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THE IMPACT OF EDUCATION ON STUDENTS' ENTREPRENEURIAL INTENTION. MUCH ADO ABOUT NOTHING OR TRUE CHANCE?

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Abstract

Purpose. *Rooted in the rationale that entrepreneurship can be taught and learned, this study aims to understand whether and how certain dimensions of students' education affect their entrepreneurial intention (EI).*
Design/methodology/approach. *Under the lens of Ajzen's Theory of Planned Behavior (TPB), we employ structural equation modeling (SEM) on data gathered via Likert-based questionnaires to understand if attitudes, subjective norms, self-efficacy and students' skills impact the EI in a sample of 1,730 graduate and undergraduate students across France, Italy, Lithuania, Poland and Spain.*
Findings. *While the findings confirm that these factors can shape students' EI, they also reveal that skills provided by universities are the most prominent element leading European students toward entrepreneurial careers. Also, we conducted an additional analysis to understand whether country differences affect our results, suggesting novel insights on the topic.*
Practical and social implications. *The research contributes to academic discourse and policy considerations surrounding entrepreneurship, education, and training. Specifically, the paper advocates for rethinking the employment-education interface, offering practical tools and theoretical ideas to bridge the gap between entrepreneurial practice and higher education systems.*
Originality. *By incorporating in the core of the analysis the role of skills acquired through university programs, the study offers a timely and comprehensive investigation of the factors influencing students' entrepreneurial intention, contributing to a deeper understanding of their potential determinants.*

1. Introduction

This paper attempts to lay the foundations upon which policymakers and regulators worldwide promote initiatives and policies encouraging entrepreneurial career development among younger people to generate new labor opportunities and reduce unemployment rates (European Commission, 2016). These initiatives and policies attempt to fill the void identified by the early debates that negative economic or labor market conditions are likely to "push" individuals into setting up their own companies, or that strong economic prospects are likely to "pull" individuals into entrepreneurship (Moore and Mueller, 2002). On the other hand, the lack of cyclical association of entrepreneurial rates suggests that the latter is the result of structural and demographic influences in the economy (Blanchflower and Oswald, 1996; Skriabikova *et al.*, 2014). These deliberations and frameworks have given rise to a growing number of studies, with academics interested in further exploring the issues concerning entrepreneurship in their multifaceted stances. However, to date, several questions are still overlooked and need far more consideration in the agenda of researchers, which is also in line with recent worrisome investments by policymakers in education initiatives and programs.

Many conceptual models structure several variables that have an impact on the entrepreneurial decision (Moore, 1986; Bygrave, 1989). Although not specifically developed for students, they might explain their entrepreneurial intention as well as the intentions of any other population. Reverberated by those early findings, the starting point of this research is that entrepreneurship can be taught and learned, enabling society to benefit from the full potential of its people (Krueger *et al.*, 2000; Politis, 2005; Zhao *et al.*, 2005; Minniti, 2008; Baum *et al.*, 2014; Omorede *et al.*, 2015; Bitetti and Huber, 2023). Education can provide a contribution by developing knowledge and attributes that are pivotal for employability, active citizenship, and new business creation (Turker and Selcuk, 2009; Raposo and do Paço, 2011; Duong *et al.*, 2022).

Despite the relevance of the themes recalled above, research on the impact of skills and attributes acquired during the studies on students' entrepreneurial intention (EI) is still overlooked (Ferri *et al.*, 2023). However, understanding whether impactful initiatives and proper educational programs may effectively address the EI is crucial to inform how the Higher Education Institutions (HEIs) management is successfully implementing their learning systems[1] in a long-run perspective (Ferri *et al.*, 2023). To ad-

[1] Following Ferri *et al.* (2023), we refer to learning systems including the broadened learning context provided by university educational programs and not to a specific course in entrepreneurship.

dress this limitation, and grounded on Ajzen's Theory of Planned Behavior (TPB), this paper evaluates whether and how the characteristics of HEIs' educational programs affect EIs of a sample of graduate and undergraduate students.

Therefore, the objective of this current study is to examine how a broad university education contributes to the development of entrepreneurial intention among students belonging to HEIs. We rely on TPB given that it is acknowledged as the main theoretical basis to explain the mental process influencing the EI within the context of education provided by universities and HEIs (Van Gelderen *et al.*, 2008; Longva and Foss, 2018; Di Paola, 2021; Chang *et al.*, 2022; Tingting *et al.*, 2022). Bearing in mind the importance of specific contextual features, which are still neglected, our study takes a multi-country perspective and encompasses students from universities located in France, Italy, Lithuania, Poland, and Spain. As evidenced by prior scholars, specific contexts based on countries' culture may influence career decisions (Lent *et al.*, 2000; Brown, 2002; Moriano *et al.*, 2011). In line with prior studies (Fayolle and Liñán, 2014; Kautonen *et al.*, 2011, 2015; Ferri *et al.*, 2023), and embracing the TPB perspective, we analyze three main antecedents of the EI, namely: 1) attitude toward the behavior (ATT), 2) subjective norms (SN), 3) self-efficacy (SE). Most importantly, to understand whether the acquisition of skills developed during university studies can boost EI, we added this element (SKI) to the theoretical model.

To these purposes, we created a four-point Likert-based questionnaire (ranging from strongly disagree to strongly agree) and employed an even scale to avoid the bias of central risk (Caldarelli *et al.*, 2016). The questionnaire was piloted to a sample of 60 subjects to test the scale. Then, we undertook an exploratory factor investigation employing the principal components analysis (PCA) (Brown, 2015). Following satisfactory tests regarding the goodness of the model, we employed structural equation modeling (SEM) (Bagozzi *et al.*, 1991). Our findings reveal interesting insights on the impact of education in the formation of EI in different countries. By doing so, we contribute to the academic and policy debate about EIs, education and training, offering a comprehensive investigation of the factors that affect students' intentions and motivations to undertake an entrepreneurial activity. The findings allow us to complement TPB, engaging in its specific application to educational contexts.

Overall, the present study contributes to the extant literature on TPB-driven studies (Krueger *et al.*, 2000; Shook *et al.*, 2003; Turker and Selçuk, 2009; Carey *et al.*, 2010; Carsrud and Brannback, 2011; Enkel and Bader, 2016) as well as the literature about the antecedents of entrepreneurial intention (Fayolle and Liñán, 2014; Guerrero *et al.*, 2016; Di Paola *et al.*, 2017; Gabbianelli *et al.*, 2021; Ferri *et al.*, 2023; Bitetti and Huber, 2023).

The remainder of the study is organized as follows. The next section

introduces prior literature and develops the hypotheses. Then, we describe the research design, including the sample, data collection, methodology, variables, and tests. The results are discussed in Section 4, while Section 5 offers some concluding remarks and implications for policy and practice.

2. Assessment of prior studies

The significance of entrepreneurial initiatives for economic prosperity has generated a growing debate among academics (Robinson *et al.*, 1991; Hatten and Ruhland, 1995; Matlay and Mitra, 2004; Kuratko, 2005; Matlay, 2006; Stuetzer *et al.*, 2013; Gabbianelli *et al.*, 2021; Bitetti and Huber, 2023), due to their impact on economic prosperity and innovation (Turker and Selçuk, 2009; Nowiński *et al.*, 2017; European Commission, 2016).

Relevant research evaluated the factors (*i.e.* intentions, motivations, previous experiences, education, attitudes, personal traits, and social contexts) that play a key role in the development of entrepreneurial initiatives (Krueger *et al.*, 2000; Politis, 2005; Zhao *et al.*, 2005; Harris and Gibson, 2008; Hussain *et al.*, 2008, Minniti, 2008; Martin and Osberg, 2007; Abu-Saifan, 2012; Baum *et al.*, 2014; Omorede *et al.*, 2015). On the other hand, Iwu *et al.* (2016) argue that sufficient emphasis needs to be placed on entrepreneurship education and practical entrepreneurship schemes (such as mentorship programs), whereas Padilla-Angulo (2019) offers empirical verification of the pivotal roles played by the student societies and associations in increasing awareness about Entrepreneurship amongst first-year students.

Forming, the author argues, appropriate attitudes at the very beginning increase the likelihood of EI. The entrepreneurial initiative as a potential outcome of the degree makes it a measurable determinant of the academic success of students, and it is crucial to all stakeholders involved as it can help universities modify their curricula and allocate resources accordingly. Relevant literature addresses a wide spectrum of interests, covering philosophical and ethical predicaments, the issue of academic versus professional aspirations, requirements proposed by professional bodies and practice, assessment criteria and learning objectives (see Ingram and Howard, 1998; Apostolou *et al.*, 2001; McPhail, 2004).

Earlier studies attempted to discover the determinants of EI (*e.g.*, Ferri *et al.*, 2019) through reference to the entrepreneurs' personal traits. Such an approach, despite still being relevant and having provided interesting insights, has now been superseded by the awareness that alone, they are not sufficient to explain entrepreneurial intention. Indeed, while they are still relevant and thought-provoking in explaining entrepreneurs' success, they also do not show a converging pattern (Shook *et al.*, 2003), needing to be interpreted by looking at additional elements (Carsrud and Brannback,

2011). For instance, the linkage between ideas and actions (Carsrud and Brannback, 2011) fostered two major theoretical approaches, namely the Entrepreneurial Event Model (EEM) and Ajzen's TPB (Enkel and Bader, 2016). In other words, intentionality is the outcome of intentional behavior or the antecedent of planned Entrepreneurial behavior (Krueger, 1993). Entrepreneurial Intention is, in turn, determined by attitudes, and attitudes are affected by "exogenous influences" such as traits and situational variables (Ajzen, 1991; Krueger *et al.*, 2000).

In particular, Ajzen's TPB (1991) interprets entrepreneurial behavior in terms of attitude toward it, subjective norms, and perceived behavioral control. Ajzen (1991) argues that individuals' actions are driven by their attitude toward a given behavior (behavioral beliefs), subjective norms (normative beliefs), and perceived behavioral control (control beliefs) (Ajzen and Fishbein, 1980). Behavioral beliefs represent an individual's perception of the consequences of a particular behavior and their attractiveness. Normative beliefs can be understood through reference to the social norms featuring the context, which shapes the perceived reaction that a behavior induces in other people. Control beliefs entail the perceived behavioral control that the individual has over their behavior, and they are strongly interrelated to the perceived skills and abilities that the individual has or can develop (Almobaireek and Manolova, 2012; Carey *et al.*, 2010).

However, more research is required to comprehend what are the determinants of entrepreneurial behaviors (Di Paola *et al.*, 2017; Ferri *et al.*, 2023), especially if the focus is on younger people and students, as it involves manifold emotional concerns and specifically refers to educational programs (Turker and Selçuk, 2009).

Specifically, educational programs play a prominent role in the promotion of entrepreneurial initiatives, also taking into account the effects of different social and cultural contexts (Nowiński *et al.*, 2017; Liñán *et al.*, 2011). Literature, practice, and policy-makers agree that the challenges of the constantly evolving economic ecosystem(s) require an effort by young people to develop an entrepreneurial attitude, apply entrepreneurial rationale, flexibility, proactivity and adaptability in their daily work and life (Schlaegel and Koenig, 2014; Enkel and Bader, 2016).

In this regard, Universities have traditionally been recognized as key contributors to societal and economic progress through their focus on knowledge dissemination (Moscardini *et al.*, 2022). In more recent times, they have also played a significant role in fostering entrepreneurial activities such as the creation of spin-off companies (Guerrero *et al.*, 2016; McAdam *et al.*, 2018). Thus, the academic setting is viewed as an ideal environment for nurturing students' entrepreneurial skills, thereby supporting their entrepreneurial intention concerning start-up ventures (Bazan *et al.*, 2020; Tan *et al.*, 2020).

For this reason, HEIs are generally broadening their roles to adopt a more entrepreneurial approach, thereby driving knowledge-based economic growth (Pugh *et al.*, 2022). The European Commission (2021) specifically claims to create new employment opportunities via the boost of an entrepreneurial approach to learning systems.

Moreover, considering TPB-informed research, Schlaegel and Koenig (2014) suggest that specific contextual elements could offer new insights of crucial importance to our understanding of the entrepreneurial pathway (Brandl and Bullinger, 2009). Indeed, as highlighted by Huisman *et al.* (2015), the educational programs provided by universities and HEIs in general may present high heterogeneity, and country differences could be pivotal to understand the students' entrepreneurial intention.

3. Hypotheses development

Concerning the attitude (ATT) toward a behavior, it represents the individual's evaluation of their willingness, their desire, to behave in a certain manner. As for the entrepreneurial intention, it refers to the "emotional" outlook toward creating their own businesses (Ferri *et al.*, 2019). According to Ajzen (1985), this construct allows us to measure the expectations of people in the sample about their ability to do something, and it refers to the degree to which a person has a favorable evaluation of the outcome of the behavior in question (Enkel and Bader, 2016). If the outcomes are largely desirable, there will be a stronger intention to perform a particular behavior. According to Schlaegel and Koenig (2014), the impact of ATT on entrepreneurial intention depends in particular on the level of student conviction considered as the intention of an individual to perform an action because that one is the best for him.

With specific reference to entrepreneurial intention, ATT can be considered as the desirability of starting a new venture, so a positive perception of expected outcomes is typically associated with the act of starting one's own business (Zhao *et al.* 2005). According to several authors, ATT is the most important factor explaining entrepreneurial intention, showing the central role of this construct in students' decision to become entrepreneurs in different countries (Kolvereid, 1996; Douglas and Shepherd, 2002; Van Gelderen *et al.*, 2008; Liñán *et al.*, 2011). Based on this argument, we develop the first hypothesis (H1) as follows:

H1. There is a positive relationship between attitudes and entrepreneurial intention

Regarding subjective norms (SN), this construct allows us to under-

stand the importance of the perceptions of performing a particular behavior for the social groups that students consider important (Ajzen, 1985). What should be noted is that usually, these normative beliefs depend on the strength of the students' motivation to comply with them (Ajzen, 1985).

According to previous literature, SN can have different effects on behavioral intention (Krueger, 1993, 2000; Kolvereid, 1996; Van Gelderen *et al.*, 2008). For example, Krueger *et al.* (2000) found that the effect of social support is not related to entrepreneurial intent for North American students. The same result was shown by Liñán and Chen (2009), who, carrying out a comparative study, found a good relation between SN and EI in Scandinavian students. What should be noted is that in those contexts with more uncertainty and difficulties, social support should play a significant role in the decision to be an entrepreneur. Based on the previous literature, we can state the following hypothesis (H2):

H2. There is a positive relationship between subjective norms and entrepreneurial intention

With reference to perceived self-efficacy (SE), it refers to students' perception of their perceived self-efficacy in performing the behavior (Ajzen, 1985). What should be noted is that SE rarely reflects actual control accurately so, according to different authors, in the case of high volitional control, behavioral intention should be the only predictor of the final behavior (Langer, 1975; Brewer and Silver, 1978; Meyerson *et al.*, 1996).

However, since students do not have full control, self-efficacy should be additionally and independently predictive of behavior. This means that action depends not only on intention but also on non-motivational factors, such as the availability of opportunities and resources.

Entrepreneurship researchers largely highlighted the pivotal role of the self-efficacy concept in shaping individual intentions toward entrepreneurship (Strecher *et al.*, 1986; Harackiewicz *et al.*, 2002). Indeed, it was usually associated with opportunity recognition and risk-taking (Krueger *et al.*, 2000; Di Paola *et al.*, 2017) as well as career choice (Bandura, 1986; Harackiewicz *et al.*, 2002; Turker and Selcuk, 2009). What should be noted is that previous authors found a positive relation between SE and EI. Given these arguments, we state the following third hypothesis (H3):

H3. There is a positive relationship between self-efficacy and entrepreneurial intention

We integrated TPB with perceived skills that students expect to improve at university (SKI)[2]. Indeed, according to different authors, the educational

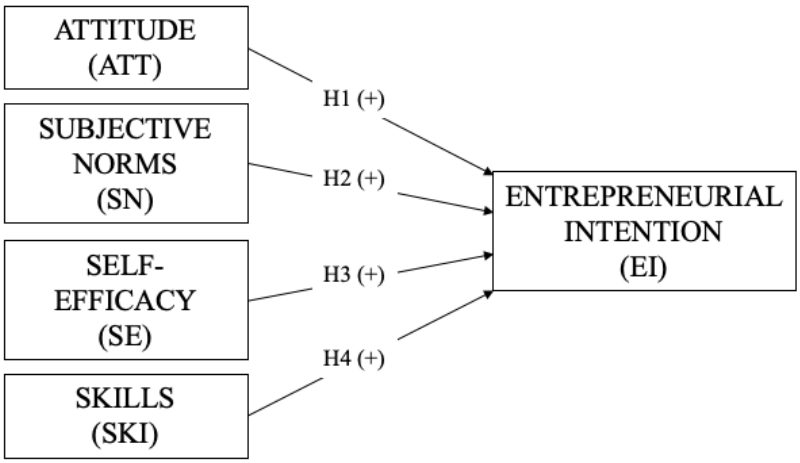
[2] It is worth noting that we consider the general skills that universities aim

system is a relevant tool for fostering early entrepreneurial skills (do Paço *et al.*, 2011; Turker and Selçuk, 2009; Pihie and Akmaliah, 2009; Di Paola *et al.*, 2017). The development of managerial knowledge, skills, and competencies can play an important role in students' intention to initiate new ventures (Van Praag and Versloot, 2007; Wilson *et al.*, 2007; Pihie and Akmaliah, 2009). Several authors show that educational activity increases student entrepreneurial intention (*e.g.*, Hmieleski and Corbett, 2006) by reducing people's uncertainty (Pihie and Akmaliah, 2009) and the risk of their own firms' default (Markman, 2007; Miller *et al.*, 2009). The relationship between skills and business venture success is empathized by do Paço *et al.* (2011). The authors conclude that an entrepreneurship educational program could contribute to the development of competencies related to entrepreneurship, improving the number of new firms. Also, Florin *et al.* (2007) provide evidence that students are motivated to improve their managerial skills to better address the complexity of creating their businesses. More generally, according to previous literature[3], universities' skills (SKI) are perceived as an important factor in encouraging students to address new business ventures. Based on this argument, we develop the following hypothesis (H4):

H4. There is a positive relationship between skills acquired via University education and entrepreneurial intention

Overall, for the purpose of clarity, the following Fig.1 provides a representation of the model proposed based on our research hypotheses.

Fig.1 – The model of analysis



[3] Overall, the construct SKI has been realized by taking into account previous literature that has provided a number of contributions looking at each single component but failing in offering a more systemic view. Appendix A summarizes the main findings available to date.

3. Methodology

3.1 The questionnaire

To test our research hypotheses, we follow the approach of previous authors (*i.e.,* Fayolle *et al.*, 2014; Kautonen *et al.*, 2011, 2015; Ferri *et al.*, 2023). More specifically, we developed a four-point Likert-based questionnaire: (1) strongly disagree, (2) disagree, (3) agree, (4) strongly agree. We decided to employ an even scale to avoid the *"central tendency bias"* (a situation in which the respondent decides to choose ever the midpoint, typical of the odd scale). This is in line with previous authors who demonstrate that the central tendency to choose "the middle way" is mitigated when questionnaire items are clearly categorized (Si and Cullan, 1998).

The questionnaire[4] was divided into two parts. The first part contains the personal data of the students interviewed. The second part covered the TPB dimensions using 23 different questions. More specifically, the second one includes questions concerning the identification of the ATT (4 questions), SN (4 questions), SE (3 questions), SKI (10 questions), and EI (2 questions). After this design phase, we disseminated the questionnaire to an initial sample of 60 subjects of different nationalities to test the scale.

3.2 Scale Validation

To ensure consistency and unidimensionality of the scales, we carry out an initial reliability study and an exploratory factor analysis of principal components (PCA) (Hu and Bentler, 1995; Brown, 2015). This procedure was used to suppress indicators with a correlation lower than 0.3 or whose exclusion increased Cronbach's Alpha value, which should not be lower than 0.7 (Bland and Altman, 1997). On this basis, we eliminated two factors of SE and one factor of EI. No other factors were eliminated in other constructs. Our tests show an overall alpha value of 0.84, which is considered good. Furthermore, we carried out exploratory factor analyses using varimax rotation with Kaiser normalization (Kaiser, 1970; McDonald, 1981; Byrd, 2000) to verify if all the concepts were formed by just one factor. These factors explain more than 59% of the variance for all factors, and it is considered acceptable.

Also, several measures of reliability were performed on the overall sample. More specifically, we obtained the following results: average block VIF (AVIF) of 1.246 (considered acceptable if <= 5, ideally <= 3.3), the average full collinearity VIF (AFVIF) was 1.406 (acceptable with values less or equal to 5, ideally <= 3.3). Finally, the R-squared contribution ratio (RSCR)

[4] Overall, Appendix B provides details about items included in the questionnaire.

is 1.000 (acceptable if >= 0.9, ideally = 1). All these indexes suggest that the overall model fit is considered acceptable.

3.3 Questionnaire dissemination and final sample

Literature suggests that students represent a population of people potentially interested in promoting an entrepreneurship activity (Henderson and Robertson, 2000; Galloway *et al.*, 2005; Harris and Gibson, 2008). We disseminated the questionnaire online, sending it randomly to 3,500 students from five different European universities in France, Italy, Lithuania, Poland, and Spain, belonging to the European University Foundation network. We reached both business and non-business students because the paper aims to examine the effect of skills developed during the academic journey on entrepreneurial intention. Non-business students were primarily engineers and medical students. All students were undergraduates. The dissemination phase lasts for three months. After removing the incomplete form, we reach a final sample of 1,730 students with an overall response rate of 49.4%. The following Tab.1a clarifies the final sample formation, while Tab.1b shows the details of the sample composition.

Tab.1a – Sample formation

	France	Italy	Lithuania	Poland	Spain	Total
Form Sent	250	1.530	130	970	620	3.500
Response rate	40%	65%	28%	42%	46%	52%
Form received	101	993	37	403	287	1.821
Incomplete form	7	52	7	3	22	91
Final Sample	94	941	30	400	265	1.730

Tab.1b – Sample composition

	France		Italy		Lithuania		Poland		Spain		Total	
Gender												
	n	%	n	%	n	%	n	%	n	%	n	%
Male	38	40.43	498	52.92	6	20.00	104	26.00	62	23.40	708	40.90
Female	51	54.26	441	46.87	24	80.00	296	74.00	199	75.09	1,011	59.05
No response	5	5.32	2	0.21	0	0	0	0	4	1.51	11	0.05

Business students												
	n	%	n	%	n	%	n	%	n	%	n	%
Yes	64	68.09	451	47.93	21	70.00	323	80.75	123	46.42	982	56.76%
No	10	10.64	490	52.07	9	30.00	77	19.25	115	43.40	701	40.52%
No response	20	21.28	0	0	0	0	0	0	27	10.19	47	2.72%
Average age	19.92		20.37		20.03		20.97		20.19		20.3	
N. Sub sample	94		941		30		400		265		1,730	
% on total sample	5.43%		54.30%		1.73%		23.13%		15.31%		100%	

To ensure the homogeneity of the overall sample, we perform the t-test (untabulated). The test shows the absence of statistically significant differences for gender, typology of students, and age. As Tab.1b shows, all the sub-samples are homogeneous in terms of gender and typology of students. This allows us to investigate the entrepreneurial intention in different countries, avoiding the risk of differences in results depending on potential heterogeneity across sub-samples.

4. Findings and discussion

To test our hypotheses, we performed the structural equation modeling methodology (Bagozzi *et al.*, 1991). More specifically, to provide a deeper explanation of the phenomenon, showing differences and similarities between different countries, we perform seven SEM (one for each country and one for the overall sample). The following Tab.2 shows descriptive statistics of our questions, while Table 4 displays the main findings of the analysis.

Tab.2 – Descriptive statistics of the theoretical construct

Construct	Variable	Mean	Std. Dev.	Min	Max	Obs
Skills	SKI1	3,255	0,922	1	4	1,730
	SKI2	3,189	0,909	1	4	1,730
	SKI3	3,205	0,958	1	4	1,730
	SKI4	3,131	1,007	1	4	1,730
	SKI5	3,122	0,901	1	4	1,730
	SKI6	2,987	0,995	1	4	1,730
	SKI7	3,058	0,931	1	4	1,730
	SKI8	2,923	0,935	1	4	1,730
	SKI9	2,732	0,982	1	4	1,730
	SKI10	2,904	0,982	1	4	1,730

Attitude	ATT1	2,954	0,886	1	4	1,730
	ATT2	2,978	0,874	1	4	1,730
	ATT3	2,958	0,935	1	4	1,730
	ATT4	3,004	0,901	1	4	1,730
Subjective norms	SN1	2,878	0,956	1	4	1,730
	SN2	2,814	0,932	1	4	1,730
	SN3	2,872	0,958	1	4	1,730
	SN4	2,812	0,904	1	4	1,730
Self-efficacy	SE1	2,782	0,918	1	4	1,730
	SE2	2,712	0,955	1	4	1,730
	SE3	2,504	0,968	1	4	1,730
Entrepreneurial intention	EI1	3,080	0,902	1	4	1,730
	EI2	3,063	0,917	1	4	1,730

The average value of 3.05 on SKI questions (ranging from 2.73 to 3.25) suggests that European students perceive the skills acquired during the university as pivotal factors in pursuing potential business ventures. Concerning ATT, SN and SE, although mean values are slightly lower than SKI (ranging from 2.50 to 3.00 overall), they confirm that students consider such factors as relevant predictors of EI. Lastly, values of EI ranging from 3.06 to 3.08 indicate that students in our sample perceive the entrepreneurial career particularly attractive and that they are likely prone to invest certain effort to achieve such a vocation.

Overall, as Table 2 shows, the mean of the responses is quite similar in all the theoretical constructs. This means that, for each construct, the different questions help to explain the theoretical construct.

Tab.3 – SEM findings

	France	Italy	Lithuania	Poland	Spain	Overall Sample
SKILL → EI	0,50*	0,49*	0,33*	0,41*	0,46*	0,44*
ATT → EI	0,10***	0,16*	0,31***	0,17*	0,06***	0,22*
SN → EI	0,52*	0,16*	0,30*	0,20*	0,22*	0,19*
SE → EI	0,11***	0,19*	0,06***	0,28*	0,30*	0,20*
R-squared	0,57	0,51	0,74	0,50	0,54	0,42
Adjusted R-Squared	0,55	0,51	0,70	0,49	0,53	0,40
AVIF	1,39	1,17	1,25	1,16	1,30	1,20

** P<0,01 ** P<0,05 ***P<0,1*

Results from SEM analysis are shown in Table 3. Specifically, the overall model explains the 42% of the total variance of the sample and the results document that ATT, SN, SE and SKI are all statistically significant predictors of students' motivation to engage in entrepreneurial activity (Adjusted R-squared 0.405 with $p < 0.01$). It is worth noting that we carried out the same analysis, also excluding SKI, and we found a lower R-squared for all the sub-samples and for the overall analysis (Adjusted R-squared 0.381 with $p < 0.01$). This means that the SKI construct aids in explaining the entrepreneurial intention of EU students.

More precisely, concerning ATT, our findings show a positive relation with entrepreneurial intention ($b = 0.22$ with $p < 0.01$). This result is compliant with previous literature (Van Gelderen *et al.*, 2008; Liñán *et al.*, 2011; Schlaegel and Koenig, 2014), confirming the great importance of self-perception in entrepreneurial actions. As a result, H1 is confirmed.

Regarding the SN, we found a positive relation with entrepreneurial intention ($b = 0.19$ with $p < 0.01$) in compliance with previous authors according to whom social support plays an important role in students' decision to be entrepreneurs (Kolvereid, 1996; Van Gelderen *et al.*, 2008; and Liñán and Chen, 2009). This finding is not compliant with those of Krueger (1993 and 2000), according to whom subjective norms do not influence EI. Hence, we also confirm our HP2.

With reference to SE, our results show a positive relation with EI ($b = 0.20$ with $p < 0.01$). This result is compliant with previous research (Strecher *et al.*, 1986; Krueger *et al.*, 2000; Harackiewicz *et al.*, 2002; Fayolle and Gally, 2005; Turker and Selcuk, 2009; Di Paola *et al.*, 2017). As a result, hypothesis 3 is confirmed.

What should be noted is that the main construct that affects the students' intention to be entrepreneurs is represented by SKI. Indeed, as previously hypothesized in hypothesis 4, there is a positive and strong impact of the SKI ($b = 0.44$ with $p < 0.01$) in relation to EI.

This finding is compliant with those of several authors who demonstrated the importance of university skills in new venture startups. Also, this result suggests that students' intention to be entrepreneurs is strongly related to the skills that they expect to learn during their university pathway.

Specifically, the influence of skills acquired through learning programs provided by HEIs significantly overcomes the effects of other TPB constructs. This result hints that the university environment promotes the development of both tangible and intangible skills, which in turn can enhance the entrepreneurial intention.

While these results confirm that the multiple dimensions from Ajzen's TPB can significantly shape EI, the fact that skills have a stronger impact on EI than subjective norms or self-efficacy emphasizes the importance of pedagogy in shaping the entrepreneurial mindsets of students. Also, unlike attitudes, which are often shaped by broader societal or personal be-

liefs (Ajzen, 1985), skills represent a more direct and actionable component of entrepreneurship that can be nurtured in a structured educational environment. For instance, this suggests that curriculum design, hands-on experiences, and university resources can significantly affect the students' intention toward entrepreneurship.

Moreover, Our findings validate and extend the recommendations of previous studies to the broader context of university education (Trivedi *et al.*, 2016; Ferri *et al.*, 2023).

6. Additional test

Previous analyses show the existence of minimum differences in entrepreneurial intention and skills. To determine whether these differences are statistically significant, an additional analysis was conducted considering these two theoretical constructs. To this aim, we performed the t-test, a statistical method used to assess whether the difference between the responses of two groups is statistically significant.

The t-test is a statistical method used to determine if there is a significant difference between the means of two groups. It helps to assess whether the observed differences are likely due to chance or represent true differences in the populations being compared.

Each theoretical construct consists of several questions. To use the t-test, we decided to take the average of the responses to these questions. The following tables 4 and 5 show the t-test results for skills and EI.

Tab. 4 – Differences in SKI between different countries

T-test analysis on mean values for Skills				
SKI	Min	Max	Difference	t-statistic
FRANCE vs (ITALY)	1	4	3.282	123.65
FRANCE vs (LITHUANIA)	1	4	3.279	121.61
FRANCE vs (POLAND)	1	4	3.268	124.12*
FRANCE vs (SPAIN)	1	4	2.691	94.12
ITALY vs (LITHUANIA)	1	4	3.661	100.03
ITALY vs (POLAND)	1	4	3.282	107.07*
ITALY vs (SPAIN)	1	4	3.279	105.11
LITHUANIA vs (POLAND)	1	4	3.268	99.97
LITHUANIA vs (SPAIN)	1	4	2.691	97.03
POLAND vs (SPAIN)	1	4	3.661	100.01

** P < 0.1 ** P < 0.05 ***P < 0.001*

Tab. 5 – Differences in EI between different countries

T-test analysis on mean values for Entrepreneurial Intention				
EI	Min	Max	Difference	t-statistic
FRANCE vs (ITALY)	1	4	3.44	77.53
FRANCE vs (LITHUANIA)	1	4	3.29	80.12
FRANCE vs (POLAND)	1	4	3.36	88.64
FRANCE vs (SPAIN)	1	4	2.82	74.23
ITALY vs (LITHUANIA)	1	4	3.84	79.12
ITALY vs (POLAND)	1	4	3.34	94.61
ITALY vs (SPAIN)	1	4	3.44	72.77
LITHUANIA vs (POLAND)	1	4	3.32	82.73
LITHUANIA vs (SPAIN)	1	4	2.82	84.51
POLAND vs (SPAIN)	1	4	3.73	93.45

** P < 0.1 ** P < 0.05 ***P < 0.001*

The test depicts that few statistically significant differences arise in SKI and EI. More specifically, our results show the existence of significative differences in SKI between Italy vs Poland and France vs Poland (both with p-value < 0.1). Also, considering entrepreneurial intention, the results of the t-tests do not indicate statistically significant differences.

The lack of significant country-based variation in the findings can be attributed to several factors. First, the likely homogeneity in the educational programs related to entrepreneurship across these countries may explain the consistency in the results. Indeed, although cultural, economic, and policy environments differ across nations, the educational structures and resources available to students in higher education institutions (HEIs) tend to follow similar pedagogical models, especially in the European context (Gunn, 2020; Ratten, 2020; Kanniainen and Pekkola, 2023).

5. Concluding remarks

This paper addresses the growing debate arising in the wake of the multiple initiatives worldwide to support the development of entrepreneurial initiatives among younger people and attempts to further explore the issues concerning entrepreneurship in their multifaceted stances. It moved from the awareness of the importance played by HEIs education on the ground that entrepreneurship can be and should be taught and learned to enable society to benefit from the full potential of its people (Krueger

et al., 2000; Politis, 2005; Zhao *et al.*, 2005; Minniti, 2008; Baum *et al.*, 2014; Omorede *et al.* 2015). The paper argues that research so far has overlooked the crucial role of learning systems provided by universities and HEIs in shaping knowledge, skills, and attitudes, which are important for employability, active citizenship, and new business creation (Markman, 2007; Miller *et al.* 2009; Turker and Selcuk, 2009; Raposo and do Paço, 2011). Thus, the starting idea of the current study was that the chance to realize impactful initiatives and design proper and effective programs is dependent upon the full understanding of the determinants of EI. For this reason, we employed Ajzen's TPB to comprehend whether and how the characteristics of educational programs affect EI, focusing on a multi-country sample of graduate and undergraduate students.

Our findings support the pivotal role of skills acquired during university studies in leading entrepreneurial intention across different educational settings.

Specifically, the impact of education in the formation of EI has been analyzed across different countries, and hence, inferences made from the study may have considerable implications for potential cross-country policies related to the university system. What clearly emerged is that while the impact of internal variables that have been identified as important EI antecedents are at a comparable level in each sample, huge differences are visible in the perceived environment. Thus, one may argue that different universities may have different degrees of conduciveness toward entrepreneurial development.

It is worth noting that we considered the skills acquired during university studies, not explicitly including courses in entrepreneurship. Hence, our inferences comply with the fact that overall learning systems provided by European HEIs may still affect the students' entrepreneurial intention, as they generally foster the development of employability, leadership, creativity, and critical thinking skills (Ferri *et al.*, 2023).

Moreover, these findings reinforce the view that the comprehension of the role played by environmental factors is paramount. These latter tend to explain why the connection between EI antecedents and career aspirations is not deterministic in nature. Our focus here is the variety of social, economic, and educational contextual variables that may influence people's entrepreneurial realization. Our analysis, in line with Béchard and Toulouse (1998), of course, sheds light on the fact that a very important external factor that influences the students' entrepreneurial intention is found in the universities and their didactic activities.

On these bases, we contribute to the academic and policy debate about EIs, education and training, offering a comprehensive investigation of the factors that affect students' intentions and motivations to undertake an entrepreneurial activity. Moreover, additional results reveal an absence of

pervasive country-specific differences, suggesting that European Union (EU) educational initiatives are successfully harmonizing the educational environment across different countries. Policymakers should continue to support these initiatives as they provide a uniform framework that allows students across different countries to acquire comparable entrepreneurial skills and competencies. In turn, this helps to ensure that no country is at a disadvantage in fostering entrepreneurship through education.

Yet, the paper strongly suggests the importance of early industrial placements (*e.g.*, implying frequent and productive relationships between the University and the entrepreneurial context), guest speakers, and practice-oriented academics (*Pracademics*). Specifically, the study hints the idea that the Small and Medium Enterprises (SMEs), which are particularly in touch with local communities, can co-design with universities to create programs that align academic curricula with industry needs. Also, understanding the positive impact of university education on entrepreneurial intention allows SMEs to anticipate trends in graduate skills and aspirations, ensuring they remain competitive in attracting top talent.

The paper allows us to signal that to support the necessary (slowly) changing process of the mindsets in the game, there are important aspects that deserve attention. The reference is to curricula and teaching approaches, with special regard to the ways through which designing an entrepreneurial curriculum and the evolving teaching methods and approaches; the ways to embed entrepreneurship education; how to manage strategic change and leadership; how to engage economic actors. The paper highlights that we, as researchers, have the responsibility to make such engagement happen, going beyond what findings tell us and trying to understand whether there is something that we are losing and why.

The main messages that on this basis can be transferred for policy-making purposes relate to a profound re-thinking of the established patterns of education, toward the development of logics of awareness, engagement, hybridization of the actors involved, dialogue, practice-based education, theory-driven practice, as well as search for a common discourse between the actors involved and substantive actions.

We acknowledge that the inferences made in this study are solely based on the skills-intention link. As suggested by Fayolle *et al.* (2014), values and motivations toward EI do not require subsequent entrepreneurial action. We hence encourage further research to explore the intention–action link, which would inform HEIs and policymakers on how to better understand any potential discrepancy between students' EI and their effective behavior.

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Appendix A – Literature on the SKILLS construct

Skills	Skills' description	Prior studies on skills' outcomes
Communication skills	ability to listen, express and present ideas, to persuade, to negotiate	Locke and Latham (1990), Ray (1993), Bandura (1997), Baum and Locke (2004), Giunipero *et al.* (2005)
Entrepreneurial skills	flexibility, opportunity seeking, risk-taking	Ray (1993), Baum and Locke (2004), Giunipero *et al.* (2005), Kutzhanova *et al.* (2009), St Jean and Audet (2012)
Information, media and technology skills	ability to obtain and process information	Giunipero *et al.* (2005), Riemer (2007), Koh and Abbas (2015)
Intercultural skills	command of more than one language, work in culturally diverse teams	Baum and Locke (2004), Kutzhanova *et al.* (2009)
Interpersonal skills	ability to work in a team, ability to manage conflicts, networking	Ray (1993), Giunipero *et al.* (2005), Kutzhanova *et al.* (2009)
Learning skills	ability to learn independently, curiosity and drive for continuous learning	Ray (1993), St Jean and Audet (2012)
Personal skills	self-confidence, positive attitude, strong work ethics	Locke and Latham (1990), Ray (1993), Bandura (1997), Baum and Locke (2004)
Technical skills	professional field related skills to accomplish specific tasks	Giunipero *et al.* (2005), Riemer (2007), St Jean and Audet (2012)
Thinking skills	critical, analytical, strategic thinking	Ray (1993), Bandura (1997), Baum and Locke (2004), Giunipero *et al.* (2005), Kutzhanova *et al.* (2009),
Virtual collaboration skills	ability to work productively in a virtual team/environment	Riemer (2007), Koh and Abbas (2015), Pun (2017)

Appendix B – Questionnaire

Theoretical construct	Label	Question
General part	GE1	Country of origin
	GE2	Country of University where you currently study
	GE3	Age
	GE4	Gender
	GE5	Field of studies
SKILLS	SKI1	I consider communication as fundamental in helping me to set up a business
	SKI2	I consider personal skills as fundamental in helping me to set up a business
	SKI3	I consider interpersonal skills as fundamental in helping me to set up a business
	SKI4	I consider intercultural skills as fundamental in helping me to set up a business
	SKI5	I consider learning skills as fundamental in helping me to set up a business
	SKI6	I consider entrepreneurial skills as fundamental in helping me to set up a business
	SKI7	I consider smart-thinking as fundamental in helping me to set up a business
	SKI8	information and media skills as fundamental in helping me to set up a business
	SKI9	I consider virtual collaboration skills as fundamental in helping me to set up a business
	SKI10	I consider technical skills as fundamental in helping me to set up a business
ATTITUDE	ATT1	For me, to become an entrepreneur would be excellent
	ATT2	For me, to start entrepreneurial career would be excellent
	ATT3	If I had opportunity and resources, I would love to start a company
	ATT4	For me to start-up a new firm would be excellent
SUIBJECTIVE NORM	SN1	People whose opinions I value would approve my intention to be entrepreneur intention to become entrepreneur
	SN2	People whom I know would think of my intention to become entrepreneur as excellent
	SN3	My family would think of my intention to become entrepreneur as excellent
	SN4	According to my fellow students to become an entrepreneur would be excellent

SELF EFFICACY	SE1	I believe that I have the skills to become an entrepreneur
	SE2	I believe I have the ability to become entrepreneur
	SE3	If I tried to start a business, I would have a high probability of being successful
ENTREPRENEURIAL INTENTION	EI1	I could do anything to be an entrepreneur
	EI2	My career objective is to become an entrepreneur