

## CLASSROOM INTERDISCIPLINARY DIVERSITY AND ENTREPRENEURIAL INTENTIONS

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- **Purpose:**

This article examines the impact of classroom interdisciplinary diversity, a type of classroom diversity that has been under-examined by previous literature, on the formation of university students' entrepreneurial intentions.

- **Design/methodology/approach:**

Based on Ajzen's theory of planned behaviour (TPB) and the interactionist model of creative behaviour by Woodman *et al.* (1993), this article provides empirical evidence demonstrating that classroom interdisciplinary diversity is important in the formation of university students' entrepreneurial intentions at early educational stages using a cross-sectional study design and survey data on first-year business school students and partial least Squares (PLS) analysis.

- **Findings:**

Classroom interdisciplinary diversity is important in the formation of university students' entrepreneurial intentions through its positive impact on entrepreneurial perceived behavioural control (self-efficacy), a key antecedent of entrepreneurial intentions.

- **Practical implications:**

The results have important implications for educational practice as well as for both public and private organizations willing to promote entrepreneurial activity, in particular, the positive effects of combining people with different profiles and career fields of interest on entrepreneurial perceived behavioural control (self-efficacy).

- **Originality/value:**

This study contributes to the scant literature on early university experiences in entrepreneurship education and their influence on entrepreneurial intentions. It studies the impact of an under-examined dimension of diversity (classroom interdisciplinary diversity) on the formation of students' entrepreneurial intentions.

- **Keywords:** entrepreneurial intentions; interdisciplinary groups; self-efficacy

### **Abstract**

*Drawing on Ajzen's (1991) theory of planned behaviour (TPB) and the interactionist model of creative behaviour by Woodman et al. (1993), this article examines the impact of classroom interdisciplinary diversity (mixing students with different profiles and career fields of interest in the classroom), a type of classroom diversity that has been under-examined in the previous literature, on students' entrepreneurial intentions (EI). Based on survey data and a partial least squares (PLS) analysis, we provide empirical evidence on the value of classroom interdisciplinary diversity in increasing the EI of first-year students through its impact on entrepreneurial perceived behavioural control, which is instrumental in the formation of EI. We contribute to the scant literature on early university experiences of entrepreneurship education and the influence of these experiences on entrepreneurial intentions. The results have important implications for educational practice as well as for both public and private organizations promoting entrepreneurial activity.*

**Keywords:** entrepreneurial intentions; classroom interdisciplinary diversity; entrepreneurship education; first year in higher education.

### **Introduction**

A major challenge for any economy is the promotion of entrepreneurship and the creation of new jobs. Students are potential entrepreneurs, and it is important to

understand the way in which students form entrepreneurial intentions because entrepreneurial intentions are the single best predictor of actual entrepreneurship (Krueger *et al.*, 2000).

Previous research has shown that the entrepreneurial intentions of university students remain stable after graduation (Audet 2004; Liñán, Rodríguez-Cohard, and Guzmán, 2011); however, although a main objective of academic institutions such as business schools is to promote entrepreneurship among students, graduate needs for entrepreneurship education may not match actual outcomes in terms of entrepreneurial skills, knowledge, and attitudes (Matlay, 2008). The proportion of students who create their own businesses after graduating remains very low. For example, Sieger *et al.* (2011), using a sample of 27 countries, reported that only approximately 14 percent of students intend to found or assume control of a company directly after completing their studies; in France, this proportion is approximately nine percent. Consequently, it is crucial for academic institutions to identify the actions and academic environments that more effectively promote students' entrepreneurial intentions. This need is particularly relevant for students at an early stage of their educational development because there is more room for academic action for these students, and it is still relatively possible for the academic environment and content of academic programmes to influence entrepreneurial intentions (Maritz, 2017). Despite the importance of this student population for the analysis of the formation of entrepreneurial intentions, this population has been largely ignored by the literature, which mostly focuses on students in their final year (Fayolle *et al.*, 2006; Krueger *et al.*, 2000; Veciana *et al.*, 2005). The importance of addressing the scarcity of the research on the early university experiences in entrepreneurial education and the influence of these experiences on entrepreneurial intentions has already been highlighted by the previous literature (Nabi *et al.*, 2016). There has been recent recognition that it is important to develop entrepreneurial intentions at an early stage (EU, 2012; Smith and

Beasley, 2011); for example, DeGeorge and Fayolle (2008) found that the early development of entrepreneurial intentions can lead to later persistence in the intention to start a business.

In this study, based on the TPB (Ajzen 1991) and the interactionist model of creative behaviour by Woodman *et al.* (1993), we examine the value of classroom interdisciplinary diversity in increasing the entrepreneurial intentions of first-year students. The educational benefits of classroom diversity have been highlighted by the education literature (Chang *et al.*, 2004; Chang *et al.*, 2006; Gurin *et al.*, 2002; Hu and Kuh, 2003; Jayakumar, 2008; Milem, 2003; Pascarella *et al.*, 1996; Loes *et al.*, 2012). Many classic and contemporary theories suggest that exposure to diversity (for instance, in terms of race, interests, and values) plays a key role in student learning and development (Hurtado, 2001). Students who interact with diverse peers show a greater openness to diverse perspectives and a willingness to challenge their own beliefs (Pascarella *et al.*, 1996). However, the empirical studies on classroom diversity mostly focus on gender and ethnic origin, and they have examined the impact of these factors almost exclusively on students' academic performance (Pascarella *et al.*, 1996; Hurtado, 2001; Zeynep *et al.*, 2006). We investigate one type of classroom diversity that has been under-examined by the previous literature: classroom interdisciplinary diversity. Interdisciplinary groups in this research are conceived as a mixture of students with different profiles and career fields of interest.

Due to the lack of a formal theory and additional research that explains how classroom interdisciplinary diversity affects entrepreneurial intentions, this research focuses using the theoretical perspectives of the TPB (Ajzen, 1991) and the interactionist model of creative behaviour (Woodman *et al.*, 1993) to observe if this particular type of diversity really drives entrepreneurial intentions. This article is original because it contributes to the entrepreneurship education literature by providing empirical evidence

that classroom interdisciplinary diversity is significant in the formation of students' entrepreneurial intentions. It also contributes to the development of the TPB and the interactionist model of creative behaviour because new theoretical relationships are proposed and tested, including the analysis of constructs vaguely studied in the literature. These results have important implications for academic institutions such as business schools, as well as public and private universities that offer entrepreneurship courses and are interested in the promotion of entrepreneurial activity. The results can also be of interest to other stakeholders, including businesses, incubators in partnership with academic institutions and other organizations providing financial support to academic institutions for the promotion of entrepreneurial activity.

The remainder of the article is organized as follows: first, in the theoretical framework and hypotheses section, we review the literature on entrepreneurial intentions and the TPB and on the benefits of diversity in a variety of environments to develop our hypotheses; second, we describe the research design, data, and measures we use for the different variables and the empirical analysis in the method section; third, we discuss our main results; finally, we conclude and provide practical implications for academic institutions, discuss this study's limitations and make suggestions for future research in the conclusions section.

## **Theoretical framework and hypotheses**

### *Entrepreneurial Intentions and the theory of planned behaviour*

The entrepreneurship literature has long recognized that intentions are key precursors to the creation of a new company (Bird, 1988). The psychological literature studies intentions in terms of process models (intention models), including models based on Ajzen's (1991) theory of planned behaviour (TPB). Although several models such as the entrepreneurial event model (Shapero and Sokol, 1982) and the model of implementing

entrepreneurial ideas (Bird, 1988) are present in the literature, the TPB is the best-established model in the literature and is extensively used in entrepreneurship research (Liñán and Chen, 2009; Liñán *et al.*, 2011; Rauch and Hulsink, 2015). The TPB explains entrepreneurial intentions in particular (Iakovleva and Solesvik, 2014; Schlaegel and Koenig, 2013; Souitaris *et al.*, 2007; Veciana *et al.*, 2005; Wu and Wu, 2008).

The TPB helps to explain and predict entrepreneurial activities by taking into account both personal and social factors (Krueger *et al.*, 2000). According to the TPB, entrepreneurial intentions (EI) are directly influenced by three motivational factors:

- Entrepreneurial personal attitude (PA), which refers to the degree of attraction towards becoming an entrepreneur and believing that it will lead to a favourable outcome;
- Entrepreneurial perceived behavioural control (PBC), which refers to the perception of the ease or difficulty of becoming an entrepreneur. The PBC concept is a proxy of self-efficacy defined by Bandura (1997: 193) as “the conviction that one can successfully execute the behavior required to produce the outcomes”. In some studies (Krueger *et al.*, 2000; Moriano, 2005), self-efficacy applied to entrepreneurship intentions has replaced PBC by showing how confident one feels when creating a new company. Both PBC and self-efficacy refer to the self-perception of the ability to perform a certain task, for example, starting a new business; and
- Perceived subjective norms (SN), which refers to the perception that “reference people” (friends and family, for instance) may or may not approve of the decision to become an entrepreneur.

Previous research has found strong evidence supporting the TPB, particularly the influence of PA and PBC on EI (Armitage and Conner, 2001; Rauch and Hulsink, 2015).

However, studies on the influence of SN on EI are not conclusive (Krueger *et al.*, 2000; Autio *et al.*, 2001).

Human capital and other demographic factors also have an influence on EI through the three main TPB components (Boyd and Vozikis, 1994; Liñán and Chen, 2009; Liñán *et al.*, 2011). Marvel *et al.* (2016) showed, through meta-analysis, the importance of human capital in entrepreneurship; they reported that the majority of empirical examinations focused on direct relationships between human capital and entrepreneurial outcomes. Among the most common human capital constructs in entrepreneurship research, Marvel *et al.* (2016) identified work experience, education, entrepreneurial experience, demographics, and cognition/psychological factors, mostly measured at the individual level. These authors distinguished between task-related human capital constructs (e.g., start-up experience and industry experience) and non-task-related human capital constructs (e.g., formal education and employment experience), arguing that task-related constructs may be of greater benefit to understanding entrepreneurship. These authors also distinguished between human capital investments (e.g., knowledge and skills) and human capital outcomes (e.g., entrepreneurship-success relationship), as the former is more common than the latter in entrepreneurship research but not necessarily more useful to understanding entrepreneurship.

In relation to gender, previous research suggests that gender influences attitudes towards new business creation (Kolvereid, 1996; Mazzarol *et al.*, 1999) and self-efficacy (Zhao *et al.*, 2005). Role models influence self-efficacy, personal attraction and SN (Boyd and Vozikis, 1994; Scherer *et al.*, 1991). Age or work experience influence a person's propensity to start a company (Cooper, 1993; Robinson *et al.*, 1991). Personal initiative mediates the effect of self-efficacy on entrepreneurial intentions (Solesvik, 2017). Additionally, self-efficacy and personality traits such as openness interact to explain entrepreneurial intentions (Wang *et al.*, 2016).

We use the TPB to examine the impact of classroom interdisciplinary diversity on students' EI. Following previous studies that also use the TPB model (Liñán *et al.*, 2011; Rauch and Hulsink, 2015), we propose the following set of hypotheses as H1 to empirically confirm the functioning of the TPB model with our data:

*H1: our data confirms the functioning of the TPB model:*

*H1a: Entrepreneurial PA has a positive and significant impact on EI.*

*H1b: Entrepreneurial PBC has a positive and significant impact on EI.*

*H1c: SN has a positive and significant impact on EI.*

*H1d: SN has a positive and significant impact on entrepreneurial PA.*

*H1e: SN has a positive and significant impact on entrepreneurial PBC.*

#### *Classroom Interdisciplinary Diversity and EI*

The benefits of diversity, beyond the search for social equality, have long been acknowledged in a variety of environments. For example, top management team diversity is assumed to have a positive impact on company performance (Boone and Hendricks, 2009; Naranjo-Gil *et al.*, 2008; Nielsen, 2010) by enhancing innovation (Bantel and Jackson, 1989). Diversity is also considered favourable for corporate boards (Johnson *et al.*, 2013) because it is positively associated with company value, performance, innovation and strategic change (Simkins and Simpson, 2003; Erhardt *et al.*, 2003; Miller and Triana, 2009; Haynes and Hillman, 2010).

The benefits of diversity in the workplace have also been extensively documented (Mannix and Neale, 2005; Nkomo and Cox, 1996). In organizational performance studies, the diversity dimensions typically examined are function/education (Naranjo-Gil *et al.*, 2008), gender (Carter *et al.*, 2003; Carter *et al.*, 2010), race (Williams and O'Reilly, 1998), ethnicity (Jackson and Joshi, 2004) and age (Kunze *et al.*, 2013; Richard and Shelor, 2002). Studies have found that the advantages of diversity include increased



creativity and innovation (Bassett-Jones, 2005; Milliken and Martins, 1996; Richard, 2000) and increased productivity (Joshi *et al.*, 2006).

In the entrepreneurship education literature, an overwhelming majority of studies have shown the positive impact of entrepreneurship education on entrepreneurial self-efficacy and entrepreneurial intentions (Nabi *et al.*, 2017; Segal *et al.*, 2007; Solesvik *et al.*, 2013; Zhao *et al.*, 2005). Other studies, such as that by Piperopoulos and Dimov (2015), showed that the impact on entrepreneurial intentions depends on the orientation (theoretical or practical) of the entrepreneurship course. However, research that focuses on the potential influence of diversity on entrepreneurial self-efficacy and intentions is surprisingly scarce. In one study, Zhao *et al.* (2005) showed that a diversity of learning experiences in entrepreneurship courses promotes the development of self-efficacy. Wu and Wu (2008) analysed the impact of academic major on EI through TPB dimensions (PA, SN, and PBC) on university students in China. They found differences in PA, PBC and EI across university students with different academic majors. The non-ERM (non-entrepreneurship related majors) students showed lower attitudes towards start-ups compared to ERM and engineering students; the non-ERM students seemed to feel that they possessed less of an ability to create a new venture, and the comparison showed the lowest levels of EI for students from non-ERM majors.

Padilla-Angulo (2017) found that the participation of first-year students in students associations, where students with diverse academic profiles are mixed, increases first-year students' EI through their impact on entrepreneurial attitudes, which are instrumental in the formation of EI.

In a longitudinal analysis, Barakat *et al.* (2010) examined five cohorts of 263 students in the arts, social sciences, sciences, maths, engineering and other disciplines to study the impact of an entrepreneurship programme on students' entrepreneurial self-efficacy and the differences between students, depending on their disciplines over time.

The results showed that mathematicians, scientists and engineers have higher levels of self-efficacy than arts, humanities and social science students; British students show greater improvement in self-efficacy than overseas students; and women are less self-efficacious than men, which is in line with some previous literature on gender (Chen *et al.*, 1998; Kickul *et al.*, 2008; Marlino and Wilson, 2002). They also showed that the diversity of students and the interactions between gender and time as well as discipline and time led to different self-efficacy effects.

Many educational studies have documented the benefits of diversity on a wide range of academic outcomes measuring performance (Chang, 1999, 2001; Chang *et al.*, 2004; Chang *et al.*, 2006; Gurin *et al.*, 2002; Hansen *et al.*, 2015; Hu and Kuh, 2003; Hurtado, 2001; Jayakumar, 2008; Milem, 2003; Pascarella *et al.*, 1996; Loes *et al.*, 2012). However, these studies have mostly focused on gender, race and ethnic diversity, while other important dimensions of diversity such as differences in career fields of interests and profiles (i.e., interdisciplinary diversity) remain under-explored.

Some researchers have investigated the current practices in entrepreneurship education, highlighting the importance of the actual entrepreneurship experience of entrepreneurship educators, personal motivation, a combination of theoretical and practical pedagogical approaches, and a mix of embedded and extracurricular entrepreneurship courses (Penaluna *et al.*, 2012). Rae (2004) emphasized the use of “practical theories” emerging from the implicit, intuitive, tacit, and situated resource of entrepreneurial practice, in opposition to academic theories, which are abstract, generalized, explicit, and seek to be provable. Maritz (2017) worked on the identification of current and missing dimensions of entrepreneurship education programs, Kabongo and McCaskey (2011) studied the profiles of entrepreneurship educators in the USA, and Matlay (2008) studied the actual outcomes of entrepreneurship education.

Some authors, such as Gurin *et al.* (2002) and Loes *et al.* (2012), suggested that exposure to diversity might foster the development of more complex forms of thought, including the capability to think critically, and some studies found a positive relationship between critical thinking and self-efficacy (Bandura, 2001; Zulkosky, 2009; Greene *et al.*, 2004). Jones and Matlay (2011) proposed a model to audit entrepreneurship education programmes based on the awareness of the value that heterogeneity has in student learning.

Entrepreneurship has long been recognized as an act of creativity (Amabile, 1996; Nyström, 1993; Ward, 2004). Studies on students' creativity have shown that creative classroom environments are critical for students' propensity to engage in creative acts (De Souza Fleith, 2000; King Mildrum, 2000).

In the organizational literature, the interactionist model of creative behaviour by Woodman *et al.* 1993, states that, "individual creativity is a function of antecedent conditions, cognitive styles and abilities, personality such as self-efficacy, motivational factors, and knowledge." As stated by Woodman *et al.* (1993): "These individual factors are influenced by and influence social and contextual factors. The group in which individual creativity occurs establishes the immediate social influences on individual creativity" (p. 201). In the literature on work groups, King and Anderson (1990) suggested that creative outcomes are more likely to appear in groups that are composed of individuals from diverse fields and/or functional backgrounds. In a similar vein, Payne (1990) identified group functional diversity as one of the crucial factors in creative performance. Andrews (1979) provided empirical evidence of the positive impact of group diversity on the creative performance of R&D teams. Thornburg (1991) also found that group diversity fosters group creativity. According to these authors, group diversity fosters group creativity by providing an environment in which members can increase their

knowledge through others, not only by adding others' knowledge to their own previous knowledge, but by using others' knowledge to improve the usefulness of their own skills.

Other scholars and practitioners have suggested that group cognitive diversity is critical for enhanced idea generation (Paulus, 2000; Jackson, 1996; Gardenswartz and Rowe, 1994). Alves *et al.* (2007) also found that functional and disciplinary group diversity fosters creativity and innovation.

Based on this empirical evidence and theory, we examine whether classroom interdisciplinary diversity influences students' EI in the context of entrepreneurship education. We expect that classroom interdisciplinary diversity will positively influence students EI directly and/or indirectly through the three EI antecedents (PBC, SN and PA). For this purpose, interdisciplinary groups are defined as groups in which students with different career fields of interest or profiles are mixed. Consequently, based on the interactionist model of creative behaviour, we hypothesize that:

*H2: Classroom interdisciplinary diversity has a positive and significant impact on students EI directly and/or indirectly through EI antecedents (PBC, SN and PA).*

*H2a: Classroom interdisciplinary diversity has a positive and significant impact on entrepreneurial PA.*

*H2b: Classroom interdisciplinary diversity has a positive and significant impact on entrepreneurial SN.*

*H2c: Classroom interdisciplinary diversity has a positive and significant impact on entrepreneurial PBC*

*H2d: Classroom interdisciplinary diversity has a positive and significant impact on entrepreneurial EI.*

Figure 1 shows the conceptual framework to be tested:

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Insert Figure 1 about here

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## **Method**

### *Research design*

A quantitative cross-sectional study design was used in this research, according to the maturity of the TPB and the interactionist model of creative behaviour (Edmondson and McManus, 2007). Lortie and Castogiovanni (2015) noted that many papers using the TPB are empirical: “This is somewhat expected as the TPB is a well-established theory and empirical research often tests hypotheses derived from established theory” (p. 14). In addition, many of these papers used quantitative and cross-sectional data.

### *Data*

We examine a sample of business school students. Samples of students have already been extensively used in the entrepreneurship literature for analysing the formation of EI (Fayolle *et al.*, 2006; Kolvereid, 1996; Krueger *et al.*, 2000; Veciana *et al.*, 2005).

In particular, we analyse first-year students from a French business school. The school places great emphasis on entrepreneurship and it offers programmes that are highly focused on this subject. At this school, students take courses on entrepreneurship from the very beginning.

The sample we analyse includes students from three schools in different fields: the School of Management and Business, the School of Tourism and Leisure

Management, and the School of Design. The School of Management and Business offers a Bachelor's in International Management and the Grande École Program (PGE, a generalist programme in management). The School of Tourism offers a Bachelor's in Tourism, Leisure and Travel Management, and the Design School offers a Bachelor's in Graphic Arts and Design. The students in each school differ in terms of profile, career fields of interest, skills and academic background.

First-year students of the bachelor's programme in each school have some courses in common and interact and work together on many different projects during the academic year.

To collect data, questionnaires were administered to students while they were in class by the same researcher at the end of the second semester (May 2015). Students had been studying full time at the school, so they had been in the same courses, interacting and working together for two complete semesters. We collected 258 questionnaires. From these, 21 questionnaires were removed due to a high level of missing data. From the 237 remaining questionnaires, 124 correspond to students in interdisciplinary (mixed) groups and 113 to students in non-interdisciplinary (non-mixed) groups. Table 1 provides descriptive statistics for the full sample, the interdisciplinary group and the non-interdisciplinary group. Missing data in the final sample of 237 questionnaires are negligible (less than two percent).

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Insert Table 1 about here

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Table 2 provides descriptive statistics of the students in the interdisciplinary group by programme. Students from the different programmes are, on average, the same age but

differ slightly in terms of gender, knowledge of at least one entrepreneur and work experience.

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Insert Table 2 about here

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Table 3 provides descriptive statistics about the academic backgrounds of the students from the interdisciplinary and non-interdisciplinary groups by programme.

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Insert Table 3 about here

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### *Measures*

We adapted *The Entrepreneurial Intention Questionnaire (EIQ)* developed by Liñán, Urbano, and Guerrero (2011) to test the proposed hypotheses. The items used to measure the variables in the entrepreneurial intention model are shown in the Appendix. The questionnaire was translated into French by native speakers. We analysed the validity and reliability of scales to ensure the appropriateness of the survey instrument in the French version.

The questionnaire uses Likert-type scales to measure the four central constructs of the theory of planned behaviour (EI, PA, PBC and SN). All four constructs are measured as reflective models, in which each latent variable is assumed to be the cause of the corresponding observable variables or items in the questionnaire. As a result of the confirmatory factor analysis, two items were deleted from the entrepreneurial personal attraction construct. Regarding demographic variables, age is measured in years, and the other three demographic variables are treated as dummy variables: the value one means male (for the Gender variable), knows at least one entrepreneur personally (for the Role

Model variable) and has work experience (for the Work Experience variable). The value zero means the opposite. The variable In Interdisciplinary Group is a dummy variable equal to one if the respondent belongs to an interdisciplinary group and zero otherwise. Apart from these variables, we also include the control variable Programme to account for the potential impact of programme characteristics on the different constructs in the model.

#### *Data analysis*

Following previous literature (Liñán *et al.*, 2011), we use partial least squares and SmartPLS V3 software, which has extensively been used in the behavioural sciences over the last several years (Shook *et al.*, 2004). This technique is considered to be appropriate for exploratory studies (Sánchez-Franco and Roldán, 2005). The analysis of the measurement model with all of the included items showed satisfactory factor loadings and construct reliability. However, the discriminant validity analysis showed some problems regarding the constructs of entrepreneurial intentions and entrepreneurial personal attraction. Some items loaded heavily on both constructs. To address this problem, we examined the cross factor loadings for entrepreneurial intentions and personal attraction and removed those items with the closest factor loadings for the two constructs one by one until we obtained satisfactory discriminant validity. We ultimately eliminated items EPA6 and EPA18. Table 4 reports the results for the reliability and convergent validity analysis after the elimination of these two items. The factor loadings are satisfactory for all of the remaining items and are above the 0.4 threshold that was proposed by Floyd and Widaman (1995) and Kline (2013). Table 5 reports the convergent and discriminant validity results. The diagonal elements are the square root of the average variance extracted (AVE) between the constructs and their measures. The off-diagonal elements are the correlations between the constructs. The discriminant validity is



confirmed because the diagonal elements are larger than the off-diagonal elements in the same row and column.

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*Insert Table 4 here*

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*Insert Table 5 here*

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## **Results and discussion**

Figure 2 presents the results of the partial least squares procedure. The model explains 78 percent of the variance in entrepreneurial intentions. This result is highly satisfactory because most previous studies using linear models typically explain less than 70 percent. Moreover, the model also explains nearly 30 percent of the variance in PA and PBC. The analysis supports the core entrepreneurial intention model. Only the relationship between SN and EI is not significant, in accordance with results from previous research (Autio *et al.*, 2001; Krueger *et al.*, 2000; Liñán and Chen, 2009). Therefore, H1 is confirmed (except for H1c).

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Insert Figure 2 about here

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We can observe that being in an interdisciplinary group has a positive and significant impact on PBC (0.232). Thus, the model confirms H2c: being in an

interdisciplinary group contributes to higher levels of PBC. That is, mixing students who have different career fields of interest, skills and backgrounds and having them interact and work together for an entire academic year significantly improves the entrepreneurial perceived behavioural control (or self-efficacy) of students. This result, in turn, has important consequences for the development of students' entrepreneurial intentions, given the strong influence of PBC on EI (0.379). In fact, the relationship between self-efficacy and entrepreneurial intentions is widely recognized in the entrepreneurship literature, and promoting self-efficacy is increasingly identified as a key objective in entrepreneurship education (Barakat *et al.*, 2010; Pittaway and Hannon, 2006). Our results show that mixing people with different profiles is highly beneficial for the promotion of entrepreneurial self-efficacy.

In mixed groups, the students might become aware of the different resources within the group that can be applied in venture creation, e.g., design students can design new products and business students can provide the venture with business competences, and this combination allows the students to perceive entrepreneurship as something feasible, desirable and therefore strengthen their intentions, like the TPB suggests.

Regarding control variables, all but one makes at least one significant contribution to explaining the constructs. Being male contributes to higher levels of both PA and PBC, in line with results from previous research (Liñán *et al.*, 2011, Santos *et al.*, 2014). Having work experience contributes to higher PBC, as expected, which is also in line with previous research (Liñán and Chen, 2009, Liñán *et al.*, 2011). The results indicate that being older decreases the need for perceived approval by "reference people" as captured by the social norms construct.

A factorial invariance analysis confirms that the measurement and structural models work well for both men and women. However, the impact of being in an interdisciplinary group on PBC is more significant for men ( $p < 0.023$ ) than for women

( $p < 0.15$ ), although the difference in path coefficients for men and women is not significant. Further analyses should be conducted with larger datasets to confirm our results.

## **Conclusions**

Entrepreneurial activity is a central factor in economic development: it drives economic growth and creates new economic wealth and employment. Therefore, it is important to understand the conditions that more effectively promote the emergence of entrepreneurs in different contexts and among different groups of people. Young people represent a segment that deserves special attention because unemployment rates are much higher in this segment than in others (International Labour Organization, 2016). Consequently, fostering entrepreneurship among young people is a way of addressing the problem of youth unemployment. Although educational institutions occupy a privileged position in the promotion of entrepreneurship among young people, there is a need to improve the identification of those academic activities that most effectively encourage entrepreneurship, considering the small proportion of students who ultimately create their own businesses after graduation.

In this study, we examine the impact of a diversity dimension on students' entrepreneurial intentions that has been overlooked by previous research: interdisciplinary groups, a particular type of classroom diversity defined as a mixture of students with different profiles and career fields of interest. The benefits of group diversity have already been recognized in many different contexts, and based on the diversity-performance link paradigm, we believe that diversity could be similarly beneficial in the formation of entrepreneurial intentions (Mannix and Neale, 2005).

We provide empirical evidence that interdisciplinary groups have a positive and significant impact on the entrepreneurial intentions of students by improving their

entrepreneurial perceived behavioural control, an important predecessor of entrepreneurial intentions. The results have important implications for academic institutions providing entrepreneurship education that are interested in improving entrepreneurial intentions among students. A mixture of students with different profiles should be promoted to encourage entrepreneurship.

Higher education institutions should place greater emphasis on initiatives that help exploit the diversity of groups to support the formation of entrepreneurial intentions. Students from different disciplines could be integrated—for example, not only in common entrepreneurship courses but also in projects such as mini-enterprises or business plan contests. Moreover, initiatives can incorporate professionals who mentor students in the development of business projects. This role can be incorporated in companies' corporate social responsibility programmes. Some academic institutions have already put such initiatives in place by, for example, assigning students to participate in groups that include students of different profiles in programmes such as “Entreprendre Pour Apprendre” (Learning by Doing), part of the global network “Junior Achievement Worldwide,” in which students create mini-enterprises and are mentored by business professionals and teachers.

One limitation of this study is that it is not longitudinal. Future studies could apply this model to a longitudinal study to evaluate the impact of interdisciplinary groups over several years and, finally, to observe the impact of this variable on actual entrepreneurship. It is also possible to examine the relative effectiveness of the different initiatives that foster entrepreneurship among students to help identify the strategies that work most effectively. The analysis could be extended to other populations, in particular, population segments associated with sectors that receive more support from governmental institutions such as high-tech or renewable energy organizations. It could also be extended to explore social issues such as the formation of entrepreneurial goals

among the long-term unemployed, people in retirement, people who cannot take full-time jobs because of childcare responsibilities, people with long-term illnesses, the elderly, or people with certain handicaps. These segments of the population can engage in internet-based entrepreneurial activities from home, such as online direct selling.

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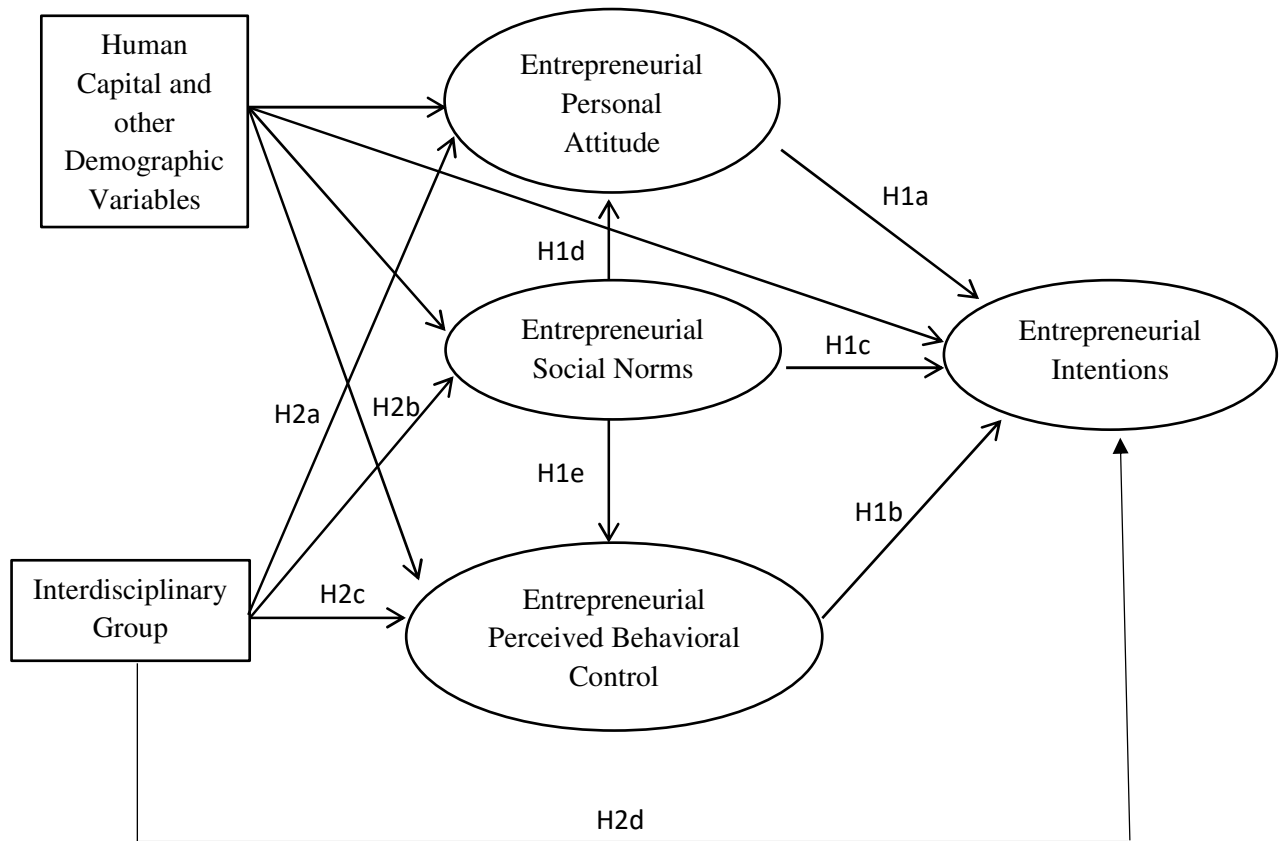
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Appendix  
Measures Used to Assess the Variables in the Research Model

Indicate your level of agreement with the following statements about entrepreneurial activity from 1 (total disagreement) to 7 (total agreement) (originally in French).

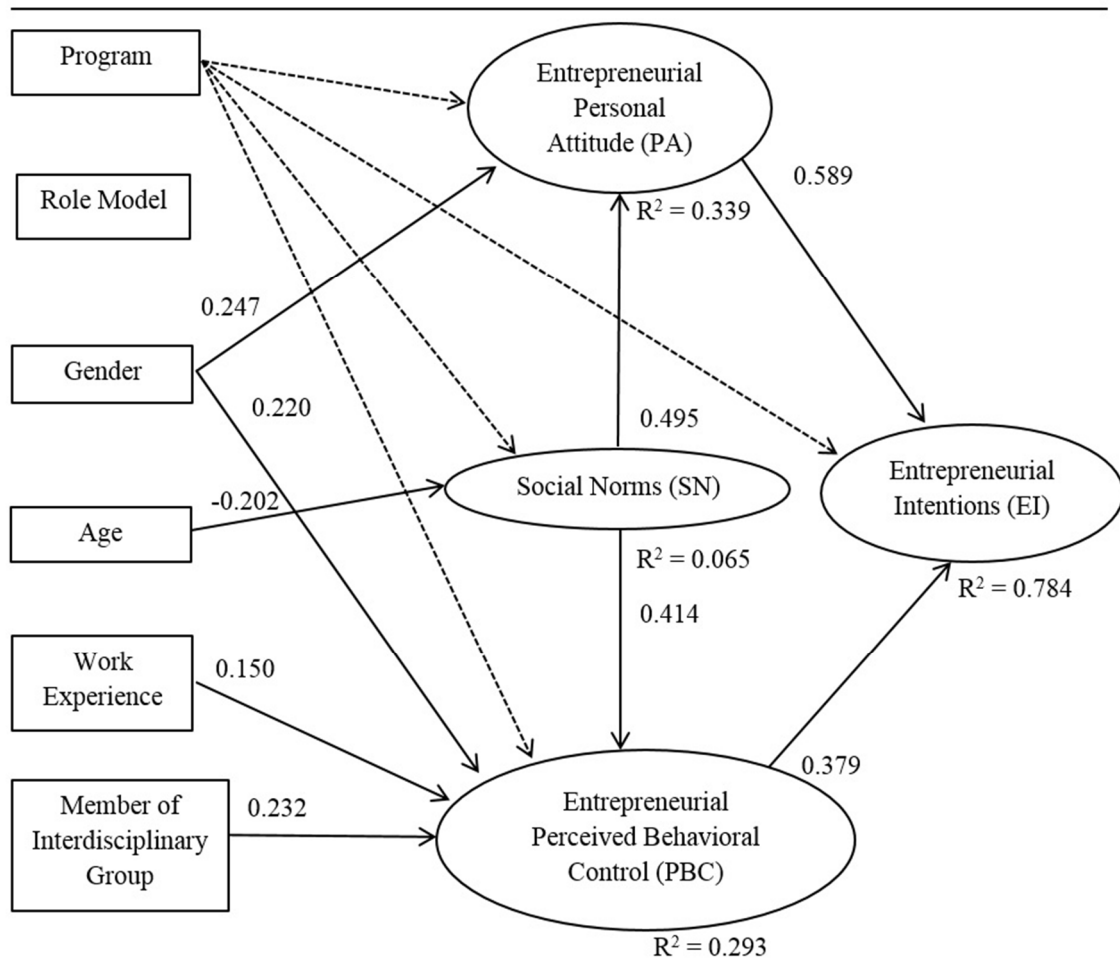
Item	1	2	3	4	5	6	7
EI1. I am ready to do anything to be an entrepreneur							
EPA2. Being an entrepreneur implies more advantages than disadvantages to me							
EPBC3. Starting a company and keeping it viable would be easy for me							
ESN4. My immediate family would approve of my decision to start a business							
EI5. My professional goal is to become an entrepreneur							
EPA6. A career as an entrepreneur is attractive to me							
EPBC7. I believe I would be able to start a business							
ESN8. My friends would approve of my decision to start a business							
EI9. I will make every effort to start and run my own company							
EPA10. If I had the opportunity and resources, I'd love to start a company							
EPBC11. I believe I would be able to control the creation process of a new business							
ESN12. My colleagues would approve of my decision to start a business							
EI13. I am determined to create a company in the future							
EPA14. Being an entrepreneur would give me great satisfaction							
EPBC15. I know the necessary practical details to start a company							
ESN16. My teachers would approve of my decision to start a business							
EI17. I have very serious thoughts of starting a company							
EPA18. Among the various options, I would rather be an entrepreneur							
EPBC19. It would be easy for me to develop a business idea							
EI20. I have the intention to start a company some day							
EPBC21. If I tried to start a business, I would have a high probability of being successful							

**Figure 1**  
**Research Model**



**Figure 2**

**Structural Model and Path Coefficients**



Note: Only significant ( $p < 0.05$ ) path coefficients are shown.

Table 1.

Descriptive statistics for the full sample, interdisciplinary and non-interdisciplinary groups

Variable	Full Sample			Interdisciplinary Group			Non Interdisciplinary Group		
	N	Mean	SD	N	Mean	SD	N	Mean	SD
Age <sup>a</sup>	236	20	1.608	123	19.06	1.326	113	21.03	1.213
Gender <sup>b</sup>	237	.43	.496	124	.29	.456	113	.58	.497
Knows Entrepreneur	237	.76	.431	124	.73	.448	113	.79	.411
Work Experience	237	.83	.379	124	.79	.409	113	.87	.341

<sup>a, b</sup> Mean differences between interdisciplinary and non-interdisciplinary groups are significant for  $p < 0.001$ .

Table 2.

Descriptive Statistics Interdisciplinary Group by Program

	International Business			Tourism			Design		
	N	Mean	SD	N	Mean	SD	N	Mean	SD
Age	51	19.02	1.086	36	19.17	1.813	36	19.00	1.069
Gender	51	.35	.483	37	.24	.435	36	.25	.439
Knows Entrepreneur	51	.76	.428	37	.73	.450	36	.67	.478
Work Experience	51	.78	.415	37	.78	.417	36	.81	.401

Table 3.

## Academic Background by Program (Percentage)

Academic background	Non- Interdisciplinary Group PGE	Interdisciplinary Group		
		International Business	Tourism	Design
Science	8.8	15.1	13.9	25.7
Economics and Social Sciences	17.7	54.7	44.4	25.7
Literature	1.8	3.8	19.4	17.1
Technology	13.3	11.3	16.7	11.4
Higher School Preparatory Courses <sup>a</sup>	31.9	3.8	0.0	8.6
Other	25.7	11.3	5.6	11.4

<sup>a</sup> Part of the French post-secondary education system consists of two very intensive years (extendable to three or, exceptionally, four years) that act as a preparatory course (or cram school) with the primary goal of training undergraduate students for enrolment in one of the Grandes Écoles (higher education establishments, including business schools, which have considerable autonomy and their own specific pedagogical curricula).

Table 4.

## Reliability and Convergent Validity Analysis

Construct	Items	Factor Loadings	Composite Reliability Coefficient	Average Variance Extracted (AVE)
Entrepreneurial Intentions	EI1	0.873	0.952	0.769
	EI5	0.905		
	EI9	0.703		
	EI13	0.937		
	EI17	0.917		
	EI20	0.905		
Entrepreneurial Personal Attraction (EPA)	EPA2	0.830	0.900	0.751
	EPA10	0.878		
	EPA14	0.890		
Entrepreneurial Subjective Norms (ESN)	ESN4	0.814	0.871	0.632
	ESN8	0.871		
	ESN12	0.861		
	ESN16	0.605		
Entrepreneurial Perceived Behavioural Control (EPBC)	EPBC3	0.753	0.903	0.609
	EPBC7	0.848		
	EPBC11	0.821		
	EPBC15	0.715		
	EPBC19	0.716		
	EPBC21	0.820		



Table 5.

## Convergent and Discriminant Validity of Constructs

	EI	EPA	ESN	EPBC
Entrepreneurial Intentions (EI)	<b>0.877</b>			
Entrepreneurial Personal Attraction (EPA)	0.833	<b>0.867</b>		
Entrepreneurial Subjective Norms (ESN)	0.436	0.492	<b>0.795</b>	
Entrepreneurial Perceived Behavioural Control (EPBC)	0.774	0.677	0.416	<b>0.780</b>

Note: The square root of the average variance extracted (AVE) between the constructs and their measures is in boldface.