that the "Student evaluation rank" is in the interval, [1-10]. This statement means the upper bound of the interval, 10, represents the maximum evaluation of the student. At this value, the student can impact entrepreneurship at the maximum for the *SER* variable.

Therefore, we can illustrate all independent variables as follows:

- *IP*: The idea or the business project, IR: The information retrieval, NA: The need for achievement
- *SA*: The search for autonomy, EC: The entrepreneurial curriculum, AR: The accessibility to resources
- *SER*: The student evaluation rank

The model that is provided by the econometric study is denoted by MES. This model is created and tested after regressing several variables. The student index is denoted by j and the number of students is denoted by *n*.

ENTREPRENEURSHIP INTENTION MODEL

After entrepreneurship course training, it is important to evaluate the impact of the course on student to create enterprises and be future entrepreneurs. Measuring this impact is also a factor to transform university or faculty in certain cases into colonels to motivate students and make them future entrepreneurs.

Therefore, it is important to select, from among all students, those who can be dynamic to become entrepreneurs.

This selection will be based on two models:

- Model based on an amplifier
- Model without an amplifier

Model based on an amplifier

For this model, we introduce a new notion of classification; this is an amplifier impact.

The values of all independent variables that depend strongly on the entrepreneurship course training exclude the variable SER_j. The variable SER_j depends only on the requirements of students, which are described previously.

For our problem, each student has a proper weighting. In this model, we choose the variable SER_j as the weight for student *j*. In addition, each student has a value for each variable. Therefore, for each remaining variable, we added the j index of each student: IP_j, IR_j, NA_j, SA_j, EC_j and AR_j. After the collection of all values from the student questioner, it is important to encapsulate the result in one and only value for each variable. Subsequently, we can calculate the global score of the entrepreneurship intention, which is denoted by EI_j for each student.

Each variable has different impacts. Therefore, it is important to weight each variable by its impact. We denoted the weight of variable *i* by w_i, for which *i* is distributed as follows:

- i=1 for the variable *PI*, i=2 for the variable *IR*, i=3 for the variable NA
- i=4 for the variable *SA*, i=5 for the variable *EC*, i=6 for the variable AR

The weight of variable i is equal to the Cronbach α calculated by *MES*.

It is important to note that there are two types of scores for each student $j : EI_j^p$ and EI_j. The first is the preliminary score; this is the score before applying the evaluation of the "Student evaluation rank" (*SER_j*). This score is calculated after the course training to know the course's impact on students. Moreover, the second is calculated after the evaluation of the "Student evaluation rank" *(SER_j)*; thus, we can observe the impact of the variable *SER_j* on the entrepreneurship intention.

Remark

The training on entrepreneurship provided by the instructor directly impacts students' intention to invest and to be entrepreneurs. The impact of the training course can be evaluated by all of the following 6 variables: *IP_j*, *IR_j*, *NA_j*, *SA_j*, *EC_j* and *AR_j*. The evaluation of EI_j^p is provided by the previous 6 variables.

However, the variable *SER_j* is required before training and depends only on the student requirement. After calculating EI_j^p, we will calculate the entrepreneurship intention for each student, *EI_j*.

Proposition

The preliminary score EI_j^p, which represents the score before applying the impact of the student weighting (student evaluation rank), is given by the formula:

$$EI_j^p = \frac{\left[w_1 \times IP_j + w_2 \times IR_j + w_3 \times NA_j + w_4 \times SA_j + w_5 \times EC_j + w_6 \times AR_j \right]}{\sum_{i=1}^{6} w_i} \times 100 \quad (1)$$

Proof

Each variable has a weight w_i; therefore, all the variables do not have the same impact on the intention classification and the ranking. Let us explain the calculation of the formula solely for variable *IP_j*. Indeed, $w_1 \times IP_j$ is the real weighted value of the variable *IP_j*. We have 6 variables and each variable has a properly weighted impact.

Example 1

Student "X", who has an index of 88, provides his responses to the questioner after training; these are as follows:

"X" has no idea or no business project, "X" has no information retrieval, "X" has the need for achievement

"X" seeks autonomy, "X" has no entrepreneurship skills, "X" has accessibility to resources

The responses provided by student "X" will be assigned to variables as follows (based on Cronbach's alpha):

$$IP_j = 0; \quad IR_j = 0; \quad NA_j = 1; \quad SA_j = 1; \quad EC_j = 0; \quad and \ AR_j = 1$$

Assume that the dispersion of the variable weights is given as follows:

w_1=0.67; w_2=0.63; w_3=0.8; w_4=0.63; w_5=0.81; w_6=0.92

Applying equation 1, we have:

$$EI_{88}^p = \frac{[0.67 \times 0 + 0.63 \times 0 + 0.8 \times 1 + 0.63 \times 1 + 0.81 \times 0 + 0.92 \times 1]}{\sum_{i=1}^{6} w_i} \times 100$$

$$EI_{88}^p = \frac{[0.67 \times 0 + 0.63 \times 0 + 0.8 \times 1 + 0.63 \times 1 + 0.81 \times 0 + 0.92 \times 1]}{4.46} \times 100$$

$$EI_{88}^p = \frac{2.35}{4.46} \times 100 = 52.69$$

The value SER_j provides a scalar that acts as an amplifier of score EI_j^p. Therefore, SER_j will provide an amplifier that is denoted by Amp_j, which will be multiplied by EI_j^p to obtain EI_j:

$$EI_j = Amp_j \times EI_j^p \quad (2)$$

We propose the values of Amp_j are as follows: 0.7; 0.9; 1.3; 1.4 and 1.6.
The values of Amp_j described previously will be classified as follows:

If $SER_j \leq 3$, Amp_j=0.7; If $3 < SER_j \leq 5$, Amp_j=0.9; If $5 < SER_j \leq 7$, Amp_j=1.3; If $7 < SER_j \leq 8$, Amp_j=1.4; If $8 < SER_j \leq 10$, Amp_j=1.6.

Therefore, the calculation of EI_j, applying equation 2, will be as follows:

- If $SER_j \leq 3$, EI_j=0.7$\times EI_j^p$; If $3 < SER_j \leq 5$, EI_j=0.9$\times EI_j^p$; If $5 < SER_j \leq 7$, EI_j=1.3$\times EI_j^p$
- If $7 < SER_j \leq 8$, EI_j=1.4$\times EI_j^p$; If $8 < SER_j \leq 10$, EI_j=1.6$\times EI_j^p$

The value of the entrepreneurship intention EI_j is in the range, [0-100].

Proposition

If Amp_j=1.6 and $EI_j^p \geq 62.5$, then EI_j=100; If Amp_j=1.4 and $EI_j^p \geq 71.42$, then EI_j=100; If Amp_j=1.3 and $EI_j^p \geq 76.92$, then EI_j=100.

Proof

Assume that $SER_j = 10$ and $EI_j^p = 80.82$. Since $SER_j = 10$, based on the classification described below, we determine the amplifier is as follows: $Amp_j = 1.6$.

For this case, $EI_j = 1.6 \times 80.82 = 129.31 > 100$. To avoid this case, we must transform all values greater than 100 to 100, because the greatest value is 100. The greatest amplifier is 1.6 and the highest value of EI_j^p is 100. Therefore, in this case, $EI_j = 160$. This result is the greatest value EI_j can have. Therefore, to transform all values greater than 100, we can apply the rule of three $EI_j^p = \dfrac{(100 \times 100)}{160} = 62.5$. Thus, for all values of EI_j^p that are greater or equal to 62.5, we directly assign $EI_j = 100$.

Applying the same equation, if $Amp_j = 1.4$, $EI_j^p = \dfrac{(100 \times 100)}{140} = 71.42$; if $Amp_j = 1.3$, $EI_j^p = \dfrac{(100 \times 100)}{130} = 76.92$

To know the intention of students in entrepreneurship using the value given by (2), we propose the entrepreneurship intention range below in Table 1:

#	Intention description	EI_J
	Table 1	
	Entrepreneurship Intention Range	
1	No intention and training did not impact	[0-30]
2	No intention	[30-40]
3	Near to beginning to have an intention	[41-49]
4	Minimal intention	[50-57]
5	Barely acceptable intention	[58-62]
6	Adequate intention	[63-67]
7	Satisfactory intention	[68-72]
8	Good intention	[73-77]
9	Very good intention	[78-82]
10	Excellent intention	[83-89]
11	Exceptional intention	[90-100]

Therefore, Table 1 will be used as a reference to classify all levels of the entrepreneurship intention. In Table 1 cited above, there are only 3 classes described in which EI_J is less than 50. We choose to assign importance to the other portion of the classes in which has an EI_j greater or equal to 50. Therefore, it is important to know the range of students who have an EI_j greater than or equal to 50. Thus, these students can ameliorate their skills to be entrepreneurs.

Example 2

Here, we use the same 88 indexed students described in Example 1. These students have the preliminary score of $EI_{88}^p = 52.69$.

Assume that $SER_{88} = 8$; therefore, $Amp_j = 1.4$. Thus, the value of EI_J is given by:

$EI_{88} = 1.4 \times 52.69 = 73.76$

Referring to Table 1 to determine the entrepreneurship intention range, the student "X" have "Good intention".

The explanatory entrepreneurship intention range in Table 1 is provided as follows:

No intention and training did not impact: Attending the training does not impact the entrepreneurship intention of students. In addition, students attend the training course with no intention for entrepreneurship. These students prefer to choose the public function to work in the future.

No intention: Students have no entrepreneurship intention to create an enterprise before the course training and after.

Near to beginning to have an intention: Students have no entrepreneurship intention to create an enterprise prior to the course training. After attending training, course students can change their opinion to create their owner enterprise.

Minimal intention: The intention to be an entrepreneur is in the minimal range. This statement means that the student passes the ranges of students having no intention.

Barely acceptable intention: Students have a barely acceptable intention.

Adequate intention: Students have entrepreneurship intention to create enterprise and can ameliorate skills to be entrepreneur.

Satisfactory intention: The entrepreneurship intention of a student is satisfactory for selection by managers if there are certain posted proposals for projects.

Good intention: Students have suitable skills and backgrounds to launch the creation of an enterprise. The course training impact positively in the intention of student.

Very strong intention: Students have suitable skills and can immediately launch their own project.

Excellent intention: The entrepreneurship intention is at a very high level. Thus, a student can begin to fund an enterprise and generate ideas related to the success of their enterprise. These students will become future entrepreneurs with excellent level to become success stories.

Exceptional intention: Students can launch their projects directly after completing their training courses; they may be successful examples of entrepreneurs who have very performant skills. The probability of maintaining a successful project and having no instance of failure in the future is very high.

Model without amplifier

In this model, the variable SER_j do not consider a particular variable (as amplifier), but it will consider all remaining 6 variables in the model. Let w_7 be the weight of the variable SER_j.

Inspired by equation 1, we can add SER_j as the seventh variable in the model. In this case, the score is described as follows:

$$EI_j = \frac{\left[w_1 \times IP_j + w_2 \times IR_j + w_3 \times NA_j + w_4 \times SA_j + w_5 \times EC_j + w_6 \times AR_j + w_7 \times SER_j \right]}{\sum_{i=1}^{7} w_i} \times 100 \quad (3)$$

The problem in the formula cited above in equation 3 is how to calculate w_7.

Proposition

Let:

- X_i with $i \in \{1,7\}$: Represents the independent variable indexed from 1 to 7.

w_i with $i \in \{1,7\}$: Represents the weight of independent variable indexed i.

- Amp_j the amplifier for student j

$$w_7 = \frac{\sum_{i=1}^{6} w_i \times \sum_{i=1}^{6} w_i X_i Amp_j - \sum_{i=1}^{6} w_i X_i \times \sum_{i=1}^{6} w_i}{X_7 \times \sum_{i=1}^{6} w_i - \sum_{i=1}^{6} w_i X_i Amp_j} \quad (4)$$

Proof

Equation 2 can be writing as follows:

$$EI_j = \frac{\sum_{i=1}^{6} w_i X_i}{\sum_{i=1}^{6} w_i} \times Amp_j \times 100$$

Equation 4 can be writing as follows:

$$EI_j = \frac{\sum_{i=1}^{7} w_i X_i}{\sum_{i=1}^{7} w_i} \times 100,$$

Thus, $\dfrac{\sum_{i=1}^{6} w_i X_i}{\sum_{i=1}^{6} w_i} \times Amp_j = \dfrac{\sum_{i=1}^{7} w_i X_i}{\sum_{i=1}^{7} w_i}$; $\dfrac{\sum_{i=1}^{6} w_i X_i + w_7 X_7}{\sum_{i=1}^{6} w_i + w_7} = \dfrac{\sum_{i=1}^{6} w_i X_i}{\sum_{i=1}^{6} w_i} \times Amp_j$;

$$\left(\sum_{i=1}^{6} w_i X_i + w_7 X_7 \right) \sum_{i=1}^{6} w_i = \left(\sum_{i=1}^{6} w_i + w_7 \right) \left(\sum_{i=1}^{6} w_i X_i \right) Amp_j ;$$

$$w_7 \left[X_7 \sum_{i=1}^{6} w_i - \left(\sum_{i=1}^{6} w_i X_i \right) Amp_j \right] = \sum_{i=1}^{6} w_i \left(\sum_{i=1}^{6} w_i X_i \right) Amp_j - \left(\sum_{i=1}^{6} w_i X_i \right) \sum_{i=1}^{6} w_i$$

$$w_7 = \frac{\sum_{i=1}^{6} w_i \times \sum_{i=1}^{6} w_i X_i Amp_j - \sum_{i=1}^{6} w_i X_i \times \sum_{i=1}^{6} w_i}{X_7 \times \sum_{i=1}^{6} w_i - \sum_{i=1}^{6} w_i X_i Amp_j}$$

Example 3

As described in the previous proposition, the calculation of w_7 depends on X_7 and Amp_j.

Therefore, for each value of Amp_j and X_7, we calculate w_7. We have 5 values of amplifier Amp_j. For each value, we fix X_7 and calculate w_7 as shown in Table 2:

Table 2		
WEIGHT OF SER_j		
Amp_j	X_7	W_7
0.7	2	-0.432
0.9	4	-0.066
1.3	6	0.132
1.4	8	0.129
1.6	9	0.172

In equation 2, we have: $EIj = Ampj \times EI_j^p$. Therefore, if Amp_j=0.7 or Amp_j=0.9, the value of EI_j will be less than EI_j^p. In this same case (Amp_j=0.7 or Amp_j=0.9), we have w_7<0; this explains the value of intention obtained by the 6 variables will be decreased by $w_7 X_7$.

Example 4

Here, we use the same 88 students indexed and described in example 1 and example 2. This student has $EI_{88} = 73.76$; $SER_{88} = 8$, $Amp_j = 1.4$ for this case, we refer to Table 2 in Example 3, the value of $w_7 = 0.129$

Applying Equation 3:

$$EI_{88} = \frac{[0.67 \times 0 + 0.63 \times 0 + 0.8 \times 1 + 0.63 \times 1 + 0.81 \times 0 + 0.92 \times 1 + 0.129 \times 8]}{\sum_{i=1}^{7} w_i} \times 100 = \frac{3.385}{4.589} \times 100 = 73.76$$

Referring to Table 1 to determine the entrepreneurship intention range, student "X" has a "Good intention".

- It is important to note that model 1 in example 2 provides the same result.

MANAGER SATISFACTION MODEL

In this section, we present another model. The model's objective is to satisfy the manager using certain thresholds established by him in advance. Occasionally, the director wants to target students who have a high evaluation rank.

Therefore, for each variable excluding SER, the manager provides an appropriate value of the threshold denoted by TH_S. This value will be applied to provide the score that satisfies the manager:

TH_S(**IP**): The threshold of the idea or the business project; TH_S(IR): The threshold of information retrieval; TH_S(NA): The threshold of the need for achievement; TH_S(SA): The threshold of the search for autonomy; TH_S(EC): The threshold of the entrepreneurial curriculum; TH_S(AR): The threshold of the accessibility to resources.

The impact of each variable depends directly on the impact of students, as measured by the Student evaluation rank. Therefore, we have calculated the "satisfied value" for each variable.

In our work, all variables excluding *SER* are binary variables: 0, 1. Therefore, the threshold of each variable will be calculated based on SER.

This satisfied value for the variable IP is given by: $IP_j^s = SER_j \times IP_j$; the threshold is TH_S (IP_j^s).

Example 5

We calculate all satisfied values for the remaining variables using the same method:
$IR_j^s = SER_j \times IR_j$; $NA_j^s = SER_j \times NA_j$; $SA_j^s = SER_j \times SA_j$; $EC_j^s = SER_j \times EC_j$; $AR_j^s = SER_j \times AR_j$.

The threshold of each variable is in the range, $[0-10]$: $TH_S\left(IR_j^s\right)$; $TH_S\left(NA_j^s\right)$; $TH_S\left(SA_j^s\right)$; $TH_S\left(EC_j^s\right)$; $TH_S\left(AR_j^s\right)$.

The function that returns the ratio of manager satisfaction to each variable is denoted by $Stf(IP_j^s)$.

Now, we can calculate the manager satisfaction in each variable as shown:

$$Stf\left(IP_j^s\right) = \frac{IP_j^s}{TH_S\left(IP_j^s\right)}, Stf\left(IR_j^s\right) = \frac{IR_j^s}{TH_S\left(IR_j^s\right)}, Stf\left(NA_j^s\right) = \frac{NA_j^s}{TH_S\left(NA_j^s\right)}, Stf\left(SA_j^s\right) = \frac{SA_j^s}{TH_S\left(SA_j^s\right)},$$

$$Stf\left(EC_j^s\right) = \frac{EC_j^s}{TH_S\left(EC_j^s\right)}, Stf\left(AR_j^s\right) = \frac{AR_j^s}{TH_S\left(AR_j^s\right)}$$

The entrepreneurship intention for student j that satisfies the manager applying his threshold is denoted by EI_j^s:

$$EI_j^s = \frac{Stf\left(IP_j^s\right) + Stf\left(IR_j^s\right) + Stf\left(NA_j^s\right) + Stf\left(SA_j^s\right) + Stf\left(EC_j^s\right) + Stf\left(AR_j^s\right)}{6} \times 100 \tag{5}$$

Example 6

For the student indexed at 73, let $SER_{73} = 8$ and
$IP_{73} = 1$; $IR_{73} = 0$; $NA_{73} = 1$; $SA_{73} = 1$; $EC_{73} = 0$; $and AR_{73} = 1$.

We calculate the satisfaction of each variable:

$$IP_{73}^s = 8 \times IP_{73} = 8; IR_{73}^s = 8 \times IR_{73} = 0; NA_{73}^s = 8 \times NA_{73} = 8; SA_{73}^s = 8 \times SA_{73} = 8; EC_{73}^s = 8 \times EC_{73} = 0;$$
$$AR_{73}^s = 8 \times AR_{73} = 8.$$

Let the threshold be as follows:

$$TH_S\left(IP_j^S\right)=5; TH_S\left(IR_j^S\right)=6\; ;\; TH_S\left(NA_j^S\right)=6\; ;\; TH_S\left(SA_j^S\right)=7\; ;\; TH_S\left(EC_j^S\right)=5\; ;\; TH_S\left(AR_j^S\right)=8\;.$$

Now, calculate the value given by $Stf\left(IP_j^S\right)$:

$$Stf\left(IP_{73}^S\right)=\frac{8}{5}=1.6\; ; Stf\left(IR_{73}^S\right)=\frac{0}{6}=0; Stf\left(NA_{73}^S\right)=\frac{8}{6}=1.33; Stf\left(SA_{73}^S\right)=\frac{8}{7}=1.14; Stf\left(EC_{73}^S\right)=\frac{0}{5}=0$$

$$Stf\left(AR_{73}^S\right)=\frac{8}{8}=1$$

Applying Equation 7:

$$EI_j^S=\frac{1.6+0+1.33+1.14+0+1}{6}\times100=\frac{5.07}{6}\times100=84.5\%$$

For this example, the manager satisfaction is 84.5% for the entrepreneurship intention for the student indexed at 73.

Example 7

Now, considering the student indexed at 45 who have the same value of variables as student 73 in example 6; however, he has $SER_{45}=3$.

We calculate the satisfaction of each variable:

$$IP_{45}^S=3\times IP_{45}=3; IR_{45}^S=3\times IR_{45}=0;\; NA_{45}^S=3\times NA_{45}=3;\; SA_{45}^S=3\times SA_{45}=3;\; EC_{45}^S=3\times EC_{45}=0;$$
$$AR_{45}^S=3\times AR_{45}=3\;.$$

$$Stf\left(IP_{45}^S\right)=\frac{3}{5}=0.6; Stf\left(IR_{45}^S\right)=\frac{0}{6}=0; Stf\left(NA_{45}^S\right)=\frac{3}{6}=0.5; Stf\left(SA_{45}^S\right)=\frac{3}{7}=0.42; Stf\left(EC_{45}^S\right)=\frac{0}{5}=0$$

$$Stf\left(AR_{45}^S\right)=\frac{3}{8}=0.37$$

$$EI_j^S=\frac{0.6+0+0.5+0.42+0+0.37}{6}\times100=\frac{5.07}{6}\times100=31.5\%$$

The manager satisfaction is 31.5% for the entrepreneurship intention for the student indexed at 45.

CONCLUSION

The objective of our study is to describe, explain and predict, in a context of entrepreneurship education, a major phase of the entrepreneurial process: The entrepreneurial intention. The entrepreneurial intention is deduced from a hypothetical-deductive model in which four groups of variables are retained. The first group contains entrepreneurial attitudes specified by the existence of an idea or business project and research information. The second group consists of the motivation for the creation of companies expressed in the need for achievement and the search for autonomy. The third group contains the entrepreneurial curriculum. The latter group includes

the perceptions of the availability of resources (financial, information and advice). This detection process is a management tool available to officials in charge of support systems and who support business creation. This process will make it easier to backup and support, by conventional means (information, personal advice, financial and logistics), projects and ideas towards formalization and a maturity necessary to implement them. Another form of the operational capability of this selection process is to provide an analytical framework available to officials to recruit potential candidates. This model represents a tool that facilitates the analysis of the profiles for the recruitment of students who want to take the entrepreneurial path. Our contributions are likely to consolidate the guidelines adopted by different agencies (banks, chambers, associations and incubators) in the implementation of programs and specialized training and support for business creation. These contributions support the idea that the higher education system can act as an agent in promoting entrepreneurship by providing a balance between the social demands in business creation and economic needs. Finally, we must note that the results must be seen with caution. The reduced size of the sample, may contribute to the lack of statistical significance. Also, the lack of attention to the EE components and attempts to evaluate EE influence on students' previous EI, which by their nature relate to the past and cannot be influenced by the EE in the present time, is a serious limitation to these results. These limitations should be avoided in future studies in order to achieve results with more statistical robustness.

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