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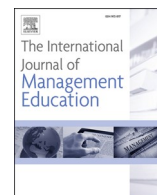
The role of gender and connections between entrepreneurship and employability in higher education

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A R T I C L E   I N F O

A B S T R A C T

A global concern about youth employment and the challenges to better connect companies' needs and professional and labour profiles of graduates is shared by policy makers and higher education institutions. The recognition of entrepreneurship as an integral and sustainable part of the solution is a source of motivation for the incorporation of entrepreneurial competencies onto university curricula. The driving force of this study is to analyse how and to what extent the employability weighs on entrepreneurship. A Partial Least Squares Structural Equation Modeling (PLS-SEM) is applied using a survey that links Employability and Entrepreneurial Intention positively and highlights the moderating effect of gender. Our study contributes to research showing the interconnection between both and provides an insight from a gender approach. Women feel competences related to entreprising people are useful beyond business creation and they reinforce their self-confidence about their skills facing both entrepreneurial or employment objectives.

1. Introduction

In recents decades, the pressure to make a connection between university graduates and the labour market has increased. Universities' role is key to achieving the exact match between academia and the business world (Fernández-López et al., 2021; Moore & Morton, 2017; Teichler, 2009). Moreover, current youth unemployment rates enhance the design of policies and programmes aimed at encouraging entrepreneurship as an alternative to waged employment (GEM, 2021a). This framework raises several questions and challenges for higher education institutions (Machin, & M.S, 2007; Moore & Morton, 2017; Moreau & Leathwood, 2006). Traditionally the literature has focused on entrepreneurship (Gasse & Tremblay, 2011; Liñán et al., 2011; Pruett et al., 2009) or employability (Schomburg & Teichler, 2006; Sin & Neave, 2016) form a differentiated approach and there is a lack of research combining both. It is precisely in recent years that the issue has gained interest and, consequently, scientific output is increasing (Pardo-Garcia & Barac, 2020). There is a general overall consensus on entrepreneurial competences, as creativity, proactivity or management of risk-taking, among other competences, are highly appreciated in the labour market (García-Aracil & van der Velden, 2008a; Linan, 2008; O'Leary, 2017; UNESCO, 2016). Furthermore, the frequency, volumea and complexity of the changes in the contemporary world, even with

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future Jobs that are constantly emerging, require the entrepreneurial competencies acquisition form higher education to prepare graduates for the current reality (O'Leary, 2017). This is the reason why modern education programmes focus on promoting entrepreneurship in order to achieve a better performance from their graduates whether they opt for entrepeneurship or for job search (Iglesias-Sánchez et al., 2019; O'Leary, 2021). Additionally, an entrepreneurial profile also favours the sustainability of socio-economic development (Goel & Joshi, 2017; Vuorio et al., 2018). Consequently, the recent papers published show that Entrepreneurial Intention amongst university students influence employability ((Chung et al., 2017; Laguna-Sánchez et al., 2020; Pardo-Garcia & Barac, 2020). In the light of this assertion, this study is focused on the analysis of the positive influence between EI on Employability from a gender approach. One main question is raised: does the fact of being university women or men affect in any direction or shade the weight? The discussion on this issue remains prolific for policymakers and researchers and still today there is not unanimous agreement (GEM, 2021b; Karimi et al., 2013; Liñán et al., 2020; Pardo-Garcia & Barac, 2020).

Our research aims to: (i) identify connection between employability and entrepreneurship, (ii) analyse the role of entrepreneurial competences training on self-perceived employability, (iii) explore the moderating effect of gender. Data from 516 students at a Spanish university applying a PLS-SEM Model is carried out. Firstly, the influence of variables of Theory of Planned Behaviour (TPB) by (Ajzen, 1991) on employability and entrepreneurial intention is considered. Additionally, entrepreneurs' image is included. Then, in a second model, the moderating effect of gender is tested. The paper reviews the relevant literature on employability, entrepreneurial intention linked with TPB and pays special attention to moderators of gender to formulate hypotheses. This is followed by the methodology, results, discussion, conclusions and finally, some practical contributions are highlighted.

2. Theoretical framework

2.1. Theory Planned Behaviour in employability

Entrepreneurial Intention (EI) has been analysed from different approaches, even with cross-international and comparative studies (Gasse & Tremblay, 2011; Liñán et al., 2011; Pruett et al., 2009). However, the TPB by(Ajzen, 1991) is widely spread throughout the literature (Bae et al., 2014; Fayolle et al., 2014; Fayolle & Gailly, 2008; Gorgievski et al., 2018; Iglesias-Sánchez et al., 2016; Kautonen et al., 2015; Liñán & Chen, 2009; Martínez-González et al., 2019), even focusing on female EI (Kumar & Das, 2019; Sarwar et al., 2021; Sitaridis & Kitsios, 2017; Villanueva-Flores et al., 2021a; Zampetakis et al., 2017). Azjen's theory is built on three main factors: personal attitudes (PA), social norms (SN) and perceived behavioural control (PBC), understood as one's confidence in one's ability to successfully, perform that means the setting-up of a business. These three factors have a direct effect on Entrepreneurial Intention (EI). Nevertheless, this is a more frequent basis for application on self-employment than for analysing employability (Eid et al., 2017; Kolvereid, 1996). In fact, these studies share the effect of PA, SN and PBC on job-seeking intention as core, not specifically perceived employability. The novelty of this study is precisely the introduction of both in TPB: EI and employability. This previous theory allows us to formulate hypotheses related to the structure of the TPB Model and the proposal model from the point of view of this research:

H1.   Employability is dependent on:

H1.a.   PA

H1.b.   SN

H1.c.   PBC

H2.   EI is dependent on:

H2.a.   PA

H2.b.   SN

H2.c.   PBC

2.2. Entrepreneurship image influences on entrepreneurial intention

The perception of entrepreneurs can influence the entrepreneurial intention but this issue has been examined from different points of view in the recent years. The following papers should be highlighted to illustrate this stream of research. Díaz-Casero et al. (2012) focus on desirability and feasibility to set up a business according the institutional contexts, while authors such as (Laguía & Moriano, 2021) find connection between EI and the image of entrepreneurship broadcast on mass media. In this sense, specifically in terms of the image of the entrepreneur derived from entrepreneurial education programme points out the studies by Jena (2020), Iglesias-Sánchez et al. (2019) and Rasli et al. (2013). Jena (2020) stress that a greater familiarity with entrepreneurship promotes the setting up of a business as a career option. For their part, Rasli et al. (2013) analyse different aspects of the image as societal contribution, desirability etc. and the influence of EI. Finally, Iglesias-Sánchez et al. (2019) link the positive attributes or competences, even performance linked with entrepreneurship, and knowledge of entrepreneurs of reference in higher education with a greater predisposition to start a business. Even, this issue is highlighted as a challenge for University according to Fayolle and Gailly (2008).

Thus, the positive influence of IM on EI is well documented and allows us to formulate the hypothesis 3:

H3.   Positive image of entrepreneurship improves EI

2.3. Connections between entrepreneurial intention and employability

Recent papers such as Pardo-Garcia and Barac (2020), Laguna-Sánchez et al. (2020), Iglesias-Sánchez et al. (2019) highlight the connection between employability and EI. These studies emphasized the positive effects of entrepreneurial competences such as creativity, proactivity among others for EI as well as employability(García-Aracil & van der Velden, 2008b; Linan, 2008; O'Leary, 2017; UNESCO, 2016). The value of this set of competences is perceived by students and lecturers and, additionally by companies (Moore & Morton, 2017). In this way, this research work proposes that university students who perceive themselves as more employable in the labour market, also have a higher predisposition to set up a business. On the basis of the above the Hypothesis 4 is introduced:

H4. *Employability* affects *EI positively*

2.4. EI and employability from a gender approach

Some studies, like Chung et al. (2017) and (Baek, 2018), show the moderating effect of gender on employability in higher education. By contrast, Kwon (2021) does not find the moderating gender effect on employability. Thus, there is a topic which is under-researched and with opposite results. On the basis of other authors, the degrees chosen closely linked men or women and their resulting jobs and even sectors of entrepeneurship are the main cause of the difference between both genders (López-Delgado et al., 2019; Vargas et al., 2018). Thus, the cause is the result of adding gender + degree. In this way, the sectors with lower rates of unemployment and even sometimes with better working conditions continue to have a greater male representation, also reflecting gendered university degrees (EUROSTAT, 2020). Therefore, employability is not gender neutral (Andrew, 2009). In a complementary manner, O'Leary (2021) emphasizes the differences in the visibility of the success for discipline labour overrepresented by women which causes lack of recognition of management capabilities in the case of women and, consequently, a slower progression in their careers compared to men. Moreover, this statement is supported by ONS (2019) and Cifre et al. (2018) or Pitan and Muller (2019) who highlight the self-perception about the employability differs between women and men. Regarding entrepreneurship, the narrowing of the gender gap should be stressed both with regards to entrepreneurial intention and number of women entrepreneurs (GEM, 2021a). However, there are notable differences for examples between Europe, the USA and emerging economies or countries with a lower level of development. Likewise, the gap increases for example in STEM fields or in the case of startups for EI and companies headed by women (GEM, 2021b; StartGenome, 2021). Focusing specifically on EI, an extant literature shows significant variations between female and male groups of students in Higher Education (Alexandre-Leclair et al., 2013; Birch et al., 2017; Díaz-García & Jiménez-Moreno, 2010; Giner & Climent, 2012; Gomes et al., 2021; Karimi et al., 2013; Liñán et al., 2020; Verheul et al., 2012; Villanueva-Flores et al., 2021b). Moreover, several research projects specifically show the mediating effect of gender on EI (Liñán & Chen, 2009; Maes et al., 2014; Miranda et al., 2017). Even, the self-efficacy perceived by gendered groups can condition their entrepreneurial choice (Dempsey & Jennings, 2014; López-Delgado et al., 2019; Mozahem, 2021; Wilson et al., 2007). However, the
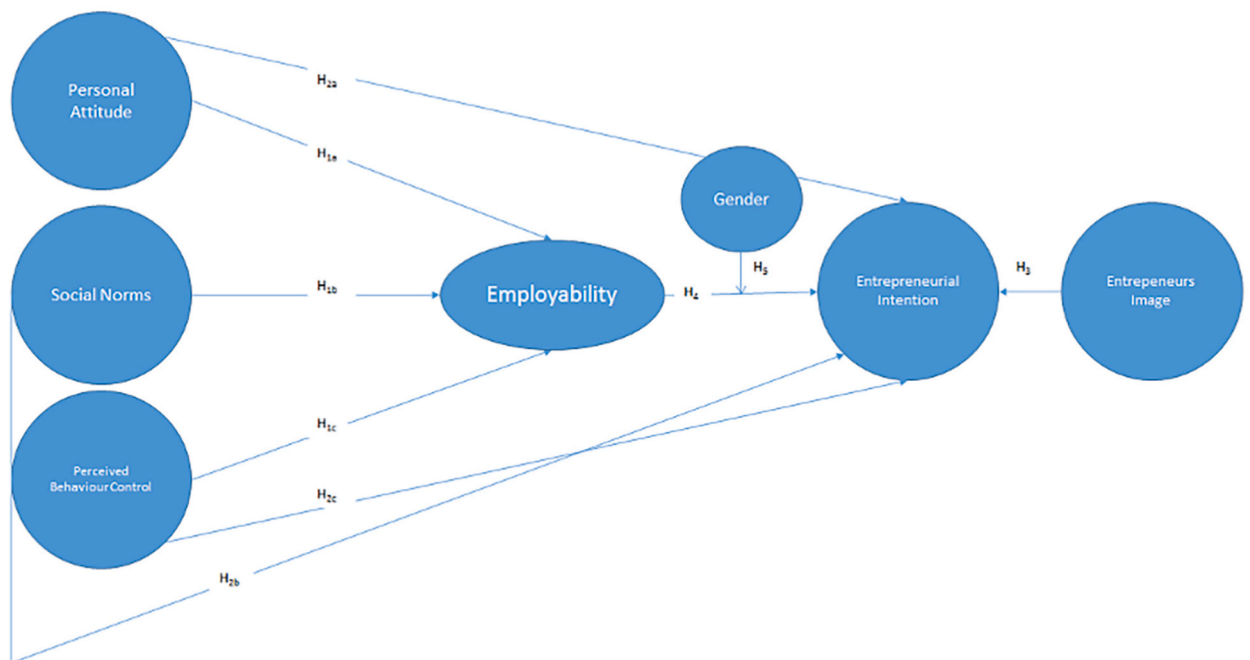

Fig. 1. Conceptual model and hypotheses.

gender gap is narrowing but a gap remains especially in STEM areas or traditionally male sectors (Liñán et al., 2020). In view of the above, while it is true that the gender moderating effect has already been analysed in literature, it has not been done jointly. Thus, how does gender affect to perceived employability and entrepreneurial intention in university students participants in an entrepreneurial education programme? Likewise, taking the previous question as starting point the hypothesis 5 is proposed:

H5. *Gender* introduces *a moderating effect on the proposed Model.*

Finally, Fig. 1 illustrates the conceptual model and the hypotheses developed in this research.

3. Methods

3.1. Data collection

The field work took place in three academic years 2018–2019, 2019–2020, 2020–2021 in a Spanish public university recognized as an entrepreneurial university by the Accreditation Council for Entrepreneurial and Engaged Universities (ACEEU). 516 students belonging to different degrees and courses were part of the sample (Table 1). One extra criterion was applied, the participants' academic programme included specific courses or activities on business creation. The distribution of the sample by Economic & Business & Management degrees vs. non-Economic & Business & Management degrees and by level, regarding the course, remains a fair representation. The participation was consequence of their involvement in some entrepreneurial activity/course. According to students' population in a Spanish University, the sample in both academic courses maintain levels of statistical confidence (95%) and margin of error (5%) statistically recommended. The instrument used is based on TPB Model applied to EI measurement adding perceived employability and image of entrepreneurs (see Table 2).

The questionnaire was distributed physically or virtually by collaborators in this project. The participants have answered the questionnaire at two different points in time to contrast the increase of two main dependent variables: employability and entrepreneurial intention, after their involvement in activities that promote entrepreneurial spirit and/or training in entrepreneurial competences. These two measures allow to testing if the Entrepreneurial Education Programme contributes to further improve Employability and EI. As a result of the statistical changes, a PLS-SEM Model was carried out with the obtained ratios through a second questionnaire.

The use of three similar groups corresponding to different academic years provides more rigour and soundness to the methodological design of the sample. Thus, a three-stage study was conducted. In order to rule out the existence of non-response bias, we have divided the sample into two parts. The first responses included 80% of the first responses and the second part included the rest. An ANOVA analysis was carried out and it was found that there were no significant differences between the groups created.

3.2. Variables

The main variables are provided by Ajzen's TPB Machin, and M.S (2007). As stated above: Personal Attitude (PA), Social Norms (SN), Perceived Behaviour Control (PBC) like independent variables and Entrepreneurial Intention and Employability, were directly dependent and related between each other. An extra independent variable, which is supposed to have influenced EI, is included in the model: Entrepreneur's Image (IM). Finally, the moderating effect of gender was tested. A seven-point scale (Likert scale) was applied to measure all these variables.

3.3. Data analysis

The model was analysed through the partial least squares path modeling (PLS-SEM) technique. The main reason for choosing this technique was that the model is formed by six composite types A (Cepeda Carrión et al., 2016). PLS-SEM is therefore more suitable for testing the hypotheses than other techniques such as SEM (Hair Jr. et al., 2017). In addition, there are other reasons for choosing this technique. PLS-SEM is well suited to the study of multiple and complex relationships, as well as to analysing moderating effects (Aledo-Ruiz, Martínez-Caro and Santos-Jaén, 2021). Similarly, PLS-SEM PLS-SEM is a very appropriate technique as it does not require a specific distribution of indicators (Chin & Dibbern, 2010). In addition, PLS-SEM allows the application of multi-group analysis (MGA), as well as measurement invariance of models (MICOM), which allows researchers to establish whether there are differences based on gender (Valls Martínez et al., 2021a). Finally, another reason we chose this technique was that the model was estimated from

Table 1
Demographic factors dessagregated by academic year.

Academic year	Gender		Degree		Total
	Women	Men	Business & Economics	Non business & Economics	
1°	48	55	74	29	103
2°	49	26	51	24	75
3°	34	18	46	6	52
4°	170	96	245	21	266
Erasmus and others	8	5	10	3	13

Table 2
Perceived employability and EI before and after Entrepreneurial activities.

18-19	EI1	EI2	EI3	EI4	EI5	EI6	EMPL
Before	4,14	4,2	4,37	4,41	4,17	4,6	4,92
After	5,13	4,88	4,71	4,73	4,81	4,72	5,32
19–20							
Before	3,96	3,86	3,92	4,09	4,06	4,6	4,6
After	4,77	4,92	4,96	4,24	4,59	4,64	5,2
20–21							
Before	4,08	4,07	4,11	4,35	4,04	4,35	5,38
After	3,59	4,77	4,95	4,48	4,74	4,48	5,47

a causal perspective (Hair et al., 2020).

In order to corroborate the hypotheses, a bootstrapping procedure was carried out with 10,000 subsamples (Henseler, 2018), using SmartPLS 3.3.3 (Ringle et al., 2015).

4. Results

The analysis of the established model was carried out in three parts. The first part analysed the measurement model, analysing the reliability and validity of the model. In the second part, an analysis of the structural model was carried out by checking the size and significance of the established relationships. Finally, in the third part, an analysis of the moderating effect of gender was carried out.

4.1. Measurement model evaluation

In order to be able to evaluate the measurement model, the variables for the complete model and for the two gender-based samples were tested for reliability and validity. The results can be seen in Table 3. We can see that there are no major differences by gender, with the exception of some of the indicators that constitute PBC.

The individual reliability of the items was measured through the standardized factor loadings. The findings show that most of them are above the desired value of 0.7 (Fornell & Larcker, 1981), and those that are not above this value are not very far away and can therefore also be considered acceptable (Barclay et al., 1995). The reliability of the constructs was analysed through Cronbach's alpha, composite reliability, and the Dijkstra-Henseler. The results range from 0.703 to 0.954, confirming the reliability of the constructs. The average variance extracted (AVE) was used to check the convergent validity. As can been observed, all values are greater than 0.5. Therefore, the internal consistency of the constructs can be confirmed (Hair et al., 2020).

The discriminant validity has been checked through The Fornell-Larcker criterion (Fornell & Larcker, 1981). According to this criterion, the correlations between each pair of constructs must not exceed the square root of the AVE of each of the constructs. This is fulfilled in this model, both for the total model and for the segmentations based on gender, as can be seen in Table 4 below. It was also found that the HTMT level between each of the two constructs does not exceed the maximum limit of 0.85 (Henseler et al., 2016). Therefore, the adequate discriminant validity of all latent variables has been tested.

Another test carried out was to check that the standardized square root residual (SRMR) did not exceed the maximum value of 0.08 (Henseler et al., 2016). This demonstrates the good fit of the model.

To conclude the analysis of the measurement model, an evaluation of the predictive relevance of the dependent constructs (EI and EMPL) was carried out. For this purpose, the blindfolding method (Khan et al., 2019) was used to conduct the Q_{B2} statistical test (a cross-validated redundancy index). As can be seen all results are positive. These results confirm the satisfactory explanatory qualities of the model (Evermann & Tate, 2016).

4.2. Structural model

Next, the structural model has been analysed for the whole data set and for the segmentation on the basis of gender. The results can be seen in Table 5 and Figs. 2–4 below.

To check for multicollinearity problems, the Variance Inflation Index (VIF) was analysed. The values fluctuate from 1.029 to 1.208, showing that there are no multicollinearity problems in this model (Kock, 2015). Furthermore, a two-tailed test was carried out in the bootstrapping (10,000 resamples) with the aim of determining the significance (Joseph F Hair et al., 2016). The results show that PA directly affect EMPL in the three models analysed, as the effect found is positive and significant ($\beta_{total} = 0.135^{**}$; $\beta_{men} = 0.184^{*}$; $\beta wo_{men} = 0.109^{*}$), verifying H_{1a} in all cases. On the contrary, the results show that SN does not affect EMPL in any of the three established models, as the effect found is not significant ($\beta_{total} = -0.040$; $\beta_{men} = -0.182$; $\beta wo_{men} = -0.005$), rejecting H_{1b} in all assumptions. The same situation occurs with PBC, as the results show that its effect on EMPL is not significant in any case ($\beta_{total} = -0.029$; $\beta_{men} = 0.050$; $\beta wo_{men} = -0.059$), so H_{1c} is also rejected for all assumptions.

Regarding the effect of the variables provided by Azjen's TPB Model on EI the results show that PA affect EI positively in all models ($\beta_{total} = 0.116^{**}$; $\beta_{men} = 0.231^{**}$; $\beta wo_{men} = 0.039^{*}$), verifying H_{2a} in all cases. However, SN does not affect EI in any of the three established models, as the effect found is not significant ($\beta_{total} = -0.072$; $\beta_{men} = -0.001$; $\beta wo_{men} = -0.056$), rejecting H_{2b} in all assumptions. Finally, a positive influence of PBC on EI was found in the three models ($\beta_{total} = 0.542^{***}$; $\beta_{men} = 0.460^{***}$; $\beta wo_{men} =$

Table 3
Measurement model results.

Composite indicators	ALL									MEN			
	Mean	SD	Loading	t-student*	Q2	α	ρA	ρC	AVE	Mean	SD	Loading	t-student*
PA						0.726	0.766	0.828	0.549				
PA0201	5.139	1.368	0.668	9.247						5.065	1.379	0.685	5.032
PA0202	5.361	1.332	0.843	21.333						5.395	1.311	0.884	21.949
PA0203	5.360	1.416	0.765	16.180						5.390	1.333	0.770	11.430
PA0204	5.291	1.394	0.672	9.343						5.335	1.357	0.688	7.583
SN						0.703	0.535	0.747	0.500				
SN0201	5.697	1.378	0.725	2.331						5.605	1.237	0.917	2.086
SN0203	5.191	1.419	0.801	2.483						5.225	1.362	0.624	1.761
SN0204	5.458	0.84	0.677	1.291						5.440	1.455	0.650	0.113
PBC						0.783	0.786	0.857	0.600				
PBC0203	4.703	1.724	0.772	28.606						5.010	1.584	0.736	11.102
PBC0204	4.699	1.752	0.851	46.552						4.824	1.651	0.838	16.820
PBC0205	4.914	1.530	0.778	30.172						4.905	1.468	0.768	13.185
PBC0206	4.929	1.521	0.690	20.700						5.005	1.518	0.668	9.161
EMPL					0.006	0.703	0.733	0.869	0.769				
EMP0201	5.194	1.244	0.908	22.338	0.007					5.095	1.194	0.954	5.624
EMP0202	5.277	1.298	0.844	17.244	0.005					5.210	1.227	0.698	4.332
EI					0.246	0.865	0.877	0.917	0.786				
IE0201	4.554	1.595	0.901	87.563	0.300					4.641	1.552	0.899	60.941
IE0202	4.797	1.515	0.902	82.422	0.250					4.747	1.529	0.917	63.727
IE0203	4.702	1.562	0.857	56.853	0.189					4.864	1.654	0.845	29.650
IM						0.709	0.745	0.788	0.558				
IM0201	5.000	1.414	0.848	8.475						5.045	1.369	0.975	2.729
IM0202	5.301	1.288	0.770	6.030						5.375	1.255	0.596	1.943
IM0203	5.280	1.308	0.602	3.592						5.285	1.247	0.614	1.300

Significance and standard deviations (SD) performed by 10, 000 repetitions Bootstrapping procedure. QB2: cross-validated redundancies index performed by a 9- step distance-blindfolding procedure. α: Chronbach's alpha; ρA: Dijkstra–Henseler's composite reliability; ρC: Jöreskog's composite reliability; AVE: Average Variance Extracted; ***: All loadings are significant at a 0.001 level.

0.582***), so H_{2c} is accepted for all assumptions.

When analysing the effect of IM on EI, it was found to be significant in the total model and in the case of women ($\beta_{total} = 0.080*$; $\beta wo_{men} = 0.077*$), accepting H_3. However, in the model established for men, the effect found is not significant ($\beta_{men} = 0.086$), thus rejecting H_3 in this assumption.

Furthermore, EMPL showed a positive and significant effect on EI only in the model established for women ($\beta_{total} = 0.650$; $\beta_{men} = -0.054$; $\beta wo_{men} = 0.142*$), therefore accepting only H_4 for women only.

In order to measure the explanatory power of the proposed models, we have used the coefficient of determination R^2. The results for EMPL are weak in all three models ($R^2_{total} = 0.017$; $R^2_{men} = 0.062$; $R^2_{women} = 0.013$), although it is somewhat higher for males than for the other two. However, the results for EI are moderated in all cases ($R^2_{total} = 0.327$; $R^2_{men} = 0.309$; $R^2_{women} = 0.361$). It is important to note that in the case of women, the model shows a greater explanatory capacity for EI.

Following the instructions determined by (Cohen, 1988), f^2 has been used to measure the degree to which an exogenous variable contributes to explaining a given endogenous variable in terms of R^2. If f^2 ranged from 0.02 to 0.15, the effect is small, this situation occurs in PA over EMPL in all cases, in PA over EI for total and men, in SN over EMPL for men, and in EMPL over EI for women. If f^2 ranged from 0.15 to 0.35 the effect is moderate, this situation occurs in PBC over EI for men. Finally, if f^2 is over 0.35 the effect is large, this situation occurs in PBC over EI for total, and in PBC over EI for women.

4.3. Multi Group Analysis

In order to determine whether there are significant differences between the results obtained for men and women, we carried out a Multi Group Analysis (MGA) (Valls Martínez et al., 2021b). For this purpose, it is necessary to carry out a permutation test with the aim of performing the measurement invariance of composite models (MICOM), which is carried out in three steps (Henseler et al., 2016). The results can be seen in Table 6.

The first step is configuration invariance, the aim is to ensure that the compounds in both groups are equally spiked, which is what happens when the same indicators are used in both models, the data are treated and the algorithm is set up in the same way. The second step is compositional invariance. The findings reveal that the original correlation is greater than 5% and all p-values are higher than 0.05. Therefore, compositional invariance has been achieved. The third step is equality of mean and variance of composites. The findings show that all differences are within the confidence interval and all p-values are higher than 0.05 (although for simplicity these

MEN						WOMEN								
Q2	α	ρA	ρC	AVE		Mean	SD	Loading	t-student*	Q2	α	ρA	ρC	AVE
	0.716	0.766	0.825	0.547							0.733	0.789	0.829	0.550
						5.188	1.360	0.717	5.249					
						5.340	1.345	0.835	5.831					
						5.341	1.467	0.760	4.803					
						5.262	1.416	0.642	3.950					
	0.723	0.715	0.703	0.573							0.751	0.706	0.705	0.545
						5.756	1.150	0.632	1.497					
						5.168	1.388	0.783	2.342					
						5.469	1.395	0.733	1.811					
	0.759	0.756	0.840	0.570							0.797	0.801	0.866	0.618
						4.505	1.780	0.790	26.687					
						4.618	1.811	0.856	43.600					
						4.919	1.569	0.788	25.669					
						4.880	1.521	0.702	20.654					
0.016	0.721	0.954	0.819	0.698						0.004	0.743	0.749	0.886	0.795
0.020						5.259	1.271	0.904	17.535	0.007				
0.011						5.320	1.341	0.880	15.933	0.001				
0.230	0.865	0.874	0.917	0.787						0.272	0.867	0.875	0.918	0.790
0.265						4.498	1.620	0.898	63.800	0.316				
0.243						4.828	1.505	0.896	60.166	0.283				
0.181						4.599	1.490	0.872	51.869	0.216				
	0.766	0.744	0.721	0.502							0.717	0.727	0.797	0.569
						4.971	1.442	0.765	6.318					
						5.252	1.308	0.821	6.955					
						5.276	1.346	0.669	4.121					

values have not been shown in the table). The results obtained confirm the existence of measurement invariance and this allows us to carry out MGA.

To determine whether there are differences between groups, a permutation test was performed (Table 7), where a p-value ≤ 0.05 suggests that the discrepancy between group path coefficients is statistically significant (Hair, Sarstedt, et al., 2017), which is the case for the EMPL effect on EI and the PA effect on EI. Likewise, to obtain an additional confidence analysis, the non-parametric MGA method has been developed for its estimation, a p-value lower than 0.05 or higher than 0.95 indicates significant changes (the results have not been reported as they are similar to the permutation results). In addition, its has been applied the Welch-Satterhwait test to test the hypothesis that the two populations have equal means, a p-value lower than 0.05 would indicate this equality of means (Alfonso et al., 2012; Zimmerman, 2004). The same results were obtained as in the parametric test and therefore we can affirm that gender has a moderating effect on the relationship between EMPL and IE, accepting H$_5$.

5. Discussion

Azjen's TPB Model is supported by the analysis, confirming that all the variables: personal attitudes (PA), social norms (SN) and perceived control behaviour (PCB) have a direct effect on entrepreneurial intention, consistent with previous literature (Gorgievski et al., 2018; Iglesias-Sánchez et al., 2016; Kautonen et al., 2015; Zaremohzzabieh et al., 2019). Additionally, the analysis carried out also finds positive influence on employability. Consequently, there is also coherence with the results of recent previous studies (Chung et al., 2017; Laguna-Sánchez et al., 2020; Pardo-Garcia & Barac, 2020; Sin & Neave, 2016). However, the connection between Employability and EI through Azjen's proposal has not widely applied (Eid et al., 2017; Gorgievski et al., 2018). Both variables show a significant dependence on PA, SN and TPB but the values are not so relevant with SN. This weaker relationship has already been shown in the literature (Liñán & Chen, 2009; Iglesias-Sánchez et al., 2016; Zaremohzzabieh et al., 2019) but only with EI. To conclude, H1 and H2 were tested positively.

To sum up, the originality of this paper, beyond the connection between employability and EI, is the addition of entrepreneurship image (IM) with EI and the introduction of the gender approach. Moreover, over the institutional environment as Díaz-Casero et al. (2012) stated. Regarding the increase in EI due to the positive perception of entrepreneurs (Jena, 2020), their contribution in society (Rasli et al., 2013), their skills (Fayolle & Gailly, 2008; Iglesias-Sánchez et al., 2019) and performance has already been stressed but not with a holistic view and neither with that of influencing self-perceived employability. As the results show, the entrepreneurial image is positively affected by perceived entrepreneurial image and thus confirming the hypothesis 3. Thus, entrepreneurial educational programmes that bring entrepreneurial figures to students have a positive effect on their EI for both women and men.

Table 4
Discriminant validity.

		TOTAL						MEN						WOMEN					
		I	II	III	IV	V	VI	I	II	III	IV	V	VI	I	II	III	IV	V	VI
I	EMPL	**0877**	*0107*	*0305*	*0153*	*0055*	*0171*	**0836**	*0046*	*0361*	*0242*	*0105*	*0182*	**0892**	*0172*	*0334*	*0120*	*0086*	*0167*
II	EI	0086	**0,887**	*0,174*	*0250*	*0623*	*0185*	0010	**0887**	*0145*	*0368*	*0568*	*0161*	0138	**0889**	*0204*	*0176*	*0652*	*0223*
III	IM	0188	0131	**0,747**	*0142*	*0135*	*0237*	0065	0130	**0701**	*0220*	*0198*	*0345*	0221	0152	**0754**	*0121*	*0133*	*0212*
IV	PA	0121	0198	−0,004	**0741**	*0245*	*0432*	0175	0288	−0067	**0740**	*0240*	*0321*	0097	0140	0045	**0742**	*0253*	*0560*
V	PBC	−0017	0547	0,086	0169	**0775**	*0497*	0039	0506	0138	0158	**0755**	*,509*	−0042	0571	0082	0175	**0786**	*0510*
VI	SN	−0016	0119	0104	0238	0288	**0707**	−0154	0143	0165	0090	0220	**0611**	0010	0150	0094	0311	0318	**0667**

HTMT ratio over the diagonal (italics). Fornell–Larcker criterion: square root of AVE in diagonal (bold) and construct correlations below the diagonal.

Table 5
Assessment of the structural model.

TOTAL	Path	SD	T-value	f^2	95CI	VIF	H	Supported
PA - > EMPL	0.135	0.131	2.741**	0.02	[0.044; 0.213]	1.073	H_{1a}	Yes
SN - > EMPL	−0.040	−0.021	0.327	0.01	[-0.199; 0.175]	1.136	H_{1b}	No
PBC - > EMPL	−0.029	−0.033	0.633	0.01	[-0.106; 0.043]	1.103	H_{1c}	No
PA - > EI	0.116	0.114	2.736**	0.02	[0.044; 0.182]	1.096	H_{2a}	Yes
SN - > EI	−0.072	−0.041	1.583	0.01	[-0.12; 0.035]	1.149	H_{2b}	No
PBC - > EI	0.542	0.538	14.036***	0.39	[0.472; 0.600]	1.110	H_{2c}	Yes
IM - > EI	0.080	0.084	2.045*	0.01	[0.023; 0.148]	1.057	H_3	Yes
EMPL - > EI	0.065	0.071	1.455	0.01	[-0.003; 0.143]	1.059	H_4	No
R^2								
EMPL	0.017							
EI	0.327							
MEN	**Path**	**SD**	**T-value**	**f^2**	**95CI**	**VIF**	**H**	**Supported**
PA - > EMPL	0.184	0.085	2.159*	0.04	[0.048; 0.313]	1.029	H_{1a}	Yes
SN - > EMPL	−0.182	0.192	0.946	0.03	[-0.304; 0.257]	1.054	H_{1b}	No
PBC - > EMPL	0.050	0.074	0.670	0.01	[-0.099; 0.153]	1.072	H_{1c}	No
PA - > EI	0.231	0.068	3.407***	0.07	[0.114; 0.342]	1.080	H_{2a}	Yes
SN - > EI	−0.001	0.088	0.013	0.01	[-0.161; 0.127]	1.119	H_{2b}	No
PBC - > EI	0.460	0.061	7.51***	0.28	[0.367; 0.562]	1.089	H_{2c}	Yes
IM - > EI	0.086	0.089	0.969	0.01	[-0.102; 0.202]	1.062	H_3	No
EMPL - > EI	−0.054	0.062	0.866	0.01	[-0156; 0.051]	1.078	H_4	No
R^2								
EMPL	0.062							
EI	0.309							
WOMEN	**Path**	**SD**	**T-value**	**f^2**	**95CI**	**VIF**	**H**	**Supported**
PA - > EMPL	0.109	0.081	1.678*	0.02	[0.037; 0.219]	1.115	H_{1a}	Yes
SN - > EMPL	−0.005	0.119	0.040	0.01	[-0.191; 0.194]	1.203	H_{1b}	No
PBC - > EMPL	−0.059	0.061	0.967	0.01	[-0.156; 0.05]	1.121	H_{1c}	No
PA - > EI	0.039	0.049	1.794*	0.01	[0.043; 0.119]	1.127	H_{2a}	Yes
SN - > EI	−0.056	0.046	1.233	0.01	[-0.1; 0.046]	1.208	H_{2b}	No
PBC - > EI	0.582	0.051	11.522***	0.47	[0.485; 0.65]	1.129	H_{2c}	Yes
IM - > EI	0.077	0.085	1.661*	0.01	[0.008; 0.16]	1.066	H_3	Yes
EMPL - > EI	0.142	0.14	2.268*	0.03	[0.030; 0.239]	1.066	H_4	Yes
R^2								
EMPL	0.013							
EI	0.361							

Blindfolding Q^2 index as shown in Table 3; Standardized path values reported. SD: Standard Deviation; f^2: size effect index; 95CI: 95% Bias Corrected Confidence Interval; VIF: Inner model Variance Inflation Factors. Significance, standard deviations, 95% bias-corrected CIs were performed by 10,000 repetitions Bootstrapping procedure; *: p < 0.05; **: p < 0.01; ***: p < 0.001.

The findings show a connection between employability and EI, testing positively H4, consistent with previous literature (García-Aracil & van der Velden, 2008b; Hooft & Jong, 2009; Linan, 2008; O'Leary, 2017; Iglesias-Sánchez, Jambrino-Maldonado and de las; Pardo-Garcia & Barac, 2020). The introduction of entrepreneurial skills in degrees promotes positively both orientation: self-employed and employed-work and the perception of better ability to face the challenges of graduates' professional lives, according to challenges for higher education as stated in the above literature (Fayolle et al., 2014; Machin, & M.S, 2007; Moore & Morton, 2017; Moreau & Leathwood, 2006; Teichler, 2009). Likewise, the efforts in this direction show the commitment with sustainability of educational institutions, in line with (Fernández-López et al., 2021). However, a depper analysis is needed to differentiate the strength of this positive connection depending on gender, as will be seen with respect to H5.

On the other hand, the analysis of the role of gender on the proposed models shows the mediating effect, testing H5. Consequently, the importance of a gender approach in entrepreneurial studies is emphasized and, moreover, the results stress a new insight due to the greater explanatory value between employability and EI for women. However, on one side, the special focusing on women using TPB has been analysed in previous literature (Kumar & Das, 2019; Sarwar et al., 2021; Sitaridis & Kitsios, 2017; Villanueva-Flores et al., 2021b; Zampetakis et al., 2017) the mediating effect of gender has been already identified in some recent papers, on one hand it is tested for EI (Liñán & Chen, 2009; Maes et al., 2014; Miranda et al., 2017) and, on the other hand, Chung et al. (2017) and Baek (2018) highlights the mediating effect of gender for employability. In spite of this findings, the mediating effect is not indisputable like as stated by Kwon (2021) for employability. Therefore, this issue is worth noting to design entrepreneurial education programmes in higher education, and even employment policies. While the analysis finds slightly higher EI for men, according to GEM (2021a), the chance to improve EI and employability simultaneously is enhanced by increases in entrepreneurial competences should be highlighted as the most relevant contribution of this research work. In fact, attention must be devoted to the direct effect on PBC for women. Previously, a higher level of PBC in Azjen's model was detected for women as a consequence of entrepreneurial education programmes (Karimi et al., 2013; Liñán et al., 2011) but this indicator hasn't been studied focusing also through its connection with employability.
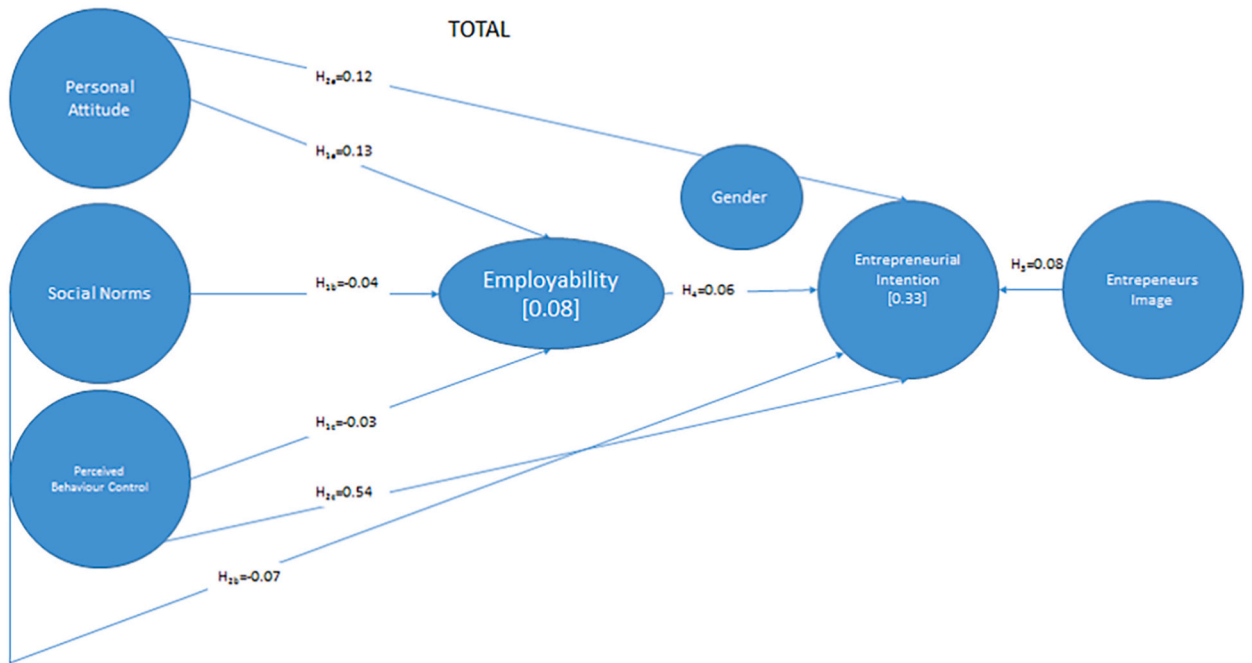
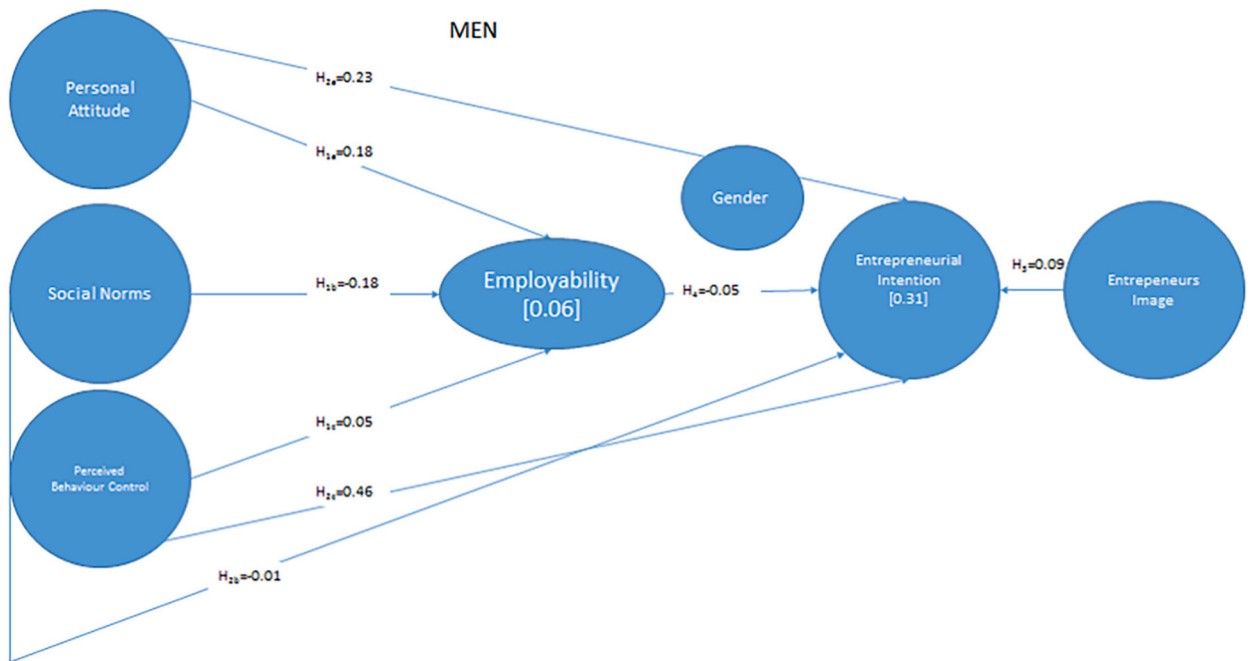**Fig. 2.** Total model results.

Fig. 3. Model results for men.

Furthermore, the challenge of training self-efficacy in the capability to be entrepreneur in university women was underlined by Dempsey and Jennings (2014), Wilson et al. (2007) and (Mozahem, 2021). Additionally, the efforts in this direction should be enhance to promote changes in female perception regarding their self-image and their self-confidence in order to face to the labour market and their projection setting up a company in line of O'Leary (2021).
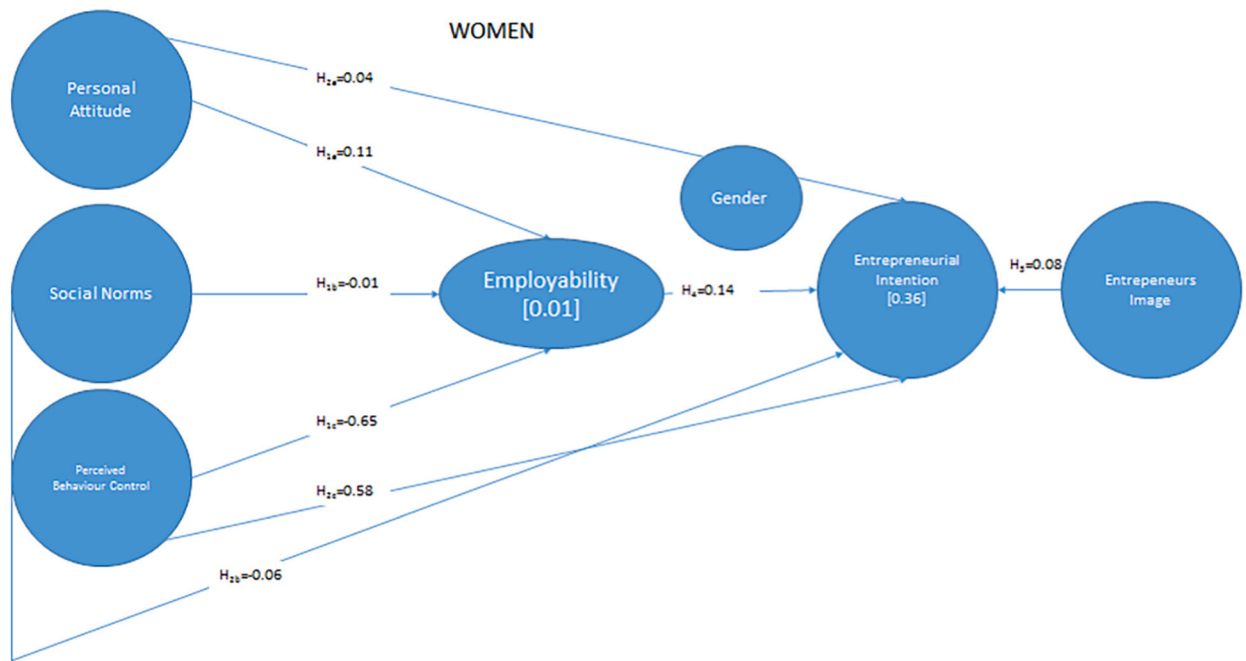
Fig. 4. Model results for women.

5.1. Limitations and future research lines

This study is in line with the research agenda combining the entrepreneurship and employability and gender. Despite the contributions, there are new ways to explore and several limitations to recognize. Firstly, the context of the research work is limited to a Spanish University. As a consequence, the findings cannot be systematically generalized and it is needed a replication in higher education institutions in different countries. Additionally, employability and EI are measured as a self-perception and a desireable action but on one hand it would be interesting to analyse on one side, the labour market evaluation of that improvement in employability. On the other hand, how many intentions of be an entrepreneur are becoming reality. Therefore, it should be analysed after applying a reliable entrepreneurial education programme that had introduced the gender approach highlighted in this study. Only then, would such effective be efforts made by universities in this direction be realiable. Finally, a longitudinal study is proposed for future research to analyse the evolution over the time and to allow time comparisons. Moreover, the focus on sustainability of business creation and jobs achieved in general and specifically for women's groups would be necessary.

5.2. Practical implications

The model constructed in the study implies practical implications for policymakers and, especially for higher education institutions. Firstly, the connection between employability and EI is relevant due to the decisive mutual influence and the improvement of one (Employabilty) over the other (EI). Furthermore, the moderating effect of gender should be taken into account to design the entrepreneurial education programme as well as competences training activities for better improvement in entrepreneurial intention and employability. Therefore, self-efficacy through variables linked with PBC is emphasized in the analysis for women's groups and, consequently, these issues should be specifically worked on to influence simultaneously. Likewise, entrepreneurial involvement seems to be one of the key desires in setting up a company. Therefore, closer relationships between students and entrepreneurs and the introduction of a positive image of the entrepreneurial activity influence the predisposition to self-employed work. To sum up, as a practical implication, the issues mentioned can be implemented in higher education programmes in order to develop better understanding for graduates of the possible particularities associated with gender with expanded opportunities in their professional lives, as well as to ensure sustainable employment and sustainable of new ventures.

6. Conclusion

This paper has shown evidence of positive relationships between EI and employability, analysing in entrepreneurial education programmes in higher-education jointly. Consequently, this insight is one the most outstanding contributions. Additionally, the mediating effect of gender in the set of relationships supported by Azjen's model is significant in line with the previous literature. However, there are two relevant issues. On one side, it stressed that EI being sightly higher for male university students or PBC reaching better ratios for women after the entrepreneurial training activities. On the other hand, the explanatory power of connection between

Table 6
Results of invariance measurement.

Construct	Configuration Invariance (Same Algorithms for Both Groups)	Compositional Invariance		*P*-valores de permutación	Partial Measurement Invariance Established	Equal Mean Assessment				Equal Vairance Assessment				Full Measurement Invariance Established
		Correlation original	5.0%			Difference	CI 2.5%	CI 97.5%	Equal	Difference	CI 2.5%	CI 97.5%	Equal	
EMPL	Yes	0.982	0.936	0.271	Yes	0.126	−0.173	0.175	Yes	0.237	−0.267	0.267	Yes	Yes
IE	Yes	1.000	0.999	0.989	Yes	−0.073	−0.167	0.179	Yes	−0.036	−0.255	0.251	Yes	Yes
IM	Yes	0.890	0.657	0.301	Yes	−0.069	−0.176	0.186	Yes	0.148	−0.262	0.276	Yes	Yes
PA	Yes	0.999	0.925	0.980	Yes	−0.018	−0.191	0.184	Yes	0.075	−0.260	0.282	Yes	Yes
PBC	Yes	0.999	0.991	0.608	Yes	−0.142	−0.180	0.173	Yes	0.207	−0.256	0.282	Yes	Yes
SN	Yes	0.367	−0.057	0.363	Yes	0.042	−0.177	0.177	Yes	−0.168	−0.317	0.317	Yes	Yes

CI: Confidence Interval.

Table 7
Multi Group Analysis (MGA).

	Path coefficients (women)	Path coefficients (men)			TEST W–S		PARAMETRICA	
			Diff	p value	T	p value	T	p value
EMPL - > IE	0,142	−0,054	0,196	0,016	2,129	0,017	2,065	0,02
IM - > IE	0,077	0,086	−0,009	0,417	0,093	0,463	0,100	0,46
PA - > EMPL	0,109	0,184	−0,075	0,245	0,664	0,254	0,648	0,259
PA - > IE	0,039	0,231	−0,192	0,008	2,420	0,008	2,464	0,007
PBC - > EMPL	−0,059	0,05	−0,109	0,136	1,108	0,134	1,103	0,135
PBC - > IE	0,582	0,46	0,122	0,057	1,571	0,059	1,571	0,058
SN - > EMPL	−0,005	−0,182	0,177	0,235	0,779	0,218	0,815	0,208
SN - > IE	−0,056	−0,001	−0,055	0,282	0,565	0,286	0,611	0,271

employability and EI for women involves a new insight and allows universities to design programmes from a gender approach, assuming how same topics, pedagogies or activities can promote different results in female or male graduates. Therefore, this research work enhances the discussion regarding women's entrepreneurship and employment and agrees on the need for further work in this area. Conversely, the influence of entrepreneur image on the desirabilty to set up a company is another key conclusion derived from this study and it is equally decisive for preparing university students for the current reality of balancing between their options to be an entrepreneur or an employee.

All authors have agreed to the submission

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