# Do Business Administration degrees encourage entrepreneurship and strengthen connection with business incubators?

Ana Belén Alonso-Conde, Javier Rojo-Suárez and Sandra Rentas

**Abstract**

**Purpose** – *First, this paper aims to study the extent to which students in business administration degrees are aware of the characteristics of the business ecosystem. Second, the degree of knowledge of the benefits resulting from the interaction between the university-based business incubators and the universities are studied.*

**Design/methodology/approach** – *To focus the discussion, a survey is conducted, asking students their preferences as future professionals, as well as their knowledge about specific sources of financing, namely, venture capital and crowdfunding and other networks useful to foster the creation of companies such as business incubators.*

**Findings** – *Results reveal that the students under study mostly prefer to work as employees in a company. Additionally, these results suggest a poor knowledge from students regarding specific aspects related to entrepreneurship and, more specifically, business incubators. These empirical results underline the need to shift the focus of subject programmes towards a greater focus on entrepreneurship. Additionally, the results also draw attention to the need of fostering the relationship between business incubators and universities, so that students become aware of the support that these networks can provide to entrepreneurs in the early stages of business projects.*

**Research limitations/implications** – *The data analysis for this study is built based on a survey of students attending specific finance courses at a Spanish public university. It is worth noting that in this study we have based on the supply side whereby future research might focus on the point of view given by the firm's recruitment of business administration students. In addition, to strengthen the conclusions drawn from this study, further research should increase the sample period and the outcomes achieved at other universities in different regions*

**Practical implications** – *In terms of policy implications, the empirical findings highlight the relevance of understanding the effectiveness of entrepreneurship programmes, given the budgetary expenditure involved in entrepreneurship education.*

**Originality/value** – *The relevance of the issue has been highlighted through a literature review of the past 10 years. In terms of policy implications, the empirical findings highlight the relevance of understanding the effectiveness of entrepreneurship programmes, given the budgetary expenditure involved in entrepreneurship education.*

**Keywords** *Crowdfunding, Venture capital, Entrepreneurial ecosystem, Business incubators, Career opportunity, University-based incubators*

**Paper type** *Research paper*

Ana Belén Alonso-Conde Department of Business Administration, Rey Juan Carlos University, Madrid, Spain. Javier Rojo-Suárez Department of Business Administration, Rey Juan Carlos University, Madrid, Spain. Sandra Rentas Nevada Small Business Development Center (NSBDC), University of Nevada Reno, Reno, Nevada, USA.

## 1. Introduction

Social and sustainable entrepreneurship can be considered of extreme importance for the development of the entrepreneurial environment. At the government level, a large number of

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resources have been devoted to the startup of new companies. There have also been numerous private and public-private collaboration initiatives to promote entrepreneurship. Examples of large and medium-sized companies or financial entities that have launched initiatives with the objective of supporting or sponsoring entrepreneurship should be noted. Students' aspiration to become entrepreneurs is positively correlated with the entrepreneurship education they receive at the university. Higher education in business administration plays an important role in stimulating entrepreneurship as a job opportunity for students. Guerrero *et al.* (2014) show, with a conceptual model tested with a sample of 1,759 university students enrolled in three entrepreneurial universities in Latin America, the relevant effect of entrepreneurial university pathways on start-up creation. A mentor plays an important role in the business development of a person who wants to set up a business, as the mentor guides entrepreneurs from inception to execution of start-ups. Some authors have examined how is the learning that occurs through the mentoring process and how mentoring supports the career choices and development of individuals in various contexts (Étienne and Mathieu, 2015; Mckevitt and Marshall, 2015; Memon *et al.*, 2015). However, according to Étienne and Mathieu, (2015), mentoring has a negative direct effect on intention. This result could be due to the novices' awareness of the limitations of their initial business project. As entrepreneurs are closely committed to their business project, mentoring should come earlier in the business process to influence the career satisfaction and retention of the novice entrepreneur (Étienne and Mathieu, 2015). In this paper, we discuss the role that business incubators can play as mentors for future entrepreneurs who are studying a career in business administration in Spain.

On the other hand, Spain is a country with a great weight of small and medium enterprises. According to data from the Ministry of Labour and Migration of the Spanish Government (2020), in January 2020 non-employer companies and micro-enterprises represent 98.97% of the total in Spain. While medium-sized companies with a number between 50 and 249 employees constitute 0.87% and large companies (with more than 250 employees) 0.17%. In accordance with this, in this paper, we aim to analyse if the students who study a career in business administration have as a first option to create a company. We also seek to assess whether there is a gap between the theoretical business training offered by universities and the real needs for setting up a company. Following this line, our study aims to measure the percentages of students who would like their professional career to be:

- to set up a company;
- those who wish to be employed; and
- those who prefer to continue preparing for an employment competition to become civil servants.

This study is carried out among students who are studying business administration at a public university in Madrid (Spain). This allows us to see if the growing number of students who wish to study a degree in business administration is correlated with the intention to run a company. This study attempts to contribute to the debate on whether the study programme and the focus of subjects such as finance are encouraging entrepreneurship. For this purpose, in the survey that has been provided to the students, they are asked about their knowledge of certain present-day concepts that may be representative of their familiarity with the problems that an entrepreneur who seeks to launch his or her own company may be confronted with. These questions highlight the fact that it is necessary to focus on certain contents of the subjects so that the students are more prepared for entrepreneurship. Overall, the goal is to assess the gaps between theory and practice in the process of mentoring entrepreneurship. More specifically, we seek an answer to the following two questions:

*Q1.* What is the percentage of students who want to set up a company?

*Q2*. Do university programmes currently address those sources of funding for micro-enterprises that provide management value?

We also propose that the relationship between business incubators and universities should be closer to take advantage of all the assistance they can provide, especially when there are business incubators managed by universities and nevertheless this relationship is not sufficiently exploited. The role of university-based business incubators (hereinafter, UBIs) is to nurture and support the entrepreneurship efforts through peer support, access to shared resources and critical mass thinking. UBIs are affected by the local environment and/or are supported by initiatives and networking implemented locally. UBIs can provide a framework to the student population, start-ups and the private sector across different industries.

There are different models for university-based business incubators. Some are only open to students enrolled at the host institution, others support technology-based firms and others a variety of industries. An increasing number of universities are creating incubators to spur economic development and technology transfer. They may also provide an opportunity for a more holistic approach to entrepreneurship education (Marvel, 2013). Universities provide a variety of services and many university-based incubators have tilted their philosophy away from high-level research and focused on creating new jobs and venture capital funding for startups. Assuming in this study as a hypothesis that, in general, UBIs have a direct positive effect on graduate start-ups, it is worth noting that Guerrero *et al.* (2018) find that the impact is lower than the effect of individual and regional characteristics in transitional economies.

This paper attempts to contribute to the recent literature on the pedagogical aspects to be reinforced to encourage the creation of companies and improve the training of future entrepreneurs.

All of the issues are relevant given that entrepreneurial universities invest resources to generate the infrastructures, mechanisms and programmes necessary to support the exploration and/or exploitation of business ideas by the university community (Guerrero *et al.*, 2015). Consequently, analyzing the optimization of resources becomes crucial.

## 2. Theoretical background

Our research covers an important area of business literature on higher education. In fact, it is an area with an important development in literature in the past 20 years.

A systematic literature search was conducted on the Web of Science database on April 11, 2020, using the strategy described in Table 1. A review of papers has been carried out in two periods (2000–April 2020) and (2010–April 2020) to analyse the evolution of the topics published in the area under study. All data is publicly available at Paper Authors (2020).

From the sample obtained for the two periods, it is inferred that the most productive countries with papers published in the area under study are the USA, the UK and Spain. Figure 1 shows the results obtained for the past 10 years.

There is a likewise growing trend in the publication of papers referred to the keywords searched for. Figure 2 shows the results of this trend for the past 10 years.

Figure 3 shows the most productive authors in terms of the number of publications in the indicated period.

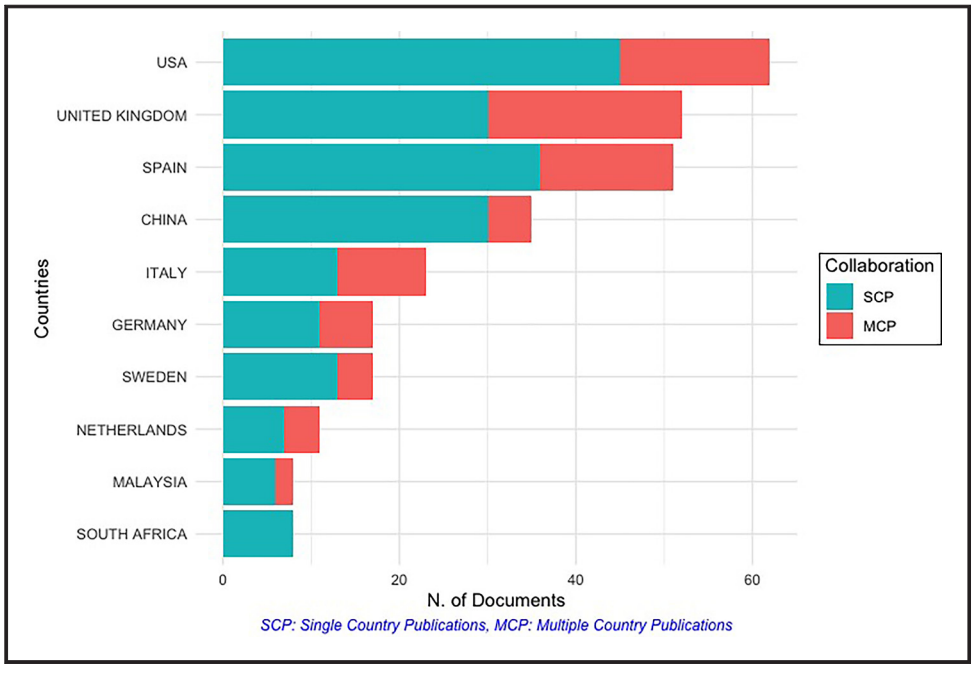
Tables 2 and 3 show the most relevant keywords in the papers obtained in the respective sample, noting that there is almost no difference in the two periods.

Table 4 shows some of the papers from the most productive authors in the period 2010–2020. This table summarizes some of the main findings of these authors over the past 10 years.

**Table 1** Search items and databases (all searches conducted in English)

| *No. of sources* | *Search terms and limits* | *Databases (2000–April 2020)* |
|---|---|---|
| 494 (382 articles) | [Title ("entrepreneur*"OR UBIs OR "busin* incubat*")] AND [Title "high* educat*" OR universit*] | Web of Science (2000 April 2020) |
| 408 (331 articles) | [Title ("entrepreneur*"OR UBIs OR "busin* incubat*")] AND [Title "high* educat*" OR universit*] | Web of Science (2010 April 2020) |

**Figure 1** Most productive countries (2010–April 2020)




In entrepreneurship education, the development of entrepreneurial thinking, as well as the acquisition of the knowledge and skills necessary for entrepreneurship are key issues. This is one reason why it is necessary to measure the baseline situation and the impact that entrepreneurship education provided at universities has on encouraging students' intention to set up a business. According to Wang *et al.* (2019), university students' sense of effectiveness in identifying opportunities can significantly and positively stimulate their social entrepreneurial intent and entrepreneurs' integration into the network (scale and intensity of the network) is also significantly and positively correlated with their sense of effectiveness in identifying opportunities. While the literature on the topic has generally analysed a wide variety of issues, research on the necessary to measure emotions and attitudes to the perceived effectiveness of entrepreneurial education and training and the entrepreneurial intention has traditionally raised great interest. Studies such as Aboobaker and Renjini (2020) in India highlight the importance of attitudes. Welpe *et al.* (2012) analyse the effect of emotions (fear, anger and joy) and opportunities as a background to entrepreneurial exploitation. Doern and Goss (2014) focus on the role of negative emotions in the social processes of entrepreneurship. Based on a model developed by the authors analyzing the emotional effects of social interactions between entrepreneurs and state

**Figure 2** Annual scientific production (2010–April 2020)

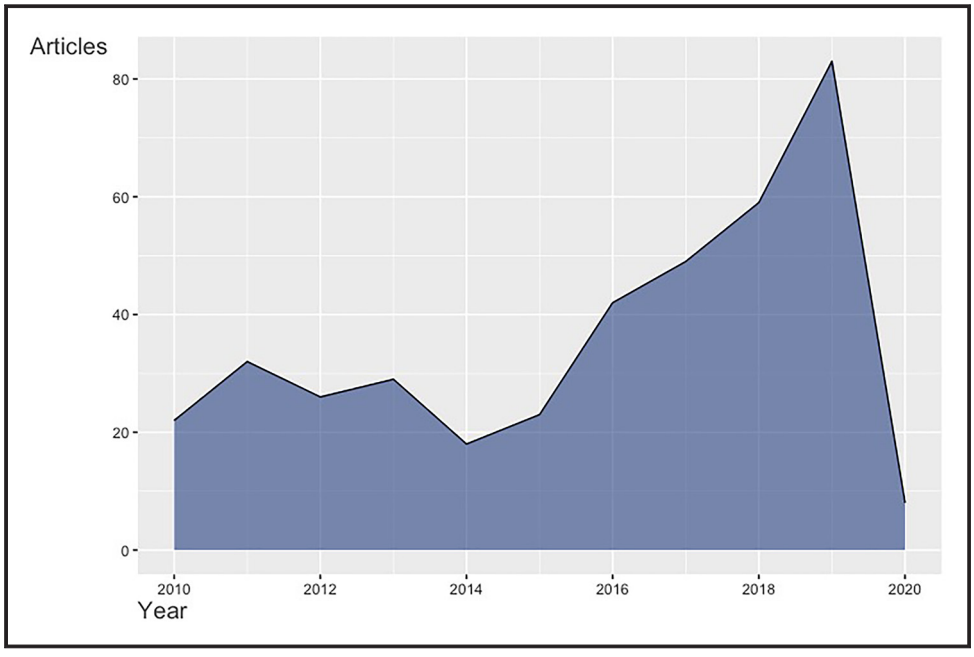
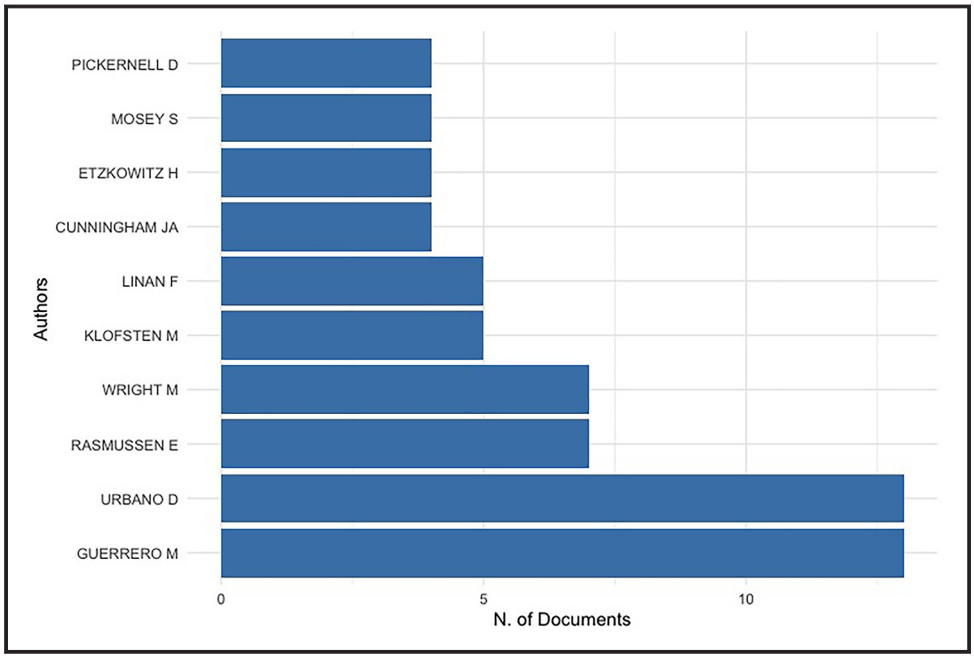



**Figure 3** Most productive authors (2010–April 2020)




officials, they find that negative emotions were caused by these interactions and, in turn, served to discourage entrepreneurial motivation and divert attention and energy away from business growth and development. Fernández-Pérez *et al.* (2019), after a study of Spanish university students who participate in a mandatory entrepreneurship course, conclude that the entrepreneurial intention is favoured by the development of their emotional

**Table 2** Most relevant keywords (2000–April 2020)

| *Author keywords (DE)* | *Articles* | *Keywords-plus (ID)* | *Articles* |
|---|---|---|---|
| 1 Entrepreneurship | 61 | Innovation | 76 |
| 2 Entrepreneurial University | 60 | Performance | 70 |
| 3 Entrepreneurship Education | 53 | Impact | 63 |
| 4 Academic Entrepreneurship | 34 | Education | 61 |
| 5 Entrepreneurial Intention | 32 | Knowledge | 52 |
| 6 Higher Education | 32 | Technology Transfer | 50 |
| 7 University | 29 | Science | 37 |
| 8 Technology Transfer | 26 | Industry | 34 |
| 9 Entrepreneurial Universities | 20 | Self Efficacy | 34 |
| 10 Innovation | 15 | Commercialization | 33 |

**Table 3** Most relevant keywords (2010–April 2020)

| *Author keywords (DE)* | *Articles* | *Keywords-plus (ID)* | *Articles* |
|---|---|---|---|
| 1 Entrepreneurship | 77 | Innovation | 88 |
| 2 Entrepreneurial University | 65 | Performance | 75 |
| 3 Entrepreneurship Education | 54 | Impact | 66 |
| 4 Academic Entrepreneurship | 38 | Education | 63 |
| 5 Higher Education | 36 | Knowledge | 62 |
| 6 Technology Transfer | 34 | Technology Transfer | 54 |
| 7 Entrepreneurial Intention | 32 | Science | 46 |
| 8 University | 31 | Industry | 41 |
| 9 Entrepreneurial Universities | 21 | Commercialization | 35 |
| 10 Innovation | 16 | Self Efficacy | 35 |

competencies, due to their direct influence on the configuration of the entrepreneurial intention and its positive impact on their cognitive background (entrepreneurial attitudes and perceived self-efficacy). The authors suggest that students with a higher degree of emotional competencies who receive an entrepreneurial education will have a more positive attitude towards entrepreneurship and will perceive themselves as more capable of becoming entrepreneurs. The authors point out that this factor should be taken into account to improve entrepreneurship education programmes.

On the other hand, according to Jones *et al.* (2017), entrepreneurship education graduates typically experience a portfolio of careers with multiple occupations in different sectors and roles within both employment and self-employment. Consequently, it is critical that the design of entrepreneurship education programmes include both enterprising and entrepreneurial dimensions to fulfill the future requirements of their graduate postgraduation. As Venesaar *et al.* (2011) point out, the evaluation of the educational programme is a complex issue, as it raises the question of what we are measuring, what indicators should be used and how they should be measured.

It is highlighted that beyond the infrastructures made available to the entrepreneur, services such as guidance for the internationalization of the business, advice regarding access to financing instruments or business training, business incubators help entrepreneurs to insert themselves in an enabling ecosystem in which different business initiatives support and help each other. An ecosystem that allows the rapid flow of information and resources and connects the experiences of entrepreneurs helps to quickly find the answers at each stage of growth. In this context, these services are available to students through UBIs. There are different models of UBIs. Some are only open to students enrolled at the host institution, others support technology-based firms and still, others support a variety of industries.

**Table 4** Most productive authors (2010–2020)

| *Reference* | *Study* | *Main findings* |
|---|---|---|
| (Tomy and Pardede, 2020) | A survey is conducted with students to evaluate the model and the application | Authors propose an entrepreneurial intention model and a digital application which offer guidance to universities as to how online systems can be used to create an environment that fosters individual intentions to select entrepreneurship as a career option, even for students doing non-entrepreneurial courses |
| (Murray and Crammond, 2020) | Case: 75 undergraduate students leading to 150 responses at a Scottish university | Introduces the concepts of entrepreneurial perception and entrepreneurial proclivity, explaining the important role they play in developing students |
| (Rasmussen *et al.*, 2015) | Four university spin-offs | Theoretical explanations of the new venture formation process need to incorporate not only network formation but also the role of network tie transformations |
| (Rasmussen *et al.*, 2014) | Spin-off cases within four universities. Data from each case was collected by 85 personal interviews with 58 people throughout a 12–15 month period | A lack of departmental support for entrepreneurship severely constrains the evolution of spin-offs regardless of university-level policies and practices. Helps to explain institutional differences in university spin-off activity |
| (Bienkowska *et al.*, 2016) | 464 PhD students from all faculties of a Sweden university | This study focuses on PhD students because many of them will go on to become the next generation of senior faculty. The authors argue that variations between faculties and departments with regard to norms and cultures should be considered when stimulating entrepreneurial engagement |
| (Liñán *et al.*, 2011) | A sample of 549 final year university students from two Spanish regions (Catalonia and Andalusia) | This study identifies some of the environmental cognitive elements that may explain regional differences in start-up intentions. An entrepreneurial intention model is developed, theoretically based on the planned behaviour approach, institutional economic theory and social capital theory |
| (Türk *et al.*, 2020) | In total, 928 students across several disciplines | How prior entrepreneurial exposure affects entrepreneurial passion and how an individual's learning orientation moderates the relationship. Authors find both types of prior entrepreneurial exposure to positively influence entrepreneurial passion. Further, medium to high levels of learning orientation strengthen these relationships |
| (Étienne and Mathieu, 2015) | In total, 360 novice entrepreneurs who had been supported by a mentor | Mentoring has an indirect effect on satisfaction and a negative direct effect on intention. This result could possibly be due to the awareness of novices regarding the limitations of their initial business project. Given that entrepreneurs are closely tied to their business project, mentoring should come earlier in the entrepreneurial process to influence career satisfaction and retention of a novice entrepreneur |
| (Guerrero *et al.*, 2018) | In total, 11,569 graduates from 30 campuses across 21 Mexican cities | In a transitional economy, specific individual determinants are the most relevant determinant of gradual entrepreneurship and that some university mechanisms (incubators and research parks) have limited impact on graduates' entrepreneurship |
| (RezaeiZadeh *et al.*, 2017) | Comparative study of Iran and Ireland: three stakeholder groups of students, academics and entrepreneurs | Critical interdependencies between entrepreneurial competencies and the relative influence of different competencies across groups and regions. Authors outline the implications of their findings for designing a curriculum for improving students' entrepreneurial competencies |
| (Guerrero *et al.*, 2015) | In total, 147 universities located in 74 (NUTS-3) regions of the UK for 2005–2007 | The higher economic impact of the UK's entrepreneurial universities (the Russell Group) is explained by entrepreneurial spin-offs. The control group composed of the rest of the country's universities, the highest economic impact is associated with knowledge transfer |
| (Fuller and Pickernell, 2018) | UK Higher Education Business and Community Interaction Survey data in the UK: 144 institutions | This study uses Principal Component Analysis (PCA) to group together statistically related activities which can then be used to identify what is driving these groups of activities in future studies |

Nowadays, the consolidation and expansion of business incubators established and/or operated by public or private universities are relatively recent in Spain. It is worth noting that, Cooper *et al.* (2012) study the drivers and barriers to networking in an award-winning university business incubator.

## 3. Data and results

The survey was carried out during the 2019/2020 academic year at the Rey Juan Carlos University to students of Accounting and Finance degree in the subject of Investment and Financing Decisions (second year) and to students of Business Administration degree in the subjects of Financial Management I and II (third year). A total of 90 students completed the survey and, therefore, the sample available is 90 students. All data is publicly available at Paper Authors (2020).

In line with question Q1 in the introduction section, Table 5 shows how the majority of students' choice is to work in a company as employees (54.44%), followed by those who are interested in running a company (28.89%) and then those who intend to continue studying to become a public employee (16.67%). These results are striking, even more for students studying business-related degrees.

In addition, to answer the question Q2 in the introduction section, we take the first approach to assess whether their education in entrepreneurship allows them to evaluate different funding alternatives or, conversely, whether their training should deepen the relationship between universities and business incubators. The results shown in Table 6 suggest that students have a low level of knowledge about specific aspects related to entrepreneurship and, more specifically, business incubators. We emphasize that the term crowdfunding is the best known by students. This is possibly due to the fact that it is a media term, regardless of the fact that the students do not appear to know the technical aspects of how it is articulated. The same happens with the term venture capital. It is remarkable that only 17 of the 90 students have knowledge of what a business incubator is, particularly when the university at which they are studying manages several business incubators. In this regard, it is worth mentioning that UBIs have been identified as an effective university support system for the creation and survival of new ventures (Barbero *et al.*, 2014).

**Table 5** Career preferences

| *Student's choice* | *No. of students* | *(%)* |
|---|---|---|
| Start-up a company | 26 | 28.89 |
| Work as an employee | 49 | 54.44 |
| Be a public employee | 15 | 16.67 |
| Total | 90 | 100.00 |

**Table 6** Knowledge of terminology

| *Student's choice* | *No. of students* | *(%)* |
|---|---|---|
| Venture capital | 33 | 36.67 |
| Business incubators | 17 | 18.89 |
| Crowdfunding | 36 | 40.00 |
| None of the terms are known | 4 | 4.44 |
| Total | 90 | 100.00 |

## 4. Discussion and conclusions

Assuming that the entrepreneurship education provided by universities leads to a greater intention to engage in business activities (Tomy and Pardede, 2020; Guerrero *et al.*, 2014) and one of the highest economic impact is associated with knowledge transfer (Guerrero *et al.*, 2015) the question to be discussed is whether entrepreneurship education is successful or not. The results obtained in this study, applied to students enrolled in Accounting and Finance degree and Business Administration degree courses, reveal that the majority of students prefer to work for others (54.44%) and not to create a company, with 28.89% of students opting for a start-up over the company. Regardless of fact that this is a specific case study with results that are not necessarily generalizable to other countries and to other universities, this could lead to the conclusion that a greater knowledge of the aspects related to entrepreneurship has a direct negative effect on business intention. This result could be due to the novices' awareness of the limitations of their initial business project (Étienne and Mathieu, 2015). However, we find that an important question to consider is whether the course programmes encourage entrepreneurship by developing skills and knowledge to facilitate it. The questionnaire raises current issues in entrepreneurship and also its knowledge about UBIs, providing very poor results. Accordingly, this study establishes the need to shift the focus of subject programmes towards a greater focus on entrepreneurship. Another resource would be to add specific programmes in entrepreneurship. This specialized training encourages the start-up of companies if one has the capacity to properly analyse their viability.

Universities are currently immersed in a process of change and adaptation, which includes a closer commitment to business and a greater transfer of entrepreneurship between teaching staff and students. In line with Bienkowska *et al.* (2016), support from universities towards academic entrepreneurship makes them more entrepreneurial institutions.

Given the important role that UBIs play in entrepreneurship, as studied in the literature, it would be useful to intensify the relationship between UBIs and students, especially in the Business Administration Degrees. Particularly, in the case of Spain, there is no strong relationship between universities and incubators. This connection is possibly more intense among students with technological degrees, but this is not the case with Business Administration degrees. This is how the possibility arises for students of Business Administration careers to do internships in the UBIs. These internships can be validated with training credits. Alonso-Conde *et al.* (2019) propose that a tight link be established between the UBIs and the departments that manage internships in companies and job searches at the university so that the possibility of hiring students with degrees such as Law or Business Administration to do internships at the UBIs on a regular basis is regulated. This would allow the student to learn by attending advisory meetings supervised by a business advisor any by the entrepreneur. It will also encourage students' specialized knowledge. On the other hand, students will be immersed in the business environment, which can be a great opportunity for their professional careers.

Following Jones *et al.* (2017), we argue that entrepreneurship education programmes should include both the entrepreneurial and business dimensions to fulfil the future requirements of postgraduate candidates, as many of them will be employed, but many others will also be looking for self-employment. This is a reason why universities should check whether their programmes are balanced in terms of content and skills to be developed in both scenarios.

In terms of policy implications, our empirical findings highlight the relevance of understanding the effectiveness of entrepreneurship programmes, given the budgetary expenditure involved in entrepreneurship education.

The data analysis for this study is built based on a survey of students attending specific finance courses at a Spanish public university. It is worth noting that in this study we have based on the supply side whereby future research might focus on the point of view given by the firm's

recruitment of business administration students. In addition, to strengthen the conclusions drawn from this study, further research should increase the sample period and the outcomes achieved at other universities in different regions. As Liñán *et al.* (2011) point out, the role of environmental factors explains regional variations in entrepreneurial activity.

## References


Aboobaker, N. and Renjini, D. (2020), "Human capital and entrepreneurial intentions: do entrepreneurship education and training provided by universities add value?", *On the Horizon*, Vol. 28 No. 2, doi: 10.1108/OTH-11-2019-0077.

Alonso-Conde, A.B., Rentas, S. and Rojo-Suárez, J. (2019), "Analysis of the role of business incubators in the entrepreneurial ecosystem: the case of the United States and Spain", *ICERI2019 Proceedings*, pp. 11171-11175, doi: 10.21125/iceri.2019.2759.

Barbero, J., Casillas, J.C., Wright, M. and García, A.R. (2014), "Do different types of incubators produce different types of innovations?", *Journal of Technology Transfer*, Vol. 39 No. 2, pp. 51-168, doi: 10.1007/s10961-013-9308-9.

Bienkowska, D., Klofsten, M. and Rasmussen, E. (2016), "PhD students in the entrepreneurial University - perceived support for academic entrepreneurship", *European Journal of Education*, Vol. 51 No. 1, pp. 56-72, doi: 10.1111/EJED.12160.

Cooper, C.E., Hamel, S.A. and Connaughton, S.L. (2012), "Motivations and obstacles to networking in a university business incubator", *The Journal of Technology Transfer*, Vol. 37 No. 4, pp. 433-453, doi: 10.1007/s10961-010-9189-0.

Doern, R. and Goss, D. (2014), "The role of negative emotions in the social processes of entrepreneurship: power rituals and shame-related appeasement behaviours", *Entrepreneurship Theory and Practice*, Vol. 38 No. 4, pp. 863-890, doi: 10.1111/etap.12026.

Étienne, S.J. and Mathieu, C. (2015), "Developing attitudes toward an entrepreneurial career through mentoring: the mediating role of entrepreneurial self-efficacy", *Journal of Career Development*, Vol. 42 No. 4, pp. 325-338, doi: 10.1177/0894845314568190.

Fernández-Pérez, V., Montes-Merino, A., Rodríguez-Ariza, L. and Alonso-Galicia, P.E., (2019), "Emotional competencies and cognitive antecedents in shaping student's entrepreneurial intention: the moderating role of entrepreneurship education", *International Entrepreneurship and Management Journal*, Vol. 15 No. 1, pp. 281-305, doi: 10.1007/s11365-017-0438-7.

Fuller, D. and Pickernell, D. (2018), "Identifying groups of entrepreneurial activities at universities", *International Journal of Entrepreneurial Behavior & Research*, Vol. 24 No. 1, pp. 171-190.

Guerrero, M., Cunningham, J.A. and Urbano, D. (2015), "Economic impact of entrepreneurial universities' activities: an exploratory study of the United Kingdom", *Research Policy*, Vol. 44 No. 3, pp. 748-764, doi: 10.1016/j.respol.2014.10.008.

Guerrero, M., Urbano, D. and Gajon, E. (2014), "The internal pathways that condition university entrepreneurship in Latin America: an institutional approach", in Hoskinson, S. and Kuratko, D.F. (Eds), *Innovative Pathways for University Entrepreneurship in the 21st Century*, doi: 10.1108/S1048-4736_2014_0000024004.

Guerrero, M., Urbano, D., Cunningham, J.A. and Gajon, E. (2018), "Determinants of graduates' start-ups creation across a multi-campus entrepreneurial university: the case of monterrey institute of technology and higher education", *Journal of Small Business Management*, Vol. 56 No. 1, pp. 150-178. doi: 10.1111/jsbm.12366.

Jones, P., Pickernell, D., Fisher, R. and Netana, C. (2017), "A tale of two universities: graduates perceived value of entrepreneurship education", *Education + Training*, Vol. 59 Nos 7/8, pp. 689-705, doi: 10.1108/ET-06-2017-0079.

Liñán, F., Urbano, D. and Guerrero, M. (2011), "Regional variations in entrepreneurial cognitions: start-up intentions of university students in Spain", *Entrepreneurship & Regional Development*, Vol. 23 Nos 3/4, pp. 187-215, doi: 10.1080/08985620903233929.

Marvel, M.R. (2013), "Human capital and search–based discovery: a study of high–tech entrepreneurship", *Entrepreneurship Theory and Practice*, Vol. 37 No. 2, pp. 403-419, doi: 10.1111/j.1540-6520.2011.00465.x.

Mckevitt, D. and Marshall, D. (2015), "The legitimacy of entrepreneurial mentoring", *International Journal of Entrepreneurial Behavior & Research*, Vol. 21 No. 2, pp. 263-280. doi: 10.1108/IJEBR-05-2014-0089.

Memon, J., Rozan, M.Z.A., Kamariah, I., Mueen, U. and DzurllKanian, D. (2015), "Mentoring an entrepreneur: guide for a mentor", *SAGE Open*, Vol. 5 No. 1, doi: 10.1177/2158244015569666.

Ministry of Labour and Migration of the Spanish Government (2020), "Cifras PYME", (January 2020).

Murray, A. and Crammond, R.J. (2020), "Education and training. Witnessing entrepreneurial perceptions and proclivity in university students developing a process model", *Education + Training*, Vol. 62 No. 4, doi: 10.1108/ET-03-2019-0052.

Paper Authors (2020), "Data for: do business administration degrees encourage entrepreneurship and strengthen connection with business incubators?", Mendeley data, V1, doi: 10.17632/88yb8xz6nd.1.

Rasmussen, E., Einar, E., Mosey, S. and Wright, M. (2014), "The influence of university departments on the evolution of entrepreneurial competencies in spin-off ventures", *Research Policy*, Vol. 43 No. 1, pp. 92-106, doi: 10.1016/j.respol.2013.06.007.

Rasmussen, E., Mosey, S. and Wright, M. (2015), "The transformation of network ties to develop entrepreneurial competencies for university spin-offs", *Entrepreneurship & Regional Development*, Vol. 27 Nos 7/8, pp. 430-457, doi: 10.1080/08985626.2015.1070536.

RezaeiZadeh, M., Hogan, M., O'Reilly, J., Cunningham, J. and Murphy, E. (2017), "Core entrepreneurial competencies and their interdependencies: insight from a study of Irish and Iranian entrepreneurs, university students and academics", *International Entrepreneurship and Management Journal*, Vol. 13 No. 1, pp. 35-73, doi: 10.1007/s11365-016-0390-y.

Tomy, S. and Pardede, E. (2020), "An entrepreneurial intention model focussing on higher education", *International Journal of Entrepreneurial Behavior & Research*, doi: 10.1108/IJEBR-06-2019-0370.

Türk, S., Zapkau, F.B. and Schwens, C. (2020), "Prior entrepreneurial exposure and the emergence of entrepreneurial passion: the moderating role of learning orientation", *Journal of Small Business Management*, Vol. 58 No. 2, pp. 225-258, doi: 10.1080/00472778.2019.1659678.

Venesaar, U., Ling, H. and Voolaid, K. (2011), "Evaluation of the entrepreneurship education programme in university: a new approach", *Amfiteatru Economic*, Vol. 13 No. 30, pp. 377-391.

Wang, W., Tang, Y., Liu, Y., Zheng, T., Liu, J. and Liu, H. (2019), "Can sense of opportunity identification efficacy play a mediating role? Relationship between network embeddedness and social entrepreneurial intention of university students", *Frontiers in Psychology*, Vol. 10, doi: 10.3389/fpsyg.2019.01342.

Welpe, I.M., SpöRrle, M., Grichnik, D., Michl, T. and Audretsch, D.B. (2012), "Emotions and opportunities: the interplay of opportunity evaluation, fear, joy, and anger as antecedent of entrepreneurial exploitation", *Entrepreneurship Theory and Practice*, Vol. 36 No. 1, pp. 69-96, doi: 10.1111/j.1540-6520.2011.00481.x.

## Corresponding author

Ana Belén Alonso-Conde can be contacted at: ana.alonso@urjc.es