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To cite this article: María Huertas González-Serrano, Irena Valantine, Jonas Hammerschmidt & Ferran Calabuig (2023) How to foster intrapreneurial intentions of sport science students? A cross-cultural symmetric and asymmetric approach, Economic Research-Ekonomika Istraživanja, 36:1, 2180059, DOI: [10.1080/1331677X.2023.2180059](https://doi.org/10.1080/1331677X.2023.2180059)

To link to this article: <https://doi.org/10.1080/1331677X.2023.2180059>



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Published online: 09 Mar 2023.



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# How to foster intrapreneurial intentions of sport science students? A cross-cultural symmetric and asymmetric approach

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## ABSTRACT

Intrapreneurs are needed in the sport sector due to its competitive nature. However, little attention has been paid to this topic within sport entrepreneurship literature. This paper aims to examine the cross-cultural applicability of Ajzen's theory of planned behavior for predicting the intrapreneurial intentions (II) of sport science students from two European countries and to discover if there is a moderating effect of country's culture on the antecedents of II. A questionnaire to collect the data was used. The sample is composed by 736 final year sports sciences students from Spain and Lithuania. The combination of a symmetric (Structural Equations Modelling) and asymmetric (Qualitative Comparative Analysis) approach was used to examine the students' country culture as a potential moderator. Results indicate Ajzen's theory of planned behavior as a suitable framework to predict intrapreneurial intentions (II). Moreover, it is highlighted that the country's culture can have a moderating effect on the university students' II. Educational policy makers should consider the impact of county culture when promoting intrapreneurial behavior. In Spain, it should be developed a positive attitude towards intrapreneurial behavior, while in Lithuania it is more important to foster that they perceive as having the necessary skills to be an intrapreneur.

## ARTICLE HISTORY

Received 24 May 2022  
Accepted 7 February 2023

## KEYWORDS

Intrapreneurial intentions;  
theory of planned behavior;  
sport; university; culture

## JEL CODES

I23; L26; Z2

## 1. Introduction

Entrepreneurial intentions (EI) have been increasingly researched among university students in recent years (Liñán & Chen, 2009; Munir et al., 2019) and represent a growing area of research (Valencia et al., 2016). However, literature on entrepreneurial behavioral intentions of university students has focused mainly

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on the EI of an individual, understood as the intentions to create or start one's own business or enterprise (e.g., Liñán & Chen, 2009; Thompson, 2009). Current research does not include entrepreneurial behavioral intentions within an established business, which is known as intrapreneurial intentions (II) (González-Serrano et al., 2018). Intrapreneurial intentions refer to the intention to carry out entrepreneurial activities within an existing firm (Wu, 2009). Thus, the main difference between entrepreneurial intentions (EI) and intrapreneurship intentions (II) lies in the fact that in the case of the EI, the behavior to be developed is the creation and management of an own company, while in the case of the II, it is the development of entrepreneurial behaviors as an employee within the limits of an already established company.

The dynamic business environment of industries is forcing organizations to restructure their organizational strategies to maintain a competitive advantage. Intrapreneurship is a useful vehicle to develop a corporate culture of change (Farrukh et al., 2019). As a special type of entrepreneurship, different key characteristics are accompanying intrapreneurship such as taking the initiative, recognition of opportunities, generation of novel elements, and some degree of risk taking (Parker & Collins, 2010). Intrapreneurship refers to the initiatives of employees within the limits of established organizations or companies to launch new business activities (Blackbur et al., 2014). In this vein, employee intrapreneurship is defined as a strategic work behavior aimed at strategic renewal a new venture creation (Gawke et al., 2019).

It is important to adopt an intrapreneurial spirit in today's highly competitive and fast-paced business environment (Skarmeas et al., 2016). The focus on employees as a source of innovation has been highlighted in current research. Intrapreneurs have a key role due to their skills and abilities to create values for the organizations by exploiting opportunities (Ma et al., 2016). Moreover, nowadays, a firm's capacity to foster intrapreneurial talent is essential due to the disruptions caused by the digital transformation (Pinchot & Soltanifar, 2021). In the case of managing sports industry, this phenomenon is vital, since the competitiveness of the sector and the capacity to innovate is fundamental for renewal and change (Gerke, 2016). The organizational capacity for transformation makes it possible to satisfy the changing demands of sports industry customers (Ball, 2005). Most sports initiatives need a set of entrepreneurial skills to drive growth. This involves making use of the entrepreneurial spirit within an organization (Ratten, 2018a), the so-called intrapreneurship. There is a need to delve deeper into the phenomenon of intrapreneurship within the sports sector to train future sport employees and managers as intrapreneurs (Calabuig & González-Serrano, 2017). The study of intrapreneurial intentions with university students is important because the university is the link between the educational system and the labor market. Thus, university must prepare students with the necessary skills for ensuring their employability. Hence, studying Intrapreneurial Intentions (II) of university students within the field of sports can help to develop educational policies for the promotion of intrapreneurial behavior and enhancing their employability.

Besides, to understand the influence of culture in the development of the intrapreneurial behavior is elemental for the internationalization of entrepreneurship

theory (Thomas & Mueller, 2000). Cross-cultural research has the potential to improve the understanding of theories, to discover differences of behavior in various cultures or countries, and finally to improve the effectiveness of management (Earley & Singh, 1995). The external environment is an important determinant of intrapreneurship (Asabi, 2018; Behram & Özdemirci, 2014). Thus, this study contributes to the current field by comparing the predictor variables of the II of sport science students from Spain and Lithuania, using the theory of planned behavior (TPB) of Ajzen (1991).

Both are countries of the European Union but belong to different groups according to the characteristics of their economies. Lithuania belongs to the group of Baltic countries, while Spain belongs to the group of Southern European countries according to the Global Competitiveness Index (GCI) (World Economic Forum, 2016). In addition, both countries show cultural differences in the entrepreneurship related value of Hofstede (2001), and different rates of intrapreneurial activity. GEM (2016) has developed the Entrepreneurial Employee Activity (EEA) indicator to measure the percentage of intrapreneurs in the different countries and regions across the world. The EEA in Lithuania is the 4%, while in Spain is the 2%. According to GEM (2016) the EEA of the European countries might be related to the five pillars it correlates most highly: (1) Institutions, (2) Goods market efficiency, (3) Labor market efficiency, (4), Technological readiness, and (5) Innovation. Specifically, the fifth pillar, innovation, is related to university-industry collaboration in R&D, thus the university plays a vital role in developing EEA. Specifically, R&D transfer is of 5.80 points in Lithuania, and of 5.60 points in Spain (GEM, 2022). Educational systems are also different in these two European Union countries. In Spain, the degree program in sport science lasts four years, and the overall content is universal. The degree program in Lithuania lasts three years, and there are three different specific sport degrees. Hence, the main objectives of this study are to cross-culturally test if the TPB is a suitable theoretical framework for the analysis of the II of sport science students from Spain and Lithuania. In addition, we aim to discover if there is a moderating effect of the country's culture.

This study seeks to contribute to the literature on entrepreneurial behavior in different ways. First, by extending intrapreneurship literature with university students in general, and with sport science students particularly. Through focusing on intrapreneurial intentions, we move beyond the common approach that focuses on the intention to start a new business. Second, by proposing Ajzen's TPB (1991) as a framework to analyze the factors that influence the II of university students. Although some researchers have highlighted its possible potential to predict II (Neessen et al., 2019), until the best of our knowledge, no previous studies have been found which applied TPB to analyze II. According to several authors, there is no consensus about the antecedents of intrapreneurship (Farrukh et al., 2017; Neessen et al., 2019; Urban & Wood, 2017). Hence, the results of this paper may shed more light on the factors that influence II. Third, by analyzing the moderating effect of the students' culture on II. In a cross-cultural context, there is yet no literature analyzing II with university students in general, and in particular with sport science students. These findings will help educational policymakers to develop

effective university programmes to foster students' intrapreneurial intentions and improve their employability.

## 2. Theoretical framework

The sport industry is currently one of the largest and fastest growing industries in the world (Ratten, 2018b). It is one of the most globalized industries, and it is affected by constant change due to its competitive nature. This is one reason, among others, for the growing interest in sport intrapreneurship in current research (González-Serrano et al., 2020). Sport intrapreneurship research aims to enable sports organizations to maintain their competitiveness in the industry. Researchers have revealed that sport is intrinsically and entrepreneurial by nature (Ball, 2005; Hayduk III, 2019), identifying the sport industries as archetype of entrepreneurial organizations that contribute significantly to the creation of wealth and innovation.

Thus, intrapreneurship is crucial to meet the rapidly changing demands of consumers in the sports sector (Ball, 2005). Sports organizations operate similar to other business-related organizations. According to Antoncic and Hisrich (2001), intrapreneurship can be defined as “entrepreneurship within existing organizations” (p. 496). Intrapreneurship is important in the sports context, as companies must adopt new ideas that can lead to a better performance (Ratten, 2018b). Ball (2005) emphasizes the concept of intrapreneurship as a vital factor to enable the development of new strategies to meet the changing demands of consumers, facilitating the development of new products or services in established companies in the sports sector. In addition, it should be considered that many of the future workers in the sports sector have practiced sports, which has provided them with skills that are highly transferable to intrapreneurship (Lara-Bocanegra et al., 2022). Therefore, it is necessary to design sports policies that promote intrapreneurship in sports organizations, being in this case sport university education one of them.

Although sport has been studied from different disciplines and perspectives, there is a lack of research focusing on entrepreneurship (Olivier, 2006) and even more in intrapreneurship (Lara-Bocanegra et al., 2022). Ratten (2010) developed the concept of sports-based entrepreneurship, focusing on the link between entrepreneurship and sports management as a way of understanding the formation and development of new businesses. According to Hammerschmidt et al. (2020) sport entrepreneurship can be defined as “the process by which individuals, acting in a sport environment, pursue opportunities without resources currently controlled” (p.3). Hence, sport intrapreneurship could be defined as the way of developing new ventures and pursue opportunities by proposing or creating new innovative products, services or projects within established sport organizations. Sport intrapreneurship is a way in which sport organizations can be more competitive at local, regional, national and international levels. As a result, sports entities need to have a continuous focus to integrate an intrapreneurial behavioral perspective into their policies (Ratten, 2018a). Although sport entrepreneurship, and especially sport intrapreneurship, are still young research disciplines (Lara-Bocanegra et al., 2022), the importance of these phenomena within

the sport industry is becoming increasingly important (González-Serrano et al., 2020; Hayduk III, 2019).

### **2.1. TPB and intrapreneurial intentions of university students**

The theory of planned behavior (TPB) of Ajzen (1991) is the most widely used theory to explain the EI with university students (Valencia et al., 2016). Intrapreneurship is included within the concept of entrepreneurship and considered as a specific type of it. However, entrepreneurship and intrapreneurship are different business behaviors (Douglas & Fitzsimmons, 2013). This approach disregarded the EI within established businesses, which are the so-called intrapreneurial intentions (II) (González-Serrano et al., 2018). Neessen et al. (2019) suggested that the TPB could be used to connect the factors influencing intrapreneurship and hence will be useful for modelling individual for predicting intrapreneurial intentions. This study will follow the suggestion of current literature and do a first step in applying the TPB framework to intrapreneurship research. The premise of the TPB framework is based on the fact that a behavior requires a certain amount of planning, which, in turn, can predict the intention to adopt the behavior. The theory proposes three antecedents, in this case, adapted for intrapreneurial intentions:

- Attitude towards behavior (ATB): refers to the degree to which an individual has favorable or unfavorable assessments of the behavior in question (Ajzen, 1991). In this case, intrapreneurial behavior.
- Perceived behavioral control (PBC): refers to the person's belief that the behavior in question is under her or his control (Iakovleva et al., 2011). In particular, this construct refers to the perceived ease or difficulty of performing the intrapreneurial behavior. In this study, this variable should be understood as the perception that the participants feel that they have the necessary skills to be a successful intrapreneur.
- Subjective norm (SN): refers to the perceived social pressure to perform or avoid behavior. This variable has two components: (1) normative beliefs and (2) motivation to comply with these beliefs. Thus, in this study, this variable is related to the perceived support of their close environment (family, colleagues and friends) if they decide to become an intrapreneur.

According to Ajzen (1991), the higher the degree of ATB, PBC and SN, the stronger the intention to carry out a certain behavior. In addition, the stronger the intention to perform a behavior, the more likely it is that the behavior will be performed by an individual. The intrapreneurial intention (II) refers to the intention to carry out entrepreneurial activities in an existing company (Wu, 2009). Therefore, identifying how II are developed, can lead to a better understanding of behaviors related to intrapreneurship (Douglas & Fitzsimmons, 2013). Few existing studies analyzed II of university students (e.g., Douglas & Fitzsimmons, 2013; Marchiori et al., 2018; Lans et al., 2010; Nicholson et al., 2016). Lans et al. (2010) found that students differentiate between three types of entrepreneurial intentions (classical, alternative, and

intrapreneurship). The results illustrate that self-efficacy and entrepreneurship experience had an impact on II. Douglas and Fitzsimmons (2013) found that while self-efficacy is significantly related to EI and II, attitude towards risk is only related to II. Marchiori et al. (2018) analyzed the antecedents of EI and II in a business and management context. The findings indicate that graduated students perceived EI and II as different career options, with the antecedent of income expectation being only related to the EI.

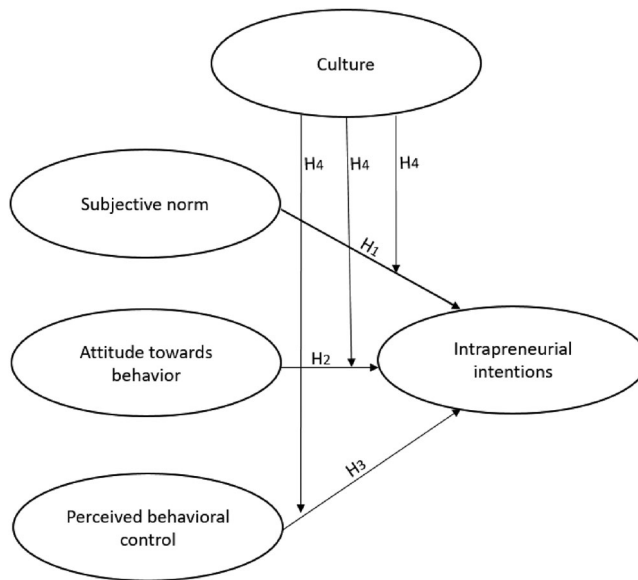
Hence, the concept of II turns out to be a strong predictor of intrapreneurial behavior (Razavi & Ab-Aziz, 2017). In the same vein, Urbano et al. (2013) found that employee's II have a positive influence on the amount of intrapreneurial activities that are developed by that employee. This has several important implications for entrepreneurship education, as students are taught to entrepreneurship under the assumption that they all intend to start their own businesses, which may overlook the goal of many potential intrapreneurs (Douglas & Fitzsimmons, 2013). Hence, and reinforced by Nicholson et al. (2016), there is still a lack of research and practice in pedagogical literature that focuses on intrapreneurship. To fill the gap in literature on II with university students, the following hypotheses are presented:

- **H<sub>II1</sub>**: The subjective norm directly and positively influences the intrapreneurial intentions.
- **H<sub>II2</sub>**: Attitude toward behavior directly and positively influences the intrapreneurial intentions.
- **H<sub>II3</sub>**: The planned behavioral control directly and positively influences the intrapreneurial intentions.

## **2.2. Intrapreneurship and culture: Spain vs Lithuania**

Cultural practices and values moderate the relationships between TPB constructs (Liñán & Chen, 2009). The assertion that in some societies are greater predisposition or propensity towards intrapreneurial behavior than in others, reveals the implicit role of culture in the theory of intrapreneurship (Thomas & Mueller, 2000). One of the dominant traditions to classify cultures according to their value systems are the Hofstede's values (2001), which are also the best-known approach for the study of cultural effects within entrepreneurship and intrapreneurship. According to these values, Lithuania represents a more favorable culture for the development of intrapreneurship than Spain. In fact, Lithuania presents lower levels of uncertainty avoidance, lower levels of power distance, which are values that have been considered by certain authors as favorable for intrapreneurship (Menzel et al., 2008).

Specifically, a culture of support for intrapreneurship which facilitates innovation is based on low uncertainty avoidance (Menzel et al., 2008). According to these authors, this culture is achieved through tolerance of failure and awareness of individual risk, as well as a reduction of rules and more formal aspects. Also, it requires a low power distance based on hierarchies (Menzel et al., 2008). These authors highlighted that centralized power and egalitarian values are required to foster communication and interaction in all directions, and thus empower employees. These could



**Figure 1.** Proposal of the TPB model for Spanish and Lithuanian sport science students.  
Source: made by the authors.

help countries with low power distance to develop employees good perceptions of their skills to innovate within the limits of an existing company (PBC).

In relation to individualism, to generate a culture of support for intrapreneurship, a combination of both individualistic and collectivist orientations is needed (Ulijn & Weggeman, 2001). This is because leaders must mobilize individual talent for the achievement of collective goals and that employees are responsible for the companies where they work and are thus empowered, but not limited by their jobs held (Kanter, 2000). Both Spain (51) and Lithuania (60) have similar levels of individuality and keep a good balance between individuality and collectivism. Finally, a culture supportive of intrapreneurship is based on a combination of both masculine and feminine cultural orientations (Menzel et al., 2008). This is because masculinity focuses on goal, outcome and task orientation, while femininity focuses on people and relationships between them, and both are necessary for the development of innovations within companies. In this case, Spain (42) has a more balance relation between masculinity and femininity. Thus, a good balance between femininity and masculinity values could help societies to develop a positive attitude towards the development of intrapreneurs (ATB).

The more favorable culture towards intrapreneurship is also reflected in the Global Innovation Index (Ács et al., 2018), where Lithuania reaches higher scores than Spain. Besides, the entrepreneurial employee activity (EEA) is an index used to measure the number of intrapreneurs in a country (GEM, 2016). The EEA also indicates a greater intrapreneurial activity in Lithuania (4.00%) than in Spain (2.00%). Hence, environmental, and cultural factors in Lithuania are supporting circumstances for intrapreneurship to occur (see Figure 1). Thus, the following hypothesis is proposed:

- **H<sub>II4</sub>**: There is a moderating effect of the country's culture on TPB variables that influence intrapreneurial intentions.



### 3. Method

#### 3.1. Participants

The target population of this study are last year's university sport science students from Spain and Lithuania. The country of origin of the students was used as a selection variable. Students who were studying in these countries, but they were not their country of origin, were excluded from the research. The sample is composed by 736 pre-graduated students, who were studying during the academic years 2017/2018 and 2018/2019. The sample consists of 73.10% men and 26.90% women, with an average age of 23.14 (TD = 3.81) years. A stratified random sampling was used according to the number of students from each university, ensuring the  $\pm 5\%$  error and the 95% interval confidence (see [Table 1](#)).

#### 3.2. Instrument

A questionnaire was used to collect the data (see [Table 2](#)). The scale of intrapreneurial intentions (II) follows the suggestion of González-Serrano et al. (2019). The scales of perceived behavioral control (PBC), attitude towards behavior (ATB) and subjective norm (SN) are adapted from the EIQ of Liñán and Chen (2009). The PBC items refer to the control over the process of developing new projects. The ATB scale indicates the preference for an entrepreneurial career when they finish their studies. The items of SN measure the approval of the decision to create a company by people from the closest environment. All items were measured by an ascending Likert scale from 1 ("total disagreement") to 7 ("total agreement"). In addition, sociodemographic characteristics were introduced, such as gender and age of students, work experience, specific entrepreneurship training and management subjects they had taken.

#### 3.3. Procedure

On-site questionnaires were administered during classes in the above-mentioned faculties (Spain and Lithuania). It was decided to distribute the questionnaire for two consecutive academic years to obtain a large sample number from each of these universities. Before completing the questionnaire, the students were given a brief explanation of the study to be conducted, and the importance of answering the questions honestly. In addition, the voluntary nature of filling the questionnaire was highlighted, and the anonymity of the data was ensured. The professor remained in the

**Table 1.** Characteristics of the samples of sport sciences students.

Sample characteristics		Spain (n = 510)	Lithuania (n = 226)
Age		22.72 (SD = 3.29)	24.20 (SD = 4.73)
Gender	Male	79.10%	58.10%
	Female	20.90%	41.90%
Entrepreneurship education	Yes	13.20%	50.70%
	No	86.80%	49.30%
Work experience	Yes	75.70%	59.00%
	No	24.30%	41.00%
Sport management subjects		2.34 (SD = 2.79)	4.07 (SD = 5.92)

Source: made by the authors.

**Table 2.** Indicators, loadings ( $\lambda$ ), Cronbach's alpha ( $\alpha$ ), composite reliability (CR) and AVE.

Construct	Indicators	Spain				Lithuania			
		$\lambda$	$\alpha$	CR	AVE	$\lambda$	$\alpha$	CR	AVE
II	I would try to generate new useful ideas within the company	0.82	0.89	0.93	0.66	0.77	0.89	0.92	0.62
	I would try to develop new processes, services or products within the company	0.85				0.84			
	I would approach my tasks in an innovative way within the company	0.80				0.83			
	I would develop new ways of doing things within the company	0.80				0.83			
	I would try new things within the company even if there were possibilities of not working	0.79				0.80			
ATB	I would get involved in activities that might not work well within the company	0.81				0.69			
	I would assume calculated risks within the company despite the possibility of failure	0.82				0.76			
	Being an intrapreneur implies more advantages than disadvantages to me	0.55	0.92	0.88	0.61	0.79	0.91	0.90	0.65
	A career as intrapreneur is attractive for me	0.65				0.86			
	If I had the opportunity and resources, I'd like to develop new processes, services or products	0.90				0.74			
PBC	Being an intrapreneur would entail great satisfactions for me	0.83				0.84			
	Among various options, I'd rather be an intrapreneur	0.90				0.79			
	Start a new project and keep it working would be easy for me	0.73	0.91	0.91	0.63	0.74	0.91	0.91	0.64
	I'm prepared to start a viable project	0.82				0.82			
	I can control the creation process of a new products, process, or services	0.88				0.84			
SN	I know the necessary practical details to start a new project	0.77				0.83			
	I know how to develop an entrepreneurial project	0.78				0.76			
	If I tried to start developing a new project, I would have a high probability of succeeding	0.77				0.80			
	Your close family	0.64	0.83	0.85	0.67	0.70	0.75	0.75	0.50
	Your friends	0.95				0.82			
	Your colleagues and mates	0.83				0.59			

Note: II-intrapreneurial intentions; ATB-attitude towards behavior; PBC-perceived behavioral control; SN-subjective norm. Source: made by the authors.

classroom while the students filled out the questionnaire, in case they had any doubts. However, the professor highlighted the voluntary nature of the questionnaire and the anonymity of the data.

For this sort of research, it was not necessary to get approval from the Committee of Ethics of the university that leads this study. According to the Committee of Ethics and Human Research from this university, it is not necessary to get approval to administer an opinion survey about a topic, professional status, or satisfaction with certain issues. It is compulsory to include a preamble in the survey that present information about the research (topic and purpose), benefits that the information collected will provide, the willingness of the participation, the anonymous treatment of data (Data Protection Law), and a contact person. By reading and accepting it, voluntarily the participants gave consent tacitly when responding to the survey. These guidelines indicated by the Committee of Ethics and Human Research from the University of Valencia to develop this research type were followed both with Spanish and Lithuanian sports sciences students.

### **3.4. Data analyses**

#### **3.4.1. Reliability, validity, and SEM**

First, the reliability and validity of the scales used in the present study (Cronbach's alpha, Composite Reliability (CR) and Average Variance Extracted (AVE) were checked. Secondly, a model of structural equations was performed for the total data set to analyze the factors influencing II (see Table 5). The ratio of chi-square ( $\chi^2$ ) and the Satorra-Bentler chi-square (S-B $\chi^2$ ) were considered acceptable since their values are below five (Carmines and McIver, 1981). Further, the values of the Non-Normalized Fit Index (NNFI) and Comparative Fit Index (CFI) are higher than the threshold of 0.90 (Bentler, 1990). Finally, in the case of Root Mean-Square Error of Approximation (RMSEA), a decent adjustment is considered when this indicator has lower values than 0.08 (Browne & Cudeck, 1993).

Then, the multi-group confirmatory factorial analysis (MG-CFA) was performed. The first step was to evaluate the invariance of the measuring instrument, to ensure both the "equal form" and the "equal factor loadings". To this end, each model of the sub-samples of Spain and Lithuania had been calculated. The data of both countries were combined, and the variances' equality between the factors of the dimensions, that constitute the models in both groups, was assumed with restriction. The next step was the calculation of a new II model, in which new restrictions were included: the factorial loads restrictions ("equal factor loadings").

Subsequently, a test to evaluate whether the change between  $\chi^2$  and S-B $\chi^2$  was significant when comparing the models was performed. To assume the invariance of the model, this test must be statistically non-significant ( $p > .05$ ). If there is no invariance in the model, it is not possible to continue with the following steps to test the moderating effect of the country culture of origin of the sport science students. The Lagrange test was performed to discover if after releasing this equality, there are differences between the paths of each of the models. Changes in the Chi-square with  $p < .05$  were considered statistically significant. ESQ 2.0 software was used.

### 3.4.2. *Fsqca analysis*

Finally, qualitative comparative analyses were also performed using fuzzy data (fsQCA). This analysis makes it possible to evaluate all combinations of logically possible conditions to arrive at the same result, the so-called equifinality (Eng & Woodside, 2012). The first step was to transform the raw data into fuzzy set responses. Missing data was deleted, and the conditions were recalibrated with values between 0 and 1. When categorical variables (country) are used in which only two values are considered, it was proceeded to calibrate with 0 (it does not have the characteristic) and 1 (it has the characteristic). According to Woodside (2013), continuous variables (II, ATB, PBC and SN) were calibrated as follows: 90th percentile (high level), 50th percentile (intermediate level), and 10th percentile (low level).

Then, necessity test was performed. A condition is necessary when it must always be present in the occurrence of a particular outcome. In this case, consistency indicates the adequacy of the condition to predict a particular outcome, being the value necessary for a condition to be considered necessary  $\geq 0.90$  (Ragin, 2008).

Secondly, the sufficiency analysis of conditions was calculated, which is expressed by a combination of conditions that may produce a particular result. According to Eng and Woodside (2012), the fsQCA is a two-stage analysis to calculate sufficiency conditions. First, a truth table algorithm transforms the scores into a set of fuzzy data that lists all logically possible combinations of causal conditions for achieving a specific outcome. Secondly, three possible solutions are generated: complex, parsimonious, and intermediate. According to the recommendation of previous studies (Ragin, 2008), the intermediate solution was included in this study. fsQCA 2.0 software was used.

## 4. Results

### 4.1. *Convergent validity and reliability measures*

Convergent validity was determined by the statistical significance of the factorial loads of the indicators of each latent construct. Table 2 shows that most of the standardized loads ( $\lambda$ ) are greater than 0.60 (Lévy-Magin et al., 2006), so it was not necessary to eliminate items from the model. Further, the composite reliability (CR) was above the threshold of 0.70 (Nunnally, 1978).

As seen in Table 2, all constructs exceed the recommended minimum value of 0.50 in the AVE (Bagozzi & Yi, 1988). Finally, for internal consistency, Cronbach and Shavelson (2004) recommend the Cronbach's alpha coefficient ( $\alpha$ ), considering high values those  $\geq .70$ , adequate  $\geq .60$  and low  $< .60$ . All the constructs presented Cronbach's alpha coefficient higher than .80 (see Table 2).

### 4.2. *Discriminant validity*

To assess the presence of discriminatory validity between constructs, it was necessary that the square root of AVE fulfills the criterion of being superior to the correlation between constructs (Fornell & Larcker, 1981). The established criterion is met, and all TPB variables are significant correlated with the II (see Table 3).

**Table 3.** Correlations between variables and AVE scores.

	1	2	3	4
Spain				
1. Intrapreneurial intentions	–			
2. Perceived behavioral control	.33***	<b>0.79</b>		
3. Attitude towards behavior	.44***	.56***	<b>0.78</b>	
4. Subjective norm	.29***	.16*	.27***	<b>0.82</b>
Lithuania				
1. Intrapreneurial intentions	–			
2. Perceived behavioral control	.50***	<b>0.80</b>		
3. Attitude towards behavior	.43***	.62***	<b>0.81</b>	
4. Subjective norm	.23***	.23***	.42***	<b>0.71</b>

Note: In the diagonal, the value of the AVE root square has been indicated in bold. \* $p < .05$ ; \*\*\* $p < .001$ .  
Source: made by the authors.

**Table 4.** Mean differences in the intrapreneurial variables according to the origin of the students.

	F	p value	Lithuania (SD)	Spain (SD)	Cohen's d
Intrapreneurial intentions	1.94	.35	5.00 (1.03)	5.08 (.94)	–
Perceived behavioral control	.64	.000	4.32 (1.27)	3.29 (1.24)	.83
Attitude towards behavior	19.49	.000	5.06 (1.22)	4.31 (1.53)	.53
Subjective norm	.19	.001	5.38 (1.11)	5.69 (1.19)	.27

Source: made by the authors.

**Table 5.** Invariance of the measuring instrument for the moderation effect of the country of origin of the students in the model of II.

	$\chi^2$ (gl)	SB $\chi^2$ (gl)	$\Delta$ SB $\chi^2$ (gl)	p	RMSEA (90% IC)	NNFI	CFI	IFI
LITHUANIA (n = 226)	330.29 (183)	279.66 (183)			.054 (.041–.06)	.93	.94	.94
SPAIN (n = 510)	713.07 (164)	590.09 (164)			.074 (.067–.08)	.91	.92	.92
Metric invariance								
Equal forms	1033.46 (331)	862.03 (331)			.070 (.064–.075)	.91	.93	.93
Equal factor loadings	1079.04 (347)	919.20 (347)	76.00 (16)	.12	.071 (.065–.075)	.91	.92	.92
Equal paths	1091.00 (350)	931.27 (350)			.071 (.065–.076)	.91	.92	.92

Source: made by the authors.

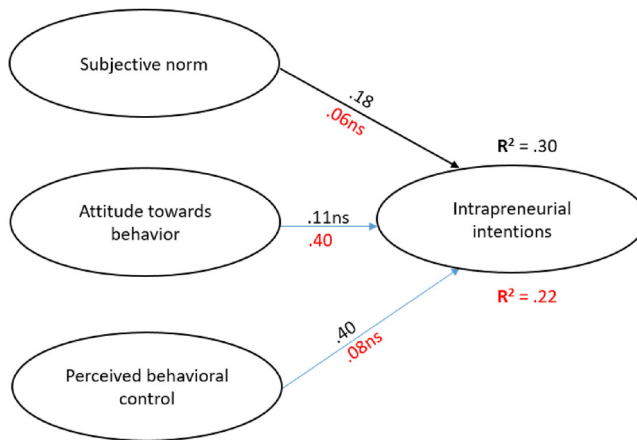
#### 4.3. Mean comparisons between Spanish and Lithuanian students

Statistically significant differences were found between Spanish and Lithuanian students in PBC and ATB (see Table 4). In both cases, Lithuanian students had higher scores ( $M_L=4.32$ ,  $SD_L=1.27$ ;  $M_L=5.06$ ,  $SD_L=1.22$ ) than Spanish students ( $M_S=3.29$ ,  $SD_S=1.24$ ;  $M_S=4.31$ ,  $SD_S=1.53$ ). The size of the effect was large in the case of the PBC (Cohen's  $d = .83$ ) and medium in the case of ATB (Cohen's  $d = .53$ ).

Statistically significant differences can also be observed between both groups of sport science students in the SN ( $p=.001$ ). Students from Spain ( $M_S=5.69$ ;  $SD_S=1.19$ ) presented higher averages than the Lithuanian students ( $M_L=5.38$ ;  $SD_L=1.11$ ) with a median effect size (Cohen's  $d=.27$ ). However, in the case of the intrapreneurial intentions, no statistically significant differences were found between the Spanish ( $M_S=5.08$ ;  $SD_S=.94$ ) and Lithuanian ( $M_L=5.00$ ;  $SD_L=1.03$ ) sport science students.

#### 4.4. Models of intrapreneurial intentions with structural equations and moderating effect by origins (Spain and Lithuania)

Two structural equation models (SEM) were performed to know whether the variables of the TPB were capable of predicting II of sport science students. As shown in



**Figure 2.** Comparative model of II: Spain vs Lithuania sport sciencéstudents. Note: ns: non-significant. The Lithuanian coefficients are presented above the line and in black. The Spanish values are presented below the line and in red. The blue lines represent the statistically significant differences between Lithuania and Spain.

Source: made by the authors.

Table 5, both models present good fit indexes. In the case of the Lithuanian sample, the findings support hypothesis 1 and 3, which assumes that the subjective norm and the perceived behavioral control directly and positive influences the intrapreneurial intentions. However, in the case of the Spanish sample, only hypothesis 2 was supported, which states that attitude toward behavior directly and positive influences the intrapreneurial intentions. Subsequently, some restrictions were added (equal forms and equal factor loadings), This test was not significant ( $p = .12$ ), so the invariance of the measuring instrument is assumed (see Table 5).

Subsequently, the paths were fixed (equal paths), and the Lagrange test was performed. The results of the Lagrange test are indicating that there are statistically significant differences in the relationships between variables depending on the students' country of origin (Chi-square  $p < .05$ ). Thus, the findings support hypothesis 4, which assumes that there is a moderating effect of the country's culture on TPB variables that influence II. In detail, statistically significant differences were found between the relationship of ATB and II, which was not significant in the case of Lithuanian students ( $\beta_{\text{Spain}} - \beta_{\text{Lithuania}} = .29$ ;  $\Delta\chi^2(df) = 4.64(6)$ ;  $p = .031$ ). Statistically significant differences were also found in the relationship between the perceived behavioral control (PBC) and intrapreneurial intentions (II). However, this relationship was not significant in the case of the students from Spain ( $\beta_{\text{Lithuania}} - \beta_{\text{Spain}} = .32$ ;  $\Delta\chi^2(df) = 8.61(2)$ ;  $p = .003$ ). The results are presented in Figure 2.

#### 4.5. fsQCA intrapreneurial intentions

Table 6 shows the descriptions of the variables, as well as the percentiles that were necessary to calibrate the variables before proceeding to perform the fsQCA analyses. The country variable is nominal and therefore was coded as a dummy variable (0 = Lithuania; 1 = Spain).

**Table 6.** Descriptive statistics and calibration values for intrapreneurial variables.

	PBC	II	ATB	SN
Mean	7452.52	26696.30	3788.26	195.67
SD	14015.62	26309.71	4523.44	103.65
Minimum	1.00	1.00	1.00	1.00
Maximum	117649.00	117649.00	16807.00	343.00
Percentiles				
10	16.00	2880.00	62.40	62.70
50	1728.00	18750.00	2000.00	210.00
90	21600.00	61740.00	10584.00	343.00

Note: ATB—attitude towards behavior; PBC—perceived behavioral control; SN—subjective norm; II—intrapreneurial intentions. Source: made by the authors.

**Table 7.** Intermediate solution of sufficiency analysis for high (II) and low levels of II (~ II).

Cut-off frequency: 4	II Cut-off consistency: .81			~ II Cut-off consistency: .80			
	1	2	3	1	2	3	4
CO		•	•			•	○
PBC	•		•	○			○
ATB		•	•	○	○	○	
SN	•	•			○		
Consistency	.82	.79	.81	.77	.81	.85	.86
Raw coverage	.46	.34	.33	.64	.57	.19	.16
Unique coverage	.33	.08	.07	.14	.04	.01	.03
Total solution consistency	.77			.76			
Total solution coverage	.61			.76			

Note: • = presence of the condition, ○ = absence of the condition; almost all sufficient conditions had adequate raw coverage between .16 y. 64; CO—country; ATB—attitude towards behavior; PBC—perceived behavioral control; SN—subjective norm. Expected vector for II: 1-0.1.1.1 (0: absence; 1: presence); Expected vector for ~II: 1-0.0.0.0 using Fiss (2011) format.

Source: made by the authors.

The necessity analysis was performed both for the presence or high levels of II, and for the absence or low levels of II. None of the conditions were necessary either high or low levels of II, since the consistency value of .90 recommended by Ragin (2008) was not exceeded.

Sufficient conditions were presented in the truth table, and a threshold based on a break in the distribution of consistency scores was established (Schneider et al., 2010). Some authors (Ragin, 2008) recommend a minimum consistency threshold of .75. The threshold for high levels of II was .81 and the threshold for absence or low levels of II was .80 (see Table 7).

According to Eng and Woodside (2012), an fsQCA model is informative when the consistency is greater than .74. Table 7 shows three scenarios for the presence or high levels of II, which were able to explain 61% of the cases (Consistency=.77; Coverage=.61). The first, and most explanatory of all, was the combination of high levels of PBC and high levels of SN (Consistency=.82; Coverage=.46). Hence, only hypotheses 1 and 3 are supported, which state that subjective norm and perceived behavioral control positively and directly affect the II. The second most explanatory was the combination of Spain with high levels of ATB and high levels of SN (Consistency=.79; Coverage=.34). In this case, hypothesis 1 and 2, that stated that subjective norm and attitude towards behavior positively and directly affect the intrapreneurial intentions, were supported. Moreover, hypothesis 4 was supported, which

assumes that there is a moderating effect of the country's culture on TPB variables that influence intrapreneurial intentions. Finally, the combination of Spain showed high levels of PBC and high levels of ATB (Consistency=.81; Coverage=.33). Therefore, hypotheses 2 and 3 were supported, since they assume that attitude towards behavior and perceived behavioral control positively and directly affects the intrapreneurial intentions. In addition, hypothesis 4 is further supported, which assumes that there is a moderating effect of the country's culture on TPB variables that influence intrapreneurial intentions. Respectively, these scenarios were able to explain 46%, 34% and 33% of the cases.

Four scenarios were found for the absence or low levels of II, which were able to explain 76% of the cases (Consistency=.76; Coverage=.76). The first and most explanatory was the combination of low levels of ATB and low levels of PBC (Consistency=.77; Coverage=.64). Second, the combination of low levels of ATB and low levels of SN (Consistency=.81; Coverage=.57). The third one was the combination of Spain and low levels of ATB (Consistency=.85; Coverage=.19). Finally, the combination of Lithuania and low levels of PBC (Consistency=.86; Coverage=.16). Respectively, these scenarios were able to explain 64%, 57%, 19% and 16% of the cases.

## 5. Discussion

Universities have the potential to foster different types of entrepreneurial behaviors (EI and II) and improve the employability of their students. However, little attention has been paid to intrapreneurial intentions (II) of university students. As not all future graduates in the sport sector can become entrepreneurs, it is necessary to pay attention to how they can improve their employability in the sport sector through the development of intrapreneurial behaviors. According to the World Economic Forum (2016), the presence of intrapreneurs offers opportunities for collaborative innovation and have a positive impact on the economy.

This study findings show that if Lithuanian sport science students, perceive that they have the necessary skills to be a successful intrapreneur (PBC) and perceive the support of their close environment (family, colleagues and friends) if they decide to become an intrapreneur (SN), were positively related to II. The most impactful variable in this case was the perception that they feel they have the necessary skills to be a successful intrapreneur. This goes in line with previous studies conducted with students (Douglas & Fitzsimmons, 2013; Nicholson et al., 2016), which have shown that entrepreneurial self-efficacy, which is a concept similar to the PBC, is an influential factor in II. Thus, this study provides further evidence for the importance of self-efficacy perceptions and behavior control (PBC), and its relationship to intentions to engage intrapreneurial behaviors. If they decide to become an intrapreneur, the perceived support of their close environment (family, colleagues and friends) is also positively related to II. This variable could be related to the organizational climate of employees in a business context, understand it as the relationships between colleagues and managers, considering the leadership style and open-door policies proposed by the leaders. Although the perceived support of their close environment is not one of the main factors influencing II in this case, some researchers also found the effects of organizational climate on employees'



intrapreneurial behavior. (Antonic, 2007; Antonic & Zorn, 2004; Zhang & Jia, 2010). The more horizontal and participative the leadership style is, as well as the more open policies proposed are, the more chances there will be to develop intrapreneurial behaviors. On the other hand, regarding the students from Spain, only having a favorable attitude towards intrapreneurial behavior (ATB) was positively related to the II. These results are in line with previous studies in the field of intrapreneurship, indicating that attitudes were linked with intrapreneurship at an organizational level (Antonic & Antonic, 2011; Giannikis & Nikandrou, 2013).

Delving more into the understanding of the intrapreneurial behavior, our analysis found a moderating effect of the students' country of origin on the antecedents of II. This is in line with previous studies that have highlighted the importance of the external environment in moderating intrapreneurship (Asabi, 2018; Behram & Özdemirci, 2014). In this case, the results of structural equation modelling (SEM) show a greater influence of the attitude towards intrapreneurship on the II with sport science students from Spain. In the same vein, the fsQCA results indicate a moderating effect of students' country of origin. The combination of being a Spanish sport science student and to have high levels of attitude towards intrapreneurial behavior and high levels of other variables (PBC or SN), were two of the most explanatory solutions for leading to high levels of II. This could be explained with the results of the Hofstede's values (2001), showing that Spain has a less favorable intrapreneurial culture comparing to Lithuania. Moreover, in comparison to Lithuania, Spain has a lower entrepreneurial employee activity (EEA) (GEM, 2016). Intrapreneurship is considered as a specific type of entrepreneurship (Antonic & Hisrich, 2003) and generating a more favorable attitude towards this specific entrepreneurial behavior is a necessity for the development of sport intrapreneurs, which then in turn has the potential to enhance organizational performance (Ma et al., 2016; Skarmeas et al., 2016).

Likewise, the students' country of origin acted as moderator of the relationship between the student's perception that they have the necessary skills to be a successful intrapreneur (PBC) and II. In this case, the SEM results showed a greater influence in the case of Lithuania. This may could be explained since Lithuania has in general a more favorable culture towards intrapreneurship than Spain (Hofstede, 2001), which is also reflected in the higher EEA (GEM, 2016). Lithuania's culture is more favorable towards entrepreneurial and intrapreneurial behavior, which is therefore is more embedded in their society. These findings indicate that the belief of possessing the necessary skills to successfully become an intrapreneur are the main factors influencing the development of II. According to the fsQCA analysis, the combination of a high level of student's self-assessment of having the necessary skills to be a successful intrapreneur and a high level of perceived support from their close environment (family, colleagues and friends) leads to a high level of II.

The findings also show differences in the score of variables of Ajzen's TPB (1991) between sport science students from Spain and Lithuania. The scores were higher in the case of the Lithuanian students. Considering the sample characteristics, these differences may be due to the specific entrepreneurship training they have received, as well as the specific sport management subjects they have attended during their degree. Lithuanian students are those who have attended more specific entrepreneurship

training and sport management subjects. This is in line with other authors which highlight that entrepreneurial education allows the development of skills, competencies and qualities. As a result, entrepreneurial competencies can strengthen self-efficacy (Falck et al., 2012), and improve people's attitudes towards intrapreneurial behavior (Rauch & Hulsink, 2015; Souitaris et al., 2007).

From another perspective, the findings of our study also highlight the factors that lead to low levels of II. Again, culture has a noticeable impact. Being a Spanish sport science student and having low levels of a favorable attitude towards entrepreneurial behavior or being a Lithuanian sport science student and having low levels of the perception of feeling to have the necessary skills to be a successful intrapreneur leads to low levels of II. These results are in line with the findings of Reuther et al. (2018), showing that at the individual level, the main barriers to be an intrapreneur are: (1) a lack of skills, (2) creativity, (3) knowledge or (4) motivation of employees to act as intrapreneurs. Thus, the low levels of a favorable attitude towards intrapreneurial behavior (ATB) can be similar as the lack of motivation for carrying out certain behavior. Furthermore, a low level of a student's perception of having the necessary skills to be a successful intrapreneur (PBC) could be represented as a low level of skills, creativity and knowledge. Hence, these results complement and support the results found through symmetric models (SEM) and provide insightful information for factors inhibiting II.

Finally, it is important to mention that the TPB is a suitable framework to explain intrapreneurial intentions of university students. It can be observed that the predictive capacity of II, analyzed by means of Ajzen's TPB (1991), exceeds 20% of the variance of II. A value that had not been reached in previous studies which analyzed the II's university students (Douglas & Fitzsimmons, 2013; Lans et al., 2010; Marchiori et al., 2018; Nicholson et al., 2016). Moreover, previous studies with university students highlighted the cross-cultural validity of the TPB to predict entrepreneurial intentions (e.g., Liñán & Chen, 2009; González-Serrano et al., 2018; Munir et al., 2019). With this research, we contribute to the field by highlighting the cross-cultural validity of the TPB to predict II.

Regarding the theoretical implications of this study, the importance of promoting intrapreneurial behavior in sport through university education is highlighted, since this is the last link in the educational system. Therefore, knowing how to promote this behavior before entering the labor market can improve the employability of sport science students. It is shown that TFB theory is also suitable for the study of intrapreneurship intentions among university students. In addition, it highlights how culture can influence the predictor variables of II and should therefore be considered when developing educational policies on intrapreneurship in sport.

As for the practical implications of this study, it becomes clear that policies for the promotion of intrapreneurship in sport science students should be specific depending on the students' country of origin. In the case of Lithuania, there is a need for educational policies that encourage the development of skills for the successful creation and management of new projects within already established organizations. There is also a need for policies that generate a favorable culture towards entrepreneurship in the close environment (family, friends...) of sport science students. Therefore, active methodologies based on the promotion of creativity, the discovery of opportunities, innovation and proactivity through the creation of new processes, products or sports services can be very useful. In

addition, curricular and extracurricular internships in companies and sport entities whose culture favors intrapreneurship, and informative talks about the advantages of intrapreneurship for students and people in their close environment can be interesting to promote the II's of Lithuanian sport science students. However, in the case of Spanish sport science students, having a favorable attitude towards intrapreneurship is of vital importance for the promotion of their II's. Therefore, it can be a good educational policy to bring intrapreneurs from the sports sector into the classrooms to talk about their experiences, as well as sports entrepreneurs to talk about the value that intrapreneurs add to their companies in order to promote the II of Spanish sports science students.

## 6. Conclusions

There is a lack of studies analyzing the concept of intrapreneurial intentions (II) within the university's environment. So far, no cross-cultural study has been found that analyses the effect of culture on the relationships between different variables and II. The results of this study have shown that the country's culture can have a moderating effect on the II of university students. Hence, educational policies for the promotion of intrapreneurship should consider the impact of national origin. Especially Spain should take national factors into account due to its low employee entrepreneurial activity (EEA). However, more research is needed due to the characteristics of the current labor market. Enhanced university education policies can develop the students' behavior. This will improve the employability of future sport graduates, and in turn the competitiveness and performance of organizations they will work for. Therefore, studies of entrepreneurship with university students should understand entrepreneurship not only as the creation of new companies, but also as the development of innovative services and products within established companies.

In the case of Lithuanian students, the perceived behavioral control (PBC) proved to be the strongest predictor variable for the occurrence of II. This means that equipping students with the necessary knowledge and practical experience to feel able to develop innovative products, projects, processes, or services within existing organizations will positively influence their intrapreneurial intentions and increase their chances of becoming an intrapreneur. Therefore, new teaching methodologies and pedagogical approaches should be introduced during the sport sciences degree to increase the perceived behavioral control. Some examples could be practical orientated subjects in cooperation with established sport companies or internships in firms with a high level of intrapreneurship.

On the other hand, in the case of Spanish students, the attitude towards intrapreneurial behavior (ATB) was the only predictor of II. This means, that university should teach students a positive attitude towards the figure of the intrapreneur. For example, outlining the importance of the employee who develops innovative products, projects, processes or services within already established organizations, may, in this case, positively influence their intrapreneurial behavior. Hence, new methodologies and activities during the study of sport science should be oriented more towards the attention of the intrapreneur. This could be done by incorporating successful intrapreneurs to the class who have developed innovative projects within established companies, as well as

entrepreneurs who emphasize the benefits of intrapreneurial behavior. Thus, educational universities policies in the sport field should consider specific cultural needs to foster intrapreneurship, and the subjects of sport management are ideal scenarios to introduce these contents and methodologies.

Moreover, the theory of planned behavior (TPB) is a suitable framework for cross-cultural examination of II with sports university students. The TPB was able to explain higher percentages of variance compared to variables measured in isolation. Hence, we suggest TPB as a good approach to analyze II antecedents. Further, this study outlined the usefulness of the combination of fsQCA and SEM to examine II.

However, this study is not without limitations. Firstly, the results are not generalizable to the entire population of university students. Thus, in future research, the sample should be expanded with students of sport science from other countries (with higher EEA rates). Secondly, the country of origin was considered to analyze the effect of culture on the antecedents of II. Hence, future studies should consider other variables to better understand the effect of culture on II. Third, this was a cross-sectional study, so it was not possible to check whether the intentions were subsequently realized in actual behavior. Therefore, future longitudinal studies are needed to deepen the knowledge about the evolution of these intentions and the development of real intrapreneurs in the sports sector. Finally, it would also be interesting, based on the results obtained, to carry out educational interventions to encourage intrapreneurship intentions. Therefore, empirical studies are needed to analyze which methodologies or activities are more useful for the development of intrapreneurial intentions in sport science students.

## Acknowledgements

The author of this manuscript, María Huertas González-Serrano is grateful for the support of the VALi + d predoctoral contract “ACIF/2016/445” granted by the Regional Ministry of Education, Research, Culture and Sports of the Valencian Community (“Generalitat Valenciana”).

## Disclosure statement

No potential conflict of interest was reported by the authors.

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## Data availability statement

The data that support the findings of this study are available from the corresponding author, [FC], upon reasonable request.

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