

# UNDERSTANDING THE ROLE OF ENTREPRENEURIAL ORIENTATION IN JUNIOR ENTERPRISES

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## ABSTRACT

*The promotion of entrepreneurial behaviour and competences among students is being highlighted by researchers and policy-makers, as a mean to promote social and economic development. Therefore, the search for the most effective teaching methods, programs and curricula, as well as extra-curricular activities, is a concern of many teachers and educators. This study focus on Junior Enterprises (JEs), a non-profit organization, constituted by university students with the purpose of providing the context that mimics an actual business environment, in order to enhance the entrepreneurial competences of their members. Currently, the JE network is present in more than 500 universities worldwide, accounting for more than 990 JEs and 50000 students. Although its relevance, JEs are an ill-studied subject, with only a limited number of empirical studies focused on this type of organization. This study aims at fulfilling this gap by providing evidence that JEs are an adequate test-bed for students to learn and practice entrepreneurship. Based on these assumptions, this study explores the strategic orientations and its impact on JEs performance, in order to assess if JE behaves similarly to an actual company. Thus, an Entrepreneurial Orientation (EO) measurement instrument adapted to JEs is developed and then used to test the effect of EO dimensions on the performance of JEs. The regression analysis conducted with the new dimensions showed that EO positively influences the performance of JEs, having an important role in the development of the JE and consequently in the development of the students.*

**Keywords:** Junior Enterprise, Entrepreneurship Education, Entrepreneurial Orientation, Performance.

## INTRODUCTION

In an increasingly globalised and uncertain world, the need for fostering an entrepreneurial behaviour and entrepreneurial competences among young people is being recognised by many researchers and policy-makers as relevant to face world's most pressing challenges (European Commission, 2012; Wilson, 2008). In this case, the promotion of Entrepreneurship Education (EE), at both higher and lower levels of education, stands out for its impact on entrepreneurial intention and behaviour (Matsheke & Dhurup, 2017), entrepreneurship activities (Vesper & Gartner, 1997), innovation (Efobi & Orkoh, 2018) and students' future employment prospects (Urbano et al., 2017). Fayolle et al. (2006) argue that an EE program is

*“any pedagogical programme or process of education for entrepreneurial attitudes and skills, which involves developing certain personal qualities. It is therefore not exclusively focused on the immediate creation of new businesses”*. Those programs can be offered as mandatory or elective within specific course curricula or as an extra-curricular activity. Despite the existence of a large number of studies and case studies focusing on the impact of EE, only a small number of those consider the case of extra-curricular activities, such as students’ clubs (Pittaway et al., 2015), business competitions (Watson et al., 2014), and boot camps (Kwong et al., 2012). More surprisingly, to the best of our knowledge, there is no study focusing on the role of Junior Enterprises (JEs) on the development of entrepreneurial skills and competences.

A JE is a Non-Profit Organization (NPO), constituted and managed exclusively by university students, which provides services for companies, institutions and society, under the guidance of teachers and professionals aiming to consolidate and enhance the learning of their members. The purpose of these organizations is to provide a context that mimics the actual business environment. For that reason, JEs adopt the principles of corporate governance and each company has its own management council, executive board, and regulation (JADE, 2017). Nevertheless, to be recognised as an adequate test bed for entrepreneurial experience and skills, having the same purpose as an actual company is not enough. A JE has to demonstrate that it has the same concern with the strategic orientations of an actual company.

Entrepreneurial Orientation (EO) is one of the most studied strategic orientations due to its confirmed impact in organizations’ performance (Rauch et al., 2009). EO is defined as a strategic orientation that captures specifically entrepreneurial aspects of organizations’ strategy in order to be better prepared to adjust their operations in dynamic competitive environments (Lumpkin & Dess, 1996). Studies on EO are mainly targeted to large for-profit enterprises and within these studies, there are studies that support the idea that EO influences employee’s growth and commitment, the organizational learning and human capital (Wales et al., 2013b; Hakala, 2011). Despite there are no studies exploring the role of EO in the skills and behaviour development of the members of students’ organizations or NPOs, we consider that this is an interesting topic to explore due to the increasing interest of researchers and policy-makers on the impact of entrepreneurship education in the development of students (European Commission, 2012; Pittaway et al., 2009). However, this construct was never assessed in JEs or similar organizations, which raises the need to develop new measurement models to assess EO on these type of organizations.

Based on these assumptions, this study as a twofold objective: firstly, it promotes a better understanding of how JE operate and how those organizations can contribute to students’ personal development; and, secondly, it contributes to the literature on EO, by adapting previous measurement models to a new context, and on the entrepreneurship education through the discussion about the role of students’ organizations in the development of entrepreneurial skills. This article proceeds as follows. Firstly, we present a brief discussion of the concept of JE, and the literature review of EO, performance and their relationship. Afterwards, we present an overview of the methodology used in this study. The following point presents our analyses and discusses its interpretation. Finally, we derive some conclusions, highlighting the limitations of the study and directions for further research.

## **JUNIOR ENTERPRISES**

The first JE was founded 51 years ago, in 1967, in France. Later on, this model has been replicated in universities from all over the world. Currently, the JE network is present in more

than 500 universities of 40 countries, accounting for more than 990 JEs and 50000 students enrolled (Junior Enterprise Global Council, 2018a). The concept is well rooted in Europe, with 334 JEs (33.74%) and more than 29000 students enrolled (58%) in 14 countries. In the case of Brazil, there are 601 JEs (60.71%) with more than 20000 students enrolled (40%). Also, the network has less, but still significant, presence in other countries, such as Canada, Tunisia, Morocco, United States of America or Cameroon. According to the Junior Enterprise Global Council (2018b), by the end of 2021, the JE Network will be present in 70 countries with more than 100000 students participating in JEs only in Europe and Brazil. These are ambitious but realistic numbers not only due to the growth of JE Network in the last years but also because entrepreneurial education and skills development are becoming a priority in higher education institutes and the impact of those organizations has been recognised over the last years.

The main purpose of the JE network is *“to empower (...) students capable of and committed to generate a relevant impact”* (JADE, 2017), and its impact has been recognised by both policy-makers and business leaders. For instance, several reports highlight the impact of JEs on students’ skills development and employability (European Commission, 2012). Despite the research carried out around JEs being very scarce, the few studies that exist highlight that JEs provide a context where students can gain practical experience and integrate theoretical knowledge and practice, as well as to improve their business network (Bogo et al., 2014). Also, Pennarola et al. (2016) argue that JEs are relevant for the development of students’ entrepreneurial and managerial skills, improving their employability and fostering their entrepreneurial spirit.

Having in mind the impact of JEs, the growth of JE network and the increasing interest of universities in supporting initiatives that complement students’ curricula, such as JEs (European Commission, 2012), it is important to study and understand the organizational characteristics and strategies of JEs. However, the research carried out around JEs is very scarce and there are no studies published exploring the organizational behaviours and strategies of a JE. This lack of research leads to a lack of understanding of how JEs operate and how their performance can be improved and, in the end, how the impact on JE’s participants’ development can be enhanced.

## ENTREPRENEURIAL ORIENTATION

Entrepreneurial Orientation (EO) has been recognized as an important construct within the strategy and entrepreneurship literature in the last thirty years, being Mintzberg (1973) and Khandwalla (1977) the pioneers of EO research (Covin & Wales, 2012; Michael, 2018). The increasing interest on this construct arises from its confirmed impact on business performance, profitability and growth, innovation, organizational learning, etc. (Covin & Wales, 2012; Wales et al., 2013a). The conceptualisation of EO starts with Miller (1983) that considers an entrepreneurial firm as one that *“engages in product market innovation, undertakes somewhat risky ventures, and is first to come up with ‘proactive’ innovations, beating competitors to the punch”* (Miller, 1983), stating that the antecedents of EO are a combination of three dimensions: innovativeness, proactiveness and risk-taking. Later, Lumpkin & Dess (1996) conceptualise EO as the processes, practices, and decision-making activities that lead to a new entry, and it encompasses one or more of the following dimensions: *“a propensity to act autonomously, a willingness to innovate and take risks, and a tendency to be aggressive toward competitors and proactive relative to marketplace opportunities”*. Therefore, those researchers have added two other dimensions to EO: autonomy and competitive aggressiveness, which has set a turning point in EO research, moving away from previous conceptualisations (Basso et al., 2009).

In this case, innovativeness is seen by Miller (1983) as product-market innovation activity. Later, Lumpkin & Dess (1996) propose a broader definition, that not only include the implementation of activities aiming at product innovation but also represent a propensity of the firm to undertake and support new ideas, experimentation and creative processes. Miller (1983) suggests that an entrepreneurial firm is able to come up with 'proactive' innovations, being proactiveness a "*forward-looking perspective where companies actively seek to anticipate opportunities to develop and introduce new products to obtain first-mover advantages and shape the direction of the environment*". In turn, risk-taking behaviour reflects firms' willingness to allocate resources to uncertain and risky projects, activities, and solutions concerning the outcomes expected (Hughes & Morgan, 2007). Finally, Lumpkin & Dess (1996) define competitive aggressiveness as the firm's intensity and efforts to outperform its competitors, exploiting the firms' strengths and competitors' weaknesses (Hughes & Morgan, 2007) in order to be competitive. In turn, autonomy is described as the freedom given to employees to develop and fully implement new ideas, (Lumpkin & Dess, 1996), encouraging them to be creative, seek for new ideas and opportunities and to be self-directed (Hughes & Morgan, 2007).

### **Measuring Entrepreneurial Orientation**

Despite all five dimensions are well conceptualised in the literature, the nature, dimensionality and measurement of EO are still not consensual among researchers leading to a lack of clarity about the concept of EO (Wales, 2016). On the one hand, Covin & Slevin (1989), basing their conceptualisation in Miller's (1983) definition, use the three dimensions (proactiveness, risk-taking and innovativeness) and assume that those act together by constituting a basic, unidimensional strategic orientation. On the other hand, Lumpkin & Dess's (1996) five-dimension conceptualisation suggests that the dimensions may vary independently of each other in many situations. This model is seen appropriated when researchers search for more accuracy because it provides more insights into the strength and variations of the individual relationships of each dimension (Covin & Wales, 2012). However, fewer studies explore Lumpkin & Dess's (1996) framework, being more common in the literature studies adopting the three-dimension framework (Wales et al., 2013b). Still, these few studies explore the five-dimension framework in various contexts and sample types as reported in Saha's et al. (2017) review. Also Wales et al. (2013a) review shown increasing use of this conceptualization.

Despite the extensive research on EO models, none of them is focused on JEs or similar students' organization. Most studies are targeted at for-profit organizations or social enterprises (Kraus et al., 2017). However, JEs are a very particular type of organizations. On the one hand, those adopt an "*act like a company*" posture by providing products and services aiming at fulfilling customers' needs, but, on the other hand, have a social mission of promoting the development of students through practical methodologies and a business-education approach. Therefore, to measure EO of JEs it is necessary to make the necessary adjustments to existing measurement instruments, in order to be able to get insights of the relationship between its different dimensions and EO.

## **PERFORMANCE**

Business performance is a constant matter of discussion in strategic management literature due to its critical value for it because only through assessing organizations' performance it is possible to test a strategy, to examine its content or processes issues and to

overcome the main barriers found (Venkatraman & Ramanujam, 1986). But, if business performance is a complex concept, assessing the performance of NPOs is equally (or even more) complex.

In a previous study measuring JEs' performance (Michaelis et al., 2015), productivity (ratio of the JEs' sales to the number of members) was used to measure performance since it is the most common measure in strategic human resource management literature, according to the authors. Nevertheless, this can only provide a very partial measurement of performance, since it is expected that JEs' may have an impact at the level of students' competences and local economic development. In the same line, some authors argue that performance is multidimensional in nature and focusing in objective data may be inaccurate because it may not reflect the source of competitive advantage (Wales et al., 2013b).

NPOs, or Small and Medium Enterprises' (SMEs) performance measures can provide some insights on the selection of performance measures for JEs. For example, Miles et al. (2013) propose the measurement of NPO's performance through assessing its social performance and its economic performance. Chen & Hsu (2013) measured NPO's performance with a scale that intent to reflect the NPO's vision, its system-building process and the degree of coordination and satisfaction among its employees. Finally, Hughes & Morgan (2007) measured the performance of firms at an embryonic stage of development through their customer and product performance. Therefore, in accordance with these recommendations and literature review, we choose a multidimensional subjective measurement, composed of three dimensions to measure JEs' performance:

1. Economic Performance (EP), a necessary dimension because despite JEs have a non-profit basis, they need to be sustainable in order to create a long-term impact on their clients and students.
2. Customer Performance (CP) which is another important dimension for the performance of a JE, because as providers of services to other companies and institutions, is important that JEs create a good impact on their customers and if possibly create a long-term relationship, achieving repeated orders.
3. Development Performance (DP) is also an important dimension because the main goal of any JE is the development of their members through the projects and the internal work they do.

## **ENTREPRENEURIAL ORIENTATION AND PERFORMANCE**

Despite the relationship between EO and performance has been reported before, for example, by proposing a positive relation between entrepreneurial posture and growth or profitability (Covin & Slevin, 1991). Lumpkin & Dess (1996) were the first authors to clarify the link between the two constructs, by proposing a different conceptual framework to assess this relationship. Since then, this relationship has been widely examined in literature by many authors reporting a positive link between EO and performance in large or industrial enterprises (Beyza & Öz, 2014), SMEs (Avlonitis & Salavou, 2007; Wiklund & Shepherd, 2005), public sector (Caruana et al., 2002), early-stage firms (Hughes & Morgan, 2007) and in the non-profit sector (Pearce et al., 2010).

This has generated a general consensus that EO influences a firm's performance. However, there are also authors that found some incongruence in assessing this relationship, in which not all EO dimensions positively or significantly impact firms' performance (Hughes & Morgan, 2007; Pearce et al., 2010; Soyninen et al., 2012). Despite some of these incongruences, Rauch et al. (2009) meta-analysis of 53 samples comprising over 14000 companies indicates that the relationship between EO and performance is moderately large and robust enough to different

operationalisations, cultural contexts and type of organizations. Thus, we expect to verify that EO dimensions will have a positive impact on JE' performance.

## METHODOLOGY

### Sample

The total population comprised all JEs recognized by the international and national confederations (a total of 990 JEs). The sample is composed by 93 JEs (9.66% of the considered population) from 13 different countries, being Brazil (44%), France (18%) and Portugal (14%) the most represented countries. The sample covered JEs founded between 1969 and 2018, thus about half of them have 10 years or less. Most of the JEs in our sample (73%) operate in the business consulting field, which is the most represented area within the JE network since its creation, 50 years ago. With regard to the number of students involved in JEs, 35.48% of the JEs have between 21 to 35 students enrolled, 25.8% has less than 20 students, 25.8% has between 36 to 50 students, and finally, 12.9% has more than 50 students involved in its activities. Most of the members of JEs are enrolled in engineering and technology courses (50.54%) or in social sciences (36.56%).

### Survey and Statistical Procedures

Based on the literature review, the EO model proposed by Lumpkin & Dess (1996) seems suitable for our research, since it allows us to analyse the individual effect of each EO dimension which, therefore, will provide more insights on its effects on the other variables. Hughes & Morgan's (2007) scale is one of the most cited when referring to the five-dimensional EO measures (Saha et al., 2017; Owusu-Mintah, 2014). All the 18 items report high and significant item-total correlation coefficients ( $r > 0.69$ ,  $p < 0.001$ ) and Cronbach alpha coefficients greater than 0.70.

Regarding performance measurement, Miles et al. (2013) measured EP in SEs through a scale that focuses on their economic viability and not on their profitability. This scale is composed of 6 items and reported a good internal consistency (Cronbach's  $\alpha = 0.71$ ). CP was measured with a scale developed by Hughes & Morgan (2007), which the authors used to assess the relationship between EO dimensions and firms' performance. The scale is composed of three items, which report a high item-total correlation (greater than 0.79) and a Cronbach's  $\alpha$  of 0.83. Finally, DP can be measured through Chen & Hsu (2013) scale which was developed to measure firm performance in NPOs, and its relationship with EO. The scale does not measure the members' development of skills, instead, it reflects the degree of coordination among its members and their satisfaction, being composed by 6 items, reporting high Composite Reliability (CR=0.98) and a high Average Variance Extracted (AVE=0.94).

The chosen scales were adapted from the original scales and were translated to Portuguese. Then, an English native speaker performed a back-translation to English of the items to confirm the correct translation of the scales. EO and CP were measured using a 7-point Likert scale; DP was measured using a 6-point scale. EP was measured using a 5-point scale. Different scale range was used in order to maintain the measurement scale used in the original scales. A pilot test was done to test the clarity and comprehensibility of the content of the items. Few adaptations were done after the reverse translation and the pre-test. The survey was sent to JEs'

Executive Board members through email and social networks and to JADE (the European Confederation of JEs) and national federations, so they can publish in internal communication.

Data collected was statistically analysed utilizing IBM® SPSS (v.25 for Windows). A Principal Component Analysis (PCA) was conducted to test the dimensionality of EO measurement instrument. PCA is data dimension reduction technique which keeps as much variation as possible, and it is adequate to analyse data in small samples. Then, the reliability analysis of the new dimensions was done by analysing the item-total correlation and the Cronbach's Alphas. A One-way ANOVA was computed to assess the effect of control variables. A Pearson correlation coefficient was computed to assess the relationship between the new dimensions. Finally, a multiple linear regression analysis was computed, because it allows to test the direct effects and relationships between EO dimensions and performance. The use of multiple statistical techniques thus permitted to arrive at robust results in this study.

## RESULTS AND DISCUSSION

### Exploratory Measurement Model

A PCA was conducted to test the dimensionality of EO and measurement instrument. To evaluate the number of factors to retain, we observed the Kaiser's criterion, the scree plot and the theoretical interpretability of the dimensions (Field, 2009). For assuring the continuity of the procedure, three measures were attended:

1. The Kaiser-Meyer-Olkin of sampling adequacy (KMO) with a value greater than 0.70 (Field, 2009).
2. A statistically significant Bartlett's test of sphericity (Field, 2009)
3. A sample size greater than 50 and with at least 5 subjects per item (Hair et al., 2006).

To maximize the dispersion of loadings within factors a varimax rotation was employed and observing the rotated matrix items with loadings equal or higher than 0.5 and with no cross-loadings were retained (DeVellis, 2012; Field, 2009).

In this case, the subject-to-item ratio is 5:1, the threshold to conduct a PCA (Hair et al., 2006). Observing the initial solution, the scree plot showed the retention of 3 dimensions. Another PCA was computed with Vari<sub>max</sub> rotation and after observing the rotated matrix 1 item was removed due to its low loading values (0.379 and 0.445) and cross-loading in 2 components. A three-dimension model with the remaining 17 items was retained, explaining 54.40% of total variance (KMO=0.783; Bartlett's Test of Sphericity=584.37,  $p<0.001$ ). All Cronbach Alphas are greater than 0.60, which is acceptable by DeVellis (2012) (Table 1).

Component one composes of 8 items with loadings ranging from 0.812 to 0.578. It combines 2 items of risk-taking, 3 items of innovativeness, 2 items of proactiveness and 1 item of autonomy original scales. The authors of the scale used in this study (Hughes & Morgan, 2007; Cousins, 2018) based their items' development in eleven different articles. One of them is Barringer & Bluedorn's (1999) work that developed a scale to measure corporate entrepreneurship which combined items that measure a firm's tendency toward innovation, risk-taking, and proactiveness. Other authors found that innovativeness and proactiveness are commonly related (Soininen et al., 2012). Anderson et al. (2015) reconceptualise EO reordering it in 2 dimensions: a behavioural dimension-entrepreneurial behaviour (comprising proactiveness and innovativeness) and an attitudinal dimension-managerial attitude towards risk (risk-taking). In fact, the most widely used scale to measure EO which is adapted from Covin & Slevin (1989) (built on Miller's (1983) work) combine this three dimensions as a uni-dimensional construct.

Also, Morris et al. (2002) suggest an interaction between risk, innovation and opportunity-driven dimensions within their Entrepreneurial Marketing construct. The item related to autonomy that appears in this component is related to the innovation dimension of autonomy according to Engel (1969). Thus, it is understandable that this item is distinct from the remaining autonomy items since it is more related to the innovative capacity of the organization. Therefore, we decide to name component one Entrepreneurial Behaviour (EB) which represents the organizations' proactive willingness to innovate and to take risks.

Component two composes of 5 items with loadings ranging from 0.800 to 0.597. It combines 5 items that were originally on the autonomy scale. The items represent individual responsibility and free communication dimensions of the individual professional autonomy, proposed by Engel (1969) in which Hughes & Morgan (2007) based their autonomy items. Therefore, we decide to name component two as Job Autonomy (JA) which represents the firms' strategy to encourage employees' freedom of thought and action.

Component three composes of 4 items with loadings ranging from 0.698 to 0.622. It comprises 3 items of competitive aggressiveness and 1 item of risk-taking original scales. The incorporation of the risk-taking item may be explained by the interpretation given by the respondents to the item that directly refer to "risk-taker" as a business attribute. According to Lumpkin & Dess (1996), "competitive aggressiveness also reflects a willingness to be unconventional rather than rely on traditional methods of competing", which can be interpreted as a need to have a risk-taking behaviour to compete through non-traditional methods. Therefore, we decide to name component three as Competitive Focus (CF) which implies that a firm is constantly reassessing its strengths and weaknesses relative to its competitors.

These results are in line with Lumpkin et al. (2009) factor analysis that report independence of the autonomy items in one factor, and the competitive aggressiveness items in another factor. However, they report EO as a four-dimension model, with one factor combining innovativeness and proactiveness and another factor combining risk-taking and proactiveness items, in contrast with our results that aggregate these 3 dimensions in one factor.

Our results also answer a recent call by some authors that recommend the test of alternative configurations of EO as a composite construct, changing or adapting EO dimensions to particular contexts, without neglecting Miller's (1983) core dimensions (Miller, 2011; Wales, 2016). Bearing this in mind, we propose that EO is a multidimensional construct encompassing one "collective catchall" (Miller, 2011)-entrepreneurial behaviour, composed by Miller's (1983) core dimensions (proactiveness, innovativeness, risk-taking) and two other dimensions job autonomy and competitive focus.

<b>Entrepreneurial Orientation</b>		<b>1</b>	<b>2</b>	<b>3</b>	<b><math>h^2</math></b>	<b><math>r</math></b>
EO10	Our business seeks out new ways to do things.	0.812	0.188	0.004	0.697	0.715
EO8	Our business is creative in its methods of operation.	0.788	0.217	0.046	0.690	0.710
EO17	We excel at identifying opportunities.	0.754	-0.184	0.120	0.619	0.612
EO11	Employees perform jobs that allow them to make and instigate changes in the way they perform their work tasks.	0.672	0.345	-0.057	0.589	0.579
EO16	We always try to take the initiative in every situation (e.g., against competitors, in projects when working with others).	0.654	-0.121	0.372	0.627	0.574



EO18	People in our business are encouraged to take calculated risks with new ideas.	0.620	0.299	0.156	0.586	0.587
EO7	Our business emphasizes both exploration and experimentation for opportunities.	0.602	0.236	0.206	0.488	0.571
EO14	We actively introduce improvements and innovations in our business.	0.578	-0.055	0.296	0.473	0.510
EO1	Employees are permitted to act and think without interference.	0.061	0.800	-0.057	0.672	0.661
EO12	Employees are given freedom to communicate without interference.	0.137	0.738	-0.045	0.671	0.568
EO2	Employees have access to all vital information.	0.132	0.715	0.203	0.669	0.598
EO3	Employees are given freedom and independence to decide on their own how to go about doing their work.	-0.013	0.699	-0.004	0.491	0.508
EO9	Employees are given authority and responsibility to act alone if they think it to be in the best interests of the business.	0.308	0.597	0.263	0.637	0.505
EO13	Our business is intensely competitive.	0.099	0.032	0.698	0.635	0.414
EO6	We try to undo and out-manuever the competition as best as we can.	0.174	-0.024	0.690	0.518	0.435
EO5	The term “risk taker” is considered a positive attribute for people in our business.	0.019	0.311	0.649	0.559	0.412
EO4	In general, our business takes a bold or aggressive approach when competing.	0.159	-0.017	0.622	0.477	0.391
Eingenvale		4.01	30.04	20.20		
Explained Variance (%)		23.58	170.87	120.95		
Cronbach's Alpha		.861	0.784	0.632		

### Effect of Control Variables

Using a One-way ANOVA procedure, we analyse the mean group differences to verify the effect of control variables (such as countries, business field and the field of study of the members of the JE). To analyse the effect of the country, we divided the sample into two groups: “Brazil” (N=41) and “Europe”, combining 9 countries (N=47). In relation to the business field, the sample was divided in “Consulting” (N=68) and “Other Fields” (N=25). Finally, to analyse the effect of the field of study we divided the group in “Social Sciences” (N=34) and “Engineering and Technology” (N=47). In the three control variables, the groups showed no significant differences in all the constructs, concluding that these variables have no impact in the entrepreneurial culture and behaviours, neither in the performance of a JE. The results are not in line with previous results that consider that those control variables influence EO and its relationship with performance (Rauch et al., 2009; Wales et al., 2013b). Future studies must confirm these effects with a wider and more representative sample.

### Entrepreneurial Orientation–Performance relationship

A Pearson correlation coefficient was computed to assess the relationship between the new dimensions. The correlation matrix shows that all dimensions are positively and significantly correlated,  $r(93)=+0.209$ ,  $p<0.05$  (Table 2).

**Table 2**  
**CORRELATION MATRIX BETWEEN EO AND PERFORMANCE DIMENSIONS**

	EB	JA	CF	CPERF	EPERF	DPERF
Entrepreneurial Behaviour (EB)	1					
Job Autonomy (JA)	0.339**	1				
Competitive Focus (CF)	0.368***	0.209*	1			
Customer Performance (CPERF)	0.509***	0.212*	0.238*	1		
Economic Performance (EPERF)	0.527***	0.346**	0.360***	0.560***	1	
Development Performance (DPERF)	0.568***	0.408***	0.284**	0.591***	0.538***	1

Note: \* $p < 0.05$  \*\*\* $p < 0.001$ .

Before conducting the multiple regression analysis, we comprise the three dimensions of performance in one dimension (performance) for two reasons. First, in similar studies, other authors suggested aggregation of different performance measures that explain the overall performance of an organization. Second, analysing the correlation between these dimensions we found that they are all highly correlated  $r(93) = +0.538$ ,  $p < 0.01$  (Table 2). Based on these, we run a PCA forcing all the three dimensions of performance into a uni-dimensional solution. The factor loadings were between 0.561 and 0.730, explaining 43.49% of the total variance ( $KMO = 0.809$ ; Bartlett's Test of Sphericity = 803.33,  $p < 0.001$ ). After this, we summed the 3 components into a single variable—performance.

Multiple regression was conducted to see if EO dimensions (entrepreneurial behaviour, job autonomy and competitive focus) predicted the performance of JEs. Using the enter method it was found that EO dimensions explain a significant amount of the variance in the performance of JEs [ $F(3,89) = 24.45$ ,  $p < 0.001$ ,  $R^2 = 0.452$ ]. The results shown in Table 3 indicate that entrepreneurial behaviour [ $\beta = 0.533$ ,  $t(92) = 6.04$ ,  $p < 0.001$ ] and job autonomy [ $\beta = 0.185$ ,  $t(92) = 2.21$ ,  $p < 0.05$ ] significantly predict the performance of JEs. In contrast, the competitive focus did not significantly predict performance [ $\beta = 0.115$ ,  $t(92) = 1.36$ , n.s.].

**Table 3**  
**Multiple Linear Regression of EO dimensions on performance**

	M (SD)	B	SE	$\beta$	Tolerance	VIF	$R^2$
Entrepreneurial Behaviour	5.35 (.923)	6.39	1.06	0.533***	0.793	1.26	0.452
Job Autonomy	5.62 (.992)	2.07	0.936	0.185*	0.877	1.14	
Competitive Focus	4.46 (1.16)	1.09	0.808	0.115	0.856	1.17	

Note: \* $p < 0.05$  \*\*\* $p < 0.001$ .

The information in Table 3 allows us to check for multicollinearity in our multiple linear regression analysis. Tolerance values are between 0.793 and 0.877, far above the threshold of 0.2 recommended by O'Brien (2007). Lastly, we check for normality of residuals with a normal P-P plot, which shows that the points generally follow the normal (diagonal) line with no strong deviations, indicating that the residuals are normally distributed.

We found that two of the three EO dimensions generated in these studies are positively related to JEs' performance. The higher the proactive willingness to innovate and to take-risks (EB) and the higher the encouragement of employees' freedom of thought and action (JA), the higher the performance of the JE. These results are in line with Hughes & Morgan (2007) that find a positive influence of innovativeness and proactiveness on performance and a non-

significant influence of competitive aggressiveness. In addition, our results confirm Rauch's et al. (2009) meta-analysis in a different sample of organizations (JEs). Finally, our results partially support Lumpkin & Dess (1996) conceptualization of EO, which suggests that EO dimensions vary independently although they are positively correlated. However, our analysis indicates that the three dimensions proposed by Miller (1983) constitute one single factor which contrasts with Lumpkin & Dess (1996) conceptualization (Rauch et al., 2009; Wales et al., 2013a; Souitaris et al., 2007, Gruber-Muecke & Kailer, 2011, Pennarola et al., 2016, Gupta et al., 2017).

## CONCLUSIONS

Despite the importance of JEs being widely recognized by policymakers and researchers, the research carried out around JEs is very scarce and there are no studies published exploring the organizational characteristics of a JE. This gap in the literature leads to a lack of understanding of how JEs operate, how their performance can be improved and, in the end, how their impact on JE's participants' development can be enhanced. Although JEs are not "*real companies*" and their main goal is the development of their members, they need to have a sustainable internal and external performance in order to achieve this primary objective. Therefore, understanding JEs organizational characteristics and strategic orientations in a more competitive and uncertain environments are crucial to their success, as it happens in enterprises or other organizations.

Based on these assumptions, the aim of this study was to assess the EO of JEs and their impact on performance. Studies on EO are widely disseminated in the literature, however, none of these studies focused on JEs or similar organizations. We found that there are many EO measurement models based on different conceptualizations and adapted to different contexts. However, none of these models was adequate to JEs, due to their characteristics and objectives. Then, we decided to focus on the most reported measurement models of EO mostly designed to for-profit enterprises. We have conducted an exploratory analysis that allowed us to refine the scale of EO to better fit the characteristics of JEs, creating new dimensions measured by a new set of items. Analysing the content of the items that were removed, in fact, most of the items are not applicable to JEs' reality. The new dimensions of EO represent the JEs' proactive willingness to innovate and to take risks, encouraging freedom of thought and action of its members and constantly searching for competitors' strengths and weaknesses. With the multiple regression analysis, conducted with the new dimensions, we discovered that entrepreneurial behaviour and job autonomy positively and significantly contribute to a better performance of JEs, suggesting that the higher the entrepreneurial behaviour and autonomy given to the employees within the JEs, the higher the performance of the JE and consequently the higher their capacity to achieve their main mission: to provide a context that mimics the actual business environment to foster students' entrepreneurial skills and behaviour.

As with any empirical investigation, the present study has several limitations. Despite the significant dimension of our sample, a larger sample would allow us to run a more robust statistical analysis. We have conducted an exploratory factor analysis and test the effects of the new dimensions, although not confirming the new scale and dimensions. Further confirmatory factor analysis in a different sample of JEs (or similar organizations) are needed to test the new dimensions and scale we develop in this study. We suggest that analysing and comparing these dimensions between different study areas and different countries will bring important insights to the refinement and adaptation of these scales. With regard to the methodology, in line with numerous calls, we think that qualitative research and longitudinal research are needed to

understand deeply the strategic orientations perceptions of managers and members and to assess the long-term impact on organizations. Another important thought is the idea that organizational characteristics and strategies of JEs may shape the behaviour of their members. Finally, there is a lack of research on organizations like JEs, therefore it is urgent to understand their characteristics and impact on students' to be possible to recommend specific measures to improve their performance.

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