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# The Effect of an Entrepreneurial Training Programme on Entrepreneurial Traits and Intention of Secondary Students

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## 1. Introduction

One of the earliest discussions in entrepreneurship literature is whether to be an entrepreneur can be learned or not. This discussion reflects two extreme positions: in one side there are those who defend that “entrepreneurs are born”, on the other side there are those who believe that “entrepreneurs can be made”. In the confront of these positions it seems to win the line that defends that it is possible to learn to be an entrepreneur making use of differentiated policies and instruments in education. The support for this view comes from a widely literature review of entrepreneurship and business creation, which suggest important links between entrepreneurship education, business creation and entrepreneurial performance.

Thus, entrepreneurship education arises as a crucial tool in the development of the competences needed to new business creation and several European governments have been promoting the creation of courses to teach entrepreneurship. It is believed that the development of entrepreneurial talent is important to sustain competitive advantages in an economic system driven by innovation. Therefore, encouragement and support of start-up new ventures is a major public policy concern because of their impact on economic growth, particularly job creation (Raposo and Paço, 2011). This concern is especially legitimate in a crises period where new challenges arise in relation to economic development. In fact, as stated by Rae (2010) the international financial and economic crisis in 2008 produced a new economic era with significant implications for enterprise and entrepreneurship education. These implications affect the outcomes and applications of learning and the power balance between learners, institutions and educators and one of the difficulties of developing an integrative process model of entrepreneurship education lies in the fact that lines between actor roles are not always clear (Wood, 2001).

Furthermore, as stated by Wood (2001), 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 and 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.

Several European programmes have been identified as best practices, and presented for instance at the Oslo Conference “Entrepreneurship Education in Europe: Fostering Entrepreneurial Mindsets through Education and Learning”, being one of them the student company programme “Empresa Joven Europea” (EJE, meaning “European Young Enterprise”). This programme was created and developed in the Spanish region of Asturias, targeted at youngster from 14 to 16 years old, and consists on the creation of a mini company in class. This company has real business with real customers (preferentially from another country) and real money (Rodrigues *et al.*, 2008).

The purpose of this chapter is to evaluate the effect that this educational programme has on the students that attend it.

The chapter is divided in the following major sections. The first section reviews the literature about entrepreneurship education, specifically in what concerns to the psychological and behavioural approach. The second section presents the methodology. The third section discusses the results. Finally, the last section discusses some practical implications and presents some conclusions.

## 2. Literature review

Despite the discussion whether entrepreneurs are born or made, most accept that entrepreneurship, or certain facets on it, can be taught, or at least encouraged, by entrepreneurship education (Kuratko, 2005).

There is a strong case to be made for the benefits of entrepreneurship education, for a variety of potential stakeholders (Wood, 2011). In this sense, a number of benefits are available to those who choose to be directly involved in the process.

According to Rae (2010) education is vital in creating understanding of entrepreneurship, developing entrepreneurial capabilities, and contributing to entrepreneurial identities and cultures at individual, collective and social levels. More, the role of education is to shape ideas of what it means to be an entrepreneur, not to promote an ideology of entrepreneurship, and to create critical alertness that contributes to the responsibility of entrepreneurs to society.

To Bakotic and Kruzic (2010), entrepreneurship educational programmes contribute to increase the perception of important entrepreneurship aspects, as well as create a real vision of entrepreneurship problems. For this, the authors advocate the need for students’ permanent education which should be focused on additional development of their competences and required skills needed later in the market context.

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

and 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 programmes (Peterman and Kennedy, 2003; Fayolle et al., 2006; Raposo, Paço and Ferreira, 2008; Raposo et al. 2008; Rodrigues et al., 2010). Other studies find evidence that the effects are negative (Oosterbeek et al., 2010; von Graevenitz et al., 2010). There may be methodological reasons why the literature has not generated consistent assessments as of yet.

There is some evidence that entrepreneurship education has a positive role to play in student entrepreneurial intention (Pittaway and Cope, 2007; Florin et al., 2007; Raposo et al., 2008; Nabi et al., 2010). Henry et al. (2003) conclude that entrepreneurship programmes can be effective and yield significant benefits for aspiring entrepreneurs. However, the impact of university education on entrepreneurship has been questioned, especially with regard to impact on the transition from intentionality to entrepreneurial behaviour or impact on entrepreneurial success (Nabi et al., 2010).

According to Pittaway and Cope (2007) entrepreneurship education has had an impact on student propensity and intentionality. However, what is unclear is the extent to which such education impacts on the level of graduate entrepreneurship or whether it enables graduates to become more effective entrepreneurs.

According to Nabi et al. (2010) the entrepreneurial intention research tells us very little about: (i) the process of personal change in relation to attitudes towards entrepreneurship brought about by higher education; (ii) the transition from student to entrepreneur; and (iii) it fails to explain the low follow-up on entrepreneurial intent.

In spite of the fact that there are a number of studies on several aspects of start-up activities, one aspect that is also not very clear is whether the activities that lead to the possibility of starting a new business or venture correspond to the content of course work in entrepreneurship classes. Because of this it is necessary to reflect about the relevance of what educators are teaching in the classroom, and more particularly, if start-up activities are effectively reflected in entrepreneurship course content and delivery (Edelman et al., 2008).

Garavan and Barra (1994) state that the most commonly referred aims of entrepreneurship education and training programmes are the following: i) to get useful knowledge of entrepreneurship; ii) to acquire skills in the use of techniques, in the analysis of business atmospheres, and in the synthesis of action plans; iii) to identify and stimulate entrepreneurial skills; iv) to develop empathy and support for all aspects of entrepreneurship; v) to develop attitudes towards change and uncertainty; and vi) to encourage new start-ups.

These entrepreneurship training programmes will contribute to the stimulation of entrepreneurial abilities. Hisrich and Peter (1998) say that the various skills required by entrepreneurs can be categorised as: technical skills, business management skills and personal entrepreneurial skills. Henry et al. (2005) refer that the development these personal skills differentiates an entrepreneur from a manager.

Thus, very different skills, abilities and knowledge may be required to fulfil these different aims of entrepreneurship education programmes. Therefore, while many of the aspects of entrepreneurship can be taught, it also needs a certain attitude towards taking risks.

However, some of these programmes only connect the entrepreneurship to new venture creation and business management and educate about entrepreneurship and enterprise, rather than educating for entrepreneurship, and only rarely the focus is in the development of their students' skills, attributes and behaviours (Kirby, 2004).

Also regarding the pedagogy of practice in the entrepreneurship method, Neck and Greene (2011) defend real-world venture experiences and suggest games and simulations, designed-based learning, by observing the world from diverse point of views, and reflective practice to give students time to think and mature the ideas. These authors proposed the concept of teaching entrepreneurship as a method that is different from the current way in which it has been taught, that is, as a process of identifying opportunities and implement the business. This method is "teachable, learnable, but it is not predictable ... is people-dependent but not dependent on a type of person...goes beyond understanding, knowing and talking and demands using, applying and acting". Essentially it requires practice and implies that educators focus their selves in helping the students to understand, develop and train the abilities. Thus the assumptions of the method are the following: (i) applied to beginners and experts; (ii) is inclusive and wide-ranging; (iii) needs constant practice; (iv) can be used for a volatile environment.

The responsibility for teaching entrepreneurship does not rest wholly with the educational world. In fact, at public level there is a need for the creation of an environment that will promote entrepreneurship (Murray and White, 1986).

In this sense Peterman and Kennedy (2003) emphasise that entrepreneurial activities need to be supported by school culture. These activities should be integrated into the programmes of the institution from an early stage. Thus, in entrepreneurship education literature, primary and secondary school has received growing attention and enterprise education programmes in secondary school were confirmed to be important for later entrepreneurial intentions. It is believed that the ideal stage to acquire basic knowledge about entrepreneurship and to foster a positive attitude towards entrepreneurship is during childhood and adolescence years (Peterman and Kennedy, 2003; Paço et al., 2011a; Paço et al., 2011b).

In fact, some works advance the idea that early formal entrepreneurship education affects the attitudes of students, influencing them in the direction of their future career, and affect their propensity for entrepreneurship when they become adults. Florin et al. (2007) stated that the students need to perceive that the application of the skill is feasible and that an entrepreneurial approach is desirable and a focus on developing a positive attitude toward entrepreneurial behaviour appears to be central to entrepreneurship education. The identification and study of students' entrepreneurial characteristics assumes special relevance for the development of adequate educational programmes related with entrepreneurship and business creation.

To measure the entrepreneurial intention probably it is necessary to incorporate insights from both psychological and behavioural approaches.



Several authors agree that psychological traits are good predictors of entrepreneurial orientation (Park and Ku, 2008)

In general, the main psychological characteristics associated with entrepreneurship in the literature are: locus of control, propensity to take risk, self-confidence, need for achievement, tolerance to ambiguity and innovativeness.

For instance, Bygrave (1989) presented a model that includes need for achievement, internal locus of control, tolerance for ambiguity and risk-taking propensity as determinants of entrepreneurial intention. Moreover, Robinson et al. (1991), in their research, find that achievement, innovativeness, locus of control and self-confidence could be predicting entrepreneurial attitudes.

Robinson et al. (1991) state that internal control leads to a positive entrepreneurial attitude and most students who receive entrepreneurial formation may develop a higher level of control and self-efficiency.

Ho and Koh (1992) refer that self-confidence is an entrepreneurial characteristic and that it is related to other psychological characteristics, such as locus of control, propensity to take risk and tolerance of ambiguity. Robinson et al. (1991) have found entrepreneurs to have a higher degree of self-confidence relative to non-entrepreneurs.

According to Koh (1996) these evidences should be expected, given the understanding of psychological traits that are unique to entrepreneurs.

So, a challenge is to understand if entrepreneurship education can have repercussions both on the level of cognitive development and on the level of the youngsters' psychological development.

In what concerns to the behavioural characteristics associated with entrepreneurship, the literature reinforces the importance of the perceived behavioural control, the personal attitude and the subjective norm. These constructs were presented by Ajzen (1991) that defends that any behaviour requires a certain amount of planning and it can be predicted by the intention to adopt that behaviour (Theory of Planned Behaviour - TPB).

Li (2006) argues that the TPB is very useful and it provides a sound theoretical framework toward understanding the antecedents of entrepreneurial intentions. Also in their research, Souitaris et al. (2007) used the TPB in order to test the impact of entrepreneurship education on attitudes and intention of science and engineering students, applying empirically the theory of planned behaviour.

Subjective norm is defined as an individual's perception of whether people think the behaviour should be performed. Hence, overall subjective norm can be expressed as the sum of the individual perception and motivation assessments for all relevant aspects. In other words is the influence of people in one's social environment on his/her behavioural intentions. The people's beliefs weighted by the importance of site their opinions will influence one's behavioural intention (Ajzen and Fishbein, 1973).

In their study Souitaris et al. (2007) present a possible interpretation of the significant raise of subjective norm after the entrepreneurship educational programme: the small increase in the "expectations of significant others" could reflect the creation of a new circle of

entrepreneurial-minded friends from the programme. The larger increase in the “motivation to comply” could be due to a consciousness that their family and friends were right about this career possibility, or to a feeling that they had to comply with the significant others’ expectations after investing time and effort in the course.

Kolvereid (1996) argues that the greater a person’s perceived behavioural control, the stronger is that person’s intention to become self-employed. In turn, this perceived control corresponds to perceived feasibility, one of the key factors of self-efficacy. According to Fayolle (2005) self-efficacy has been found to significantly influence entrepreneurial behaviour and supporting entrepreneurship students’ self-efficacy is therefore seen as a key tool in entrepreneurship education to enhance students’ entrepreneurial intentions (Raposo, et al., 2008).

Thus, several empirical results in entrepreneurship broadly confirmed the theory’s predictions regarding the relationship between attitudes (attitude towards self-employment, subjective norm and perceived behavioural control) and intention towards self-employment (Kolvereid, 1996). However, due the failure in some studies to find a link between subjective norm and intention, more studies with more reliable measures are needed.

### 3. Methodology

The study consisted on an experimental design with pre and post treatment inquiries.

We chose the two classes of the 9th grade which were to attend the entrepreneurship education programme EJE<sup>1</sup>. The sample was composed by 48 students ranging from 14 to 15 years old.

The EJE programme is based on an extensive network of “mini-companies” exchanging information, catalogues and products. It includes all stages to the creation, development and dissemination of a firm inside the school, where the students have the opportunity to interact with another national or foreign school. So, this programme is based on practical experience where students have the opportunity to display a wide array of social, personal and business skills.

Using a scale to measure entrepreneurial intention and related constructs (Liñan and Chen, 2007), , and Koh’s (1996) scales to measure psychological traits (Table 1), students were surveyed before starting the programme.

The constructs included in the questionnaire were Entrepreneurial Intention (EI), behavioural constructs - Perceived Behaviour Control (PBC), Personal Attitudes (PA), Subjective Norms (SN) (see table 1) and psychological constructs - Locus of Control (LC), Propensity to Risk (PR), Self Confidence (SC), Need for Achievement (NA), Tolerance to Ambiguity (TA) and Innovativeness (IN) (see table2)

One year later, after the completion of the programme, the same students were surveyed again with the same tool. There was a high mortality rate in the sample for the second data collection moment. Only 37 of the original 48 completed valid questionnaires, which represents a mortality rate of 22.9%.

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<sup>1</sup> <http://www.valnaloneduca.com/eje>

Construct	Items
EI	I am ready to do anything to be an entrepreneur My professional goal is to become an entrepreneur I will make every effort to start and run my own firm I am determined to create a firm in the future I have very seriously thought of starting a firm I have the firm intention to start a firm some day
PBC	To start a firm and keep it working would be easy for me I am prepared to start a viable firm I can control the creation process of a new firm I know the necessary practical details to start a firm I know how to develop an entrepreneurial project If I tried to start a firm, I would have a high probability of succeeding
PA	Being an entrepreneur implies more advantages than disadvantages to me A career as entrepreneur is attractive for me If I had the opportunity and resources, I'd like to start a firm Being an entrepreneur would entail great satisfactions for me Among various options, I would rather be an entrepreneur
SN	If you decided to create a firm, would people in your close environment approve of that decision? Indicate from 1 (total disapproval) to 5 (total approval). Your close family Your friends Your colleagues

Table 1. Entrepreneurial Intention, Perceived Behaviour Control, Personal Attitudes, Subjective Norms

Data was analyzed using SPSS software (IBM SPSS, 2010). Descriptive statistics of the summated scales and indicators and t-test for equality of means were performed, as well as Levene's Test for the equality of variances, considering both moments: *before* and *after* the training.

The data collected in both moments will be analysed in the next section. It is expected that scores are higher in the second measurement, revealing that the programme had an effect on students.



Construct	Items
IN	<p>I avoid changing the way things are done.<sup>R</sup></p> <p>While others see nothing unusual in the surroundings, I am able to perceive in it opportunities for business.</p> <p>I am able to beat around difficulties through strokes of ingenuity and resourcefulness.</p> <p>I believe there are always new and better ways of doing things.</p> <p>I find it difficult to come up with new, wild or even crazy ideas.<sup>R</sup></p>
LC	<p>People's misfortunes result from the mistakes they make.<sup>R</sup></p> <p>Many of the unhappy things in people's lives are partly due to bad luck.<sup>R</sup></p> <p>I do not enjoy outcomes, no matter how favourable, if they do not stem from my own efforts.</p> <p>I am willing to accept both positive and negative consequences of my decisions and actions.</p> <p>It is I, not luck nor fate, which influence the outcome of events in my life.</p> <p>I cannot wait and watch things happen; I prefer to make things happen.</p> <p>I believe success is a product of luck and fate rather than personal effort.<sup>R</sup></p>
NA	<p>I take pleasure in responding to challenges, so competition makes me work harder.</p> <p>I do not like a well-paid job if I cannot derive a sense of achievement and satisfaction from it.</p> <p>I want to earn only as much as possible to attain a comfortable way of life.<sup>R</sup></p> <p>I do not mind routine, unchallenging work if the pay is good.<sup>R</sup></p> <p>When I do something, I see to it that it does not only get done but is done with excellence.</p> <p>I hire people on the basis of friendship and other relations (for their loyalty) rather than on the basis of competence.</p>
PR	<p>I do not care if the profit is small so long as it is assured and constant.<sup>R</sup></p> <p>I am willing to take high risks for high returns.</p> <p>I do not mind working under conditions of uncertainty as long as there is a reasonable probability of gains from it for me.</p> <p>I do not fear investing my money on a venture whose dividends I have calculated.</p> <p>I will consider a risk worth taking only if the probability for success is 60% or more.<sup>R</sup></p> <p>I fear moving into a new undertaking I know nothing about.</p>
SC	<p>I accomplish most when I am alone, under no direct supervision of anyone.</p> <p>I have confidence in my ability to achieve.</p> <p>I have weaknesses and fears that are far from being resolved.<sup>R</sup></p>
TA	<p>Job security is extremely important to me.<sup>R</sup></p> <p>A good job is one with clear instructions as to what is to be done and how it is to be done.<sup>R</sup></p> <p>I enjoy working in unstructured situations.</p> <p>I have a work schedule which I try to follow very carefully.<sup>R</sup></p> <p>It bothers me when several people have over-lapping responsibilities.<sup>R</sup></p> <p>In unclear situations, I like to make decisions and take the "lead".</p>

Table 2. Locus of Control, Propensity to Risk, Self Confidence, Need for Achievement, Tolerance to Ambiguity and Innovativeness.

#### 4. Results

As a first step, descriptive statistics of the summated scales and indicators were produced, as shown on Table 3 (summated scales), and Table 4 (EI indicators).

Table 3 shows very similar means in the two periods. But in what concerns to data dispersion, in all constructs there is a rise in standard deviations, which can mean that the EJE programme made students more different among them. The training programme seems to have the effect of parting the “weed from the wheat” in terms of entrepreneurial traits, entrepreneurial intention, and related constructs.

Construct <sup>2</sup>	Before the training			After the training		
	n	Mean	Std. Deviation	n	Mean	Std. Deviation
PA	48	3.288	0.573	37	3.205	.745
PBC	48	3.191	0.532	37	3.236	.688
SN	48	3.701	0.608	37	3.820	.612
EI	48	2.840	0.631	37	2.644	.781
LC	48	3.336	0.475	32	3.455	.544
PR	48	2.990	0.388	33	2.778	.467
SC	48	3.382	0.485	33	3.374	.524
NA	48	3.490	0.487	32	3.396	.655
IN	48	3.229	0.454	33	3.364	.513

Table 3. Descriptive Statistics

	Before the training			After the training		
	n	Mean	Std. Dev.	n	Mean	Std. Dev.
I am ready to do anything to be an entrepreneur	48	2.770	0.881	37	2.57	0.899
My professional goal is to be an entrepreneur	48	2.290	0.798	37	2.35	0.857
I will make every effort to start and run my own business	48	3.620	0.841	37	2.92	0.894
I am determined to create a business venture in the future	48	2.600	0.962	37	2.68	0.818
I have serious doubts about ever starting my own business <sup>3</sup>	48	2.920	0.942	37	2.70	1.051
I have a very low intention of ever starting a business <sup>3</sup>	48	2.830	0.996	37	2.65	1.086

Table 4. Descriptive Statistics - EI indicators

<sup>2</sup> PA - Personal Attitudes; PBC - Perceived Behaviour Control; SN - Subjective Norms; EI - Entrepreneurial Intention; LC - Locus of Control; PR - Propensity to Risk; SC - Self Confidence; NA - Need for Achievement; TA - Tolerance to Ambiguity; IN - Innovativeness.

<sup>3</sup> Inverted formulation, rescaled for analysis.

Indicators of EI, as shown in Table 4, also present similar means in both periods. And again there is a rise in the majority of standard deviations, pointing to the greater differences among students after the training programme EJE.

Next step was to test for statistically significant differences from one period to the other. Table 5 presents the results of that test for the summated scales, while Table 6 does it for EI indicators.

Considering a confidence level of 95%, Personal Attitudes (PA) and Entrepreneurial Intention (EI) shows differences in the variances of the two periods. Relating this result with the ones presented in Table 3, we can conclude that students are more heterogeneous regarding PA after taking the programme. Students are also more different among them regarding EI after the training programme. A possible explanation is that students get more knowledgeable about what starting up and managing a firm seems to make them more realistic about their entrepreneurial intentions. This is consistent with the results presented in Table 6, which presents one single indicator with significant differences in pre and post programme means: *"I will make every effort to start and run my own business"*. There is a diminution in this indicator after the programme ended. Again, it may be the case that the awareness of the level of effort that an enterprise implies, leads to a discouragement of some students towards the entrepreneurial process. Contrary to constructs results, in Table 6 it can be seen that there are no significant differences in pre and post programme variances, for any of EI indicators.

Construct <sup>4</sup>	Mean		Mean Difference	Levene's Test for Equality of Variances		t-test for Equality of Means		
	Before the training	After the training		F	Sig.	t	df	Sig. (2-tailed)
PA	3.288	3.205	-.082	6.883	<b>.010</b>	.556	65.9	.580
PBC	3.191	3.236	.045	2.534	.115	-.341	83	.734
SN	3.701	3.820	.118	.005	.943	-.888	83	.377
EI	2.84	2.644	-.196	4.109	<b>.046</b>	1.246	68.1	.217
LC	3.336	3.455	.119	.267	.607	-1.037	78	.303
PR	2.99	2.778	-.212	.721	.398	2.220	79	<b>.029</b>
SC	3.382	3.374	-.008	.067	.797	.072	79	.942
NA	3.49	3.396	-.094	1.096	.298	.734	78	.465
IN	3.229	3.364	0.134	.532	.468	-1.242	79	.218

Table 5. Tests for Equality of Means and Variances- Constructs

<sup>4</sup> PA - Personal Attitudes; PBC - Perceived Behaviour Control; SN - Subjective Norms; EI - Entrepreneurial Intention; LC - Locus of Control; PR - Propensity to Risk; SC - Self Confidence; NA - Need for Achievement; TA - Tolerance to Ambiguity; IN - Innovativeness.

The only construct that shows a different mean after the educational programme is Propensity to Risk (PR), which lowers after the programme. Again, this diminution of PR may have to do with the bigger knowledge that students have of the entrepreneurial process, being more sensible when considering risk.

Item	Mean		Mean Difference	Levene's Test for Equality of Variances		t-test for Equality of Means		
	Before the training	After the training		F	Sig.	t	df	Sig. (2-tailed)
I am ready to do anything to be an entrepreneur	2.77	2.57	-0.2	0.29	0.594	1.05	83	0.299
My professional goal is to be an entrepreneur	2.29	2.35	0.06	0.52	0.473	-0.33	83	0.741
I will make every effort to start and run my own business	3.62	2.92	-0.7	0.11	0.742	3.73	83	<b>0,000</b>
I am determined to create a business venture in the future	2.6	2.68	0.08	0.72	0.398	-0.36	83	0.718
I have serious doubts about ever starting my own business <sup>5</sup>	2.92	2.7	-0.22	1.53	0.22	0.99	83	0.326
I have a very low intention of ever starting a business <sup>5</sup>	2.83	2.65	-0.18	1.04	0.311	0.81	83	0.418

Table 6. Tests for Equality of Means and Variances – EI indicators<sup>5</sup>

To access if the training affected awareness of Entrepreneurship as a possible professional career, the results of the question “Have you ever seriously considered becoming an entrepreneur?”, before and after the training were analysed (table 7).

	<i>Before the training</i>	<i>After the training</i>
Yes	29.20%	48.65%
No	70.80%	51.35%
n	48	37

Table 7. Answers to the questions “Have you ever seriously considered becoming an entrepreneur?”

According to Table 7, more than two thirds of students had never thought of becoming an entrepreneur before the educational programme, which is consistent with the proposed unawareness of the entrepreneurial activity. After the programme, almost half the students had seriously considered becoming an entrepreneur, which is a significant change ( $\chi^2(1)=3.378, p<.1$ ).

In order to better understand if students were more convinced to be, or not to be, an entrepreneur after the training, the evolution of subjects with positive EI (scoring above the neutral value 3), and the evolution of the subjects with negative EI (less than 3) Table 8. These results reinforce that the training programme extremes entrepreneurial intentions. Students with positive entrepreneurial intention seem to have higher EI after the training programme. On the other hand, students with negative entrepreneurial intention have lower values of EI after the training programme ( $t(43)=1.912, p<.1$ ).

<sup>5</sup> Inverted formulation, rescaled for analysis.

	<i>Before the training</i>			<i>After the training</i>		
	<b>n</b>	<b>Mean</b>	<b>Std. Deviation</b>	<b>n</b>	<b>Mean</b>	<b>Std. Deviation</b>
Positive EI (>3)	15	3.49	.373	10	3.58	.317
Negative EI (<3)	24	2.37	.450	21	2.10	.507

Table 8. Changes in positive and negative entrepreneurial intentions

## 5. Discussion

Results do not support a clear positive impact of the EJE educational programme on Entrepreneurial Intention of the studied youngsters. Also, the results do not indicate a positive outcome concerning the development of a positive attitude toward entrepreneurial behaviour, as advocated by Florin et al. (2007).

However, Personal Attitudes (PA) and Entrepreneurial Intention (EI) show significant differences in the variances of the two periods, reflecting greater differences among students. In fact, students seem to be more convinced of their choice (both positive and negative alternatives) about following an entrepreneurial career. In fact the percentage of students who seriously considered becoming an entrepreneur rose by 77%.

The only construct that shows a different mean after the educational programme is Propensity to Risk (PR), which lowers after the programme. Therefore, while many of the aspects of entrepreneurship can have been taught, the programme failed, in developing a certain attitude towards taking risks.

Considering the most commonly referred aims of entrepreneurship education and training programmes mentioned by Garavan and Barra (1994), namely: i) to get useful knowledge of entrepreneurship; ii) to acquire skills in the use of techniques, in the analysis of business atmospheres, and in the synthesis of action plans; iii) to identify and stimulate entrepreneurial skills; iv) to develop empathy and support for all aspects of entrepreneurship; v) to develop attitudes towards change and uncertainty; and vi) to encourage new start-ups, this programme clearly did not achieve the last three ones.

A possible explanation for these results is that students are more aware about the process and implications of start up and manage a firm. In other words, they are more realistic about the implications and requirements of entrepreneurship. In this sense we cannot say that the programme did not affect the attitudes of students. It influences them in the direction of their future career, and may affect their propensity for entrepreneurship when they become adults. However this influence is exerted in both directions.

Thus, even if the programme fails to lead students to intend to start-up a business, it enhanced the awareness of entrepreneurship amongst these teenagers, and led them to assess their future as entrepreneurs.

In this sense the positive outcome of the programme was mainly to shape ideas of what it means to be an entrepreneur and to create critical alertness, aspects pointed by Rae (2010) as the main role of entrepreneurship education. This aspect was also pointed by Bakotic and Kruzic (2010), who argue that entrepreneurship educational programmes contribute to

increase the perception of important entrepreneurship aspects, as well as to create a real vision of entrepreneurship problems.

Furthermore, since Entrepreneurial Intentions are based on more realistic perceptions of reality, is not unreasonable to think that the training can act as a filter: those who are attracted by an entrepreneurial career are more committed to become an entrepreneur (and to learn what is needed to be a successful entrepreneur), and thus their change of success could be greater. In this sense, even if the training was not effective promote entrepreneurial intentions, in the long term it could have effects in the promotion of entrepreneurial performance and success. This is a question that only can be answered with longitudinal studies.

Even if we highlighted the positive outcomes of this educational experience, it is important to reflect on the aspects of the course content and delivery. It is possible that the almost exclusive focus on new venture creation and business management was a handicap, disregarding the development of students' skills, attributes and behaviours, as advocated by Kirby (2004).

In view of these results and along with Bakotic and Kruzic (2010), we also advocate the need for students' permanent education. At this phase more students' awareness about entrepreneurship was achieved. Further education in subsequent phases of their life and learning experience, should be focused on additional development of their competences and required skills, abilities and knowledge needed later in the market context (Hisrich and Peter, 1998; Henry et al., 2005), but also on developing an entrepreneurial attitude, in particular, an attitude towards risk taking.

Finally, we must note that the results must be seen with caution. The reduced size of the sample, mainly in the post programme inquiry, may contribute to the lack of statistical significance. Also, the high mortality rate in the sample from one period to the other 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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## 7. References

- Ajzen, I. (1991), "The Theory of Planned Behavior", *Organizational Behavior and Human Decision Processes*, 50 (2), 179-211.
- Ajzen, I.; Fishbein, M. (1973), "Attitudinal and normative variables as predictors of specific behaviour", *Journal of Personality and Social Psychology*, 27(1), 41-57.
- Bakotic, D. and Kruzic, D. (2010), Students' perceptions and intentions towards entrepreneurship: the empirical findings from Croatia, *The Business Review*, 14(2): 209-215.



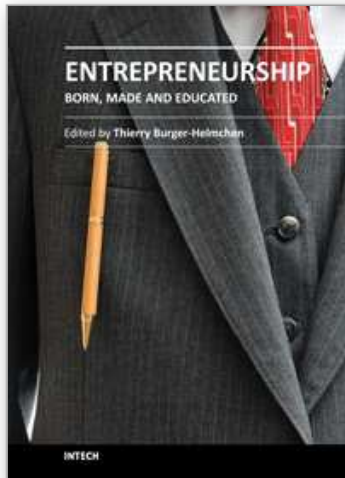
- Bygrave, W. D. (1989), "The entrepreneurship paradigm (I): a philosophical look at its research methodologies", *Entrepreneurship: Theory and Practice*, 14, 7-26.
- Edelman, L.; Manolova, T.; Brush, B. (2008), "Entrepreneurship education: correspondence between practices of nascent entrepreneurs and textbook prescriptions for success", *Academy of Management Learning & Education*, 7(1), 56-70.
- Fayolle, A. (2005), "Evaluation of entrepreneurship education: behaviour performing or intention increasing", *International Journal of Entrepreneurship and Small Business*, 2 (1), 89-98.
- Fayolle, A., Gailly, B., Lassas-Clerc, N. (2006), Assessing the impact of entrepreneurship education programmes: a new methodology. *Journal of European Industrial Training* 30, 701-720.
- Florin, J., Karri, R.; Rossiter, N. (2007), "Fostering Entrepreneurial drive in business education: an attitudinal approach", *Journal of Management Education*, 31 (1), 17-42.
- Garavan, T. N.; Barra, O' Cinneide (1994), "Entrepreneurship education and training programmes: a review and evaluation - Part I", *Journal of European Industrial Training*, 18(8), 3-10.
- Henry, C. Hill, F.; Leitch, C. (2005), "Entrepreneurship education and training: can entrepreneurship be taught? Part I", *Education & Training*, 47(2/3), 98-111.
- Henry, C., Hill, F. and Leitch, C. (2003), *Entrepreneurship Education and Training*, Ashgate, Aldershot.
- Hisrich, R. D.; Peters, M. P. (1998), *Entrepreneurship*, 4<sup>th</sup> edition, Irwin McGraw-Hill, Boston, MA.
- Ho, T. S. and Koh, H. C. (1992), "Differences in psychological characteristics between entrepreneurially inclined and non-entrepreneurially inclined accounting graduates in Singapore", *Entrepreneurship, Innovation and Change: An International Journal*, 1, 243-54.
- IBM SPSS Statistics Rel. 19.0.0. (2010). Chicago: IBM.
- Jusoh, R., Ziyae, B., Asimiran, S. and Kadir, S. A. (2011), Entrepreneur training needs analysis: implications on the entrepreneurial skills needed for successful entrepreneurs, *The International Business & Economics Research Journal*, 10(1): 143-148.
- Kirby, D. (2004), "Entrepreneurship education: can business schools meet the challenge?", *Education + training*, 46 (8/9): 510-512.
- Koh, Hian C. (1996), "Testing hypotheses of entrepreneurial characteristics - a study of Hong Kong MBA students", *Journal of Managerial Psychology*, 11 (3), 12-25.
- Kolvereid, L. (1996), "Prediction of employment status choice intentions", *Entrepreneurship Theory and Practice*, 21, 47-57.
- Kuratko, D. F. (2005), "The emergence of entrepreneurship education: development, trends and challenges", *Entrepreneurship Theory and Practice*, 29(5), September, 577-597.
- Li, W. (2006), "Entrepreneurial intention among international students: testing a model of entrepreneurial intention", *USASBE Small Business Advancent National Center*, Arkansas: University of Central Arkansas.

- Murray, T. A. and White, A. (1986), *Education for Enterprise - An Irish Perspective*, National Council for Education Awards and the Industrial Development Authority of Ireland, Dublin.
- Nabi, G., Holden, R. and Walmsley, A. (2010) Entrepreneurial intentions among students: towards a re-focused research agenda, *Journal of Small Business and Enterprise Development*, 17(4): 537-551.
- Neck, H. M. and Greene, P. G. (2011), Entrepreneurship education: known worlds and new frontiers, *Journal of Small Business Management*, 49(1): 55-70.
- Oosterbeek, H., van Praag, M., Ijsselstein, A. (2010). The impact of entrepreneurship education on entrepreneurship skills and motivation. *European Economic Review*, 54, 442-454.
- Paço, A., Ferreira, J., Raposo, M., Rodrigues, R. and Dinis, A. (2011a) "Entrepreneurial intention among secondary students: findings from Portugal", *International Journal of Entrepreneurship and Small Business*, 13(1):92-106.
- Paço, A., Ferreira, J., Raposo, M., Rodrigues, R. and Dinis, A. (2011b) "Behaviours and entrepreneurial intention: empirical findings about secondary students", *Journal of International Entrepreneurship*, 9(1): 20-38.
- Peterman, N. E. and Kennedy, J. (2003), Enterprise Education Influencing Students' Perceptions of Entrepreneurship, *Entrepreneurship Theory and Practice*, Winter.
- Peterman, N. E.; Kennedy, J. (2003), "Enterprise education influencing students' perceptions of entrepreneurship", *Entrepreneurship Theory and Practice*, Winter, 129-144.
- Pittaway, L. and Cope, J. (2007) Entrepreneurship Education: A Systematic Review of the Evidence, *International Small Business Journal*, 25 (5): 479-510. DOI: 10.1177/0266242607080656.
- Rae, D. (2010), Universities and enterprise education: responding to the challenges of the new era, *Journal of Small Business and Enterprise Development*, 17(4): 591-606.
- Raposo, M. and Paço, A. (2011) "Entrepreneurship education: relationship between education and entrepreneurial activity", *Psicothema*, 23(3):453-457.
- Raposo, M., Ferreira, J., Paço, A. and Rodrigues, R. (2008) "Propensity to firm creation: empirical research using structural equations", *International Entrepreneurship Management Journal*, 4(4):485-504.
- Raposo, M., Paço, A. and Ferreira, J. (2008) "Entrepreneur's profile: a taxonomy of attributes and motivations of university students", *Journal of Small Business and Enterprise Development*, 15(2): 405-418.
- Rasheed, Howard S. (2000), *Developing Entrepreneurial Potential Youth: The Effects of Entrepreneurial Education and Venture Creation*, University of South Florida.
- Robinson, P. B., Stimpson, D. V., Huefner, J. C.; Hunt, H. K. (1991), "An attitude approach to the prediction of entrepreneurship", *Entrepreneurship: Theory and Practice*, 15, 13-31.
- Rodrigues, R., Raposo, M., Ferreira, J. and Paço, A. (2010) "Entrepreneurship education and the propensity for business creation: testing a structural model", *International Journal of Entrepreneurship and Small Business*, 9(1):58-73.
- Rodrigues, R., Dinis, A., Paço, A. and Ferreira, J. (2008) "The effect of an entrepreneurial training programme on the entrepreneurial intention of secondary students".

*Proceedings of RENT XXI – Research in Entrepreneurship and Small Business*. EIASM, Covilhã, Portugal, 20-21 November.

- Souitaris, V., Zerbinati, S.; Al-Laham, A. (2007), "Do entrepreneurship programmes raise entrepreneurial intention of science and engineering students? The effect of learning, inspiration and resources", *Journal of Business Venturing*, 22(4), 566-591.
- von Graevenitz, G., Harhoff, D. and Weber, R. (2010). The effects of entrepreneurship education. *Journal of Economic Behavior and Organization* 76 (1): 90-112.
- Wood, M. S. (2011), A process model of academic entrepreneurship, *Business Horizons*, 54(2):153-161.

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## **Entrepreneurship - Born, Made and Educated**

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Entrepreneurship has a tremendous impact on the economic development of a country. As can be expected, many public policies foster the development of self- entrepreneurship in times of unemployment, praise the creation of firms and consider the willingness to start new ventures as a sign of good fortune. Are those behaviours inherent to a human being, to his genetic code, his psychology or can students, younger children or even adults be taught to become entrepreneurs? What should be the position of universities, of policy makers and how much does it matter for a country? This book presents several articles, following different research approaches to answer those difficult questions. The researchers explore in particular the psychology of entrepreneurship, the role of academia and the macroeconomic impact of entrepreneurship.

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