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Administrative Sciences

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Suggested Citation: Moreno, Ángela González; Muñoz, Llanos López; Morote, Rosario Pérez (2019) : The role of higher education in development of entrepreneurial competencies: Some insights from Castilla-La Mancha University in Spain, Administrative Sciences, ISSN 2076-3387, MDPI, Basel, Vol. 9, Iss. 1, pp. 1-24,
<https://doi.org/10.3390/admsci9010016>

This Version is available at:

<https://hdl.handle.net/10419/239913>

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Article

The Role of Higher Education in Development of Entrepreneurial Competencies: Some Insights from Castilla-La Mancha University in Spain

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Received: 15 January 2019; Accepted: 1 February 2019; Published: 8 February 2019



Abstract: This study presents an analysis of the entrepreneurial competences of second- and fourth-year undergraduate students at the University of Castilla-La Mancha (UCLM), under the framework of the Entrepreneurial Teachers Network, an ongoing project at this institution. The analysis of a sample of 1874 students identified three profiles of competences of students at the UCLM. The first profile is related to competences in performing and resolving activities, the second is related to risk aversion and uncertainty management and the third is associated with the capacity for teamwork. Furthermore, it was found that the competences related to implementing and performing activities significantly influence job creation as they exhibit a positive relationship with the intention of creating a company in the first three years after graduation. Emotion-related competences also exhibit a significant effect on entrepreneurial intention, although this association is negative. Finally, relation-based competences were found to have no impact on entrepreneurial intention.

Keywords: entrepreneurship; entrepreneurship education; entrepreneurial teachers; cross-curricular competences; job creation; entrepreneurial competencies; entrepreneurial university

1. Introduction

According to data from the Global Entrepreneurship Monitor (GEM) (CISE 2018), in Spain in 2017, total entrepreneurial activity (TEA) was 6.2%, below the overall European rate of 8.2%, and much lower than the U.S. rate of 13.6% and the Canadian rate of 18.8%.

In Spain, risk aversion was traditionally three times higher than in the United States; fear of failure was higher; the Spanish did not see themselves as creative; and the media paid insufficient attention to entrepreneurial initiative (Alemany 2011). These characteristics have improved in recent years. According to the latest GEM (CISE 2018), risk aversion in Spain is now 10% higher than in the U.S.

From 2011 to the present, as a consequence of the economic crisis, Spain has witnessed a scenario where the national and European public authorities have launched new strategies to mitigate the effects of the recession. In this sense, the European employment and growth strategy (European Commission 2010) promoted entrepreneurship as one of the primary measures to promote employment and so alleviate the effects of the crisis. Entrepreneurship is considered to be able to generate significant benefits in growth, employment, development and innovation (Acs et al. 2005; Gómez et al. 2007; Nabi et al. 2010; Oosterbeek et al. 2010).

This concern to promote entrepreneurship also spread to education. The Law for the Improvement of Education (BOE 2013) included the need to foster entrepreneurial values from the lowest levels of

education. At regional level, in Castilla-La Mancha, Law 15/2011 on Entrepreneurs, the Self-employed and SMEs established a series of measures to encourage self-employment. The European authorities have prioritized the integration of entrepreneurship education in primary, secondary and higher education (Yemini and Haddad 2010). Thus, the university system, as part of its mission to transfer knowledge to companies and society in general, cannot neglect its responsibility to foster entrepreneurship in students and to investigate the profile of the most entrepreneurially-oriented students, to be ready to advise and guide them once they finish their studies so they may find self-employed work as an option to earn a living. Entrepreneurship education at university level may be the key to success in the process of new venture creation (Barba-Sánchez and Atienza-Sahuquillo 2018; Hu et al. 2018).

In this context, the University of Castilla-La Mancha is committed to promoting entrepreneurship among students, although it has been doing for a long time through the central unit configured by the Center for Information and Employment Promotion. These activities consisting of encouraging training, guidance and accompaniment of students in the process of job search had not been previously done using actively the figure of the teacher as a dynamic element among students in the promotion of entrepreneurship. This constitutes the main gap that leads us to propose this research.

Thus, in 2016, the University of Castilla-La Mancha, as part of an initiative by the office of the vice-chancellor for transfer and innovation and under the UCLM entrepreneurship program, created the Entrepreneurial Teachers Network (ETN), with the main aim of promoting entrepreneurship in all the disciplines and the degree and post-degree courses delivered at the UCLM, with the support of all the teaching staff involved. The inclusion of teachers from the courses in the project means the content can be personalised in accordance with the professional profiles and competences of each undergraduate degree or master's program, thus permitting a more intense and effective impact on the students as regards business creation. The ETN has the following objectives: to promote activities in the different faculties that educate and motivate students about entrepreneurship; to support the organization and dissemination of entrepreneurship activities promoted by the office of the vice-chancellor for transfer and innovation; to identify final year projects or master's theses that should reach a broader public; to identify final year projects or master's theses that could be implemented as business projects; and to support and supervise student associations that wish to perform activities related to entrepreneurship. More than 70 members of the teaching staff from across the four UCLM campuses participate in the ETN. Since 2016, five training days have been held for academic staff, addressing topics such as diagnosis of entrepreneurship characteristics in students, encouraging creativity, design thinking and the analysis of students' cross-curricular competences. In 2017, a group of teachers from the ETN worked on a teaching innovation project under the auspices of the office of the vice-chancellor for teaching. Called "Entrepreneurship in Class", the aim was to determine the profile of UCLM students and to analyse this profile in relation to their intention to create new enterprises as a career opportunity. The ultimate aim of the project is to provide advice to identify, supervise and train potential entrepreneurs, leveraging this potential to generate a vocation for entrepreneurship among young adults in Castilla-La Mancha, thus helping them to create employment.

This initiative demands proactiveness in the sense of searching for students who are inclined towards business creation, and if none are found, they must be mobilised through seminars to raise awareness and stimulate entrepreneurial spirit. Counselling here does not consist of waiting for consultation but of mobilising possible entrepreneurs at an early stage. This means devoting time to studying students' profiles, contacting them and actively offering them advice on entrepreneurial activities for self-employment or business creation.

Personal counselling is there to provide information related to the situation of the potential beneficiaries of the scheme, generating an individualized diagnosis of each of the users of the guidance service. This diagnosis will lead to an offer of training actions, if necessary, or will go directly to the phase of assisting the students in the procedures to be undertaken in order to start the business venture.

The main aim of this study, apart from presenting the university's ETN, is to describe the first results obtained through the "Entrepreneurship in the Classroom" Project. These results stem from the

proposal of two objectives: on one hand, to analyse the potential profiles that can be determined by the analysis of students' cross-curricular competences, focusing on entrepreneurship, and, on the other hand to see whether these profiles are related to the intention of creating a business once the students finish their university studies. Thus, we posit two research questions:

RQ1: *Are there specific entrepreneurial competences that determine students' attitude towards entrepreneurship?*

RQ2: *Do certain competences impact more clearly than others on the intention to create a business in the three years following graduation?*

To answer the above research questions, we worked with a sample of 1874 second- and fourth-year undergraduates from the UCLM on degree courses in the arts and humanities, social sciences, engineering and architecture, sciences and health sciences.

The main contribution of this research lies in the realization of a detailed analysis on the degree of development of the entrepreneurship competences of the Castilla-La Mancha students, being able to identify which ones are for them a weakness compared to those in which they are more reinforced. At the same time, this paper contributes to the identification of three competency profiles that characterize these students. On the one hand, we identify a group of competences related to the way of acting that students have, we have identified them as competences related to the "Action". A second group of competences related to the way in which students relate to others, we have identified them with the "Relationship". In addition, a third group of skills that have to do with the emotions and emotional control of students, we have identified them as competences related to the "Emotion". Finally, another of the contributions of this research is to see how these three groups of competences are related to the possibility of created a business venture by students. In this sense, it is concluded that the competences "Relationship" does not influence the intention to create employment, while the way of acting and the emotional state does have a significant influence on said intention.

This work is structured as follows: Section 1 present a review of the literature. Section 2 describes the methodology and Section 3 outlines the results obtained. Section 4 discusses our findings, the limitations of the study and future research lines. The study closes by presenting our main conclusions.

2. Literature Review

2.1. Promoting Entrepreneurship in Higher Education

Many studies address the definition of "entrepreneurship" (Caird 1991; Van Gelderen 2000; Louw et al. 2003; McCline et al. 2000; Robinson et al. 1991; Thomas and Mueller 2000). In the knowledge-based society, universities have taken on new missions and relationships to contribute to economic and social development, normally under the umbrella of innovation and entrepreneurial spirit. Activities related to innovation and entrepreneurial spirit in the academic setting are associated with the concept of entrepreneurial universities (Schmitz et al. 2017). In recent years, the education system has undergone many changes, and education for entrepreneurship has become one of the main channels for the solution of many problems that may arise in the search for employment. Nabi, Liñán, Fayolle, (Nabi et al. 2017) carry out an in-depth analysis of the existing literature on education and entrepreneurship in the field of higher education in the period 2004 to 2016. This research provides indicators related to the influence of emotional aspects in entrepreneurship. (Lipset 2018) comments how the absence of the promotion of entrepreneurship in Latin American countries means that the entrepreneurial attitude is not predominant in the culture of these populations. (Fayolle and Gailly 2015) show that the positive effects of an education for the entrepreneurship are even more marked when previous entrepreneurial exposure has been weak or inexistent. Conversely, for those students who had previously significantly been

exposed to entrepreneurship, the results highlight significant counter effects of the education for the entrepreneurship on those participants.

The association between entrepreneurship and education has been the subject of many study over the years. (Kourilsky 1995) understood it to be the opportunity to gather resources to create a business in the face of any associated risk. The studies by (Kadir et al. 2012) and (Turker and Selçuk 2009) are consistent with this view. With regard to higher education, a number of works classify universities according to the activities they undertake in relation to training in entrepreneurship, using the term entrepreneurial universities (Fernández-Nogueira et al. 2018).

The concept of entrepreneurial university emerges out of the change from a more conservative academic environment to one generating knowledge that integrates economic growth and social development with research and teaching (Etzkowitz and Zhou 2008; Etzkowitz 2013). Other studies have analysed teachers' perceptions of their own entrepreneurship education skills. (Ruskovaara and Pihkala 2013) indicate that these skills are closely connected to the implementation of entrepreneurship education programs. (Covin and Slevin 1989) argue that entrepreneurial universities are connected to a combination of different concepts such as innovation, proactiveness and an organisation's risk behaviours. (Sherwood and Covin 2008) claim that one of the best ways to generate entrepreneurial activities at universities is the transfer of knowledge and technology between industry and university, where companies are the recipients of knowledge. This information exchange depends on certain cultural determinants of academic entrepreneurship (Volles et al. 2017).

(Bechard and Toulouse 1998) understand entrepreneurship education as a set of formal teaching practices that inform, train and educate individuals interested in business creation or the development of small enterprises. At a broader level, entrepreneurship education can be regarded as education in entrepreneurial behaviour without the need to refer to a person creating a company but rather as a reference to any individual with an entrepreneurial and innovative attitude whatever activity they might undertake (Gibb 2002). Authors highlight the impact of entrepreneurship education on students' choice of university degree (Peterman and Kennedy 2003) and on improving students' flexibility and innovation for entering the labour market (Van Gelderen et al. 2008).

Teaching and research activities oriented towards entrepreneurship finally impact on economic and social development, and also on the emergence of new ventures (O'shea et al. 2005; Tijssen 2006; Guerrero and Urbano 2012). (Ripper Filho 1994) suggests that these advantages must be linked to the basic aims of universities and businesses. In this sense, universities must continue in their mission to train human resources and companies should perceive universities' direct or indirect contribution to their profitability. (Wennberg et al. 2011) indicate that students already involved in corporate activity are more likely to participate in spin-offs than individuals with a purely academic background, since isolated academic experience does not attract the same opportunities.

2.2. Entrepreneurial Competences

Success in an entrepreneurial project may often be the result of behaviour arising from a set of skills and attributes including competences such as creativity, autonomy or personal control, leadership, or management of uncertainty and risk (Gibb 1987, 1993; Lazear 2004; Durkin and Gunn 2016; CISE 2018). Other studies have highlighted the positive influence of entrepreneurship education on the development of specific competences. Studies such as those by (DeTienne and Chandler 2004) and (Alvarado Muñoz and Rivera Martínez 2011) focus on problem solving and the identification of opportunities, while (Armstrong and Crombie 2000) discuss motivation and critical capacity. Various studies suggest that students' willingness to engage in entrepreneurship is moderate due to the risk they perceive and their perception of their own abilities (Iglesias-Sánchez et al. 2016). (Gibb 1993) classifies entrepreneurial behaviours as those that include attributes of persuasion, negotiation, planning and decision-making.

Successful entrepreneurs espouse the need to be market-oriented, able to anticipate changes in customer demands and plan activities accordingly (Brettel et al. 2015).

Creativity, for (Timmons and Spinelli 2004), is key to the concept of entrepreneurial spirit and is particularly relevant in educating for entrepreneurship. This competence leads companies to gain competitiveness through their ability to innovate. Personal creativity is argued to be a core individual dimension of entrepreneurship. Other studies on entrepreneurship have also highlighted the central role of creativity in innovation as the driver of economic activity (Curran and Burrows 1986; Morrison 1998).

In relation to autonomy or personal control, the previous literature has found a significant relationship between work and internal locus of control (Furnham and Steele 1993), where “locus of control” is the degree to which people believe they have control over their lives. The concept of “personal control” as an attitude can be considered a key dimension in entrepreneurship theories (Robinson et al. 1991).

Personal control can be regarded as a prerequisite for action. (Shapero 1985) and (Krueger and Carsrud 1993) proposed that the “propensity to act” is key to new venture creation. Studies such as that by (Bonnett and Furnham 1991) found that young entrepreneurs exhibit higher levels of personal control than non-entrepreneurial counterparts. (Hansemark 1998) found that participating in an entrepreneurial programme significantly increased students’ locus of control compared with members of the control group. Other authors have underlined the importance of language ability in entrepreneurial tendencies (Johnstone et al. 2018).

The link between entrepreneurship and the motivational construct of achievement or success has been addressed in various studies (Caird 1991; Durand and Shea 1974; Morris and Fargher 1974; Robinson et al. 1991). Success has been conceptualized and measured in many different ways. From an academic perspective, it can be understood as the outcome of goal setting and perseverance, having acted with drive and energy (Louw et al. 2003). A more straightforward definition might include being active, occupied and having initiative (Van Gelderen 2000). (Hansemark 1998), as mentioned, found that participants in an entrepreneurship programme for young adults were more success-oriented than their non-participating counterparts, also exhibiting a greater propensity for the culture of effort (Bonnett and Furnham 1991).

The concept of “intuition” has less often been associated with entrepreneurial spirit than other constructs. The dimension of intuition can be related to the ability to respond to both uncertainty and stability (Gibb 1987). Entrepreneurially-minded individuals can seize opportunities that others might miss as their cognitive abilities allow them to operate efficiently even in the face of uncertainties (Barney et al. 2002; Krueger and Brazeal 1994). Allison, (Allinson et al. 2000) argued that intuition tends to be more developed in persons with an entrepreneurial spirit.

Related to risk management, some studies suggest there are no differences between successful and non-successful entrepreneurial ventures (Brockhaus 1976, 1980; Peacock 1986) compared to the rest of the population, while other works have found that entrepreneurs are more likely to take risks than the general population (Carland et al. 1995; Stewart et al. 1999). This competence has not been widely studied in the field of entrepreneurship education. Indeed, studies on self-esteem tend not to include this ability; it was excluded from the work by (Robinson et al. 1991) due to the difficulty of operationalizing this dimension.

Leadership was identified by (Vecchio 2003) as an important factor in the development of entrepreneurship, relating it to entrepreneurial spirit. He argues that “entrepreneurial spirit” can be understood as a type of leadership that emerges in a specific setting, making it a key dimension in the entrepreneurship process. According to (Covin et al. 2006), in an efficient entrepreneurial activity, leaders promote a culture in which resources are leveraged to strategically develop opportunities. (Timmons and Spinelli 2004) situate leadership as one of the six keys to creating a new business venture.

With regard to the capacity for teamwork, the quality of interactions within a team is considered crucial for effective and successful entrepreneurship. Studies by (Mehta et al. 2010) and by (Zachary and Mishra 2011) define the value of teamwork under the framework of education for entrepreneurship. These authors suggest that much effort has been invested in the study of

entrepreneurs as individual forces, which is unrealistic given that entrepreneurial spirit cannot be a success without the participation of others.

2.3. Entrepreneurial Intention

Myriad studies have shown that entrepreneurship education programmes have an impact on entrepreneurial intention and, hence, on students' consideration of entrepreneurship as a possibility to enter the labour market (Krueger et al. 2011; Lüthje and Franke 2003; Peterman and Kennedy 2003; Kolvereid and Moen 1997; Souitaris et al. 2007; Fayolle et al. 2006); (Turker and Selçuk 2009) and (Sánchez 2013).

(Kim and Hong 2017) analysed the causal relationships between entrepreneurial intentions and the factors that affect the creation of start-ups, as well as the degrees of influence of these variables. They found that individual competence, entrepreneurial spirit, the individual's environment or place of origin, psychological characteristics and market orientation were the variables that most impact on the intention of venture creation.

(Hong and Yang 2014) explored the entrepreneurial intention of university students by means of an empirical study of the different variables that influence their intention to start a business. They confirmed the significant relationship between the intention to start a business and individual skills associated with safety orientation, autonomy orientation, technology orientation and entrepreneurship education. (Souitaris et al. 2007) confirmed the effects that emotional competences, planned behaviour and entrepreneurship education have on students' intention to start a business.

Other authors such as (Oosterbeek et al. 2010) have found that the effect of entrepreneurship education on students' self-assessed entrepreneurial skills is insignificant and the impact on entrepreneurial intention is even negative. These skills included creativity, risk aversion and efficient performance. (Rideout and Gray 2013) argue about if the entrepreneurship education really work to create business enterprise.

3. Materials and Methods

3.1. Sample and Survey

In the 2017/2018 academic year, a total of 11,982 second- and fourth-year students were enrolled on different degree courses across the UCLM. They were all sent an anonymous on-line questionnaire with a set of 16 questions comprising 35 items intended to measure their entrepreneurial competences. These questions mainly drew on the competences analysed in the REFLEX project (European Commission 2009). Most of the questions were closed in nature and were rated on a 7-item Likert-type scale.

The sample obtained corresponds to 15.64% of the surveyed population, having received a total of 1874 responses from students enrolled in the second and fourth years of degree courses across the campuses of the UCLM. Table 1 shows the distribution of students surveyed by campus, year and branch of knowledge.

The analysis concentrated on nine particular competences related to capacities for planning, persuasion, creativity and innovation, teamwork, self-confidence, frustration tolerance, awareness and emotional balance, persistence and proactiveness. Each of these competences was then subdivided into different items, on which each respondent was asked. To facilitate statistical analysis, each of the items was assigned a specific code (see Table A1).

Table 1. Study Sample.

Campus	Students Surveyed
Albacete	488
Ciudad Real	509
Cuenca	281
Toledo	431
Almadén	31
Talavera	134
Branch of Knowledge	Students Surveyed
Arts and Humanities	115
Social Sciences	940
Sciences	127
Health Sciences	274
Engineering and Architecture	418
Year of Study	Students Surveyed
Second	777
Fourth	1097

3.2. Statistical Methodology

First, a descriptive statistical analysis was conducted using the main statistics obtained for each of the items in the questionnaire. The results of this analysis are depicted according to each of the nine competences analysed. An overall analysis was performed on the complete sample and a further segmented analysis was conducted by year group and branch of knowledge.

In order to answer the first of our research questions (RQ1), which aims to identify the specific profiles that enable the entrepreneurial competences to be described, we conducted a factor analysis to identify the items analysed according to particular factors. Each of these factors corresponds to a specific profile including competences that refer to concrete capacities of the students. Before applying the factor analysis, we verified the fit of this methodology to our sample. Although there is some debate on the sample size required to apply this analysis, according to (Beavers et al. 2013) and (Sánchez-Villegas et al. 2014), the sample analysed is at level 5 of 6, and can thus be considered highly appropriate for factor analysis. The correlation matrix obtained shows a high level of correlation between the variables and with the factor or factors obtained. The method of extraction used was principal component analysis.

Once the factors had been identified, it was necessary to determine the number of factors to conserve, for which there are various norms and criteria. Bartlett's test of sphericity yielded a chi-square value of 0.45 with a p value of 0.000, meaning the null hypothesis of non-correlation between variables was rejected. These aspects are usually checked by applying the KMO test of sampling adequacy, which must yield a value between 0 and 1. Low measures (less than 0.5) show that factor analysis is unadvisable, given that the correlations between pairs of variables cannot be explained by other variables. A value close to 1 indicates that the data are fully adequate for a model of factor analysis is obtained. In our study, the KMO statistic was 0.904. The scree plot shows the factors obtained, distinguishing between those that explain a large part of the variance and those that do not.

Finally, in order to answer the second of the research questions (RQ2), which considers the relationship between the entrepreneurial competences identified in the previously defined factors and the students' intention to create a business venture in the three years following their graduation, we applied the analysis derived from the binary linear regression, in which our dependent variable was the dichotomous variable of "intention to create a business" with values of "0 = No" y "1 = Yes". The factors obtained from the application of the factor analysis were taken as the independent variables. The significance of the chi-square model was less than 0.05, which indicates the model helps to explain the event; in other words, the independent variables explain the dependent variable. The overall

predicted percentage is 87.7%, suggesting the number of cases the model is able to correctly predict; with a value of over 50% the model is considered acceptable.

Although the values of Cox and Snell's R squared and Nagelkerke's R squared explain no more than 3% of the model, and knowing that these statistics frequently yield low values, the Hosmer–Lemeshow goodness of fit test reflects whether the linear regression model fits well to the data, by means of the following hypotheses: H0: "the model fits well" vs. H1: "the model does not fit well". If the result of the test is significant ($p < 0.10$), none of the calculations are valid. In our case, $p = 0.256$, and thus it can be said that the model is adequate for a 95% confidence interval.

All our analyses were conducted using SPSS V.24.0, 2018.

4. Results

4.1. Results of the Descriptive Analysis

Table A2 (Appendix A) shows the values for the main descriptive statistics in our study. Among the highest rated items, we find the ability to express points of view and stand by a position, taking responsibility for the outcomes of actions and complying with commitments despite having to make sacrifices. Among the lowest rated items setting dates to complete tasks and keeping to these dates, fostering a climate which facilitates the circulation of information and mutual trust and facilitating a climate of open communication, motivating and encouraging the members of the team.

Below, Table 2 shows the aggregate results obtained for each of the new competences under study, divided by year group and branch of knowledge.

Table 2. Entrepreneurial skills by year group and branch of knowledge.

	2nd	4th	SOC. SCI.	Arts and HUM.	Sciences	Health Sciences	ENG. and ARCH.
Planning ability	5.14	5.35	5.3	5.38	5.04	5.37	5.23
Capacity for persuasion	5.21	5.35	5.27	5.38	5.18	5.45	5.45
Creativity and innovation	5.3	5.51	5.37	5.57	5.24	5.37	5.5
Capacity for teamwork	5.75	5.84	5.8	5.94	5.7	5.63	5.71
Self-confidence	5.87	5.98	5.92	6.17	5.73	6.03	5.99
Frustration toleration	5.2	5.42	5.3	5.32	5.24	5.38	5.48
Self-awareness and emotional balance	4.9	5.14	5.02	4.98	4.87	5.15	5.19
Persistence	5.29	5.52	5.42	5.48	5.18	5.52	5.4
Proactiveness	5.81	5.99	5.94	5.91	5.73	5.86	5.76

In general, Figure 1 shows the assessment that students make about their competences. In this sense, the competence related to self-awareness and emotional balance reaches the lowest values (mean = 5.02), being therefore the competence in which the students are less prepared with regard to stress management, the way they respond to unexpected situations, the management of fear of failure or the assumption of risks. Regarding the competence for which the students are better prepared, the self-confidence stands out (mean = 5.93). In this sense, students are in accordance with their ability to work autonomously and to remain firm in their positions.

Both in Table 2 and Figure 2 can be observed in the same way that the self-awareness and emotional balance and self-confidence are the least and most valued competences, respectively, by the students classified according to the year group. However, the values of all the competences for the fourth-year students are higher than the values obtained for the second-year students. This leads us to think of a greater maturity of the fourth-year student, who sees his exit to the working market soon, better prepared in competences towards entrepreneurship. This improvement can be the result of the actions for the promotion of entrepreneurial skills that are carried out in the university and that are focused with greater emphasis on students who are close to finishing their undergraduate studies.

Table 2 shows the results according to the area of knowledge. It can be observed that the self-awareness and emotional balance is the competence least valued by students of all branches of knowledge. Of all of them, Science students have the lowest values (mean = 4.87). Regarding the best-valued competence, the self-confidence is valued in all branches, with Arts and Humanities

students who value this competence better (mean = 6.17). Students of Social Sciences are considered better prepared in Proactivity (mean = 5.94). This last competence is also valued by Science students.

Tables A3–A11 (Appendix A) give the mean scores for each of the competences, showing the values for each of the two year groups and each branch of knowledge.

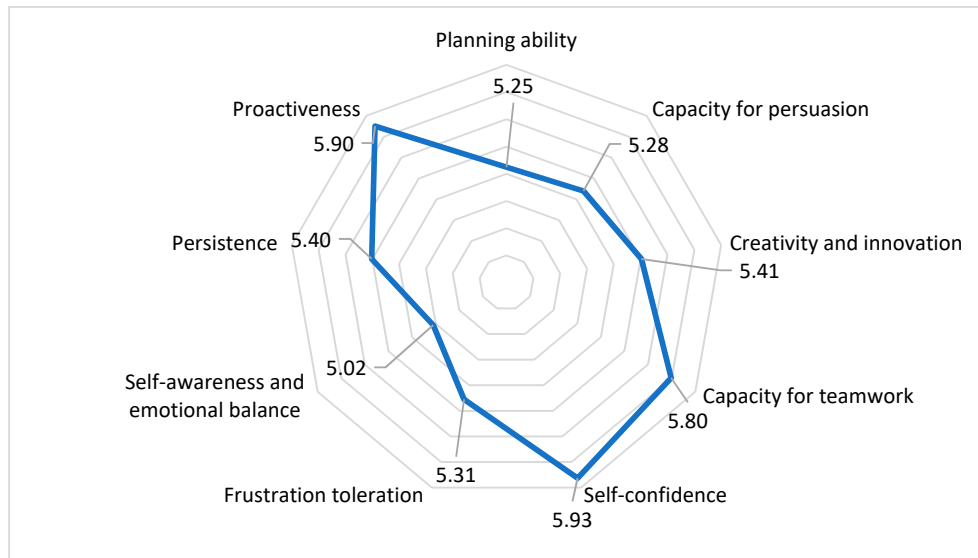


Figure 1. Entrepreneurial Competences.

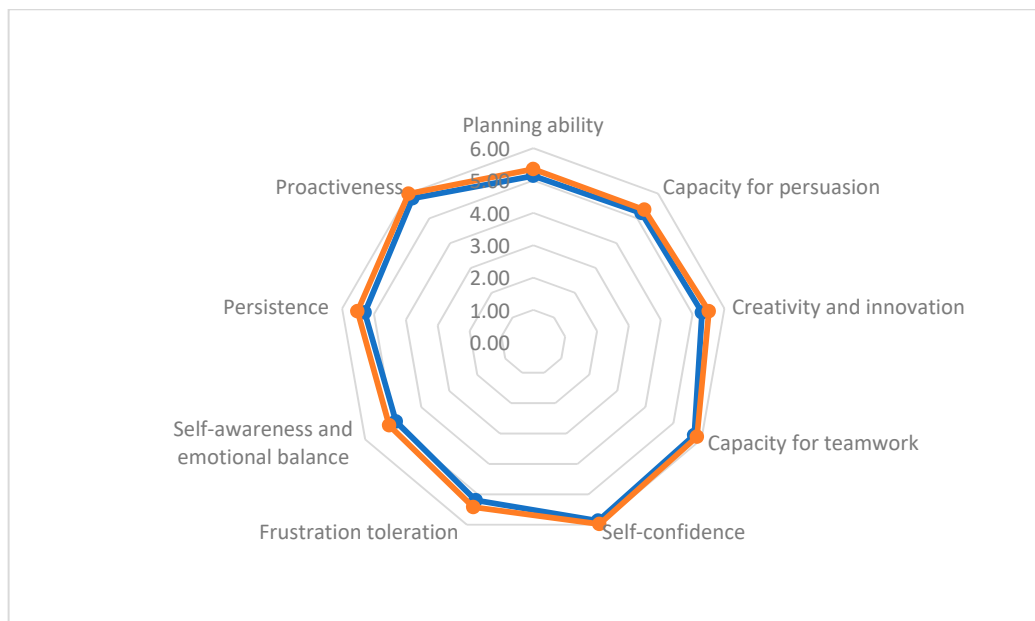


Figure 2. Entrepreneurial competences by year group.

4.2. Factor Analysis Results

Further to the descriptive analysis within each dimension, we conducted a factor analysis taking into account the 35 items included in nine competences, in order to identify the profiles related to cross-curricular skills that might characterise students when conducting entrepreneurial activities. This statistical technique yielded six factors which, overall, explained 59.49% of the variance, with the first factor explaining almost 36%. The analysis of these factors did not suggest that the competences grouped under a single factor might define a specific entrepreneurial behaviour as most of the items were located in the first factor. Tables A12–A14 (Appendix A) present the results of this first factor

analysis, showing the distribution of commonalities, the explanation of variance and the component matrix by each factor. Figure 3 presents the scree plot of the six factors. Although the KMO statistic is almost 95% and the results of Bartlett’s test are significant, we believe this analysis does not permit any conclusions to be drawn. The explanation of the items is mainly to be found in the first component and hence no valid conclusion can be made. The same result was found when the maximum number of factors was reduced to three.

The scree plot of the three factors is shown in Figure 3.

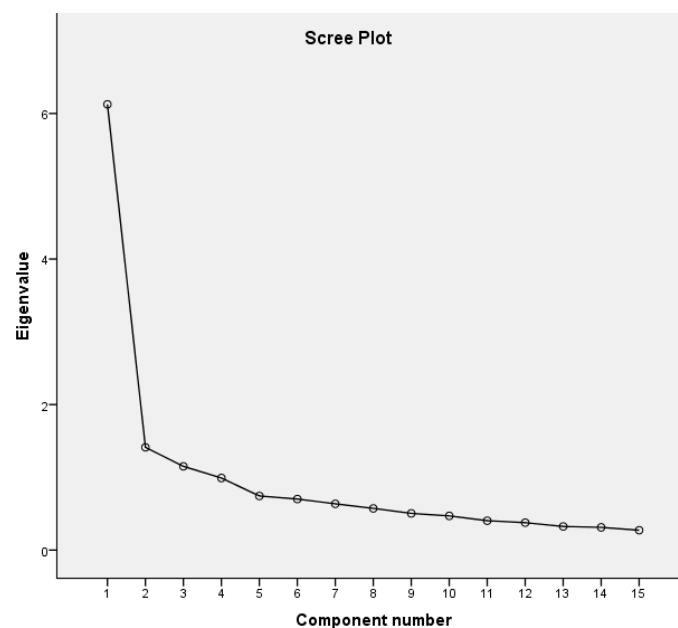


Figure 3. Scree plot.

This analysis served to select 15 items from the original 35 in order to repeat the factor analysis. Thus, from the table of commonalities obtained using all 35 items, we selected the 15 factors that had the largest effect in the sample, selecting those with the greatest impact and with the condition that at least one item was included from each competence. Table A12 shows these items, being PL2, PER2, CI1, CI2, CTW2, CTW4, SC2, FT2, SAEB1, SAEB2, SAEB4, PST1, PST2, CPRO1 and PRO4. Table 3 shows the total explained variance of 57.92% and the extraction of three factors identified in the rotated component matrix from Table 4.

Table 3. Total explained variance (three factors).

Component	Initial Eigenvalues			Extraction Sums of Squared Loadings			Rotation Sums of Squared Loadings		
	Total	% of Variance	% Accumulated	Total	% of Variance	% Accumulated	Total	% of Variance	% Accumulated
1	6.126	40.839	40.839	6.126	40.839	40.839	3.855	25.698	25.698
2	1.413	9.417	50.256	1.413	9.417	50.256	2.743	18.288	43.986
3	1.151	7.672	57.928	1.151	7.672	57.928	2.091	13.941	57.928
4	0.990	6.601	64.529						
5	0.744	4.961	69.491						
6	0.701	4.676	74.166						
7	0.636	4.238	78.404						
8	0.573	3.822	82.227						
9	0.505	3.364	85.590						
10	0.470	3.133	88.723						
11	0.404	2.692	91.415						
12	0.377	2.514	93.930						
13	0.325	2.167	96.096						
14	0.312	2.081	98.178						
15	0.273	1.822	100.000						

The values of the Alpha Cronbach statistic are 0.86 for the factor 1, 0.81 for the factor 2 and 0.7 for the factor 3.

Table 4. Rotated component matrix (three factors).

	Component		
	1	2	3
PL2	0.607	0.103	0.181
PER2	0.327	0.238	0.523
CI1	0.554	0.276	0.281
CI2	0.535	0.261	0.355
CTW2	0.172	0.078	0.829
CTW4	0.206	0.132	0.824
SC2	0.532	0.127	0.221
FT2	0.283	0.646	0.187
SAEB1	0.180	0.829	0.102
SAEB2	0.194	0.803	0.112
SAEB4	0.244	0.731	0.113
PST1	0.790	0.196	0.110
PST2	0.754	0.257	0.038
PRO4	0.694	0.258	0.225
PRO1	0.742	0.195	0.172

The three factors can be defined as follows:

Factor 1 “ACTION”: This factor includes the factors related to task performance and effectiveness in management and actions. The following items were identified:

- I foresee the resources needed to perform my tasks
- I can find solutions to complex problems
- I can bring together different ideas to generate new ones and solutions to problems
- I am able to work independently
- I develop and execute action plans until I reach the expected outcomes
- I take control of my work efficiently
- I seek opportunities and take initiatives to turn opportunities into results

Factor 2 “EMOTION”: This factor included competences related to management of uncertainty and emotional control. It comprises the following items:

- I am able to redirect and take the positives from an unexpected situation
- I am able to cope with stress and maintain my emotional balance in critical situations
- I am able to identify my emotional state and adapt it to particular contexts
- I can manage my fear of failure, seeing situations as learning opportunities

Factor 3 “RELATIONSHIPS”: This factor includes competences related to leadership and teamwork. It includes the following items:

- I visualise and easily manage key points in negotiations with my colleagues
- I am open to suggestions and proposals from the team
- I facilitate a climate of open communication, motivating and encouraging the members of my team

Based on this factor analysis, we grouped the 15 items under three factors identified with groups of competences. We called the first factor “ACTION”. It explains 40.8% of the variance and encompasses students who consider that competences associated with planning, execution, problem-solving and management of actions are determinants when undertaking entrepreneurial activity. The items with the greatest weight in this factor are the ability to work independently and taking control of work efficiently.

The second factor, “EMOTION”, explains 9.41% of the variance and includes the competences associated with risk management and emotional control. The items with the greatest impact in this

factor are being able to cope with stress and maintain one's emotional balance in critical situations and being able to identify one's emotional state and adapt it to particular contexts.

The third factor, "RELATIONSHIPS", explains 7.6% of the variance and included competences connected with teamwork. The most representative item in this factor are delegating and supporting without generating conflicts or rivalries and facilitating a climate of open communication, motivating and encouraging the members of the team.

These findings mean we can answer the first research question (RQ1), as we have identified three groups of entrepreneurial competences at the university, where the most important group is that based on individual competences associated with working independently and problem solving.

4.3. Results of the Binary Logistic Regression

The results of the binary logistic regression, which analyses the relationship between the dependent variable of "intention to create a company" and the independent variables represented by the three factors identified in the previous section, are presented according to two steps. In Step 0, the variables are not included and in Step 1, they are. The results of these two steps are shown in Tables 5 and 6, respectively.

Table 5. Step 0 Initial block. The variables are not included in the equation.

Variable	Score	df	Sig.
ACTION	15.564	1	0.000
EMOTION	13.828	1	0.000
RELATIONSHIPS	0.381	1	0.537
Overall statistics	29,773	3	0.000

Table 6. Step 1 Enter. The variables are included in the equation.

Variable	Coefficient	Standard Error	Wald	df	Sig.	Exp(B)
ACTION	0.309	0.076	16.473	1	0.000	1.362
EMOTION	−0.304	0.079	14.788	1	0.000	0.738
RELATIONSHIPS	0.042	0.074	0.324	1	0.569	1.043
Constant	−2.029	0.075	736.761	1	0.000	0.131

It can be seen that the profiles related to efficient management and action and risk management and emotional control are significant factors. However, while ACTION is positively associated with the intention to create a company in the three years after graduation, for EMOTION this association is negative. In other words, the higher the score on emotion, the lower is the intention to start an enterprise in the next three years. ACTION is the variable that most influences the intention to start a company (Exp [B] de 1362), while "RELATIONSHIPS" has no significant impact on the intention of starting an enterprise in the three years following graduation.

Thus, in response to Research Question (RQ2), we can say that the competences related to planning, management and control of activities are positively related to the intention to create a company, while the competences associated with emotional control and risk management are negatively related to entrepreneurial intention.

5. Discussion

The descriptive analysis of competences shows that self-confidence and proactiveness are the competences most highly rated by students. This is consistent with the studies by (DeTienne and Chandler 2004) and (Muñoz and Martínez 2011), who highlighted the importance given to taking responsibility for the outcomes of actions and following through with commitments

despite having to make sacrifices. The students in the sample also consider themselves ready to work independently, in line with the findings of (Robinson et al. 1991).

With regard to the competences the students consider less important, we find the capacity for self-awareness and emotional balance. This is in line with (Gibb 1987), who presented similar findings on the capacity to manage fear of failure and see situations as learning opportunities and the ability to cope with stress and maintain emotional balance in the face of critical situations. In contrast, (Allinson et al. 2000) found that this item was considered one of the most important to define students' entrepreneurial behaviour. Furthermore, in the same line as (Brettel et al. 2015), the students at UCLM do not consider among the most important competences that of setting a date to complete a tasks and keeping to it. Students also consider capacity for persuasion to be one of the most difficult competences to achieve.

The fourth-year students scored all items higher than their second-year counterparts did. This supports the idea, in coherence with (Gibb 2002) and (Lazear 2004), of the effectiveness of the process of education in entrepreneurship at universities. Both fourth- and second-year students attach greater importance to self-confidence and proactiveness and less importance to self-awareness and emotional balance and capacity for persuasion. However, the fourth-year students feel themselves to be better prepared in competences related to teamwork, planning, persistence and creativity than those in the second year.

As regards the analysis by branches of knowledge, students of arts and humanities and health sciences are those who better prepared in planning skills, while those who study engineering and architecture and health sciences score themselves highest on the capacity for persuasion. The students of engineering and architecture and arts and humanities scored highest on creativity and innovation. Arts and humanities students scored highest on persuasion. Students enrolled on health science degrees scored highest on self-confidence and persistence. Engineering and architecture students ranked highest on self-awareness and emotional balance and frustration tolerance. Finally, social science students considered themselves the most proactive.

In response to RQ1, the factor analysis allowed us to identify three different factors. The first and most representative of these is efficient task performance, including planning, problem-solving, decision-making and management of outcomes. These attitudes are also highlighted in the works by (Gibb 1993; Krueger and Carsrud 1993; Louw et al. 2003; Timmons and Spinelli 2004) and (Brettel et al. 2015). The second factor covers competences associated with the management of uncertainty and risk. This is in line with the competences underlined in the studies by (Barney et al. 2002; Krueger and Brazeal 1994; Carland et al. 1995; Stewart et al. 1999). The third factor is formed by competences related to teamwork, as previously highlighted in the works by (Mehta et al. 2010).

With respect to the relationship between the above factors and the entrepreneurial intention of business creation as an employment opportunity and as an answer to RQ2, this work shows a positive relationship between the option of a business venture and the factor linked to action and efficiency in management and activities. This coincides with the findings of (Hong and Yang 2014). Our study also underlines a negative relationship between the intention of business creation and competences linked to the management of uncertainty and emotional balance, which coincides with the findings of (Souitaris et al. 2007). No relationship was found between the third factor referring to teamwork competences and entrepreneurial intention, coinciding with the work by (Oosterbeek et al. 2010).

With regard to the limitations of this work, while also indicating an objective for future lines of research, we can mention the fact that the study focuses on a survey with only one moment of data collection, that of the 2017/2018 academic year. This rendered it impossible to conduct a longitudinal analysis, and hence, our aim is to repeat the survey in the second semester of the 2018/2019 academic year, working again with students enrolled in the second and fourth years of degree courses at the UCLM. Moreover, we consider it necessary to delve deeper into the relationship between competences and entrepreneurial outcomes, defining student profiles by means of cluster analysis including other outcome variables.

6. Conclusions

The aim of this research was to highlight the role of higher education in generating entrepreneurial competences. To this end, the UCLM created the entrepreneurial teachers network (ETN) in 2016 with the aim of promoting entrepreneurship in the university's students and analysing their entrepreneurial competences. It is also intended to deliver training oriented towards entrepreneurial activity for both students and the teaching staff involved in the ETN, in order to detect weaknesses and bolster the strengths identified in the profile of our students' entrepreneurial competences.

The study presents an analysis of the students' perception of nine competences examined across 35 items, having administered the same overall survey to second- and fourth-year students, but differentiating between year group and branch of knowledge. The fact that the students in the fourth year rate their entrepreneurial competences higher compared to those in the second year supports the notion that the entrepreneurship education delivered at the UCLM may be having a positive effect in improving the education of students in this field.

Three different factors were identified. The factor with the highest impact was found to be that comprising foreseeing the resources needed to perform tasks, the ability to find solutions to complex problems, the ability to bring together ideas to generate new ideas and solutions to problems, the ability to work independently, developing and executing action plans until the expected outcome is reached, efficient task management and the search for opportunities and the adoption of initiatives to turn such opportunities into results.

Finally, we examined the relationship between these factors and students' intention to create a business venture after finishing their degree, leveraging entrepreneurial intention as an employment opportunity. A significant positive relation was found between entrepreneurial intention and the highest evaluated factor, that of efficiency in management and actions, while a negative relationship was found between such intention and the lowest rated factor of emotion management and emotional balance. No relationship was found between business incubation intention in the three years following graduation and the capacity for collaborative teamwork.

To conclude, we explicitly highlight the implications that the results of this research can have both at a practical and at a theoretical level. On the one hand, the conclusions obtained in relation to the study of transversal competences of students will allow the University to define its policy of action in relation to the promotion of entrepreneurship. As a result, those competences in which students are less prepared will be reinforced and the University could act on those that may have the greatest influence on the intention to create a business venture when students finish their university studies. Undoubtedly, these actions carried out by the University, through the teachers, will imply the adjustment of the teaching methodologies and the complementary training to be able to contribute to the identification of the most entrepreneurial profiles within the classroom.

On the other hand, the creation of working groups such as the Entrepreneurial Teachers Network (ETN) of the University of Castilla-La Mancha, will revert in the benefit of the students. More enterprising students who will create their own company or students who, working as an employee, will develop entrepreneurial activities in the organization for which they are working. In this case, we are talking about the concept of "intrapreneur". All of this, without a doubt, will finally revert to a benefit for society that will have better prepared entrepreneurs, professionals and employees.

Author Contributions: Conceptualization, Á.G.M., L.L.M. and R.P.M.; Data curation, Á.G.M., L.L.M. and R.P.M.; Formal analysis, Á.G.M., L.L.M. and R.P.M.; Investigation, Á.G.M., L.L.M. and R.P.M.; Methodology, Á.G.M., L.L.M. and R.P.M.; Project administration, Á.G.M., L.L.M. and R.P.M.; Resources, Á.G.M., L.L.M. and R.P.M.; Software, Á.G.M., L.L.M. and R.P.M.; Supervision, Á.G.M., L.L.M. and R.P.M.; Validation, Á.G.M., L.L.M. and R.P.M.; Visualization, Á.G.M., L.L.M. and R.P.M.; Writing—original draft, Á.G.M., L.L.M. and R.P.M.; Writing—review & editing, Á.G.M., L.L.M. and R.P.M.

Funding: This research received no external funding.

Conflicts of Interest: The authors declare no conflict of interest.

Appendix A

Table A1. Dimensions and items for the analysis of competences.

Code	Planning Ability
PL1	I define goals and priorities to meet my objectives
PL2	I foresee the resources needed to perform my tasks
PL3	When I plan, I take unforeseen events into account
PL4	I set dates to complete tasks and keep to them
PL5	I carry out my work as well as possible, always maintaining the same level of quality in what I do
Code	Capacity for Persuasion
PER1	I reach agreements and obtain commitments from others
PER2	I visualise and easily manage key points in negotiations with my colleagues
PER3	I am very intuitive about the motivations and moods of other team members
PER4	I am reasonably good with words and can use them to generate emotions to convince and influence others
Code	Creativity and Innovation
CI1	I can find solutions to complex problems
CI2	I can bring together different ideas to generate new ideas and solutions to problems
CI3	I can bring various points of view to the same situation
CI4	I can bring ideas to action plans to innovate or enhance processes or products
Code	Capacity for Teamwork
CTW1	I foster a climate which facilitates the circulation of information and mutual trust
CTW2	I am open to suggestions and proposals from the team
CTW3	I delegate and support without generating conflicts or rivalries
CTW	I facilitate a climate of open communication, motivating and encouraging the members of my team
Code	Self-Confidence
SC1	I am able to work independently
SC2	I express my point of view and stand by my position
Code	Frustration Tolerance
FT1	After an adverse event, I am able to pick up work again relatively quickly
FT2	I am able to redirect and take the positives from an unexpected situation
FT3	I learn from unexpected situations and use what I learn to improve my action plan
Code	Self-Awareness and Emotional Balance
SAEB1	I am able to cope with stress and maintain my emotional balance in critical situations
SAEB2	I am able to identify my emotional state and adapt it to particular contexts
SAEB3	I am able to manage my anger in the face of unexpected events
SAEB4	I can manage my fear of failure, seeing situations as learning opportunities
SAEB5	I am able to take risks in a controlled manner, studying all the alternatives with care
SAEB6	I resist the temptation to do something more enjoyable when confronted by difficulties in an important task
Code	Persistence
PST1	I develop and execute action plans until I reach the expected outcome
PST2	I persist with my action plan even in the face of adversity
PST3	I stand by my ideas and am not easily persuaded otherwise
Code	Proactiveness
PRO1	I take control of my work efficiently
PRO2	I take responsibility for the outcomes of my actions
PRO3	I comply with my commitments even if it means making sacrifices
PRO4	I seek opportunities and adopt initiatives to turn these opportunities into results

Table A2. Values for the main descriptive statistics.

	N	Minimum	Maximum	Mean	Standard Deviation
PL1	1874	1	7	5.59	1.128
PL2	1874	1	7	5.44	1.137
PL3	1874	1	7	5.02	1.359
PL4	1874	1	7	4.89	1.481
PL5	1874	1	7	5.60	1.210
PER1	1874	1	7	5.38	1.127
PER2	1874	1	7	5.29	1.120
PER3	1874	1	7	5.44	1.201
PER4	1874	1	7	5.06	1.361
CI1	1874	1	7	5.41	1.060
CI2	1874	1	7	5.47	1.068
CI3	1874	1	7	5.62	1.101
CI4	1874	1	7	5.20	1.168
CTW1	1874	1	7	5.69	1.060
CTW2	1874	1	7	5.90	1.042
CTW3	1874	1	7	5.79	1.147
CTW4	1874	1	7	5.84	1.073
SC1	1874	1	7	6.15	1.047
SC2	1874	1	7	5.72	1.106
FT1	1874	1	7	5.21	1.235
FT2	1874	1	7	5.27	1.315
FT3	1874	1	7	5.51	1.160
SAEB1	1874	1	7	4.84	1.427
SAEB2	1874	1	7	5.14	1.284
SAEB3	1874	1	7	5.11	1.415
SAEB4	1874	1	7	4.82	1.475
SAEB5	1874	1	7	5.21	1.206
SAEB6	1874	1	7	5.12	1.457
PST1	1874	1	7	5.59	1.100
PST2	1874	1	7	5.41	1.197
PST3	1874	1	7	5.27	1.325
PRO1	1874	1	7	5.69	1.141
PRO2	1874	1	7	6.26	.941
PRO3	1874	1	7	6.00	1.069
PRO4	1874	1	7	5.72	1.135
Valid N (per list)	1874				

Table A3. Planning ability.

Planning Ability	PL1	PL2	PL3	PL4	PL5	Mean
SECOND YEAR	5.29	4.90	4.76	5.47	5.29	5.14
FOURTH YEAR	5.54	5.11	4.97	5.70	5.44	5.35
SOC. SCI.	5.53	5.07	4.91	5.64	5.34	5.30
ARTS AND HUM.	5.61	5.24	4.85	5.77	5.41	5.38
SCIENCES	5.11	4.87	4.61	5.28	5.33	5.04
HEALTH SCIENCES	5.72	5.49	5.08	4.92	5.63	5.37
ENG. AND ARCH.	5.56	5.27	4.88	4.91	5.56	5.23

Table A4. Capacity for persuasion.

Powers of Persuasion	PER1	PER2	PER3	PER4	Mean
SECOND YEAR	5.29	5.22	5.37	4.97	5.21
FOURTH YEAR	5.44	5.34	5.48	5.13	5.35
SOC. SCI.	5.34	5.28	5.43	5.05	5.27
ARTS AND HUM.	5.41	5.32	5.57	5.22	5.38
SCIENCES	5.33	5.18	5.23	4.98	5.18
HEALTH SCIENCES	5.63	5.47	5.25	5.46	5.45
ENG. AND ARCH.	5.56	5.42	5.36	5.45	5.45

Table A5. Creativity and innovation.

Creativity and Innovation	CI1	CI2	CI3	CI4	Mean
SECOND YEAR	5.27	5.34	5.52	5.07	5.30
FOURTH YEAR	5.50	5.56	5.69	5.30	5.51
SOC. SCI.	5.35	5.43	5.56	5.15	5.37
ARTS AND HUM.	5.51	5.68	5.76	5.31	5.57
SCIENCES	5.25	5.34	5.44	4.92	5.24
HEALTH SCIENCES	4.97	5.44	5.45	5.61	5.37
ENG. AND ARCH.	5.14	5.53	5.57	5.77	5.50

Table A6. Capacity for teamwork.

Capacity for Teamwork	CTW1	CTW2	CTW3	CTW4	Mean
SECOND YEAR	5.58	5.84	5.78	5.79	5.75
FOURTH YEAR	5.77	5.94	5.80	5.87	5.84
SOC. SCI.	5.68	5.88	5.79	5.83	5.80
ARTS AND HUM.	5.79	6.05	5.98	5.93	5.94
SCIENCES	5.54	5.83	5.70	5.73	5.70
HEALTH SCIENCES	5.18	5.68	5.88	5.77	5.63
ENG. AND ARCH.	5.39	5.74	5.92	5.78	5.71

Table A7. Self-confidence.

Self-Confidence	SC1	SC2	Mean
SECOND YEAR	6.08	5.67	5.87
FOURTH YEAR	6.20	5.76	5.98
SOC. SCI.	6.15	5.69	5.92
ARTS AND HUM.	6.37	5.97	6.17
SCIENCES	5.94	5.51	5.73
HEALTH SCIENCES	5.81	6.24	6.03
ENG. AND ARCH.	5.88	6.10	5.99

Table A8. Frustration tolerance.

Frustration Tolerance	FT1	FT2	FT3	Mean
SECOND YEAR	5.06	5.16	5.37	5.20
FOURTH YEAR	5.32	5.35	5.60	5.42
SOC. SCI.	5.18	5.28	5.45	5.30
ARTS AND HUM.	5.15	5.19	5.62	5.32
SCIENCES	5.10	5.13	5.48	5.24
HEALTH SCIENCES	5.74	5.15	5.24	5.38
ENG. AND ARCH.	5.75	5.38	5.33	5.48

Table A9. Self-awareness and emotional balance.

Self-Awareness and Emotional Balance	SAEB1	SAEB2	SAEB3	SAEB4	SAEB5	SAEB6	Mean
SECOND YEAR	4.68	5.03	4.92	4.71	5.06	4.98	4.90
FOURTH YEAR	4.95	5.22	5.24	4.90	5.31	5.23	5.14
SOC. SCI.	4.81	5.17	5.10	4.77	5.15	5.12	5.02
ARTS AND HUM.	4.66	5.02	5.01	4.88	5.29	5.01	4.98
SCIENCES	4.65	4.98	4.87	4.77	5.13	4.82	4.87
HEALTH SCIENCES	5.56	4.85	5.15	5.21	4.92	5.19	5.15
ENG. AND ARCH.	5.59	5.02	5.17	5.14	4.88	5.35	5.19

Table A10. Persistence.

Persistence	PST1	PST2	PST3	Mean
SECOND YEAR	5.44	5.24	5.19	5.29
FOURTH YEAR	5.70	5.53	5.33	5.52
SOC. SCI.	5.58	5.41	5.27	5.42
ARTS AND HUM.	5.54	5.46	5.43	5.48
SCIENCES	5.36	5.09	5.10	5.18
HEALTH SCIENCES	5.28	5.71	5.55	5.52
ENG. AND ARCH.	5.17	5.61	5.42	5.40

Table A11. Proactiveness.

Proactiveness	PRO1	PRO2	PRO3	PRO4	Mean
SECOND YEAR	5.57	6.19	5.89	5.59	5.81
FOURTH YEAR	5.77	6.32	6.07	5.81	5.99
SOC. SCI.	5.72	6.29	6.01	5.74	5.94
ARTS AND HUM.	5.60	6.30	6.00	5.75	5.91
SCEINCES	5.53	6.07	5.87	5.45	5.73
HEALTH SCIENCES	5.27	5.83	6.27	6.08	5.86
ENG. AND ARCH.	5.27	5.58	6.26	5.94	5.76

Table A12. Commonalities.

	Initial	Extraction		Initial	Extraction
PL1	1.000	0.588	FT1	1.000	0.554
PL2	1.000	0.624	FT2	1.000	0.574
PL3	1.000	0.434	FT3	1.000	0.522
PL4	1.000	0.539	SAEB1	1.000	0.631
PL5	1.000	0.511	SAEB2	1.000	0.613
PER1	1.000	0.594	SAEB3	1.000	0.556
PER2	1.000	0.707	SAEB4	1.000	0.609
PER3	1.000	0.577	SAEB5	1.000	0.518
PER4	1.000	0.587	SAEB6	1.000	0.502
CI1	1.000	0.718	PST1	1.000	0.621
CI2	1.000	0.764	PST2	1.000	0.594
CI3	1.000	0.659	PST3	1.000	0.547
CI4	1.000	0.636	PRO1	1.000	0.622
CTW1	1.000	0.659	PRO2	1.000	0.518
CTW2	1.000	0.707	PRO3	1.000	0.579
CTW3	1.000	0.633	PRO4	1.000	0.596
CTW4	1.000	0.722			
SC1	1.000	0.484			
SC2	1.000	0.518			

Table A13. Total explained variance.

Component	Initial Eigenvalues			Extraction Sums of Squared Loadings			Rotation Sums of Squared Loadings		
	Total	% of Variance	% Accumulated	Total	% of Variance	% Accumulated	Total	% of Variance	% Accumulated
1	12.507	35.734	35.734	12.507	35.734	35.734	4.608	13.166	13.166
2	2.227	6.363	42.097	2.227	6.363	42.097	3.837	10.964	24.130
3	2.015	5.757	47.854	2.015	5.757	47.854	3.674	10.498	34.628
4	1.606	4.587	52.441	1.606	4.587	52.441	3.259	9.313	43.941
5	1.342	3.833	56.274	1.342	3.833	56.274	2.832	8.092	52.033
6	1.119	3.196	59.471	1.119	3.196	59.471	2.603	7.437	59.471
7	0.915	2.614	62.085						
8	0.861	2.460	64.544						
9	0.793	2.266	66.810						
10	0.757	2.164	68.974						
11	0.689	1.969	70.944						
12	0.688	1.966	72.910						
13	0.589	1.684	74.593						
14	0.556	1.589	76.182						
15	0.548	1.566	77.748						
16	0.537	1.535	79.284						
17	0.529	1.511	80.794						
18	0.497	1.421	82.215						
19	0.485	1.385	83.601						
20	0.442	1.262	84.863						
21	0.438	1.252	86.115						
22	0.434	1.240	87.356						
23	0.418	1.193	88.549						
24	0.403	1.151	89.700						
25	0.387	1.104	90.804						
26	0.371	1.060	91.864						
27	0.368	1.052	92.916						
28	0.361	1.030	93.946						
29	0.347	0.990	94.937						
30	0.336	0.961	95.898						
31	0.306	0.874	96.771						
32	0.303	0.866	97.637						
33	0.290	0.829	98.466						
34	0.278	0.795	99.261						
35	0.259	0.739	100.000						

Extraction method: principal component analysis.

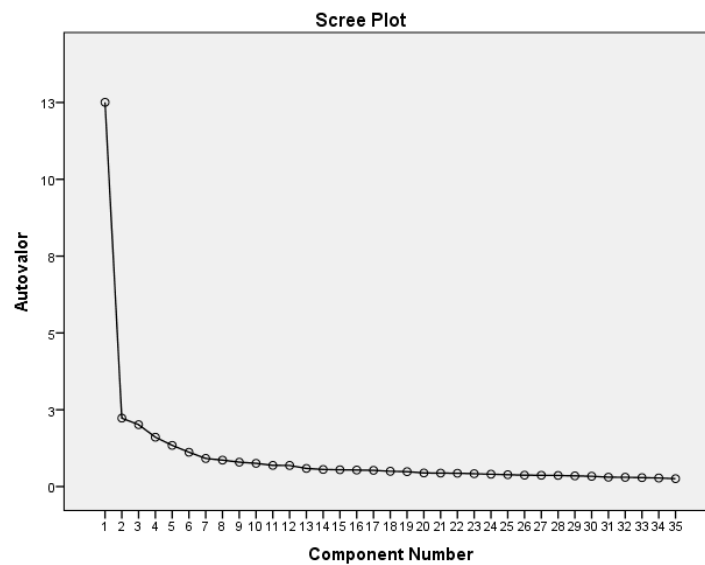


Figure A1. Scree plot (6 factors).

Table A14. Component matrix.

	Component					
	1	2	3	4	5	6
PL1	0.616	0.030	−0.361	−0.020	0.239	−0.141
PL2	0.589	0.046	−0.352	0.033	0.336	−0.191
PL3	0.436	−0.041	−0.281	0.067	0.319	−0.239
PL4	0.516	−0.107	−0.362	0.131	0.330	−0.069
PL5	0.590	0.039	−0.341	0.054	0.166	−0.122
PER1	0.533	0.275	0.096	−0.161	0.379	0.236
PER2	0.597	0.250	0.192	−0.219	0.362	0.270
PER3	0.536	0.310	0.223	−0.211	0.293	0.118
PER4	0.516	0.149	0.259	−0.369	0.231	0.206
CI1	0.655	0.008	0.100	−0.387	−0.152	−0.325
CI2	0.668	0.069	0.121	−0.374	−0.125	−0.378
CI3	0.625	0.121	0.152	−0.220	−0.181	−0.387
CI4	0.673	0.000	0.108	−0.350	−0.069	−0.208
CTW1	0.593	0.481	0.176	0.209	−0.028	−0.003
CTW2	0.528	0.531	0.142	0.328	−0.113	−0.072
CTW3	0.448	0.476	0.140	0.422	−0.091	0.011
CTW4	0.575	0.498	0.205	0.295	−0.101	0.060
SC1	0.621	0.009	−0.164	−0.079	−0.254	−0.020
SC2	0.552	0.027	−0.095	−0.295	−0.221	0.258
FT1	0.636	−0.273	0.199	−0.035	−0.110	0.146
FT2	0.604	−0.297	0.326	0.032	−0.096	0.060
FT3	0.672	−0.199	0.131	0.045	−0.086	0.059
SAEB1	0.565	−0.382	0.338	0.187	0.102	−0.076
SAEB2	0.580	−0.356	0.318	0.201	0.089	−0.030
SAEB3	0.522	−0.253	0.314	0.315	0.076	−0.126
SAEB4	0.583	−0.387	0.288	0.164	0.073	0.053
SAEB5	0.642	−0.277	0.156	0.064	0.021	0.019
SAEB6	0.592	−0.277	−0.167	0.192	0.081	0.063
PST1	0.711	−0.084	−0.297	0.049	−0.078	0.104
PST2	0.679	−0.173	−0.258	0.039	−0.060	0.180
PST3	0.472	−0.087	−0.204	−0.252	−0.223	0.402
PRO1	0.704	−0.052	−0.289	0.053	−0.160	0.103
PRO2	0.582	0.224	−0.150	0.118	−0.305	−0.005
PRO3	0.634	0.043	−0.343	0.152	−0.180	0.039
PRO4	0.729	−0.056	−0.174	0.011	−0.149	0.094

Extraction method: principal component analysis. a. 6 components extracted.

References

- Acs, Zoltan J., Pia Arenius, Michael Hay, and Maria Minniti. 2005. *GEM 2004 Global Report. Global Entrepreneurship Monitor*. London: London Business School.
- Aleman, Luisa. 2011. *Libro blanco de la iniciativa Emprendedora en España*. Girona: Fundación Príncipe de Girona.
- Allinson, Christopher W., Elizabeth Chell, and John Hayes. 2000. Intuition and entrepreneurial behavior. *European Journal of Work & Organizational Psychology* 9: 31–43.
- Alvarado Muñoz, Oscar, and Wilfred F. Rivera Martínez. 2011. University and entrepreneurship, contributions for the professional training of entrepreneurs. *Cuadernos de Administración. Universidad del Valle* 27: 61–74.
- Armstrong, Patrick Ian, and Gail Crombie. 2000. Compromises in adolescents' occupational aspirations and expectations from grades 8 to 10. *Journal of Vocational Behavior* 56: 82–98. [CrossRef]
- Barba-Sánchez, Virginia, and Carlos Atienza-Sahuquillo. 2018. Entrepreneurial intention among engineering students: The role of entrepreneurship education. *European Research on Management and Business Economics* 24: 53–61. [CrossRef]
- Barney, Jay B., Cal Clark, and Sharon Alvarez. 2002. Where does entrepreneurship come from? Network models of opportunity recognition and resource acquisition with application to the family firm. Paper present at Second Annual Conference on Theories of the Family Enterprise, Philadelphia, PA, USA, December.

- Beavers, Amy S., John W. Lounsbury, Jennifer K. Richards, Schuyler W. Huck, Gary J. Skolits, and Shelley L. Esquivel. 2013. Practical considerations for using exploratory factor analysis in educational research. *Practical Assessment, Research and Evaluation* 18: 1–13.
- Bechard, Jean-Pierre, and Jean-Marie Toulouse. 1998. Validation of a didactic model for the analysis of training objectives in entrepreneurship. *Journal of Business Venturing* 13: 317–32. [CrossRef]
- BOE. 2013. Ley Orgánica 8/2013, de 9 de diciembre, para la mejora de la calidad educativa. Available online: <http://www.edu.xunta.gal/centros/cpivianopequeno/system/files/LOMCE%20Texto%20refundido%20con%20LOE.pdf> (accessed on 3 November 2018).
- Bonnett, Celia, and Adrian Furnham. 1991. Who wants to be an entrepreneur? A study of adolescents interested in a young enterprise scheme. *Journal of Economic Psychology* 12: 465–78. [CrossRef]
- Brettel, Malte, Christoph Chomik, and Tessa Christina Flatten. 2015. How organizational culture influences innovativeness, proactiveness, and risk-taking: Fostering entrepreneurial orientation in SMEs. *Journal of Small Business Management* 53: 868–85. [CrossRef]
- Brockhaus, Robert H., Sr. 1976. Risk Taking Propensity of Entrepreneurs. *Academy of Management Proceedings* 1: 457–60. [CrossRef]
- Brockhaus, Robert H., Sr. 1980. Risk taking propensity of entrepreneurs. *Academy of Management Journal* 23: 509–20.
- Caird, Sally. 1991. Self assessments of participants on enterprise training courses. *British Journal of Education and Work* 4: 63–80. [CrossRef]
- Carland, James W., III, James W. Carland Jr., Jo Ann C. Carland, and James W. Pearce. 1995. Risk taking propensity among entrepreneurs, small business owners and managers. *Journal of Business and Entrepreneurship* 7: 15.
- Centro Internacional Santander Emprendimiento. 2018. Available online: <http://www.gem-spain.com/wp-content/uploads/2018/04/Informe-GEM-2017-18.pdf> (accessed on 12 October 2018).
- Covin, Jeffrey G., and Dennis P. Slevin. 1989. Strategic management of small firms in hostile and benign environments. *Strategic Management Journal* 10: 75–87. [CrossRef]
- Covin, Jeffrey G., Kimberly M. Green, and Dennis P. Slevin. 2006. Strategic process effects on the entrepreneurial orientation–sales growth rate relationship. *Entrepreneurship Theory and Practice* 30: 57–81. [CrossRef]
- Curran, James, and Roger Burrows. 1986. The sociology of petit capitalism: A trend report. *Sociology* 20: 265–79. [CrossRef]
- DeTienne, Dawn R., and Gaylen N. Chandler. 2004. Opportunity identification and its role in the entrepreneurial classroom: A pedagogical approach and empirical test. *Academy of Management Learning & Education* 3: 242–57.
- Durand, Douglas, and Dennis Shea. 1974. Entrepreneurial activity as a function of achievement motivation and reinforcement control. *The Journal of Psychology* 88: 57–63. [CrossRef]
- Durkin, Christopher, and Robert Gunn, eds. 2016. *Social Entrepreneurship: A Skills Approach*. Bristol: Policy Press, pp. 1–118, ISBN 144-73-31729.
- Etzkowitz, Henry. 2013. Anatomy of the entrepreneurial university. *Social Science Information* 523: 486–511. [CrossRef]
- Etzkowitz, Henry, and Chunyan Zhou. 2008. Introduction to special issue Building the entrepreneurial university: A global perspective. *Science and Public Policy* 35: 627–35. [CrossRef]
- European Commission. 2009. Available online: http://qualitas.usal.es/PDF/Reflex_Cuestionario.pdf (accessed on 10 March 2017).
- European Commission. 2010. Available online: <https://ec.europa.eu/social> (accessed on 4 April 2017).
- Fayolle, Alain, and Benoit Gailly. 2015. The impact of entrepreneurship education on entrepreneurial attitudes and intention: Hysteresis and persistence. *Journal of Small Business Management* 53: 75–93. [CrossRef]
- Fayolle, Alain, Benoît Gailly, and Narjisse Lassas-Clerc. 2006. Assessing the impact of entrepreneurship education programmes: A new methodology. *Journal of European Industrial Training* 30: 701–20. [CrossRef]
- Fernández-Nogueira, Donna, Arantza Arruti, Leire Markuerkiaga, and Nerea Sáenz. 2018. The entrepreneurial university: A selection of good practices. *Journal of Entrepreneurship Education* 21: 1–17.
- Furnham, Adrian, and Howard Steele. 1993. Measuring locus of control: A critique of general, children's, health-and work-related locus of control questionnaires. *British Journal of Psychology* 84: 443–79. [CrossRef] [PubMed]
- Van Gelderen, Marco. 2000. Enterprising behaviour of ordinary people. *European Journal of Work and Organizational Psychology* 9: 81–88. [CrossRef]

- Gibb, Allan A. 2002. In pursuit of a new 'enterprise' and 'entrepreneurship' paradigm for learning: Creative destruction, new values, new ways of doing things and new combinations of knowledge. *International Journal of Management Reviews* 4: 233–69. [[CrossRef](#)]
- Gibb, Allan A. 1987. Enterprise culture—Its meaning and implications for education and training. *Journal of European Industrial Training* 11: 2–38. [[CrossRef](#)]
- Gibb, Allan A. 1993. Enterprise culture and education: Understanding enterprise education and its links with small business, entrepreneurship and wider educational goals. *International Small Business Journal* 11: 11–34. [[CrossRef](#)]
- Gómez, Jose María, Ignacio Mira, and Jesús Martínez Mateo. 2007. Condicionantes de la actividad emprendedora e instituciones de apoyo desde el ámbito local: El caso de la provincia de Alicante. *Revista de Empresa* 20: 20–31.
- Guerrero, Maribel, and David Urbano. 2012. Transferencia de conocimiento y tecnología: Mejores prácticas en las universidades emprendedoras españolas. *Gestión y Política Pública* 21: 107–39.
- Hansemark, Ove C. 1998. The effects of an entrepreneurship programme on need for achievement and locus of control of reinforcement. *International Journal of Entrepreneurial Behavior and Research* 4: 28–50. [[CrossRef](#)]
- Hong, Jeong-Pyo, and Hae-Sool Yang. 2014. A study on the entrepreneurial intention determinants of university students. *Journal of Digital Convergence* 12: 141–57. [[CrossRef](#)]
- Hu, Rui, Yifan Wang, Peng Bin, and Yinghua Ye. 2018. Marta Peris-Ortiz, Jaime Alonso Gómez, José M. Merigó-Lindahl, Carlos Rueda-Armengot: Entrepreneurial universities: Exploring the academic and innovative dimensions of entrepreneurship in higher education. *Higher Education* 76: 183–86. [[CrossRef](#)]
- Iglesias-Sánchez, Patricia P., Carmen Jambrino-Maldonado, Antonio Peñafiel Velasco, and Husam Kokash. 2016. Impact of entrepreneurship programmes on university students. *Education+ Training* 58: 209–28. [[CrossRef](#)]
- Krueger, Norris F., Jr., Michael D. Reilly, and Alan L. Carsrud. 2011. Competing models of entrepreneurial intentions: The influence of entrepreneurial self-efficacy and attitudes. *International Journal of Entrepreneurship and Small Business* 13: 75–91.
- Johnstone, Leanne, Mariana Pio Monteiro, Inês Ferreira, Johanna Westerlund, Roosa Aalto, and Jenni Martinen. 2018. Language ability and entrepreneurship education: Necessary skills for Europe's start-ups? *Journal of International Entrepreneurship* 3: 1–29. [[CrossRef](#)]
- Kadir, Mumtaz Begam Abdul, Munirah Salim, and Halimahton Kamarudin. 2012. The Relationship between Educational Support and Entrepreneurial Intentions in Malaysian Higher Learning Institution. *Procedia Social and Behavioral Sciences* 69: 2164–65. [[CrossRef](#)]
- Kim, Na-Rang, and Soon-Goo Hong. 2017. A Meta-Analysis of Variables Related to Entrepreneurial Intentions. *Advanced Science Letters* 23: 10156–58. [[CrossRef](#)]
- Kolvreid, Lars, and Øystein Moen. 1997. Entrepreneurship among business graduates: Does a major in entrepreneurship make a difference? *Journal of European Industrial Training* 21: 154–60. [[CrossRef](#)]
- Kourilsky, Marilyn L. 1995. Entrepreneurship Education: Opportunity in Search of Curriculum. *Institute of Education Science* 1–25.
- Krueger, Norris F., Jr., and Deborah V. Brazeal. 1994. Entrepreneurial potential and potential entrepreneurs. *Entrepreneurship Theory and Practice* 18: 91–104. [[CrossRef](#)]
- Krueger, Norris F., and Alan L. Carsrud. 1993. Entrepreneurial intentions: Applying the theory of planned behaviour. *Entrepreneurship & Regional Development* 5: 315–30.
- Lazear, Edward P. 2004. Balanced skills and entrepreneurship. *American Economic Review* 94: 208–11. [[CrossRef](#)]
- Lipset, Seymour Martin. 2018. Values, education, and entrepreneurship. In *Promise Of Development*: 39–75. New York: Routledge, EEUU, ISBN 978-04-2996-6545.
- Louw, Lynette, Van Eeden Shelley, Johan K. Bosch, and Danie Venter. 2003. Entrepreneurial traits of undergraduate students at selected South African tertiary institutions. *International Journal of Entrepreneurial Behavior & Research* 9: 5–26.
- Lüthje, Christian, and Nikolaus Franke. 2003. The 'making' of an entrepreneur: Testing a model of entrepreneurial intent among engineering students at MIT. *R&D Management* 33: 135–47.
- McCline, Richard L., Subodh Bhat, and Pam Baj. 2000. Opportunity recognition: An exploratory investigation of a component of the entrepreneurial process in the context of the health care industry. *Entrepreneurship Theory and Practice* 25: 81–94. [[CrossRef](#)]

- Mehta, Khanjan, Mary Lynn Brannon, Sarah Zappe, Thomas Colledge, and Yu Zhao. 2010. Model of Student Engagement: Expanding Non-Travel Based Global Awareness, Multi-Disciplinary Teamwork and Entrepreneurial Mindset Development. Available online: <https://peer.asee.org/eplum-model-of-student-engagement-expanding-non-travel-based-global-awareness-multi-disciplinary-teamwork-and-entrepreneurial-mindset-development> (accessed on 11 May 2017).
- Morris, John L., and K. Fargher. 1974. Achievement drive and creativity as correlates of success in small business. *Australian Journal of Psychology* 26: 217–22. [CrossRef]
- Morrison, Keith. 1998. *Management Theories for Educational Change*. Newcastle upon Tyne: Sage.
- Muñoz, Oscar Alvarado, and Wilfred Rivera Martínez. 2011. Universidad y emprendimiento, aportes para la formación de profesionales emprendedores. *Cuadernos de Administración* 27: 61–74.
- Nabi, Ghulam, Rick Holden, and Andreas Walmsley. 2010. Entrepreneurial intentions among students: Towards a re-focused research agenda. *Journal of Small Business and Enterprise Development* 17: 537–51. [CrossRef]
- Nabi, Ghulam, Francisco Liñán, Alain Fayolle, Norris Krueger, and Andreas Walmsley. 2017. The impact of entrepreneurship education in higher education: A systematic review and research agenda. *Academy of Management Learning & Education* 16: 277–99.
- Oosterbeek, Hessel, Mirjam Van Praag, and Auke IJsselstein. 2010. The impact of entrepreneurship education on entrepreneurship skills and motivation. *European Economic Review* 54: 442–54. [CrossRef]
- O'shea, Rory P., Thomas J. Allen, Arnaud Chevalier, and Frank Roche. 2005. Entrepreneurial orientation, technology transfer and spinoff performance of US universities. *Research Policy* 34: 994–1009. [CrossRef]
- Peacock, Patricia. 1986. The influence of risk-taking as a cognitive behavior of small business success. *Frontiers of Entrepreneurship Research* 1: 110–18.
- Peterman, Nicole E., and Jessica Kennedy. 2003. Enterprise education: Influencing students' perceptions of entrepreneurship. *Entrepreneurship Theory and Practice* 28: 129–44. [CrossRef]
- Rideout, Elaine C., and Denis O. Gray. 2013. Does entrepreneurship education really work? A review and methodological critique of the empirical literature on the effects of university-based entrepreneurship education. *Journal of Small Business Management* 51: 329–51. [CrossRef]
- Ripper Filho, J. E. 1994. *Ciência e tecnologia: Para quê? como*. CNPQ. *Ciência e Tecnologia: Alicerces do desenvolvimento*. São Paulo: Cobram.
- Robinson, Peter B., David V. Stimpson, Jonathan C. Huefner, and H. Keith Hunt. 1991. An attitude approach to the prediction of entrepreneurship. *Entrepreneurship Theory and Practice* 15: 13–32. [CrossRef]
- Ruskovaara, Elena, and Timo Pihkala. 2013. Teachers implementing entrepreneurship education: Classroom practices. *Education+ Training* 55: 204–16. [CrossRef]
- Sánchez, José C. 2013. The impact of an entrepreneurship education program on entrepreneurial competencies and intention. *Journal of Small Business Management* 51: 447–65. [CrossRef]
- Sánchez-Villegas, Almudena, Miguel Ángel Martínez-González, and Francisco Javier Faulín. 2014. *Bioestadística Amigable*. Madrid: Díaz de Santos, ISBN 9788479787912.
- Schmitz, Ademar, David Urbano, Gertrudes Aparecida Dandolini, João Artur de Souza, and Maribel Guerrero. 2017. Innovation and entrepreneurship in the academic setting: A systematic literature review. *International Entrepreneurship and Management Journal* 13: 369–95. [CrossRef]
- Shapero, Albert. 1985. Why entrepreneurship? A worldwide perspective. *Journal of Small Business Management* 23: 1–5.
- Sherwood, Arthur Lloyd, and Jeffrey G. Covin. 2008. Knowledge acquisition in university–industry alliances: An empirical investigation from a learning theory perspective. *Journal of Product Innovation Management* 25: 162–79. [CrossRef]
- Souitaris, Vangelis, Stefania Zerbinati, and Andreas Al-Laham. 2007. Do entrepreneurship programmes raise entrepreneurial intention of science and engineering students? The effect of learning, inspiration and resources. *Journal of Business Venturing* 22: 566–91. [CrossRef]
- Stewart, Wayne H., Jr., Warren E. Watson, Joann C. Carland, and James W. Carland. 1999. A proclivity for entrepreneurship: A comparison of entrepreneurs, small business owners, and corporate managers. *Journal of Business Venturing* 14: 189–214. [CrossRef]
- Thomas, Anisya S., and Stephen L. Mueller. 2000. A case for comparative entrepreneurship: Assessing the relevance of culture. *Journal of International Business Studies* 31: 287–301. [CrossRef]

- Tijssen, Robert J. W. 2006. Universities and industrially relevant science: Towards measurement models and indicators of entrepreneurial orientation. *Research Policy* 35: 1569–85. [[CrossRef](#)]
- Timmons, Jeffrey A., and Stephen Spinelli. 2004. *New Venture Strategies: Entrepreneurship for the 21st Century*. Irwin: McGraw-Hill Publishers.
- Turker, Duygu, and Senem Sonmez Selçuk. 2009. Which factors affect entrepreneurial intention of university students? *Journal of European Industrial Training* 33: 142–59. [[CrossRef](#)]
- Van Gelderen, Marco, Maryse Brand, Mirjam van Praag, Wynand Bodewes, Erik Poutsma, and Anita Van Gils. 2008. Explaining entrepreneurial intentions by means of the theory of planned behaviour. *Career Development International* 13: 538–59. [[CrossRef](#)]
- Vecchio, Robert P. 2003. Entrepreneurship and leadership: Common trends and common threads. *Human Resource Management Review* 13: 303–27. [[CrossRef](#)]
- Volles, Barbara Kobuszewski, Giancarlo Gomes, and Iara Regina dos Santos Parisotto. 2017. Entrepreneurial university and transfer of knowledge and technology. *Revista Eletrônica de Administração* 23: 137–55. [[CrossRef](#)]
- Wennberg, Karl, Johan Wiklund, and Mike Wright. 2011. The effectiveness of university knowledge spillovers: Performance differences between university spinoffs and corporate spinoffs. *Research Policy* 40: 1128–43. [[CrossRef](#)]
- Yemini, Miri, and Jehuda Haddad. 2010. Engineer-entrepreneur: Combining technical knowledge with entrepreneurship education—The Israeli case study. *International Journal of Engineering Education* 26: 1220.
- Zachary, Ramona K., and Chandra S. Mishra. 2011. The future of entrepreneurship research: Calling all researchers. *Entrepreneurship Research Journal* 1: 1–13. [[CrossRef](#)]



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