Antecedents of entrepreneurial intentions among students in vocational training programmes

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Abstract
Purpose – The purpose of this paper is to contribute to research on individual entrepreneurial intention (IEI) by assessing the importance of entrepreneurship education to students in vocational training programmes and using the theory of planned behaviour (TPB) to analyse these students’ entrepreneurial intentions. The family background of the students and their exposure to entrepreneurship subject matter were included as antecedents of TPB components and IEI.
Design/methodology/approach – To test the research model, the primary data were collected with questionnaires distributed to students in their last year of vocational training programmes with and without entrepreneurship coursework, in a region of Northern Portugal. The data were analysed using structural equation modelling.
Findings – The results show that TPB dimensions substantially contribute to explaining students’ IEI. However, their family background makes only a minor contribution, and exposure to entrepreneurship education has no influence on IEI.
Research limitations/implications – Given these results, the authors propose a broader discussion is needed of the importance of introducing business classes into the curricula of vocational training programmes.
Originality/value – This research’s results show that IEI models need to assign greater importance to variables related to previous exposure to entrepreneurial experiences through direct family members. The findings contribute to a fuller understanding of IEI and the factors that precede the formation of this intention among students in training programmes.
Keywords Theory of planned behaviour, Entrepreneurial intention, Entrepreneurial education, Entrepreneurial family, Vocational training programmes

Paper type Research paper

Introduction
Against the backdrop of instability and uncertainty experienced by markets in the last decade, entrepreneurship has gained greater visibility in the scientific community, as well as in politics and business. Entrepreneurship is now seen as key to economic growth and development (e.g. Belitski and Desai, 2016; Rasmussen and Sorheim, 2006; Vanevenhoven, 2013; Wennickers et al., 1997) and social development (e.g. Hitt et al., 2002; Urbano et al., 2016). The Global Entrepreneurship Monitor (Kelley et al., 2015) reports that entrepreneurship has a positive impact on the economic development of regions and countries. The creation of new businesses stimulates local investment and leads to the creation of new jobs, competitiveness and, consequently, economic and social development.

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As a result of these findings, entrepreneurship education is at the top of political agendas, and it has been a high priority item in countries around the world for the past 15 years (Mitra and Matlay, 2004). The European Commission, in 2006, defined entrepreneurship as a life skill. Concurrently, the European Union (EU) called on member states to promote the development of entrepreneurial attitudes “from primary school to university, including also secondary level vocational education and technical institutions [...] [at the] tertiary level” (European Commission, 2006, p. 4). In 2012, the European Commission created an action plan entitled “Entrepreneurship 2020”, which consists of initiatives that promote entrepreneurship in the EU, such as the inclusion of entrepreneurship classes and practice in school programmes.

In the literature, researchers have argued that entrepreneurship education should start as early as possible (e.g. Fayolle et al., 2016; Hynes, 1996; Paço et al., 2011a; Rodrigues et al., 2010). An argument advanced to justify this approach is that the earlier schools start instilling entrepreneurial values and thinking in young people, the more effective the results will be.

Although research in the field of entrepreneurship education has substantially increased in recent years (Liñan and Fayolle, 2015), few studies have focused on vocational training programmes. Most studies have concentrated on universities (e.g. García-Rodríguez et al., 2016; Maresch et al., 2016; Romero et al., 2011), with some focusing on students in regular secondary education programmes (e.g. Elert et al., 2015; Kuopusjarvi and Lamminpaa, 2005). Von Graevenitz et al. (2010) report that the effects of exposure to entrepreneurship education are still little known and inconclusive. This suggests that more detailed studies are needed to obtain a better understanding of the wider effects of entrepreneurship education. Several appeals have been made in the literature for more studies taking into account different levels of education, as well as different profiles of students, while assessing the impacts of entrepreneurship education on entrepreneurial intention (e.g. Krueger and Brazeal, 1994; Von Graevenitz et al., 2010).

Given these research gaps, the benefits of field studies in this context could be considerable, and this topic continues to be a fertile area for the development of empirical knowledge within the field of entrepreneurship research. Based on the proven capacity of education to shape individuals’ behaviour, the present study sought to advance research on entrepreneurial intentions by evaluating the contributions of exposure to entrepreneurship education to the entrepreneurial intention of students in vocational training programmes. The research included entrepreneurial family background as an antecedent and used the theory of planned behaviour (TPB) as a theoretical framework.

Currently, vocational training programmes are considered equivalent to a secondary education, but they promote a set of skills and knowledge needed to perform professional tasks. In this context, various questions remain unanswered:

1. How important is entrepreneurship education for students who attend these programmes?
2. Does contact with entrepreneurship education increase the entrepreneurial intention of these students?
3. Can this exposure to entrepreneurship subject matter have a more significant impact than family background does on individual entrepreneurial intention (IEI)?

Among the few previous studies in this area, we found that a study carried out in Austria by Frank et al. (2005) and another in Portugal by Marques et al. (2012) were particularly noteworthy. These studies verified that secondary school students who attend vocational classes show greater entrepreneurial intention than students in classes with a more general focus.

The following section briefly discusses theoretical approaches to entrepreneurial intention and its antecedents, as well as entrepreneurship education. In the third
section, we describe the methodology used. The results are presented in the fourth section, and, in the last section, these are discussed along with the limitations and implications of the study.

**IEI and its antecedents**

Ajzen (1991, p. 181) defines intentions “are indications of how hard people are willing to try [and] of how much of an effort they are planning to exert, in order to perform […] a behavior”[1]. Thus, intention is a cognitive representation of a person’s willingness to participate in certain behaviors (Fayolle et al., 2006). According to Maresch et al. (2016), the stronger a person’s intention to perform a given behavior, the more likely that this behavior will be executed effectively.

One group of variables that have previously been studied as antecedents of IEI is demographics, including age, origin, gender, work experience, religion, training and family entrepreneurship background, among others (Liñán and Chen, 2009; Reynolds et al., 1994). Individual traits, such as risk taking, a need for autonomy and achievement and an internal locus of control, also appear to have a positive relationship with IEI (Rauch and Frese, 2007; Ferreira et al., 2012; Marques et al., 2012; Xu et al., 2016). Finally, a set of skills acquired from business and/or entrepreneurship education also tend to increase IEI (Entrialgo and Inglesias, 2016; Fayolle, 2013; Liñán, 2004a; Peterman and Kennedy, 2003).

These antecedents can all directly influence IEI. However, many studies have found that entrepreneurial behaviour is a decision – a planned action – involving beliefs about outcomes and the self-efficacy of potential entrepreneurs. These beliefs may function as mediators between the aforementioned antecedents and IEI. Some authors have emphasised students’ increasing interest in entrepreneurship as a career choice (Brenner et al., 1991; Kolvereid, 1996; Zellweger et al., 2010), even when this is a less obvious choice (Katz, 2003; Kuratko, 2005; Oosterbeek et al., 2010).

According to Liñan and Fayolle (2015), IEI models emerged from two strands of research: the entrepreneurial event model (e.g. Shapero and Sokol, 1982) and applications of TPB (e.g. Krueger and Carsrud, 1993). Both approaches have links to expectancy-value theory. Shapero and Sokol (1982) posit that entrepreneurial intent depends on perceptions of desirability (i.e. values) and feasibility (i.e. expectancies), while the TPB deals with beliefs about outcomes and social norms (i.e. values) and behavioural controls (i.e. expectancies). The TPB eventually became the dominant theory in models of IEI (Liñan and Fayolle, 2015). The following subsections seek to provide an understanding of how demographics and entrepreneurship education influence entrepreneurial intention through the mediation of the variables included in the TPB.

**Demographic variables**

According to Nandram and Samsom (2007), the literature on entrepreneurial behaviour as a predictive element of success or failure is largely based on the demographic characteristics of entrepreneurs. Krueger (1994) and Fernandez et al. (2006) examined the impact of factors such as gender, education, previous experience and family background on the development of perceptions and, consequently, on the intention to become an entrepreneur. Notably, some studies refer to a high propensity for entrepreneurship in individuals whose family members are entrepreneurs (Hisrich, 1990; Mathews and Moser, 1996; Rodrigues et al., 2008). Drennan et al. (2005) add that, for individuals who have a positive view of the entrepreneurial experience of family members, creating a business is desirable and achievable.

Strong family ties can generate different values, beliefs or levels of trust that favour individuals’ positive perceptions. Thus, values acquired through contact with family entrepreneurs generate more favourable perceptions of the desirability or viability of
creating a company (Liñán and Santos, 2007). Researchers have found strong evidence that individuals' different contacts and experiences can give them greater self-confidence about their chances of becoming an entrepreneur. Drennan et al. (2005) add that, for individuals who have a positive view of the entrepreneurial experiences of family members, creating their own business is both desirable and achievable.

Taking into account the present research’s target population (i.e. students attending vocational training programmes), this study included family histories to test the following research hypothesis:

\[ H1. \text{A family history of entrepreneurship increases the IEI of students in vocational training programmes.} \]

**Behavioural approach**

The behavioural approach applied in the present research was based on the TPB, which evolved out of the theory of reasoned action (TRA). The TRA predicts individuals' intentions through attitudes and subjective norms of behaviour (Ajzen and Fishbein, 1975). Subjective norms are individuals' perceptions of social pressures to engage in particular behaviours, while attitudes are the positive (i.e. favourable) or negative (i.e. unfavourable) ways individuals evaluate behavioural outcomes (Ajzen, 1985).

Ajzen (1991) notes that behaviours are a joint function of intentions and perceived behavioural control. Most significantly for the purposes of the present research, perceived behavioural control is also understood as an antecedent of intention. According to Ajzen (1991), control beliefs are considered much more important than normative beliefs when predicting intentions of engaging in a range of planned behaviours. Krueger and Carsrud (1993) suggest that entrepreneurial activity is a planned behaviour, so it can be adequately modelled using the TPB. As Figure 1 shows, TPB components may be influenced by external variables.

Krueger and Carsrud (1993) also argue that vicarious learning through exposure to other people's entrepreneurial activities is a powerful antecedent of beliefs related to TPB dimensions, particularly perceived control. In addition, Carr and Sequeira (2007) suggest that the effects of family-related past experiences of entrepreneurial intent are

![Figure 1. Theory of planned behaviour](https://example.com/figure1)

**Sources:** Adapted from Lopes-Costa and Amato-Vealey (2016)
partially mediated by attitudes, perceived family support and entrepreneurial self-efficacy. Xu et al. (2016) found solid evidence for this relationship as they confirmed that having close family members with entrepreneurial experience has a positive influence on all three TPB components. Therefore, the following hypotheses were proposed for the present research:

*H2a.* A family history of entrepreneurship improves students’ personal attitudes regarding entrepreneurship.

*H2b.* A family history of entrepreneurship strengthens students’ subjective norms favouring entrepreneurship.

*H2c.* A family history of entrepreneurship strengthens students’ perceived behavioural control of entrepreneurial behaviours.

The TPB has been widely applied in research on entrepreneurship (Fayolle et al., 2014; Liñan and Fayolle, 2015; Tegtmeier, 2012), particularly in models used to predict IEI. The TPB components are seen as frequently mediating the effects of traits and demographics (Miralles et al., 2016; Sánchez, 2013; Moriano et al., 2012; Liñán and Chen, 2009). Although results have previously been clearer for attitudes and control than for normative influences, we formulated research hypotheses involving all three components:

*H3a.* A positive relationship exists between students’ attitudes and their IEI.

*H3b.* A positive relationship exists between students’ subjective norms and their IEI.

*H3c.* A positive relationship exists between students’ perceived behavioural control and their IEI.

**Entrepreneurship education**

An analysis of various studies reveals that researchers have gathered preliminary evidence that entrepreneurship—or certain facets of it—can be taught. This contradicts the hypothesis that entrepreneurship is the result of genetic inheritance. That is, individuals can learn how to be entrepreneurs (Filion, 1999). Volkmann (2004) emphasises that entrepreneurship is not something acquired at birth or something innate but that it is developed by education. As stated previously, entrepreneurship depends on learned beliefs about behavioural expectations and controls. From this perspective, entrepreneurship education can cultivate relevant attitudes and intentions in students, as well as their ability to create new companies (Liñán, 2008).

The number and variety of entrepreneurship programmes being offered has increased significantly worldwide (Gartner and Vesper, 1994). This growth in the development of curricula and programmes on entrepreneurship has become so marked that entrepreneurship classes have been added to tertiary, secondary and even primary education programmes (Liñán, 2004b). Exposure to entrepreneurship subject matter can take place in several ways, for instance specific classes, modules introduced as part of other curricular units, short training programmes of one or two days and entrepreneurship boot camps and workshops.

Despite this expansion, the lack of a consensus in the literature on what can be understood as entrepreneurship education gives rise to several problems, including the ongoing discussion about the various objectives and different varieties of education. Liñán (2004a, p. 163) defines entrepreneurship education as: “The set of education and training activities, within the educational system or not, that tries to develop in the participants the intention to execute entrepreneurial behaviours, or some of the elements that affect this intention, such as entrepreneurial knowledge, the desire for entrepreneurial activity or its viability”.

Vocational training programmes
Most studies conducted on entrepreneurship education focus on the teaching of entrepreneurship in universities (Botha and Ras, 2016; Gutiérrez and Baquero, 2017; Rodrigues et al., 2010; Sánchez, 2013; Solomon et al., 2002; Souitaris et al., 2007). Few studies have been related to pre-university vocational programmes (e.g. Marques et al., 2012; Rodrigues et al., 2008), which also have an important role in the training and preparing of young people for the job market.

A combination of entrepreneurship education and vocational training programmes can have a strong impact on business start-ups, as a solid foundation developed through vocational education can support good business practices. Vocational training in this area is, thus, based on an entrepreneurial pedagogy that promotes a set of skills, aptitudes and attitudes, preparing young people to enter the job market and, thereby, avoid unemployment.

Taking into account the main objective of this study and the findings discussed in the previous paragraphs, we also constructed the following research hypothesis:

H4. Exposure to entrepreneurship education positively influences the IEI of students in vocational training programmes.

Various studies (Krueger and Carsrud, 1993; Schlaegel and Koenig, 2014; Maresch et al., 2016) have revealed that the effects of entrepreneurship education on entrepreneurial intention tend to be mediated by TPB components. A meta-analysis that evaluated results for TPB dimensions in research on entrepreneurship found that personal attitudes, subjective norms and perceived behavioural control explain 39 per cent of variance in entrepreneurial intention (Schlaegel and Koenig, 2014). Thus, the TPB is considered a valid framework for researching the relationship between entrepreneurship education and entrepreneurial behaviour (Rauch and Hulsink, 2016). We, therefore, formulated the following hypotheses:

H5a. Entrepreneurship education improves students’ personal attitudes regarding entrepreneurship.

H5b. Entrepreneurship education strengthens students’ subjective norms favouring entrepreneurship.

H5c. Entrepreneurship education strengthens students’ perceived behavioural control of entrepreneurial behaviours.

Conceptual research model

The conceptual research model presented in Figure 2 was developed according to the research objectives and hypotheses presented in the previous subsections.

Methodology

This cross-sectional study was carried out on a sample of 289 students who were in their third year of vocational training (i.e. International Standard Classification of Education Level 3) classes in the north of Portugal. Table I shows the schools, classes and number of students participating in this study.

The data were collected with a questionnaire survey consisting of groups of questions related to the demographic profile and behavioural and entrepreneurial intention of the respondents. The scales used (i.e. endogenous variables in Figure 2) were originally developed by Liñán and Chen (2009), and they have been validated in other studies carried out in Portugal by Marques et al. (2012), Rodrigues et al. (2010) and Rodrigues et al. (2012). All items were measured on five-point Likert-type scales. A disapproval/approval scale was used for the subjective norm items and a discordance/agreement scale for the remaining variables. Regarding the exogenous variables, the conceptual model incorporated two
dummy variables: the existence or not of entrepreneurship among family members and exposure or not to entrepreneurship subject matter in ongoing vocational training.

The scales measuring the four TPB components were subjected to purification and validation through confirmatory factor analysis. The results for the validated scales were then averaged and used in conjunction with dummy variables in the path model depicted in Figure 2. The coefficients’ significance was estimated by bootstrapping with 2,000 samples. IBM SPSS Amos software was used to perform both the confirmatory factor analysis and path analysis.

Sample characteristics
Table II shows the sample of students’ characteristics, which was relatively well balanced regarding gender. Most students were 19 years old or above, which meant that they were
older than expected for their educational level. More than half reported having a family history of entrepreneurship. Almost four out of five had enrolled in coursework related to entrepreneurship.

**Results**

Table III presents the endogenous variables statistics. The dependent variable, IEI, falls in the middle of the scale, with an average score of 3. Regarding the TPB components, the subjective norms scale presents the highest mean value (3.84). The attitudes measure is relatively favourable, with an average of 3.54. Finally, the perceived behavioural control variable presents an average slightly lower than the midpoint (2.89) of the scale. All items produced acceptable values of both skewness and kurtosis, indicating that their respective distributions do not deviate substantially from normal.

Table III also shows the statistics commonly employed to assess scales’ convergent validity and reliability, which were generated after the scales were purified by removing all items with a measurement error of above 50 per cent (MacKenzie et al., 2011). The factor loadings range between 0.76 and 0.90, the variance extracted (i.e. sum of squared factor loadings) ranges between 0.59 and 0.815.
from 0.60 to 0.70 and the composite reliability exceeds 0.80 for all latent variables. According to Fornell and Larcker (1981), a latent measurement has convergent validity if the average variance extracted exceeds 0.50, and this measurement is reliable if the composite reliability coefficient exceeds 0.70. The present measurement model also exhibited goodness of fit ($\chi^2$/degree of freedom = 2.026; confirmatory fit index = 0.951; root mean square error of approximation = 0.06; $p (\leq 0.05) = 0.202$).

A path model was tested to verify to what extent the TPB helps explain possible effects of entrepreneurship education combined with a family history of entrepreneurship on students’ IEI. Figure 3 shows the results for direct effects. We postulated that IEI depends directly on the TPB components and may depend directly and/or indirectly on family history and exposure to entrepreneurship class content. The latter (i.e. the exogenous variables) were coded with the values 0 and 1, according to whether these characteristics were absent or present. Regarding the endogenous variables, the averages of the respective items were used as measures.

The model explains 58.4 per cent of the variation of IEI, which largely depends on the students’ attitudes and perceived behavioural control. A family history of entrepreneurship has a significant positive effect on IEI, either directly or through the mediation of behavioural control, but this impact is quite small. Entrepreneurship education has no effect on IEI, either directly or indirectly. The following discussion presents the assessment of the hypotheses formulated for this research.

**Discussion**

$H1$ states that the students’ family background of entrepreneurship increases their IEI. This relationship was confirmed despite its weak effect, thus reinforcing previous findings that individuals who have family members involved in entrepreneurial businesses tend to have a higher level of entrepreneurial intention (Carr and Sequeira, 2007; Crant, 1996; Hisrich, 1990; Mathews and Moser, 1996; Xu et al., 2016).
H2a-H2c posit that a family background of entrepreneurship favours students’ positive behavioural, normative and control beliefs about entrepreneurship. The present results suggest that only control beliefs can be induced by vicarious learning through exposure to entrepreneurial activity, as predicted by Krueger and Carsrud (1993). The current findings, thus, contradict Xu et al.’s (2016) consistently higher scores for all beliefs among students who have close family members with entrepreneurial experience. In addition, our results are the opposite of those presented by Zapkau et al. (2015), who concluded that previous exposure to entrepreneurial activity may increase normative beliefs but that it does not ensure the individuals in question have the tacit knowledge needed to develop the self-efficacy and control beliefs required to start up a business.

H3a-H3c postulate that a positive relationship exists between students’ beliefs and intentions. Our results are in line with most of the literature reviewed, as the findings include moderate effects of attitudes and perceived behavioural control over IEI but no direct effect of normative beliefs. Various researchers have suggested that subjective norms could exert an indirect effect on IEI by favouring behavioural (Paco et al., 2011a, 2011b) and/or control beliefs (Linan and Chen, 2009).

H4, which states that contact with entrepreneurship education influences students’ IEI, was not supported by our study of vocational training programmes. Although this result is unexpected, it is not unprecedented. A previous study focusing on Portuguese secondary students also failed to find a relationship between exposure to entrepreneurship education and students’ IEI in either vocational or general education programmes (Marques et al., 2012). In addition, Rodrigues et al. (2012) measured the attitudes and intentions of Portuguese students in the ninth grade before and after a course on entrepreneurship and concluded that this does not improve either students’ attitudes or intentions.

H5a-H5c suggests that entrepreneurship education has a positive effect on students’ beliefs about entrepreneurial behaviours, social norms and behavioural control. The results for this sample of vocational trainees do not provide support for any of these effects, in line with findings from Maresch et al.’s (2016) study of a sample of university students.

The combined results for H4 and H5a-H5c confirm that exposure to subject matter related to entrepreneurship in vocational training at the secondary level does not lead either to more favourable beliefs or to stronger intentions to engage in entrepreneurial activities. Further research is needed to assess if this contradiction of the TPB is due to poor quality or inadequate programmes (Rodrigues et al., 2012) or to the measurement of the exogenous variables since exposure to entrepreneurship subjects may involve quite different learning processes and outcomes. As mentioned previously, about four out of five students in the present sample had enrolled in different entrepreneurship-related classes, so the data may have included a high level of heterogeneity.

This result may confirm the validity of Fayolle’s (2013) argument that the future of entrepreneurship education depends on the self-consistency, usefulness, effectiveness and efficiency of entrepreneurship classes and programmes at various levels of education. Society is the “client” of entrepreneurship education, which means that entrepreneurship learning outcomes must meet the socioeconomic needs of all actors involved (i.e. students, families, organisations and countries). Researchers, thus, need to discuss and study additional questions, including:

1. What is the best age at which to expose students to entrepreneurship classes?
2. How should entrepreneurship be taught in vocational schools?
3. What are the best pedagogical methods to use in entrepreneurship education?

According to the European Commission (2012), training for teachers in entrepreneurship subject matter is important to extend the teaching of entrepreneurship at all levels.
The present study’s results show a need still exists for the development of entrepreneurship teaching methods that can positively influence the entrepreneurial beliefs and intentions of trainees in vocational education programmes at the secondary level.

Conclusions
The rationale for this research was based on the existing evidence that students completing vocational education have difficulty entering the job market, especially in business contexts in which entrepreneurship is a mechanism for job creation. As stated in the “Entrepreneurship 2020 Action Plan” developed by the European Commission (2013), investment in entrepreneurship education offers one of the highest rates of returns that the EU can enjoy. Thus, the main objective of this plan is to include the teaching and practicing of entrepreneurship in education programmes.

Given the above goal, the present research’s most important aim was to understand whether and how entrepreneurship subject matter contributes to developing entrepreneurial attitudes and intentions. To this end, the TPB was used as a framework to assess effects on students’ entrepreneurial intentions. The results suggest that personal attitudes and perceived behavioural control have the most influence on IEI, independently of the influence of family, friends or colleagues.

Regarding a family history of entrepreneurship, family experiences of entrepreneurial activities have a weak positive influence on students’ intentions. However, exposure to entrepreneurship education does not strengthen either intentions to start up a business or beliefs regarding this process. These findings support the conclusion that the various types of entrepreneurship content offered by vocational secondary education programmes in Portugal do not effectively foster favourable attitudes towards entrepreneurship among students.

Authors such as Cunha and Heckman (2007) advocate the importance of education and/or training in the early years of life since the skills acquired in this phase have a key role in the acquisition of cognitive and non-cognitive competencies. Entrepreneurship education should not be seen as creating people who are entrepreneurial and who create their own jobs but instead as training individuals to take charge of their own future by being creative, autonomous and able to find solutions to problems that they may encounter (Steinberg, 2005).

Regardless, the present research showed that this region also still has a long way to go with regard to entrepreneurship education in vocational schools. Despite the generalised opinion that all programmes and schools are responsible for entrepreneurship training and that this is important for students, most teachers currently do not have specific training in entrepreneurship. Therefore, naturally, this means that initiatives seeking to promote and/or strengthen the non-cognitive skills needed in entrepreneurial activities fall short of the ideal.

Thus, this study’s findings contribute to the existing scientific literature by helping to clarify the role of entrepreneurship education and family history in fostering entrepreneurial intentions. The results also confirm for teaching staff and programme managers, as well as education stakeholders in general, that entrepreneurial education is fundamental for students. However, the way entrepreneurship subject matter is taught turns out to be even more important. Teachers must keep in mind that they are the pillars and agents of change, which makes well-trained instructors crucial to ensuring good pedagogical practices in entrepreneurship education (Benesova, 2015).

Limitations and recommendations
This study was subject to some limitations that could be of relevance to future research. One limitation is that the questionnaires were only distributed to students of vocational schools in a region of Northern Portugal, so similar studies could be extended to include other regions of this or other countries. Another limitation to be considered is this study’s cross-sectional nature since questionnaires might get better results if they are
administered to students before and after exposure to entrepreneurship education, as was done by Boissin and Emin (2007), Fayolle et al. (2006) and Nabi et al. (2018).

The limitations set forth in the preceding paragraph suggest some future lines of research. First, researchers may want to repeat this study with a more diverse sample, covering a larger number of schools preferably in more than one region. Second, a longitudinal study could be used to assess changes in students’ beliefs and intentions. Last, a pedagogical methodology for entrepreneurship education needs to be developed with the necessary adjustments to work well in vocational training programmes, and a pilot study could be carried out, implementing and evaluating this methodology over a school year at a vocational school in all the classes offered.

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