Journal of Entrepreneurship and Public Policy INTENTIONS OF ENTREPRENEURSHIP IN SPORTS SCIENCE IN HIGHER EDUCATION: GENDER MODERATOR EFFECT

--Manuscript Draft--

Additional Information:						
Question	Response					
Purpose (word limit 100)	The purpose of this study was to understand the current relationship between factor such as desire and viability and entrepreneurial intention, using the Business Event Model as a point of analysis, as well as to understand the influence of gender as a moderating effect on entrepreneurial intention.					
Design/methodology/approach (limit 100 words)	A total of 278 students from the Faculty of Education Sciences (University of Seville), where they were invited to participate with students carrying out degrees in physical activity and sport sciences.					
Findings (limit 100 words)	There is a positive and similar relationship between desire and viability due to gender-related reasons. In the same way, this study presents a positive relationship in men and women, between desire and viability, desire and entrepreneurial intention and viability and entrepreneurial intention.					
Research implications/limitations (limit 100 words) (optional)						
Practical implications (limit 100 words) (optional)	The public policies of the university should be oriented to the promotion of the desire perceived in women, carrying out sessions or training courses, where the speakers could be women leaders of companies. In addition, public policies should promote the perceived viability of men through training by providing technical resources on the operation of a company.					
Social implications (limit 100 words) (optional)	This study provides theoretical knowledge on the entrepreneurial intentions of students at the University of Seville and therefore may help to improve policies aimed at promoting entrepreneurship.					
Originality (limit 100 words)	The authors offer the most recent analysis of entrepreneurial intention from Business Event Model.					
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INTENTIONS OF ENTREPRENEURSHIP IN SPORTS SCIENCE HIGHER EDUCATION: GENDER MODERATOR EFFECT

Abstract

Purpose – The purpose of this study was to understand the current relationship between factors such as desire and viability and entrepreneurial intention, using the Business Event Model as a point of analysis, as well as to understand the influence of gender as a moderating effect on entrepreneurial intention.

Design/methodology/approach – A total of 278 students from the Faculty of Education Sciences (University of Seville), where they were invited to participate with students carrying out degrees in physical activity and sport sciences.

Findings – There is a positive and similar relationship between desire and viability due to gender-related reasons. In the same way, this study presents a positive relationship in men and women, between desire and viability, desire and entrepreneurial intention and viability and entrepreneurial intention.

Practical implications - The public policies of the university should be oriented to the promotion of the desire perceived in women, carrying out sessions or training courses, where the speakers could be women leaders of companies. In addition, public policies should promote the perceived viability of men through training by providing technical resources on the operation of a company.

Social implications —This study provides theoretical knowledge on the entrepreneurial intentions of students at the University of Seville and therefore may help to improve policies aimed at promoting entrepreneurship.

Keywords: Business Event Model, Entrepreneurial intentions, Gender, Sport University Students

1. Introduction

Entrepreneurship education is becoming increasingly important because it can improve the employability of students (Fuentes, 2011). The University can now be in a strategic position if it assumes the role of manager of change, being also the largest provider of entrepreneurial culture. Consequently, the sports sector is an indicator and driver of many public policies due to its important role in society. For this reason, the knowledge of what the factors are that affect the entrepreneurship intentions, could help to guide public policies to encourage entrepreneurship in university students.

The figure of entrepreneur has been posed from different fields of knowledge positioning itself as one of the main axes of research, especially in the creation of companies (Alonso-Nuez and Galve-Górriz, 2008). Being an entrepreneur means being able to create something new or provide a different use to something already existing, and, therefore, generate an impact on one's own life and that of the community (García-Fernández *et al.*, 2017). For Ratten (2011, 2010), entrepreneurs are those involved in solving problems of their business, about sports activities, be it innovative, opportunity-based or competitively aggressive. In short, it is an individual or group attitude with the purpose of growing and recognising opportunities of the immediate environment (Calabuig-Moreno, 2016).

After the Council of Europe in Lisbon in 2013, with the purpose of encouraging and creating the figure of the entrepreneur, the Spanish government began to implement measures to stimulate growth and create jobs (Martín-López *et al.*, 2013). The agreement consisted of the application of a community program called Promotion of Business Mentality Through Education and Training, initiated from grade school to higher education. The European document aims to promote entrepreneurship, to understand entrepreneurship as a driver of economic growth and job creation. Prior to

the economic crisis, Europe was facing a change in its productive model, aimed at improving its competitiveness and growth, which ended up with the implementation of the Entrepreneurship 2020 Action Plan. As a result, it is essential for a country's education system to provide the necessary training so that young people can start their own businesses (Del Río-Rama *et al.*, 2017)

Entrepreneurship education has become increasingly more important in universities in recent years, yet its integration into sports education is still scarce (González-Serrano *et al.*, 2018). According to the Spanish university context, until the economic crisis, the rate of entrepreneurship was increasing, with the entrepreneurial rate in 2013 at 5.8% in the population aged between 18 and 64 years, 2% less than that registered prior to the crisis, where the profile of the entrepreneur was that of a person with higher education (34.4% and postgraduate 6.6%), who operates in small organisations (micro-enterprises), with little innovation and minimally internationalised. According to gender, men have a higher rate than women, where for every 100 male entrepreneurs there are only 57 females (Álvarez *et al.*, 2017). Therefore, policies in the public university ecosystem environment are geared towards fostering innovation and knowledge transfer, improving Spanish indicators and, thus, competitiveness (Juliá, 2013).

Guiding entrepreneurship and opportunities with the Physical Activity and Sports Sciences Degree, there are different areas for entrepreneurship, such as management and leadership of sports, education, health and fitness or training (Grimaldi-Puyana *et al.*, 2018), where the area of management is an emerging aspect within the entrepreneurial options for students of this degree programme. In this sense, sports management is nowadays an area of opportunity for these students (García-Fernández, 2016), although entrepreneurship opportunities are also found in other areas,

with respect to a widely diversified labour market (Campos-Izquierdo *et al.*, 2016; Gambau, 2011; Pérez-Villalba, 2015; Pérez-Villalba *et al.*, 2018; Viñas and Pérez-Villalba, 2014).

According to Ratten and Tajeddini (2019), "academic research interest in sport entrepreneurship and innovation is a recent phenomenon but the practical significance has a long history" (p. 1). However, when analysing the existing literature on students of Physical Activity and Sports Sciences in Spain, the small number of studies carried out as regards entrepreneurship or entrepreneurial intention in these students is notable (Jones and Jones, 2014, González-Serrano et al., 2017b). Nevertheless, in the last decade, educational programmes within the university setting have pushed the promotion of the entrepreneurial spirit (Ruiz de la Rosa et al., 2014) and authors such as González-Serrano et al. (2017a) point out the importance of understanding the business intention of university students from University. As an example, there is a study regarding entrepreneurial intention in students of Physical Activity and Sports Sciences that analyses how nationality and the sports education system could affect the business intentions of students of this degree both in Spain and in Lithuania (González-Serrano et al., 2018). Accordingly, it is of great importance to promote policies aimed at student training and attitude, in addition to promoting self-efficacy, issues for which Ratten (2018) suggests the implementation of courses and interdisciplinary activities in educational centres aimed at entrepreneurship and sports, in order to improve the links between research, policy and business initiatives.

Moreover, entrepreneurial intention according to gender has shown the existence of a social gap, which is a limiting factor (Frohmann, 2018, Westhead and Solesvik, 2016). Notwithstanding, the differences in entrepreneurial attitude according to gender is neither clear in education, nor for students of Physical Activity and Sports Sciences

(Bae *et al.*, 2014), despite the existence of studies that point to stereotyped beliefs (Giazitzoglu and Down, 2017; Sieger *et al.*, 2016). For this reason, the objective of this study was to analyse the effect of perceived desirability and perceived feasibility concerning entrepreneurial intention according to the model proposed by Shapero and Sokol (1982) for students of the Physical Activity and Sport Sciences Degree at the University of Seville, verifying how these relationships behave when taking into account student gender.

1.1 Business Conduct Model

As argued by Ruiz de la Rosa *et al.* (2014) there are different theoretical models to predict entrepreneurial intention, with the most attention placed on Shapero and Sokol's (1982) entrepreneurial event model and Ajzen's (2002b) theory of planned behaviour. Nevertheless, Acosta-Veliz *et al.* (2017) recommends, for the analysis of perceived desirability and perceived feasibility, the use of the model proposed by Shapero and Sokol (1982) to provide greater robustness for the prediction of indicators, and also considers this as a more suitable model for this type of study.

Díez (2016) indicates that Ajzen's (1991) theory of planned behaviour does not establish a positive relationship between entrepreneurial intention and the variables of perceived desirability and perceived feasibility in the long term, based on the attitude towards behaviour, the subjective norm and perceived control. Nonetheless, the entrepreneurial event model (or business event model) presented by Shapero and Sokol (1982) points out that previous positive or negative experiences have a significant influence on entrepreneurial intention. So, both perceived desirability and perceived feasibility act in a reciprocal fashion. Hence, if a person sees a situation as undesirable, the entrepreneurial intention would never be viable. Thus, this model is geared towards

the creation of a multifactorial company determined by two variables, as a result of a social and cultural environment, which determine a significant influence in the creation of a company: perceived desirability and perceived feasibility. This explanatory model starts from three well differentiated phases: The previous phase is determined by personal events, which are called positive displacements or negative displacements; the desire phase, which is determined by the environment of culture, family and friends; and the action phase, from which under a series of supports (human, technical and financial resources) the subject finally decides to take action. Consequently, entrepreneurial intention in a business is determined, according to Shapero (1985), by perceived feasibility as the propensity to act on opportunities, understanding desire as the personal attraction of entrepreneurship and, second, perceived feasibility as the ability either through the provision of resources, or of the climate that facilitates the context of entrepreneurship, with the latter understood as the ability to execute tasks. In short, the relationship or entrepreneurial intention is determined by personal attitude, which is called perceived desirability, and personal self-efficacy called perceived feasibility (Acosta-Veliz et al., 2017).

1.2 Relationship between perceived desirability, perceived feasibility and entrepreneurship intention

Based on the Business Event Model (EMM), the creation of a business is considered as a multifactorial interaction event with initiatives such as relative autonomy, management and risk (Guerrero *et al.*, 2008). There are studies that show that the decision to start a business is related to aspects such as perceived desirability and perceived feasibility (Krueger *et al.*, 2000; Peterman and Kennedy, 2003; Audet, 2004), this being positive according to the studies carried out by Bandura (2002) and Conner

and McMillan (1999) as regards entrepreneurial spirit.

Moreover, González-Serrano *et al.* (2018) state that desire is defined as the evaluation, favourable or unfavourable, that a person makes as regards the behaviour in question. So, according to Ajzen's (1991) theory, entrepreneurial intention is influenced by the personal attitude that defines the degree to which an individual values, positively or negatively, becoming an entrepreneur. In short, certain authors have found a direct influence between desire and behaviour towards the creation of a business (Meek *et al.*, 2010, Moriano *et al.*, 2007).

Likewise, Bandura (1978) and McGee *et al.* (2009) understood feasibility as the belief in the ability to carry out different roles and tasks related to entrepreneurship. This establishes a relationship of low uncertainty or/and low risk, where an individual recognises an opportunity predicated on a perception of control called desire and therefore viability (Krueger and Dickson, 1993). In addition, it should be noted that entrepreneurial intention is determined by the models that affect self-efficacy, associated with the recognition of opportunities and risk (Krueger and Brazeal, 1994).

In this context, several studies indicate that with regards to entrepreneurial intention women lag behind men (Gatewood *et al.*, 2002, Ruiz *et al.*, 2008, Wilson *et al.*, 2007, Chowdhury and Endres 2005, Minniti and Nardone, 2007). Results have also been found in the educational field, where numerous studies analysing entrepreneurial intention based on gender in the university population show an existing gap, with a lower rate of entrepreneurial intention in female university students (Do Paco *et al.*, 2015, Fayolle *et al.*, 2006, Greene and Saridakis, 2007, Martin *et al.*, 2013, Mei *et al.*, 2016, Segier *et al.*, 2014, Ventura and Quero, 2013). Nevertheless, the work of González-Serrano *et al.* (2016), developed using a sample similar to that of this study, did not find significant differences in entrepreneurial intention according to gender in

students of Physical Activity and Sports Sciences in the Community of Valencia (Spain).

Based on the theory described and the relationship between variables according to the aforementioned authors, the hypotheses of this study are shown in Figure 1:

Hypothesis 1. There is a positive relationship between perceived desirability and perceived feasibility for male and female students of the Physical Activity and Sports Sciences Degree.

Hypothesis 2. There is a positive relationship between desire and entrepreneurial intention for students of the Physical Activity and Sports Sciences Degree.

Hypothesis 3. There is a positive relationship between perceived feasibility and entrepreneurial intention for students of the Physical Activity and Sports Sciences Degree.

Hypothesis 4. Gender moderates entrepreneurial intention, since there is a positive relationship between gender regarding perceived desirability and perceived feasibility towards entrepreneurship for students of the Physical Activity and Sports Sciences Degree.

Please insert Figure 1. Conceptual model.

2. Method

2.1 Participants

The participants were composed of 278 students from the Faculty of Education Sciences (University of Seville, Spain). The participants invited were: students of the Physical Activity and Sports Sciences Degree 84.2% [n = 234 (first course = 31, second course = 43, third course = 55, fourth course = 105)] and Physical Activity and Quality of Life in

Adults Masters Programme (15.8%; n = 44), of which 65.5% (n = 182) are men versus 34.5% of women (n = 96), 30.2% under 20 years old (n = 84), 52.9% between 21 and 24 years old (n = 147) and 16.9% older than 24 years old (n = 47). 72.3% of participants were unemployed (n = 201), with an average social class (59%, n = 164). Below is a summary table with the characteristics of participants according to gender, university degree, age and socio-economic level (Table 1).

Please insert Table 1. Participants according to the gender, university degree, age and socio-economic level.

2.2 Measures

The instrument used for this research is based on Shapero and Sokol's (1982) Business Event Model (MEE), and adapted by Jaén and Liñán (2013) for a sample of university students. Entrepreneurial intention was evaluated using a five-item scale (EI1 to E15) where each evaluates the perceived probability of each participant choosing a business career. To assess the attitude towards entrepreneurship, two sets of six items were used (PD1 to PD6): on the one hand, expected results (expectations) of a business career, and on the other hand, the convenience of these results. Thus, following the Jaén and Liñán's (2013) procedure based on Ajzen (2002a), the expectations of results were multiplied by their convenience and then divided by six to obtain average scores of the scale. Finally, perceived viability was measured using six items (PF1 to PF6) combining elements of self-efficacy and controllability in line with Ajzen's theory (1991, 2002b) as well as previous research on business intentions (Krueger *et al.*, 2000 Kolvereid and Isaksen, 2006; Moriano *et al.*, 2007; van Gelderen *et al.*, 2008). All items in the

questionnaire were measured on a 7-point Likert-type scale (from 0 to 6). The TPB questionnaire is included in Table 2.

2.3 Procedure

This cross-sectional study used non-probability convenience sampling. The participants were students of the Physical Activity and Sports Sciences Degree of the University of Seville (Spain), from the first to fourth year as well as students of the Physical Activity and Quality of Life in Adults Masters Programme. In all cases the same procedure was followed. After obtaining consent from the instructor, a researcher attended the classroom to request the students' collaboration. Those who agreed to collaborate in the study were informed of the study's objectives, their voluntary and anonymous participation, in addition to an assurance of the confidentiality of the answers. They then completed the consent form prior to being provided with the link to access the online questionnaire. The participants responded to the questionnaire in about 10-12 minutes to complete all the items. The data collection was carried out during the months September 2017 to April 2018.

2.4 Data analysis

Descriptive statistics of the items were obtained according to gender, verifying data normality (e.g., by means of the Kolmogorov-Smirnov test) and homogeneity of variances (e.g., by means of Levene's test). Independent samples t tests were conducted to compare the differences of means according to gender, as well as verifying effect size. The significance level was 0.05 for all the analyses.

An exploratory factor analysis (EFA) was conducted to obtain the factorial structure using Principal Components Analysis and Oblimin oblique rotation. We had previously tested the factorisation conditions using the Bartlett and Kaiser-Meyer-Olkin (KMO) test. The item analysis was performed using the factor loadings, communalities

and homogeneity index corrected (HIc index) between the item and the total score on the scale. We proceeded to the reliability study based on the estimate of Cronbach's Alpha (α) method (Cronbach, 1951) for each factor, to determine the internal consistency of the scale formed by the extracted factor that is the average correlation of items in a survey instrument to gauge its reliability (Jelenc, 2007). A commonly accepted rule of thumb is that an α of 0.6-0.7 indicates acceptable reliability, and 0.8 or higher indicates very good reliability (Rust and Cooil, 1994). SPSS 21.0 was used to analyse some of the psychometric properties of the items.

A structural equation model was tested in two steps (Anderson and Gerbing, 1988). First, a confirmatory factor analysis (CFA) was conducted to verify the EFA structure and assess the measurement model. The indexes taken into account in order to evaluate the fit of the models were as follows: chi-square relative to degrees of freedom (γ^2/df) (Jöreskog and Sörbom, 1993), the Comparative Fit Index (CFI), Incremental Fit Index (IFI), Tucker-Lewis Index (TLI), and the Root Mean Square Error of Approximation (RMSEA) and its reliability interval. Chi-square by degrees of freedom values should be less than 3.0 (Kline, 2005), CFI, IFI, and TLI indexes ought to surpass 0.90 (Worthington and Whittaker 2006) and values below 0.08 for the RMSEA (Hu and Bentler, 1999). We measured internal consistency of the constructs through composite reliability (Hair et al., 2006), and the convergent validity was evaluated through the average variance extracted (AVE). The second step was a structural equation model (SEM) that analysed the predicted hypothesised relationships between the variables for the present study. In order to identify factorial invariance, cross validation procedures were used with a multi-group analysis strategy (Davey, 2010). In this way, the factorial invariance (FI) was conducted for testing the invariance of the model, specifically across gender (male and female). The model's invariance among the groups was tested

by comparing the unconstrained model (M1) with model constraining measurement weights (M2) (Loehlin, 2003), using three criteria suggested by Cheung and Rensvold (2002) and Chen (2007): (1) the difference in RMSEA (Δ RMSEA) was less than 0.01; (2) the difference in CFI (Δ CFI) was greater than 0.01; and (3) the difference in NNFI (Δ NNFI) was greater than 0.01. The method of estimation of the maximum likelihood was used in all of the models tested.

3. Results

3.1 Descriptive analyses and Exploratory Factor Analysis

The descriptive statistics of the items are included in Table 2. The independent samples' t tests showed significant differences in means according to gender in four of the five items of the entrepreneurial intention scale, where the score obtained from men was higher than that of women in all items, with size having little effect (Cohen, 1988).

Following the above described methods, the Kaiser-Meyer-Olkin (KMO) test reflecting the degree of synergy among the initial variables and testing the construct validity of the model has an adequate high value (0.918) (Kaiser, 1974), and Bartlett's test of sphericity has been satisfactorily completed ($\chi^2(136) = 3516.92$; p < 0.01). The communalities measuring the variance of the variables are systematically higher than 50 per cent except item D5 (0.47) and factor loadings exceed the minimum acceptable value 0.40 (Hair et al., 2006; Worthington and Whittaker, 2006). The three factors with eigenvalues > 1.00 explain 67.91 per cent of the total variance. The HIc index was adequate (> 0.25-0.30; Nunnally and Bernstein, 1994) for all items and the values obtained from Cronbach's Alpha (α) were higher than 0.70 (Marôco and Marques, 2006), specifically 0.84 for perceived desirability, 0.93 for perceived feasibility and 0.85 for entrepreneurial intention.

3.2 Confirmatory Factor Analysis

The measurement model was examined to verify the validity of the construct with CFA, using maximum likelihood estimation, being sufficiently robust to meet the norm (Muthén and Kaplan, 1985). The CFA showed reasonable goodness of fit indexes and suggest that the model is coherent with the data. The χ^2 and its ratio to the degrees of freedom was below the 3.0 criterion ($\chi^2/gl = 2.67$), indicating a good fit. The CFI (0.94) and IFI (0.94) values were greater than de 0.90 criterion for a good fit, and the TLI (0.93) was indicative of adequate fit. In addition, the RMSEA value was 0.078 (CI = 0.067 - 0.088) suggesting a good fit. The reliability of the scale is also demonstrated because the composite reliability (CR) indexes of each of the dimensions obtained are higher than the threshold of 0.7 (Bagozzi and Yi, 1988; Hair et al., 2006), specifically 0.85 for perceived desirability, 0.93 for perceived feasibility and 0.89 for entrepreneurial intention. The size of the factor loading is a criterion used to evaluate the reliability of the indicator which the constructs intend to measure (Seidel and Back, 2009). For this reason, the items showed a factor loading (λ) greater than the conservative threshold of 0.60 (Hair et al., 2006) and were statistically significant, and the regression weight estimate was situated between 8.29 and 26.41, hence indicating evidence of convergent validity. Additionally, all the AVE values exceeded the recommended standard of 0.50 (Fornell and Larcker, 1981) (table 2).

Please insert Table 2.

3.3 Structural Equation Model

The examination of the structural model included a test of the overall model fit as well as a test of the relationships between the latent constructs. The global evaluation of the

model demonstrated a satisfactory fit with all indexes being within acceptable range: χ^2 (114) = 313.79 (p < 0.001); $\chi^2/\mathrm{df} = 2.75$; CFI = 0.94; IFI = 0.94; TLI = 0.93; RMSEA = 0.080 (CI = 0.069 - 0.090). The hypothesised model established that perceived desirability ($\beta = 0.30$; p < 0.001) and perceived feasibility ($\beta = 0.46$; p < 0.001) were positive and significant predictors of entrepreneurial intention, and the perceived desirability showed a positive effect on perceived feasibility ($\beta = 0.75$; p < 0.001). Altogether, the model dimensions accounted for approximately 51% of the variance in entrepreneurial intention ($R^2 = 0.51$).

In response to gender, the overall assessment of the structural model was found to be acceptable for the men's model [χ^2 (114) = 228.37 (p < 0.001); χ^2 /df = 2.00; CFI = 0.95; IFI = 0.95; TLI = 0.94; RMSEA = 0.074 (CI = 0.060 – 0.088)] but weak in the case of women [χ^2 (114) = 241.23 (p < 0.001); χ^2 /df = 2.11; CFI = 0.90; IFI = 0.90; TLI = 0.92; RMSEA = 0.088 (CI = 0.078 – 0.092)]. The path coefficients for each model are demonstrated in Figure 2. The relationship between perceived desirability and perceived feasibility was similar in both genders (β = 0.75, p < 0.001 for men; β = 0.68, p < 0.001 for women). The effect of perceived desirability on entrepreneurial intention was significant for men (β = 0.37, p < 0.001) and women (β = 0.29, p = 0.03). In the same way, the perceived feasibility effect on entrepreneurial intention was positive and significant for both men (β = 0.42, p < 0.001) and women (β = 0.47, p < 0.001). In both genders, the perceived feasibility was a stronger predictor of entrepreneurial intention.

Please insect* Figure 2. Structural model of entrepreneurial intention

3.4 Factorial Invariance Analyses

The focus was on the development of the invariance of the measurement instrument . The first step considered the model for each individual sample, showing a good fit. Next, the factorial invariance across the groups was verified through the unconstrained model (M1) and the model constraining measurement weights (M2) (Loehlin, 2003). Table 3 shows the measurement invariance across gender through the criteria described in the data analysis section. The results obtained adequate goodness of fit indexes in the unconstrained model, indicating that the participants in the two gender use the same conceptual framework to respond to the items that make up the scale, confirming the configural invariance (Cheung and Rensvold, 2002; Vandenberg and Lance, 2000). Furthermore, the differences in RMSEA were lower than 0.01 (Δ RMSEA = 0.001), the differences in CFI were higher than 0.01 (Δ CFI = 0.02), as also were the differences in NNFI (Δ NNFI = 0.02). As a consequence, we can state that the regression lines are equal in the gender considered.

*Please insect*Table 3. Measurement invariance across gender

4. Discussion and conclusions

Interest in studies related to entrepreneurial spirit in the sports sector (González-Serrano *et al.*, 2018) has been notable, but there remain few studies on the subject (Ratten and Ferreira, 2017). Hence, the main objective of this study was to analyse the variables, level and factors that influence students of the Physical Activity and Sports Sciences Degree, as well as the influence of gender as a moderating effect.

Previous research has shown this interest as a moderating effect of gender on personal attitude and self-efficacy towards entrepreneurial intention (Do Paco *et al.*, 2015; Martin *et al.*, 2013; Mei *et al.*, 2016, Fayolle and Gailly, 2015, Kautonen *et al.*,

2015; Sieger et al., 2016; Peña et al., 2018). Yet, according to Westhead and Solesvik (2016), there are few studies that have empirically analyzed the effects of this depending on the gender of the students.

According to the data presented in this study, it is clear that gender is not a moderating factor for entrepreneurial intention, since similar results are observed when comparing gender. This data coincides with the work on entrepreneurial intention in students of physical activity and sports sciences (González-Serrano *et al.*, 2016).

However, this is contrary to other studies in other university programs that affirm that gender does act as a factor that determines personal attitude and self-efficacy, presenting higher values for males. Other authors argue that, in the university community, gender is presented as a moderating factor of the indicated variables (Quero, 2013).

In the same way, this study presents a positive relationship in men and women between desire and viability, desire and entrepreneurial intention and viability and entrepreneurial intention. This data is contrary to that of other studies, which refers to a higher behaviour viability in men than in women (Gatewood *et al.*, 2002, Wilson *et al.*, 2007; Ruiz *et al.*, 2008). Likewise, the scientific literature affirms that entrepreneurial viability and entrepreneurial intention is lower in women (Wilson *et al.*, 2007; Chowdhury and Endres, 2005; Gatewood *et al.*, 2002; Minniti and Nardone, 2007).

Finally, this study aims to demonstrate the entrepreneurial intention of sport sciences students at the University of Seville, in particular, to contribute to the knowledge of this type of student and globally in the sports industry. Therefore, according to the data shown in this study, H1 and H2 are accepted. This shows a positive relationship: first between the variables perceived desirability and perceived feasibility, and second between perceived desirability and entrepreneurial intention,

showing a greater strength in male students than in female students. In the same way, H3 is accepted. This shows a positive relationship between perceived feasibility and entrepreneurial intention, although in this case, it should be noted that perceived feasibility presents a stronger relationship in women than in men. H4 is rejected since gender is not shown as a moderating factor in entrepreneurial intention.

5. Limitations and future lines of research

This study presents the entrepreneurial intention of sport sciences students at the University of Seville. Although this study has limitations, a response rate of over 97% was obtained, despite its small sample size. Hence, what is proposed as a future line of research is to increase the sample size in centres in the area of influence of the city of Seville with the same degree programme, such as CEU San Pablo University, Pablo de Olavide University and Centro de Studios San Isidoro.

Similarly, another future line of research and taking into account territorial differences in Spain, is to collect data in communities which have an educational centre offering a degree in physical activity and sports sciences in order to see the differences in entrepreneurial intention in different parts of Spain. We would thus compare the differences between north and south, this latter region having a higher unemployment rate than the rest of the communities. Likewise, extensible work could be carried out in other countries of the European Community.

Finally, this study is cross-sectional. So, it is understood that the data is presented at a specific point in time and therefore not over a period time. Due to this, in future research it is recommended to carry out longitudinal studies in order to see the relationship between training and entrepreneurial intention throughout the degree

programme. This case study would demonstrate when it would be more necessary to include content that promotes entrepreneurship in students of sports degree programs.

6. Practical applications for management

The University can now play a strategic position if it assumes the role of manager of change, being also the largest provider of entrepreneurial culture. The sports sector is therefore an indicator and driver of many public policies for its important role in society.

For this reason, these results can be very useful for educational policy makers in order to reduce the gender gap in entrepreneurship between men and women. This study provides clear practical implications for the management of students, theoretical knowledge as regards entrepreneurial intention for students of the University of Seville and as a result it facilitates the improvement of university policies designed to promote entrepreneurship in this type of student. The findings show a positive relationship between men and women between perceived desire and the entrepreneurial intention, though this relationship is stronger in men than in women. So, the policies of the university should be oriented to the promotion of the desire perceived in women, as an example to carry out training sessions or courses, where the speakers would be women leaders of companies.

Also, there is a positive relationship between men and women between the perceived feasibility and the entrepreneurial intention. In this case the relationship is stronger in women than in men. Accordingly, we mean to incentivise policies aimed at promoting perceived viability through courses and seminars that provide technical resources to male students concerning the operation of a company.

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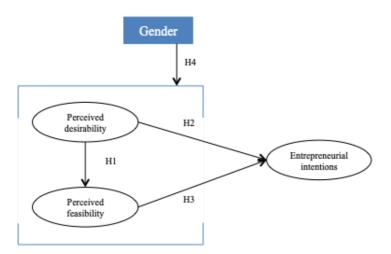
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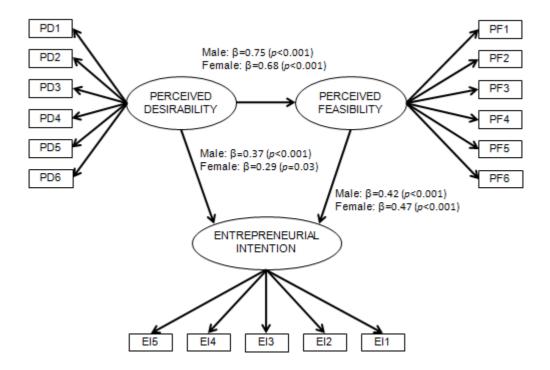


Figure 2. Structural model of entrepreneurial intention

Table 1. Participants according to the gender, university degree, age and socioeconomic level.

	n	%			
Gender					
Male	182	65.5			
Female	96	34.5			
University degree					
Bachelor	44	15.8			
Master	331	25.2			
Age					
Less than 20 years	84	30.3			
Between 21 to 24 years	147	52.9			
More than 24 years	47	16.9			
Socio-economic Level					
Low-income	21	7.6			
Medium/low-income	62	22.3			
Medium-income	164	59			
High-income	31	11.2			

Table 2.

Construct item	Male M (SD)	Female M (SD)	P value	Cohen's d / Effect-size r	Commun. / HIc	Factor loading (EFA)	Factor loading (CFA)	α / CR / AVE
Perceived desirability								0.84 / 0.85 / 0.50
Facing new challenges (PD1)	3.49 (1.57)	3.56 (1.83)	0.72	0.04 / 0.02	0.64 / 0.68	0.80	0.77	
Creating jobs for others (PD2)	2.75 (1.62)	2.86 (1.77)	0.61	0.06 / 0.03	0.54 / 0.60	0.73	0.68	
Being creative and innovative (PD3)	3.51 (1.61)	3.63 (1.82)	0.57	0.07 / 0.03	0.64 / 0.69	0.80	0.77	
Having a high income (PD4)	3.18 (1.65)	2.93 (1.61)	0.21	0.27 / 0.13	0.53 / 0.55	0.67	0.61	
Taking calculated risks (PD5)	2.40 (1.46)	2.05 (1.56)	0.07	0.23 / 0.11	0.47 / 0.55	0.69	0.61	
Being your own boss (independence) (PD6)	3.30 (1.89)	3.11 (1.91)	0.44	0.10 / 0.05	0.59 / 0.67	0.76	0.76	
Perceived feasibility								0.93 / 0.93 / 0.69
Defining your business idea and a new business strategy (PF1)	3.55 (1.35)	3.23 (1.30)	0.05	0.24 / 0.12	0.66 / 0.74	0.80	0.76	
Keeping the new-venture creation process under control (PF2)	3.57 (1.40)	3.42 (1.30)	0.39	0.11 / 0.05	0.76 / 0.82	0.87	0.83	
Negotiating and maintaining favourable relationships with potential investors and banks (PF3)	3.46 (1.49)	3.38 (1.44)	0.64	0.05 / 0.02	0.78 / 0.82	0.88	0.84	
Recognising opportunities in the market for new products and/or services (PF4)	3.72 (1.31)	3.36 (1.38)	0.03	0.26 / 0.13	0.75 / 0.80	0.86	0.84	
Interacting with key people to raise capital to create a new venture (PF5)	3.81 (1.41)	3.59 (1.41)	0.22	0.15 / 0.07	0.77 / 0.81	0.87	0.83	
Creating and putting into operation a new venture (PF6)	3.67 (1.46)	3.50 (1.48)	0.36	0.11 / 0.05	0.77 / 0.82	0.87	0.86	
Entrepreneurial intention								0.85 / 0.89 / 0.65
It is very likely that I will start a venture someday (EI1)	3.19 (1.46)	2.53 (1.49)	<0,001	0.44 / 0.21	0.84 / 0.83	0.86	0.91	
I am willing to make any effort to become an entrepreneur (EI2)	3.41 (1.57)	2.77 (1.70)	<0,001	0.39 / 0.19	0.83 / 0.84	0.84	0.88	
I have serious doubts whether I will ever start a venture (EI3)	2.98 (1.61)	2.91 (1.74)	0.71	0.04 / 0.02	0.41 / 0.42	0.57	0.51	
I am determined to start a business in the future (EI4)	2.99 (1.56)	2.20 (1.58)	<0,001	0.50 / 0.24	0.89 / 0.83	0.91	0.93	

Your professional goal is to be an entrepreneur (EI5)

2.66 (1.63) 1.81 (1.51) <0,001

0.54 / 0.26

0.85 / 0.78

0.91

0.87

Note. M: mean; SD: Standard Deviation; Commun: communalities; HIc: homogeneity index corrected; EFA: exploratory factor analysis; CFA: confirmatory factor analysis; α:

Cronbach's alpha; CR: composite reliability; AVE: average variance extracted.

Table 3. Measurement invariance across gender

	χ^2 (df)	$\Delta \chi^2 (df)$	P	RMSEA	ΔRMSEA	CFI	ΔCFI	NNFI	ΔNNFI		
Measurement invariance across gender											
M1	469.99 (228)			0.062		0.94		0.92			
M2	507.18 (242)	37.19 (14)	0.00	0.063	0.001	0.92	0.02	0.90	0.02		

Note: M1: unconstrained model; M2: model constrained measurement weights

JEPP-D-18-00096

INTENTIONS OF ENTREPRENEURSHIP IN SPORTS SCIENCE IN HIGHER EDUCATION: GENDER MODERATOR EFFECT

Reviewer 1.

This paper examines the Intentions of entrepreneurship in sports science higher education: gender moderator effect. The work is interesting and well written. However, I think that the manuscript needs a minor revision to be published:

Thank you so much for your comment.

1. First of all, authors should check the abstract because grammar is not accurate. Also, I can see little error inside of referenses, please this must be corrected.

Thank you for your comments. As Reviewer 1 can read in red, the abstract has been rewritten "...Purpose – The purpose of this study was to understand the current relationship between factors such as desire and viability and entrepreneurial intention, using the Business Event Model as a point of analysis, as well as to understand the influence of gender as a moderating effect on entrepreneurial intention.

Design/methodology/approach – A total of 278 students from the Faculty of Education Sciences (University of Seville), where they were invited to participate with students carrying out degrees in physical activity and sport sciences.

Findings – There is a positive and similar relationship between desire and viability due to gender-related reasons. In the same way, this study presents a positive relationship in men and

women, between desire and viability, desire and entrepreneurial intention and viability and entrepreneurial intention.

Practical implications - The public policies of the university should be oriented to the promotion of the desire perceived in women, carrying out sessions or training courses, where the speakers could be women leaders of companies. In addition, public policies should promote the perceived viability of men through training by providing technical resources on the operation of a company.

Social implications –This study provides theoretical knowledge on the entrepreneurial intentions of students at the University of Seville and therefore may help to improve policies aimed at promoting entrepreneurship...".

- 2. Secondlly, I suggest to read the next documents to include in your paper:
- -Del Río-Rama M. de la Cruz, Álvarez-García J., Rueda-Armengot C. and Peris-Ortiz M. (2017), "Entrepreneurship by Students in Tourism Degree Program. A Cross-Cultural Analysis". (Ed.), *Entrepreneurial Universities. Innovation, Technology, and Knowledge Management*, Springer, Cham, pp. 267-282.

-González-Serrano, M. H., Moreno, F. C., and Hervás, J. C. (2018). Sport management education through an entrepreneurial perspective: Analysing its impact on Spanish sports science students, *The International Journal of Management Education*, https://doi.org/10.1016/j.ijme.2018.11.007 -Ratten, V. and Tajeddini, K. (2019), "Entrepreneurship and sport business research: synthesis and lessons: introduction to the special journal issue", *International Journal of Sport Management and Marketing*, Vol 19 No. 2, pp. 1-7.

Thanks for your suggestions. We have read the documents and we also include them in our document, as you can check below:

Introduction section, page 2 "the end of paragraph 3 and at the start 4":

"...As a result, it is essential for a country's education system to provide the necessary training so that young people can start their own businesses (Del Río-Rama *et al.*, 2017)

Entrepreneurship education has become increasingly more important in the universities in recent years, yet its integration into sports education is still scarce (González-Serrano *et al.*, 2018)...".

Introduction section, page 3 "the start of paragraph 3":

"...According to Ratten and Tajeddini (2019), "academic research interest in sport entrepreneurship and innovation is a recent phenomenon but the practical significance has a long history" (p. 1), however...".

3. Moreover, I believe and suggest to the authors should develop more the next parts: 4. Discussion; 5. Conclusions 6. Practical applications for management.

Thank you. We have reconfigured the discussion and conclusions as follows

"...4. Discussion and conclusions

Interest in studies related to entrepreneurial spirit in the sports sector (González-Serrano *et al.*, 2018) has been notable, but there remain few studies on the subject (Ratten and Ferreira, 2017). Hence, the main objective of this study was to analyse the variables, level and factors that influence students of the Physical Activity and Sports Sciences Degree, as well as the influence of gender as a moderating effect.

Previous research has shown this interest as a moderating effect of gender on personal attitude and self-efficacy towards entrepreneurial intention (Do Paco *et al.*, 2015; Martin *et al.*, 2013;

Mei *et al.*, 2016, Fayolle and Gailly, 2015, Kautonen *et al.*, 2015; Sieger et al., 2016; Peña et al., 2018). Yet, according to Westhead and Solesvik (2016), there are few studies that have empirically analyzed the effects of this depending on the gender of the students.

According to the data presented in this study, it is clear that gender is not a moderating factor for entrepreneurial intention, since similar results are observed when comparing gender. This data coincides with the work on entrepreneurial intention in students of physical activity and sports sciences (González-Serrano *et al.*, 2016).

However, this is contrary to other studies in other university programs that affirm that gender does act as a factor that determines personal attitude and self-efficacy, presenting higher values for males. Other authors argue that in the university community, gender is presented as a moderating factor of the indicated variables (Quero, 2013).

In the same way, this study presents a positive relationship in men and women between desire and viability, desire and entrepreneurial intention and viability and entrepreneurial intention. This data is contrary to that of other studies, which refers to a higher behaviour viability in men than in women (Gatewood *et al.*, 2002, Wilson *et al.*, 2007; Ruiz *et al.*, 2008). Likewise, the scientific literature affirms that entrepreneurial viability and entrepreneurial intention is lower in women (Wilson *et al.*, 2007; Chowdhury and Endres, 2005; Gatewood *et al.*, 2002; Minniti and Nardone, 2007).

Finally, this study aims to demonstrate the entrepreneurial intention of sport sciences students at the University of Seville, in particular, to contribute to the knowledge of this type of student and globally in the sports industry. Therefore, according to the data shown in this study, H1 and H2 are accepted. This shows a positive relationship: first between the variables perceived desirability and perceived feasibility, and second between perceived desirability and

entrepreneurial intention, showing a greater strength in male students than in female students. In the same way, H3 is accepted. This shows a positive relationship between perceived feasibility and entrepreneurial intention, although in this case, it should be noted that perceived feasibility presents a stronger relationship in women than in men. H4 is rejected since gender is not shown as a moderating factor in entrepreneurial intention...".

Thank you. We have reconfigured the practical applications for management as follows:

"...6. Practical applications for management

The University can now play a strategic position if it assumes the role of manager of change, being also the largest provider of entrepreneurial culture. The sports sector is therefore an indicator and driver of many public policies for its important role in society.

For this reason, these results can be very useful for educational policy makers in order to reduce the gender gap in entrepreneurship between men and women. This study provides clear practical implications for the management of students, theoretical knowledge as regards entrepreneurial intention for students of the University of Seville and as a result it facilitates the improvement of university policies designed to promote entrepreneurship in this type of student. The findings show a positive relationship between men and women between perceived desire and the entrepreneurial intention, though this relationship is stronger in men than in women. So, the policies of the university should be oriented to the promotion of the desire perceived in women, as an example to carry out training sessions or courses, where the speakers would be women leaders of companies.

Also, there is a positive relationship between men and women between the perceived feasibility and the entrepreneurial intention. In this case the relationship is stronger in women than in men.

Accordingly, we mean to incentivise policies aimed at promoting perceived viability through courses and seminars that provide technical resources to male students concerning the operation of a company ...".

References:

- -Peña, I., Guerrero, M., González-Pernía, J.L., and Montero, J. (2018), "Global Entrepreneurship Monitor: informe GEM España 2017-2018". Santander: Editorial de la Universidad de Cantabria.
- Sieger, P., Fueglistaller, U., and Zellweger, T. (2016), "Student Entrepreneurship 2016: Insights from 50 Countries". St.Gallen/Bern: KMU-HSG/IMU.
- 4. Finally, I would like to congratulate to the autors for the intereting study about gender and the Intentions of entrepreneurship.

Thank you for the positive comment.

Reviewer 2.

First of all, I would like to congratulate to authors for the work they have done. I consider that the topic is very interesting and very applicable to sports management.

Thank you so much for the comment, because we believe that the Reviewer's comment will improve our document.

1. However, I believe that authors should make several changes to the document.

First, English needs to be reviewed throughout the document (especially the abstract).

Thank you for your comments. The abstract has been rewritten as you can see below:

"...Purpose – The purpose of this study was to understand the current relationship between factors such as desire and viability and entrepreneurial intention, using the Business Event Model as a point of analysis, as well as to understand the influence of gender as a moderating effect on entrepreneurial intention.

Design/methodology/approach – A total of 278 students from the Faculty of Education Sciences (University of Seville), where they were invited to participate with students carrying out degrees in physical activity and sport sciences.

Findings – There is a positive and similar relationship between desire and viability due to gender-related reasons. In the same way, this study presents a positive relationship in men and women, between desire and viability, desire and entrepreneurial intention and viability and entrepreneurial intention.

Practical implications - The public policies of the university should be oriented to the promotion of the desire perceived in women, carrying out sessions or training courses, where the speakers

could be women leaders of companies. In addition, public policies should promote the perceived viability of men through training by providing technical resources on the operation of a company.

Social implications –This study provides theoretical knowledge on the entrepreneurial intentions of students at the University of Seville and therefore may help to improve policies aimed at promoting entrepreneurship...".

2. On the other hand, I suggest that the authors eliminate the hypothesis of the paper, and include specific objectives that represent each of them. I believe that this brings a higher quality to the paper.

Thank you for suggestions, we agree that is good feedback, however in our study we try to find out the relation between several factors as analysis of perceived desirability and perceived feasibility in students, also how the gender could change the factors' comments; for this reason, we believe that if we put several hypotheses this can help to better understand our work.

3. Finally, I believe that the authors have to review and unify the conclusions and practical applications. I think that a section of conclusions that repeats the results of the study is not good. Thanks for the suggestion. However, we believe that the conclusions offer more value by adding to the discussion. Also, we have improved the practical applications as can be seen below:

"...6. Practical applications for management

The University can now play a strategic position if it assumes the role of manager of change, being also the largest provider of entrepreneurial culture. The sports sector is therefore an indicator and driver of many public policies for its important role in society.

For this reason, these results can be very useful for educational policy makers in order to reduce the gender gap in entrepreneurship between men and women. This study provides clear practical implications for the management of students, theoretical knowledge as regards entrepreneurial intention for students of the University of Seville and as a result it facilitates the improvement of university policies designed to promote entrepreneurship in this type of student. The findings show a positive relationship between men and women between perceived desire and the entrepreneurial intention, though this relationship is stronger in men than in women. So, the policies of the university should be oriented to the promotion of the desire perceived in women, as an example to carry out training sessions or courses, where the speakers would be women leaders of companies.

Also, there is a positive relationship between men and women between the perceived feasibility and the entrepreneurial intention. In this case the relationship is stronger in women than in men. Accordingly, we mean to incentivise policies aimed at promoting perceived viability through courses and seminars that provide technical resources to male students concerning the operation of a company ...".

4. In addition, authors, on page 17, line 1 said: "This study provides clear practical implications for the management of students" What are they? This must be the central point of this new section.

Thanks for the suggestion. As can be seen in point three, the practical implications have been improved.

5. Please include policy implications section at the end of the paper.

Thank you for your comment. As can be seen in point three, the practical implications have been extended by referring to the public policies that must be implemented in the university.

6. The abstract needs to be rewritten in better English.

Thanks for the suggestion. As can be seen in point one, the summary has been rewritten.

7. The last section further research needs to focus more on suggestions.

Thanks for the suggestion. As can be seen in point three, the practical implications have been improved.

8. As the special journal issue is about sport entrepreneurship and public policy this needs to highlighted at the start of the paper and at the end.

Thanks for the suggestion. The abstract has been modified in the following way:

"...Purpose – The purpose of this study was to understand the current relationship between factors such as desire and viability and entrepreneurial intention, using the Business Event Model as a point of analysis, as well as to understand the influence of gender as a moderating effect on entrepreneurial intention.

Design/methodology/approach – A total of 278 students from the Faculty of Education Sciences (University of Seville), where they were invited to participate with students carrying out degrees in physical activity and sport sciences.

Findings – There is a positive and similar relationship between desire and viability due to gender-related reasons. In the same way, this study presents a positive relationship in men and

women, between desire and viability, desire and entrepreneurial intention and viability and entrepreneurial intention.

Practical implications - The public policies of the university should be oriented to the promotion of the desire perceived in women, carrying out sessions or training courses, where the speakers could be women leaders of companies. In addition, public policies should promote the perceived viability of men through training by providing technical resources on the operation of a company.

Social implications –This study provides theoretical knowledge on the entrepreneurial intentions of students at the University of Seville and therefore may help to improve policies aimed at promoting entrepreneurship...".

Likewise, a paragraph has been included in the introduction of the article in the following way:

"...Entrepreneurship education is becoming increasingly important because it can improve the employability of students (Fuentes, 2011). The University can now be in a strategic position if it assumes the role of manager of change, being also the largest provider of entrepreneurial culture. Consequently, the sports sector is an indicator and driver of many public policies due to its important role in society. For this reason, the knowledge of what the factors are that affect the entrepreneurship intentions, could help to guide public policies to encourage entrepreneurship in university students...".

Finally, the practical implications have been rewritten mentioning the public policies to be implemented.

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Brief professional biography

Moisés Grimaldi Puyana, researcher and professor at the Department of Physical Education and Sports of the University of Seville. Author of article related to the management of sports services in academic journals. He has been a manager and consultant of sports services. He is currently the president and principal investigator of the Agency for Management, innovation in sports services. Email: mgrimaldi@us.es

Antonio Jesús Sánchez Oliver, researcher and professor at the Department of Physical Education and Sports of the University of Seville and the Pablo Olavide University. Much of his research activity is related to sports management, with articles JCR, SJR and book chapters in high impact editorials. In addition, he is a teacher in several masters nationwide. Email: asanchez38@us.es

Pablo Galvez Ruiz in Physical Education at the University of Málaga. Currently is Director in Vivagym (Fitness Center Low-Cost) and he is a professor and researcher in the Internet Education Department of the Faculty of Education at the International University of La Rioja (Spain). Is certified in Sport and Physical Activity Sciences by the University of Granada and earned a Masters in Management and Organization of Sport Facilities from the Polytechnic University of Madrid. Dr. Gálvez-Ruiz's research focuses on sport management, specifically, in the fitness centers models: quality of service, consumer behaviour, satisfaction and customer loyalty, job satisfaction and organizational culture. Has published more than 15 peer-reviewed articles indexed in international journals and book chapters in international editorials. E-mail: pablo.galvez@unir.net

Jerónimo García Fernández is an Assistant Professor in Sports Science at the University of Seville. Currently, he is Professor and researcher in the Physical Education and Sport Department at the University of Seville, Spain, where he teaches Bachelor and Master level courses in the Sport and Exercise Sciences program. Previously, he worked as a manager in a number of fitness centers. He has published more than 150 papers and oral presentations in international journals and congress, as various book chapters. His main research topics are management in sport, customer loyalty and satisfaction at fitness centers. E-mail: jeronimo@us.es