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Article

Entrepreneurship Education and Disability: An Experience at a Spanish University

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Abstract: The European Commission considers the following groups of entrepreneurs: females, family businesses, liberal professions, migrants, and seniors. Disabled people are not included, and this paper could, therefore, open up a new field of research and an important issue to be considered among the European Union’s social objectives. The University of Castilla-La Mancha (UCLM) in Spain provides an entrepreneurship education course, “Entrepreneurship and disability,” for disabled students. It is the first time that a course with these characteristics has been taught at a Spanish University, which signifies that there is no similar research of this nature. Keeping in mind its originality, this study makes an important contribution to the field. The main objective is to analyze whether the motivation to start up a business differs between students with disabilities and those without. We analyzed “before” and “after” data in order to test the potential impact of entrepreneurship education on the students’ entrepreneurial attitude. An analysis of variance with several demographic variables has allowed us to prove that the education that students received, their business experience, and their field of study have significant effects. This statistical test showed no significant differences between disabled and non-disabled students.

Keywords: entrepreneurship; education; disability

1. Introduction

Entrepreneurs are the set of individuals who discover, evaluate, and exploit opportunities to create future goods or services (Shane and Venkataraman 2000). Entrepreneurs innovate by doing new things, changing the way the things are done, and creating future goods and services. However, in order to get things done and succeed in the market place, entrepreneurs must perform management functions, either by themselves or by delegating (Salas-Fumas and Sanchez-Asin 2013).

European institutions claim that, in order to return Europe to a state of growth and create new jobs, more entrepreneurs are required. The Entrepreneurship 2020 Action Plan is the European Commission’s answer to challenges brought about by the most serious economic crisis in the last 50 years. It is a blueprint for action whose aim is to unleash Europe’s entrepreneurial potential, remove existing obstacles, and revolutionize the culture of entrepreneurship in the European Union (EU). Its objective is to ease the creation of new businesses and create a more supportive environment in which existing entrepreneurs can thrive and grow. Certain groups in society, such as people from ethnic minorities or seniors, confront additional difficulties when attempting to set up businesses. The Commission pays special attention to these groups and aims to help them overcome the challenges involved. It also recognizes the importance of other forms of enterprises, such as cooperatives and mutual societies with the objective of ensuring that these businesses do not confront any disadvantages in the EU’s Marketplace (The Entrepreneurship 2020 Action Plan—Growth-European Commission 2018). However, we have observed that one group related to this issue—disabled people—is not

receiving sufficient attention from European public institutions. In The Entrepreneurship 2020 Action Plan, the commission considers the following groups of entrepreneurs: females, family businesses, liberal professions, migrants, and seniors. Disabled people are not, however, included and the results of our paper could, therefore, lead to a new field of research and an important issue to be considered among the EU's social objectives. There is an important gap in relation to this issue, and this research is, consequently, a first step that may pave the way toward future studies regarding this group of potential entrepreneurs. There is also the important question of whether entrepreneurship can be encouraged through education. The objective of this paper is to verify whether education has an impact on students' attitudes to starting a business and the differences between disabled and non-disabled students' entrepreneurial attitudes. We have, therefore, employed an analysis of variance to obtain two relevant results: (i) disabled students' entrepreneurial "attitude" is no different to that of non-disabled students and (ii) exposure to education affects students' entrepreneurial attitudes.

The study is structured as follows. The section below presents a literature review concerning what disability and entrepreneurship are and the role of education while the subsequent section provides a description of the research methodology, in addition to presenting and discussing the main results. Lastly, the last section shows our conclusions, along with the limitations and the implications of the study.

2. Literature Review

2.1. Entrepreneurship and Education

Entrepreneurship is considered a vital component in the process of economic growth and development. Organizational performance, growth, and development may depend on entrepreneurship to a considerable extent (Antoncic and Antoncic 2011).

This phenomenon can be studied from an individual perspective by analyzing the characteristics and functions of the individual entrepreneur (ByGrave and Hofer 1991), the differences between individual entrepreneurs and non-entrepreneurs (Gartner 1990), or the collective process of the discovery, evaluation, and exploitation of opportunities (Shane and Venkataraman 2000).

The importance of entrepreneurs grew significantly throughout the last decade. Entrepreneurship is a process that consists of revitalizing existing companies, revenue growth, profitability enhancement, and pioneering the development of new products, services, and processes (Davidsson 2005). Innovation is at the heart of the entrepreneurial spirit (Lumpkin and Dess 2001). Generating new ideas, transforming these ideas into a profitable business, creating innovative processes, and producing employment are among the many roles taken on by entrepreneurs (Gelaidan and Abdullateef 2017).

There is also the important question of whether entrepreneurship can be encouraged through education (Barba-Sanchez and Atienza-Sahuquillo 2018). Education at all levels plays a vital role in the evolution of an entrepreneurial society (Ivanov et al. 2012). Enterprise and entrepreneurship-related initiatives are key elements in the portfolio of activities that develop graduate employability (O'Leary 2015). Many universities are investing in entrepreneurship training programs with the aim of promoting entrepreneurship among their students. Aside from gaining the knowledge required to run a business, educational support can be a stimulating factor that motivates individuals to start their own businesses by enhancing their level of self-confidence (Wilson et al. 2007). Literature highlights the significant contribution from policies regarding entrepreneurship education, the establishment, and effectiveness of entrepreneurship centers and technology transfer offices, business incubators, and university incentives to graduates' intentions to start new ventures (Zahari et al. 2018). However, the results of previous studies are inconsistent. Some of these studies have reported a positive impact of entrepreneurship education because its participants acquire skills, knowhow, and a better entrepreneurial attitude (Dohse and Walter 2012; Block et al. 2013). Others, however, have found evidence that the effects are statistically insignificant or even negative, emphasize the difficulties of evaluating the benefits of teaching entrepreneurship, or claim that the research to date has

provided no empirical support for the affirmation that the completion of management courses increases an individual's probability of starting a business (von Graevenitz et al. 2010). In response, several researchers have generated comprehensive qualitative and quantitative reviews, including meta-analyses of the entrepreneurship education-entrepreneurial attitude relationship. However, these studies have yet to resolve the remaining ambiguities and questions (Bae et al. 2014). However, we consider that there is more evidence to support the positive impact of entrepreneurship education. It is an activity related to the abilities to take risks and be pro-active. Students who are immersed in entrepreneurial education have higher levels of innovativeness. Universities play a significant role with greater knowledge and a higher level of information and abilities, which provide an individual with a greater competency to acquire entrepreneurial attitudes (Mutlutürk and Mardikyan 2018; Dohse and Walter 2012; Kusmintarti et al. 2018; Vanevenhoven and Liguori 2013; Matlay 2016; Henley et al. 2017).

2.2. Disability and Entrepreneurship

According to the United Nations Convention, people with disabilities include those who have long-term physical, mental, intellectual, or sensory impairments, which, in interaction with various barriers, may hinder their full and effective participation in society on an equal basis with others. One in six people in the EU has a disability that ranges from mild to severe, which signifies that around 80 million are often prevented from fully participating in society and the economy because of environmental and attitudinal barriers. The rate of poverty is 70% higher than the average for people with disabilities, partly due to limited access to employment. In addition, 30.7% of people aged between 15 and 34 who have a basic activity difficulty are neither employed nor involved in any sort of education or training in the EU. This is 15 percentage points higher than those in the same age group who have no basic activity difficulties. The gap is much more marked (25 percentage points) for people with limitations in work caused by a longstanding health problem (40.4% and 15.4%, respectively) (Disability Statistics—Access to Education and Training—Statistics Explained 2018). Quality jobs ensure economic independence, foster personal achievement, and offer the best protection against poverty. However, the rate of employment for people with disabilities is around only 50%. In order to achieve the EU's growth targets, more people with disabilities need to be in paid employment on the open labor market. The European Union and its Member States wish to pay particular attention to young people with disabilities in their transition from education to employment (European Commission—Employment, Social Affairs & Inclusion: Persons with Disabilities 2018).

All these considerations have led us to analyze whether the motivation to start up a business differs between people with disabilities and those without. This is a relevant research question because it is generally believed that employers resist hiring people with disabilities, either because of pure discrimination or because they believe that their working capabilities are insufficient for the job in question (Beisland et al. 2016). Most people with disabilities, therefore, resort to self-employment as their main income-generating activities. Such activities carried out by individuals without access to formal employment are collectively termed as “necessity entrepreneurship” in entrepreneurship literature (Williams and Round 2009).

Considering the inconsistent results of previous studies regarding entrepreneurship and education and the lack of research about the potential relationship between disability and entrepreneurship, we propose this study in an attempt to close these two gaps.

The research questions focus on the impact of education on students' attitudes to starting a business and the differences between disabled and non-disabled students' entrepreneurial attitudes. Two hypotheses are tested.

Hypothesis 1. *The attitude toward enterprise will differ between disabled and non-disabled students.*

Hypothesis 2. *Education positively influences students' attitudes toward enterprise.*

3. Methodology

The setting for data collection is the Department of Business Administration at the University of Castilla-La Mancha (UCLM) in Spain. This Department provides an entrepreneurship education course, "Entrepreneurship and disability," for disabled students. With regard to the European Credit Transfer and Accumulation System, the course is equivalent to nine credits. The objectives of this course are:

- (1) To sensitize students for entrepreneurship and provide them with the opportunity to acquire knowledge about small companies, self-employment, negotiation, ethical behavior, risk, communication, and more.
- (2) To teach students the basic capabilities required to plan and manage a startup company and, in particular, to convey the skills and knowledge necessary to craft a complete business plan.

The 2018/2019 course is the third edition and it is the first time that a course with these characteristics has been taught at a Spanish University, which signifies that there are no similar research works of this nature. The paper is, therefore, an important contribution to the field due to its originality.

There have been 15 students in each edition of the course and, as a result, one company has been set up and another is in the process of being created. The former is a cooperative that produces ecologic plant substratum from coffee dregs, while the latter is also a cooperative whose activity consists of assembling guitars.

The students were surveyed using a written standardized questionnaire. The data were collected in the classroom context from the disabled students on the entrepreneurship course, and business management, computer engineering, and law degree students at the University of Castilla-La Mancha. In order to test the second hypothesis, data from the first year and last year of each field of study were collected during the period from September 2018 to November 2018. We received responses from 234 students (92% of the students).

The questionnaire is based on the items developed by Athayde 2009, who designed the Attitude Toward Enterprise (ATE) test to measure young people's attitudes toward a collection of dimensions associated with entrepreneurship. The ATE test was designed to assess latent enterprise "potential" in pupils by measuring "attitudes" toward achievement, personal control, creativity, and leadership. These constructs combine to represent the essence of what it takes to become an entrepreneur, given favorable situational factors. With this test, the author wished to take into account the need to design an instrument with which to measure enterprise "potential" in young people still at school rather than actual adult entrepreneurs. This author has achieved a high reliability with the test (with a Cronbach's alpha of 0.83). The questionnaire employs a five-point scale from 1 (strongly disagree) to 5 (strongly agree). This means that the questions reflect the level of agreement with some claims related to the dimensions of the entrepreneur (see Appendix A for a detailed listing of the items).

According to [Shane and Khurana 2003](#), the attributes of individuals that influence their ability to evaluate and, subsequently, exploit the opportunities that emerge can be classified into two groups: psychological and non-psychological factors. This research focuses on the non-psychological features that favor the exploitation of business opportunities. Of these, we are interested in the demographic characteristics considered in literature, such as gender and location, and the sociological variables especially those regarding education and work experience.

Some empirical studies do confirm that there is a positive impact of entrepreneurship education courses or programs on the perceived attractiveness and perceived feasibility of new venture initiation. These studies, however, have rarely involved control groups or a form of stochastic matching. Basic controls, such as pre-testing and post-testing, are not employed, and most studies survey participants with an existing predisposition toward entrepreneurship, which biases the results in favor of educational interventions ([von Graevenitz et al. 2010](#)). We have, consequently, included

“before-after” education by using a dummy variable that we have denominated as *educational level* (0 = before education, 1 = after education).

The individual’s experience is one of the variables that researchers have most frequently found to be significant with regard to distinguishing between successful and unsuccessful entrepreneurs. Moreover, if the first experience has something to do with starting a business activity during the individual’s youth, this makes the individual more likely to start another entrepreneurial activity later on (Miettinen and Littunen 2013). This study employs a dummy variable for *business experience* (0 = no, 1 = yes).

We have also included other demographic variables such as gender, field of study, location of place of residence, and whether parents are/were self-employed since these are common in the literature concerning the determinants of entrepreneurship.

The dummy variable for *gender* employed in this study is: 1 = male, 2 = female.

Most studies in literature are conducted with business students regarding their entrepreneurial tendencies. However, higher education students from various fields react differently to entrepreneurship (Peprah et al. 2015), and the range of students evaluated should, therefore, be broadened to include students from different fields. *Field of study* is consequently included as a categorical variable with four categories: 1 = computer engineering, 2 = business management, 3 = law, and 4 = program for disabled students.

Location of place of residence has two possibilities: 1 = urban area, and 2 = rural area.

The question regarding whether the students’ father, their mother, or both are/were self-employed was used to capture the family context. This variable was recoded to a dummy variable (0 = no entrepreneurial parents, 1 = entrepreneurial parents). The family background plays an important role in students’ career choices and, subsequently, in their entrepreneurial intention (Fietze and Boyd 2017). Previous research has shown that a higher proportion of students from families with self-employed parents choose to become entrepreneurs (Laspita et al. 2012).

An analysis of variance was calculated using the characteristic disability (0 = not disabled, 1 = disabled), the students’s educational level, and the previously mentioned demographic factors as the independent variables, and the mean ATE test scores as the dependent variable.

The analysis of variance is a generalization of the independent group *t*-test. However, it determines whether the observed variance of the dependent variable (*Y*) is related to several grouping variables ($\delta, \alpha, \dots, \eta$). The method also assesses the amount of variance explained by each of the grouping variables and even by the interaction among them.

$$\text{Var}(Y) = \text{Var}(\delta) + \text{Var}(\alpha) + \dots + \text{Var}(\eta^*)$$

* random disturbance

In order to simplify the analysis, the model presented in this paper is balanced or orthogonal, which means it concerns whether the relative sizes of the samples that comprise each level of the factors studied are equal. One advantage of balanced designs is that they allow us to consider the main effects as separate entities, which may be tested without regard to each other. With regard to the characteristics of the factors, in this paper, the analysis of an appropriate variance model is called a mixed-effects model. It analyzes designs containing both fixed and random factors. A fixed factor is a factor whose levels have been fixed or specified by the researcher because he or she is interested in those particular levels (such as gender and self-employed parents). A random factor is a factor whose levels have been selected randomly from the population of all possible levels (for example, studies).

4. Results

Table 1 provides information about the independent variables.

Table 1. Sample profile.

			N
<i>Educational level</i>	0	Before education	137
	1	After education	97
<i>Entrepreneur parents</i>	0	No	146
	1	Yes	88
<i>Business experience</i>	0	No	146
	1	Yes	88
<i>Location</i>	1	Urban	102
	2	Rural	132
<i>Sex</i>	1	Man	136
	2	Woman	98
<i>Disability</i>	0	No	202
	1	Yes	32
<i>Studies</i>	1	Computer	87
	2	Business	48
	3	Law	67
	4	Disable program	32

The demographical characteristics of this sample are 13% disabled students, mostly males (58%), with no professional experience (62%), and mostly without any family entrepreneurial background (62%).

An analysis of variance was calculated using these seven factors as the independent variables, and the mean ATE test scores as the dependent variable (Table 2).

Like the independent groups *t*-test, the analysis of variance test has been found to be fairly insensitive to violations of normality and to violations of the assumption of equal variances as long as relatively large (more than 30) and equal or approximately equal sample sizes are used (Mooi and Sarstedt 2011). However, we have considered a more complete analysis in order to carry out Levene's test of homogeneity of variance and the Kolmogorov-Smirnov and Shapiro-Wilk tests of normality (Tables 3 and 4).

Table 2. Analysis of variance results.

Independent Variables	F	Significance	Eta Square
<i>Educational level</i>	25.175	0.000 *	0.102
<i>Entrepreneur parents</i>	0.690	0.407	0.003
<i>Business experience</i>	14.001	0.000 *	0.110
<i>Location</i>	1.321	0.253	0.010
<i>Sex</i>	0.275	0.614	0.034
<i>Disability</i>	0.131	0.743	0.044
<i>Studies</i>	3.902	0.022 *	0.034

* Significant at 0.5 level.

Table 3. Levene's test of equality of error variances.

F	df1	Df2	Sig.
0.959	86	147	0.579

Table 4. Normality tests.

	Kolmogorov-Smirnov			Shapiro-Wilk		
	Statistic	df	Significance	Statistic	df	Significance
Mean ATE test scores	0.034	234	0.200	0.991	234	0.145

Three independent variables were significant for the ATE test scores: having received an education, having business experience, and the field of study. With regard to the three significant independent variables, Table 5 shows the following mean ATE test scores.

Table 5. Mean ATE test scores.

<i>Educational level</i>	Before education	3.29
	After education	3.59
<i>Business experience</i>	No	3.3
	Yes	3.6
<i>Studies</i>	Computing	3.48
	Business	3.26
	Law	3.38
	Disabled program	3.54

Students that have received some sort of formal education score higher in the ATE test than students who are beginning their studies. Students with business experience score higher than students without business experience. Lastly, students on the disabled program, followed by computer engineering students, have a greater entrepreneurial attitude. This last result is explained by the entrepreneurship content of the disabled program, which is better adapted to the development of entrepreneurial skills and knowledge. Although the business studies course is associated with perceived know-how, it does not impact entrepreneurial attitudes, and its purpose is rather to train students to be employed, especially by large firms (Bae et al. 2014).

5. Discussion

Having received an education, having business experience, and the field of study were significant for the ATE test scores. Therefore, we can claim that there are no significant differences between disabled and non-disabled students, which means only Hypothesis 2 is statistically significant. If we pay attention to the Eta square (Table 2), 10% of variance is explained by educational level, 11% by business experience, and 3% by studies. Levene's test of homogeneity of variance is not statistically significant, which suggests that the population from which the cell scores were sampled have equal variances. The assumption of homogeneity of variance is, therefore, tenable for these data (Table 3). The dependent variable is also normally distributed with regard to the normality of test results (with a significance of over 0.05) (Table 4).

The mean ATE test scores in Table 5 complement these results. The main finding of this study is largely consistent with Bae et al. (2014) and Martin et al. (2013) meta-analysis. By conducting a meta-analytic review, they provided support for the conventional wisdom that there is a positive education-entrepreneurial attitude relationship. However, we extended the findings from Bae et al. (2014) and Martin et al. (2013). We have highlighted evidence that disabled students' entrepreneurial "attitude" is no different to that of non-disabled students. This issue increases the possibilities of opening up potential fields of entrepreneurship research.

6. Conclusions

Latent enterprise potential is operationalized as a constellation of attitudes toward certain characteristics associated with entrepreneurship including achievement, personal control, creativity, and leadership. These characteristics combine to represent the essence of what it takes to become an entrepreneur given favorable situational factors, such as access to resources and market conditions (Athayde 2009). The current research aims to study the influence of the previously mentioned variables (*education, parents' experience, business experience, location, gender, disability, and field of study*) as fundamental determinants of these attitudes associated with entrepreneurship and students' propensities to set up firms.

The most important conclusion obtained in this paper is that the disabled students' entrepreneurial "attitude" is no different to that of non-disabled students. Initiatives such as the "Entrepreneurship and disability" course for disabled students should, therefore, be generalized among universities. After employing a pre-post design, we have also discovered that exposure to education affects students' entrepreneurial attitudes, which coincides with the findings of authors such as [Souitaris et al. \(2007\)](#) and [Oosterbeek et al. \(2010\)](#).

The advent of the knowledge economy, together with the recognition that such an economy requires a prominent entrepreneurial sector, has led to the production of many studies regarding the effect of education on entrepreneurial choice and performance ([Stimac and Leko 2012](#)). Moreover, of the many factors known to influence entrepreneurial choice and performance, education is popular among politicians, since it can be influenced ([Block et al. 2013](#)). Politicians' willingness to promote education as an important driver of economic growth is supported by the fact that education promotes entrepreneurship, which is a driver of economic growth ([Thurik et al. 2008](#)).

This study increases the possibilities of opening up potential fields of entrepreneurship research such as "social entrepreneurship" or a new domain of "disabled entrepreneurship." Earlier studies on entrepreneurship for the disabled suggest that concentrated, customized, one-to-one or small group assistance may produce the most successful outcomes rather than generalized government policy support ([Dotson et al. 2013](#)). Governments could also play a significant role in supporting the use of assistive technology to improve the inclusion of people with disabilities in economic activities such as entrepreneurship ([Uddin and Jamil 2015](#)).

Another contribution of this study is that it provides an overview of the factors that influence the entrepreneurial attitude of not only business students, but also non-business students. Since most studies regarding entrepreneurship are conducted with business students, this research can be viewed as more diverse in this respect. Moreover, in this case, we have discovered that students with computer skills have a greater propensity to create startup firms than others. According to [Hernan-Gómez et al. \(2006\)](#), fast technological development means that computing abilities are essential in almost all business projects and it catalyzes students' entrepreneurial initiatives.

We make other recommendations to public institutions and universities. Students who have previously created or participated in a business are more likely to repeat the experience. Universities should, therefore, promote courses in which students are confronted with the creation of a new venture. This can be done by both attempting to create a real new business or by participating in simulation exercises. It is also important to establish collaborations between universities and the public institutions responsible for fostering entrepreneurship.

One limitation of our research is related to the cross-sectional data. Our data do not make it possible to observe whether students with a high entrepreneurial attitude will become new entrepreneurs. We, therefore, suggest longitudinal research in which we will follow the students' progress once they finish university. This information will allow us to discover whether students with an entrepreneurial inclination eventually became entrepreneurs, after which it would be possible to identify those individual-related variables that are more persistent and determinant of entrepreneurial attitude. Another limitation is the size of the sample. There are few disabled students, and this reduces the power of the analysis.

Our study might inspire future research. The authors state the need for more comparative studies replicating the present study in different settings, especially those researching similar initiatives related to disabled students in other countries.

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Appendix A. Attitude toward Enterprise Test

1. I enjoy taking the class around to my point of view.
2. I usually take the initiative on any project I am involved in.
3. I think I can easily carry my classmates with me when I have an idea.
4. I enjoy taking responsibility for things in the classroom.
5. I like taking the lead in projects at school.
6. When we do a school project, I am right there at the center of things.
7. I believe that a good imagination helps you do well at school.
8. I enjoy lessons where the teacher tries out different ways of teaching.
9. Being creative is an advantage in lessons.
10. I like lessons that really stretch my imagination.
11. I have a lot more energy than most people at school.
12. I like to get things off the ground when we are doing a project.
13. I am usually the “driving force” among my friends.
14. I like to have a role at the margins of a project *.
15. I like to get on with things in class rather than be taken through step-by-step by the teacher.
16. I usually get on with things in class rather than wait for everyone else.
17. I do not like lessons where we are left on our own to get on with our work *.
18. I prefer to figure things out on my own rather than rely on a teacher to explain everything.

* Scores reversed for these items. Source: Athayde (2009, p. 489).

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