The future of enterprise and entrepreneurship education
Guest Editor: Harry Matlay

777 Editorial advisory board
778 Guest editorial
781 Evaluating impact of entrepreneurship education programs
Seyedeh Khatereh Daraei and Nima Hosseini
816 Gender and university degree: a new analysis of entrepreneurial intention
Pilar López-Delgado, Patricia P. Iglesias-Sánchez and Carmen Jannino-Maldonado
815 Predicting entrepreneurial intention across the university
Robin Bel
832 Classroom interdisciplinary diversity and entrepreneurial intentions
Laura Padilla-Angulo, Karel Díaz-Pichardo, Patricia Sánchez-Medina and Lovaniya Ramboarison-Latao
850 Entrepreneurial competences in a higher education business plan course
Rafael Femandez-Garcia, Ana Beatriz Hernández-Lara and Enric Serradell-López
870 The contribution of emotional intelligence and spirituality in understanding creativity and entrepreneurial intention of higher education students
Ana Paula Rodrigues, Filipa Eira Jorge, Carlos André Pires and Patricia António
895 Training effects on subsistence entrepreneurs’ hope and goal attainment
Andrés Barrios, Ezequiel Reficco and Rodrigo Taborda
918 Enhancing the effectiveness of entrepreneurship education: the role of entrepreneurial lecturers
Innocent Otache
940 Examining the business education curricula in South Africa: towards integrating social entrepreneurship
Zayd Waghi
963 Perceived social norms, psychological capital and entrepreneurial intention among undergraduate students in Bukavu
Akhilal Nahtabaye Ephrem, Rebecca Namatovu and Edith Mwebaza Basalirwa
984 Entrepreneurial intentions: the role of individualism and collectivism in perspective of theory of planned behaviour
Muhammad Fanush, Jason Wei Chow Lee, Muhammad Saif and Abdul Wahed
1001 Identification of entrepreneurship education contents using nominal group technique
Sumita Srivastava, Kanika Satangi and Nandita Satangee
1020 The effects of students’ entrepreneurial characteristics on their propensity to become entrepreneurs in Malaysia
Nor Azizan Che Embi, Hanuna Babatunde Jaiyeoba and Sheila Amin Yussof
1038 Book reviews


www.emeraldinsight.com/loi/et
Guidelines for authors can be found at:
www.emeraldgrouppublishing.com/et.htm
Guest editorial

The future of enterprise and entrepreneurship education

Introduction

With the publication of this feature, we celebrate the 20th double special issue published in *Education + Training*, under my guest editorship. These special issues aimed to publish empirically rigorous articles that focussed exclusively upon emergent, evolving and controversial aspects of small business and entrepreneurship development research. The series commenced publication in 2000, at the beginning of the New Millennium, and continued to feature every year without interruption and to great acclaim, recognition and success, ever since. The importance, contribution and impact of this annual, double special issue has been recognised widely, both in the UK, as well as in industrially developed and developing countries. In addition, it has played a significant role in the inception and development of entrepreneurship and enterprise education in emergent economies and nations in transition. I am reliably informed that individual articles as well as whole issues continue to be used as learning and training tools by a wide range of stakeholders including educators, local and national agencies, policy makers and government representatives, in a variety of socio-economic, political, educational and developmental contexts.

From an academic and applied research perspective the success, longevity and impact of these special issues represent ample and irrefutable evidence that Higher and Further Education Institutes across the world could and should contribute to economic development and wealth creation on a national and international basis. During a 1999 Vocational Education and Training (VET) conference in Leeds UK, I was approached by the then Editor of *Education + Training*, Dr Rick Holden, and offered to guest edit a double special issue on VET in small and medium-sized enterprises (SMEs). The first special issue appeared in 2000 and included 14 papers focussing on VET in the SME sector of the UK economy. It met with resounding success and it was aptly named, for the obvious reasons, “the professor maker” (Matlay, 2008). For those who might be interested in the background, beginning and development of these special issues, I will outline below a brief summary of its origins and development.

I first encountered *Education + Training* during my undergraduate studies at the University of Warwick Business School (UWBS UK), in the early 1980s. Later on, I used extensively the content of this journal for my MEd and PhD studies, both of which focussed upon (VET) in SMEs. It followed logically that I should also contribute articles and disseminate my research results in this long standing, international journal. Consequently, as an early career academic and researcher, I first published in *Education + Training* in 1997 and in 1999 I won the Best Research Paper Award in this journal, for my article “Vocational Education and Training in Britain: A Small Business Perspective” (Matlay, 1999). Other single authored, as well as collaborative articles followed, and these built up, over the years, to a critical mass of publications in emergent SME research (see, e.g. Matlay, 2000, 2001, 2002; Matlay and Addis, 2002). Collaborative projects with overseas colleagues resulted in several articles that focussed on international aspects relating to VET in SMEs (Matlay et al., 2003; Matlay, 2004, Matlay and Hussain, 2007; Jones and Matlay, 2011; Jones et al., 2012). In 2008, I was invited to explore and comment on the role of *Education + Training* in promoting quality research focussing on VET in SMEs (see Matlay, 2008). This topic and the impact of *Education + Training* on it, also resulted in a number of prize winning contributions to specialist conferences, journal articles and research volumes.
Beginning with 2005, I became aware of the rise of Entrepreneurship as an applied research topic and its direct and indirect link to small business and enterprise development. As part of the international activities and events related to the Entrepreneurship Forum, lead by my former colleague and long standing collaborator, Professor Jay Mitra, I began a research project exploring the impact of Enterprise and Entrepreneurship Education (E&EE) on entrepreneurial outcomes. In two “cornerstone articles”, both published in Education + Training, I set out a tentative agenda for the future direction of research in E&EE (see Matlay, 2005, 2006). The impact of these two publications has been widely acknowledged and lead to a substantive increase in high quality submissions to the double special issue and general issues in Education + Training. Importantly, most of these articles focused on E&EE as well as research related to aspects of entrepreneurial learning and new venture creation. There can be little doubt regarding the impact that these special issues have had upon the development and growth of research focusing on VET in SMEs and E&EE. As far as the future of this double special issue is concerned, I would like to reassure stakeholders that we will continue to attract and publish high quality, empirically rigorous and original articles in these and other emergent topics of entrepreneurship research. Although a great deal has been achieved in the past 20 years, much is still to be done and we should not rest upon our hard earned successes: the future of this double special issue is both bright and challenging.

Finally, I would like to extend my gratitude to all our contributors, including authors, evaluators and referees, without whose hard work and commitment this double special issue would have not come to fruition. I would also like to take this opportunity to thank Dr Martin McCracken, Editor of Education + Training, and the production team at Emerald Publishing Group, for their continuing support in delivering this double special issue.

Harry Matlay
Global Independent Research, Coventry, UK

References


**Further reading**

Evaluating impact of entrepreneurship education programs

Seyyedeh Khatereh Daneshjoovash and Mirza Hassan Hosseini
Department of Entrepreneurship Management, Science and Research Branch, Islamic Azad University, Tehran, Iran

Abstract

Purpose – The purpose of this paper is to evaluate the impact of Entrepreneurship Education Programs (EEPs) from students’ and educators’ viewpoint to improve the quality of EEPs.

Design/methodology/approach – This research applies a qualitative-quantitative methodology. Its sample is included 291 students were selected randomly and 35 educators were chosen by convenience technique from universities of Applied Science and Technology of Iran.

Findings – The results revealed that essence of EEPs had a positive direct effect on objectives and content of EEPs; objectives and content of EEPs had a positive direct effect on methods of EEPs; essence of EEPs had a positive indirect effect on methods through objectives and content based on students’ and educators’ perspective. Moreover, as opposed to educators’, students believed that methods of EEPs have not a positive direct effect on impact, while educators were opponent to students approach about the positive direct effect of essence of EEPs on methods.

Research limitations/implications – The study was limited to Applied Science and Technology universities were selected by convenience sampling method. Similar studies in other universities are needed to be conducted by simple random sampling to evaluate EEPs.

Practical implications – The study recommends policy-makers to be aware of students’ needs of EEPs’ methods, as well inform educators about effective and initiative methods.

Originality/value – Evaluating impact of EEPs based on demand and supply-side viewpoint is the first study conducted in Applied Science and Technology universities of Iran.

Keywords Demand and supply-side viewpoint, Entrepreneurship education programmes, Universities of Applied Science and Technology

Paper type Research paper

1. Introduction

Entrepreneurship Education has acquired its position around the world (Colette and Kate, 2018); thus, many countries support it to promote entrepreneurship (Dehghanpour Farashah, 2013). Several studies show that entrepreneurship can be taught, or at least can be encouraged by training (Gorman et al., 1997; Kuratko, 2005; Rideout and Gray, 2013; Blenker et al., 2014) which results in reducing unemployment and increasing economic growth (Li et al., 2008; Tether, 2000; Wennekers and Thurik, 1999). Therefore, it is considered as the first step in entrepreneurial activities by many stakeholders including policymakers, academicians (Rideout and Gray, 2013; Matlay et al., 2014; Global Entrepreneurship Monitor, 2017; Matlay, 2005) and scholars (Kuratko, 2005; Johnson et al., 2006; Matlay, 2005; Vesper and Gartner, 1997). From the demand-side of entrepreneurship education programs (EEPs), policymakers rely on offering entrepreneurs while students consider it as an opportunity to change job markets for self-enterprise. From the supply-side of EEPs, academicians rely on developing entrepreneurial societies to meet policymakers’ wishes and students’ needs (Henry et al., 2005a, b). By examining previous studies, it is obvious that most of them have focused on supply-side of EEPs (Morris et al., 2013; Peterson and Limbu, 2010; Rideout and Gray, 2013; Solesvik, 2013; Farsi et al., 2014; Hejazi et al., 2015), while investigating the demand-side (Tang et al., 2014; Matlay, 2008) illustrates students’ needs to acquire entrepreneurial knowledge and skills (Global Entrepreneurship Monitor, 2017; Matlay, 2008; Mazbouhi et al., 2013).
Additionally, there is a shift from institutions toward students in the mission of universities, because students are the main dimension of learning curriculum (Hines, 2017) who can critically assess the quality of programs (Rezaei et al., 2017; Hines, 2017). It does not mean that universities do not influence on learning objectives, but evaluating both students’, educators’ and policymakers’ perspectives increasingly accelerate this process (Waheed et al., 2016). Since EEPs are considered as a bridge for students to obtain competencies of entrepreneurship (Blenker et al., 2014), it is essential to evaluate both demand-side and supply-side of EEPs together.

According to Iranian Students’ News Agency (2016), lack of determination of society’s occupational needs has resulted in a shortage of specialized human resource with applied skills in Iran. This kind of trend and also not coinciding the university fields with the need of the labor market in recent years cause a serious problem of unemployment. Moreover, national production of Iran is at a low level and many companies are on the verge of closure, due to the low productivity rate, lack of demand and the weak competitive position of the country in global markets. Thus, the priority of providing EEPs is located on the agenda of universities (Dehghanpour Farashah, 2013; Hejazi et al., 2015; Maghsudi, 2016). However, many universities are developing EEPs to enhance the community’s propensity toward entrepreneurship (Karimi et al., 2010). Furthermore, Iran’s history of EEPs, with regard to the countries such as the USA (Lee et al., 2005), is at very low level (Farsi et al., 2014; Maghsudi, 2016). Therefore, EEPs can be considered as one of the most effective ways to facilitate the transfer of graduates to self-employment (Khosravipour and Keykhah, 2013). Universities of Applied Science and Technology, which introduce entrepreneurship as a theoretical course for all fields of study can significantly play an important role in this way. Because one of their fundamental missions is to develop a knowledge-based economy through observing industry and labor market needs in order to investigate the employment rate and more efficiency of the society through creating entrepreneurial intention and offering novel ideas to students (University of Applied Science and Technology, 2018). But it seems that the activities which have been done in the field of EEPs are not sufficient to increase entrepreneurial activities (Karimi et al., 2010; Hejazi et al., 2015). Additionally, rules and structure of the universities (Farsi et al., 2014) are concentrated on supply-side of EEPs, while the students’ requirements to take the risk of entrepreneurship in the current economic situation of Iran has not been considered (Hejazi et al., 2015). Consequently, more detailed exploration in order to improve the quality of EEPs is necessary to satisfy students’ needs (Dehghanpour Farashah, 2013; Maghsudi, 2016).

As a result, the present study aims to evaluate EEPs from supply and demand-side to provide comprehensive outcomes for improving the quality of EEPs resulting in the development of the country. Hence, this study explores the following research question:

RQ1. How do students and educators evaluate the impact of EEPs in universities of Applied Science and Technology?

2. Literature review

2.1 Entrepreneurship education programs

EEPs are curricula improving entrepreneurial knowledge and skills (Fayolle et al., 2006; Peterson and Limbu, 2010; Rideout and Gray, 2013; Morris et al., 2013; Solesvik et al., 2013; Verheul et al., 2001). EEPs are growing rapidly to enable individuals to venture into a new business (Cheng et al., 2009; Li et al., 2003; Katz, 2003; Vanevenhoven and Liguori, 2013; Seikkula-Leino et al., 2010), increase the number of entrepreneurs (Matlay, 2005; Dutta and Crossan, 2005), and also make an effect on entrepreneurial behavior and intention (Kolvereid and Isaksen, 2006). EEPs include several elements to achieve the goals (Jones and English, 2004), but there is no agreed model of teaching entrepreneurship
(Fayolle and Gailly, 2008). For example, Hills and Morris (1998) believed that EEPs consist of opportunities for students to pursue self-employment. Alberti et al. (2004) argued that objectives, content, pedagogies, audiences and assessment are components of EEPs. Gibb and Hann (2006) revealed that entrepreneurial universities should educate students to identify environmental opportunities. Fayolle (2007) and Jones (2010), added context and outcomes to the framework of Alberti et al. (2004). Matlay and Jones (2011) demonstrated that EEPs consist of ten interconnected systems among student, teacher, training process, institution and community, which cause different teaching curriculum. Sánchez (2011) showed that EEPs increase the capabilities and intentions of students. Tang et al. (2014) confirmed that the impact of educators is more than programs and EEPs. Jones et al. (2014) claimed that lack of EEPs’ theories and foundations is considered as an opportunity to do research on EEPs.

EEPs has been developed since 2000 in universities of Iran (Dehghanpour Farashah, 2013; Maghsudi, 2016; Hejazi et al., 2015). Karad Comprehensive Plan was formed in 2003 to promote EEPs (Karimi et al., 2010). Iran’s 20-year vision shows the crucial role of EEPs in the economic development of the country (Farsi et al., 2014). But investigations indicate that EEPs has not resulted in the graduation of students with entrepreneurial skills and attitudes showing the importance of evaluating the impact of EEPs in Iran (Khosrawipour and Keykhah, 2013; Maghsudi, 2016; Hosseini Fard and Mirarab, 2016). In order to evaluate the impact of EEPs, this study has applied the conceptual framework which has been depicted in Figure 1 and has been adopted from the combination of research framework of Fayolle and Gailly (2008), Samwel Mwasalwiba (2010), Fulgence (2015). According to Fayolle and Gailly (2008), EEPs are related to acquiring entrepreneurial intention and skills to become an entrepreneur. Based on Samwel Mwasalwiba (2010), EEPs are associated with creating a business, influencing on society and obtaining entrepreneurial skills. Additionally, Fulgence (2015) argued that educators’ awareness of the essence of EEPs has an effect on choosing proper methods of teaching.

2.1.1 Essence of EEPs. According to previous literature, entrepreneurship education prepares students with necessary skills to be self-employed (Jones and English, 2004), creates entrepreneurial attitude (Garavan and O’Cinneide, 1994), and helps existing business to be improved (Samwel Mwasalwiba, 2010). Furthermore, essence of EEPs has an effect on its objectives, content, methods and impact (Mazbouhi et al., 2013). Different approaches about essence of EEPs lead to various objectives, content and methods which influence on the impact of EEPs (Dehghanpour Farashah, 2013).

2.1.2 Objectives of EEPs. EEPs aim to improve individuals’ skills such as creativity, innovation, risk-taking, business management (Gibb, 2002; Samwel Mwasalwiba, 2010; Fayolle and Gailly, 2008), opportunity identification (Matlay, 2008) and business creation (Henry et al., 2003a; Kirby, 2004; Fayolle and Gailly, 2008; Samwel Mwasalwiba, 2010; Jesselyn Co and Mitchell, 2006). Moreover, they concentrate on entrepreneurial attitude and spirit (Fayolle and Gailly, 2008; Kirby, 2004; Hytti and Ogorman, 2004; Hills and Morris, 1998;
2.1.3 Content of EEPs. The main contents of EEPs are comprised of creativity and innovation, ability of managing resources, marketing, recognizing opportunities and creating ideas, risk-taking, business management and growth, business plan, history of entrepreneurship and financial management (Mazbouhi et al., 2013; Fayolle and Gailly, 2008; Samwel Mwasalwiba, 2010; Haghighinasab and Saber, 2017). Moreover, the content of EEPs has a strong influence on methods of teaching (Karimi et al., 2010; Iranian Students’ News Agency, 2016; Hosseini Fard and Mirarab, 2016).

2.1.4 Methods of EEPs. There are various methods of EEPs such as lectures, life survey of successful entrepreneurs, business plan creation, teamwork, games and competition, role models and guest speaker, workshop and also playing videos (Samwel Mwasalwiba, 2010; Fayolle and Gailly, 2008; Fulgence, 2015). Maghsudi (2016) mentioned different methods of EEPs in Iran as a class lecture, team works, interviews with entrepreneurs, behavioral simulations, case study analysis, entrepreneurship games, guest speaker and also writing a business plan. As a result, methods of EEPs has an effect on assigning students to the right impact by obtaining entrepreneurial intention, skills and being an entrepreneur (Fulgence, 2015; Samwel Mwasalwiba, 2010).

2.1.5 Impact of EEPs. In order to achieve the goals of EEPs, evaluating the impact of these programs is necessary to determine their success indicators such as improving an existing business performance, innovation in an existing business, technology transfer, launch a new business, get the perfect score by the students and also an entrepreneurial intention (Samwel Mwasalwiba, 2010; Fayolle and Gailly, 2008; Fulgence, 2015) based on supply and demand viewpoints (Henry et al., 2005a, b). Universities providing EEPs can prepare students with the required skills to pursue opportunities and become an entrepreneur (Matlay et al., 2014; Matlay, 2008; Global Entrepreneurship Monitor, 2017). As well, there is a relationship between EEPs and entrepreneurial intention and activities of students (Mazbouhi et al., 2013). Since stakeholders of EEPs have different views, selecting assessment index of EEPs is one of the challenges to evaluate EEPs. The first group of them believe that entrepreneurship education will result in self-employment, competitive advantage and marketing improvement, while the second group relies on the satisfaction of students from a good score on the final exam. Finally, the third group believes that students who have attended in EEPs should acquire the skills to pursue their career aspiration (Farsi et al., 2014).

These discussions suggest the following hypotheses:

H1. Essence of EEPs has a positive direct effect on objectives of EEPs.
H2. Essence of EEPs has a positive direct effect on content of EEPs.
H3. Essence of EEPs has a positive direct effect on methods of EEPs.
H4. Objectives of EEPs have a positive direct effect on methods of EEPs.
H5. Content of EEPs has a positive direct effect on methods of EEPs.
H6. Methods of EEPs have a positive direct effect on impact of EEPs.
H7. Essence of EEPs has a positive direct effect on impact of EEPs.
H8. Essence of EEPs has a positive indirect effect on methods of EEPs through objectives of EEPs.
H9. Essence of EEPs has a positive indirect effect on methods of EEPs through content of EEPs.
3. Research methodology

3.1 Study design and population

As this study aims to evaluate EEPs from the students’ and educators’ viewpoints of universities of Applied Science and Technology, the purpose of this research is considered as an applied one in terms of the objective and mixed method in terms of data collection. Moreover, EEPs’ research have been encountered methodological challenges because they have been divided into qualitative and quantitative one (Blenker et al., 2014). Thus, this study employs a qualitative-quantitative methodology. This method has some strengths such as collecting, analyzing, and combining both quantitative and qualitative data in one study; as well as, answer more research question to improve deficiencies of quantitative and qualitative method separately. Additionally, it has some weaknesses such as difficulty to use simultaneously, time-consuming and costly (Ketchen et al., 2007). Consequently, legitimacy, depth, wealth, and creativity of entrepreneurship education studies can be influenced by this method (Blenker et al., 2014).

At the first phase of the study, the qualitative method was applied to interview with experts of EEPS in order to identify the appropriate indices of the conceptual framework. The survey sample was selected using criterion-based sampling. The sampling criteria were based on ten years’ experience of EEPS’ experts. Thus, the total number of 15 semi-structured telephone interviews were done and lasted from 20 to 40 min.

At the second phase, the self-administered questionnaire which has been designed based on interview results was applied as a quantitative method to collect the data from educators and students of EEPs. Therefore, the convenience sampling technique was used to select the universities and educators while simple random sampling was used to select students in order to have an equal chance to be chosen (Kothari, 2004). The target population of this study consists of 1,200 students and 35 educators at the Khabarnegaran, Kharazmi, and also Technical universities of Applied Science and Technology of Mashhad, Iran. Based on Krejcie and Morgan (1970), 291 students and 35 educators were asked to answer the questionnaire during 2016–2018. The questionnaire was based on the five-point Likert scale (ranging from 1 for “very agree” to 5 for “very disagree”) (Kothari, 2004). Totally, two questionnaires were omitted from the results of students due to they were blank.

4. Results

4.1 Profile of study respondents

As reflected in Table I, 289 students and 35 educators from three universities of Applied Science and Technology have participated in the study. The majority of students were females (69.9 percent) who were employed (73 percent) with an income level between $200 and $400 (41.2 percent). The profile further shows that most of the respondents have passed an entrepreneurship course in the first three semesters.

4.2 Qualitative phase

Based on the conceptual framework, each variable of the model has various indices which have been determined in previous literature (Payolle and Gailly, 2008; Samwel Mwasalwiba, 2010; Fulgence, 2015). Due to the lack of EEPs indices in universities of Applied Science and Technology, Classic Modified Delphi Test has been applied. This test is a method of extracting a group’s opinion or reaching consensus on a topic which is used to satisfy researcher’s needs such as one round of process due to theoretical saturation (Ahmadi, 2010).

The researcher asked the policy-makers to determine indices of variables separately based on Likert scale which are shown as follows:

1. Essence of EEPs is included: launch a new business; an entrepreneurial intention; and improving an existing business.
(2) Objectives of EEPs are included: launch a new business; increasing entrepreneurial intention; increasing entrepreneurial spirit; increasing entrepreneurial culture; and improving business innovation.

(3) Content of EEPs is included: creativity and innovation; recognizing an opportunity; creating a business plan; risk-taking; business management; history and theories of entrepreneurship; financial management; and business growth.

(4) Methods of EEPs are included: playing videos; game and competition; a life survey of successful entrepreneurs; lectures by professor; workshop; and role models and guest speakers.

(5) Impact of EEPs is included: improving an existing business performance; innovation in an existing business; technology transfer; launch a new business; get the perfect score by the students; and entrepreneurial intention.

Furthermore, the researcher asked them to clarify any other index, if there is. Thus, the test of Shapiro and Wilk (1965) and Smirnov (1948) has been used to determine the normality of variables. The results are provided in Table II.

Based on Table II, the significance level for all variables is less than 0.05; thus, the normality of the variables is rejected. Therefore, to test the importance of the indices, a
nonparametric sign test should be used (Spret and Smeeton, 2000), which is based on the direction of the plus or minus signs of observations (Kothari, 2004). As a result, the observations are compared to a hypothetical average of three which is the mean of Likert scale (Ahmadi, 2010).

Based on Table III, the significance level for all indices is less than 0.05. Therefore, the variables which their observations are more than value 3 have great importance, while the variables which their observations are less than value 3 have no importance based on the experts' viewpoint.

Generally, the analysis of the interviews showed that 15 from 32 indices were significant. The indices were identified as launch a new business and entrepreneurial intention from essence of EEPs; launch a new business and increasing entrepreneurial intention from objectives of EEPs; creativity and innovation, recognizing an opportunity, creating a

<table>
<thead>
<tr>
<th>Variables of EEPs</th>
<th>Indices</th>
<th>Kolmogorov–Smirnov statistics</th>
<th>Significance</th>
<th>Shapiro-Wilk statistics</th>
<th>Significance</th>
</tr>
</thead>
<tbody>
<tr>
<td>Essence of EEPs</td>
<td>Launch a new business</td>
<td>0.345</td>
<td>0.000</td>
<td>0.763</td>
<td>0.001</td>
</tr>
<tr>
<td></td>
<td>Entrepreneurial intention</td>
<td>0.271</td>
<td>0.004</td>
<td>0.815</td>
<td>0.006</td>
</tr>
<tr>
<td></td>
<td>Improving an existing business</td>
<td>0.419</td>
<td>0.000</td>
<td>0.603</td>
<td>0.000</td>
</tr>
<tr>
<td>Objectives of EEPs</td>
<td>Launch a new business</td>
<td>0.345</td>
<td>0.000</td>
<td>0.763</td>
<td>0.001</td>
</tr>
<tr>
<td></td>
<td>Increasing entrepreneurial intention</td>
<td>0.373</td>
<td>0.000</td>
<td>0.734</td>
<td>0.001</td>
</tr>
<tr>
<td></td>
<td>Increasing entrepreneurial spirit</td>
<td>0.295</td>
<td>0.001</td>
<td>0.761</td>
<td>0.001</td>
</tr>
<tr>
<td></td>
<td>Increasing entrepreneurial culture</td>
<td>0.283</td>
<td>0.002</td>
<td>0.801</td>
<td>0.004</td>
</tr>
<tr>
<td></td>
<td>Improving business innovation</td>
<td>0.350</td>
<td>0.000</td>
<td>0.643</td>
<td>0.000</td>
</tr>
<tr>
<td>Content of EEPs</td>
<td>Creativity and innovation</td>
<td>0.249</td>
<td>0.013</td>
<td>0.806</td>
<td>0.004</td>
</tr>
<tr>
<td></td>
<td>Recognizing an opportunity</td>
<td>0.283</td>
<td>0.002</td>
<td>0.801</td>
<td>0.004</td>
</tr>
<tr>
<td></td>
<td>Creating a business plan</td>
<td>0.419</td>
<td>0.000</td>
<td>0.603</td>
<td>0.000</td>
</tr>
<tr>
<td></td>
<td>Risk taking</td>
<td>0.283</td>
<td>0.002</td>
<td>0.801</td>
<td>0.004</td>
</tr>
<tr>
<td></td>
<td>Business management</td>
<td>0.305</td>
<td>0.001</td>
<td>0.766</td>
<td>0.001</td>
</tr>
<tr>
<td></td>
<td>History and theories of entrepreneurship</td>
<td>0.283</td>
<td>0.002</td>
<td>0.801</td>
<td>0.004</td>
</tr>
<tr>
<td></td>
<td>Financial management</td>
<td>0.288</td>
<td>0.002</td>
<td>0.783</td>
<td>0.002</td>
</tr>
<tr>
<td></td>
<td>Business growth</td>
<td>0.212</td>
<td>0.068</td>
<td>0.817</td>
<td>0.006</td>
</tr>
<tr>
<td>Methods of EEPs</td>
<td>Playing videos</td>
<td>0.350</td>
<td>0.000</td>
<td>0.643</td>
<td>0.000</td>
</tr>
<tr>
<td></td>
<td>Game and Competition</td>
<td>0.385</td>
<td>0.000</td>
<td>0.630</td>
<td>0.000</td>
</tr>
<tr>
<td></td>
<td>A life survey of successful entrepreneurs</td>
<td>0.288</td>
<td>0.002</td>
<td>0.783</td>
<td>0.002</td>
</tr>
<tr>
<td></td>
<td>Lectures by professor</td>
<td>0.212</td>
<td>0.048</td>
<td>0.817</td>
<td>0.006</td>
</tr>
<tr>
<td></td>
<td>Workshop</td>
<td>0.367</td>
<td>0.000</td>
<td>0.713</td>
<td>0.000</td>
</tr>
<tr>
<td></td>
<td>Role models and guest speakers</td>
<td>0.345</td>
<td>0.000</td>
<td>0.763</td>
<td>0.001</td>
</tr>
<tr>
<td>Impact of EEPs</td>
<td>Improving an existing business</td>
<td>0.255</td>
<td>0.010</td>
<td>0.782</td>
<td>0.002</td>
</tr>
<tr>
<td></td>
<td>Innovation in an existing business</td>
<td>0.385</td>
<td>0.000</td>
<td>0.630</td>
<td>0.000</td>
</tr>
<tr>
<td></td>
<td>Technology transfer</td>
<td>0.285</td>
<td>0.000</td>
<td>0.801</td>
<td>0.004</td>
</tr>
<tr>
<td></td>
<td>Launch a new business</td>
<td>0.283</td>
<td>0.002</td>
<td>0.801</td>
<td>0.004</td>
</tr>
<tr>
<td></td>
<td>Get the perfect score by the students</td>
<td>0.283</td>
<td>0.002</td>
<td>0.801</td>
<td>0.004</td>
</tr>
<tr>
<td></td>
<td>Entrepreneurial intention</td>
<td>0.283</td>
<td>0.002</td>
<td>0.801</td>
<td>0.004</td>
</tr>
</tbody>
</table>

Table II. Results of normality test
business plan, business management, and also history and theories of entrepreneurship from content of EEPs; a life survey of successful entrepreneurs, lectures by professor, and also role models and guest speakers from methods of EEPs; and finally, launch a new business and entrepreneurial intention from impact of EEPs. While, the other indices which have been shown as minus sign in Table III, were identified as insignificant.

<table>
<thead>
<tr>
<th>Indices</th>
<th>Observations greater than value 3</th>
<th>Observations less than value 3</th>
<th>Observations equal to value 3</th>
<th>Significance</th>
<th>Sign</th>
</tr>
</thead>
<tbody>
<tr>
<td>Launch a new business</td>
<td>4.067</td>
<td>13</td>
<td>0</td>
<td>2</td>
<td>0.000</td>
</tr>
<tr>
<td>Entrepreneurial intention</td>
<td>3.933</td>
<td>11</td>
<td>0</td>
<td>4</td>
<td>0.001</td>
</tr>
<tr>
<td>Improving an existing business</td>
<td>1.333</td>
<td>0</td>
<td>15</td>
<td>0</td>
<td>0.000</td>
</tr>
<tr>
<td>Increasing entrepreneurial intention</td>
<td>4.067</td>
<td>13</td>
<td>0</td>
<td>2</td>
<td>0.000</td>
</tr>
<tr>
<td>Increasing entrepreneurial spirit</td>
<td>1.600</td>
<td>0</td>
<td>14</td>
<td>1</td>
<td>0.000</td>
</tr>
<tr>
<td>Increasing entrepreneurial culture</td>
<td>1.800</td>
<td>0</td>
<td>13</td>
<td>2</td>
<td>0.000</td>
</tr>
<tr>
<td>Improving business innovation</td>
<td>1.533</td>
<td>0</td>
<td>15</td>
<td>0</td>
<td>0.000</td>
</tr>
<tr>
<td>Only business students</td>
<td>1.667</td>
<td>0</td>
<td>13</td>
<td>2</td>
<td>0.000</td>
</tr>
<tr>
<td>Only entrepreneurs</td>
<td>2.000</td>
<td>0</td>
<td>11</td>
<td>4</td>
<td>0.001</td>
</tr>
<tr>
<td>All students of different fields of study</td>
<td>4.067</td>
<td>13</td>
<td>0</td>
<td>2</td>
<td>0.000</td>
</tr>
<tr>
<td>Only the unemployed students</td>
<td>1.533</td>
<td>0</td>
<td>13</td>
<td>2</td>
<td>0.000</td>
</tr>
<tr>
<td>Creativity and innovation</td>
<td>4.200</td>
<td>12</td>
<td>0</td>
<td>3</td>
<td>0.000</td>
</tr>
<tr>
<td>Recognizing an opportunity</td>
<td>4.200</td>
<td>13</td>
<td>0</td>
<td>2</td>
<td>0.000</td>
</tr>
<tr>
<td>Creating a business Plan</td>
<td>4.333</td>
<td>15</td>
<td>0</td>
<td>0</td>
<td>0.000</td>
</tr>
<tr>
<td>Risk taking</td>
<td>1.800</td>
<td>0</td>
<td>13</td>
<td>2</td>
<td>0.000</td>
</tr>
<tr>
<td>business management</td>
<td>3.667</td>
<td>9</td>
<td>0</td>
<td>6</td>
<td>0.004</td>
</tr>
<tr>
<td>History and theories of entrepreneurship</td>
<td>4.200</td>
<td>13</td>
<td>0</td>
<td>2</td>
<td>0.000</td>
</tr>
<tr>
<td>Financial management</td>
<td>1.667</td>
<td>0</td>
<td>13</td>
<td>2</td>
<td>0.000</td>
</tr>
<tr>
<td>Business growth</td>
<td>1.933</td>
<td>0</td>
<td>11</td>
<td>4</td>
<td>0.001</td>
</tr>
<tr>
<td>Playing videos</td>
<td>1.533</td>
<td>0</td>
<td>15</td>
<td>0</td>
<td>0.000</td>
</tr>
<tr>
<td>Game and competition</td>
<td>1.400</td>
<td>0</td>
<td>15</td>
<td>0</td>
<td>0.000</td>
</tr>
<tr>
<td>A Life survey of successful entrepreneurs</td>
<td>4.333</td>
<td>13</td>
<td>0</td>
<td>2</td>
<td>0.000</td>
</tr>
<tr>
<td>Lectures by professor</td>
<td>4.067</td>
<td>11</td>
<td>0</td>
<td>4</td>
<td>0.001</td>
</tr>
<tr>
<td>Workshop</td>
<td>1.467</td>
<td>0</td>
<td>14</td>
<td>1</td>
<td>0.000</td>
</tr>
<tr>
<td>Role models and guest speakers</td>
<td>4.067</td>
<td>13</td>
<td>0</td>
<td>2</td>
<td>0.000</td>
</tr>
<tr>
<td>Improving an existing business performance</td>
<td>2.067</td>
<td>0</td>
<td>9</td>
<td>6</td>
<td>0.004</td>
</tr>
<tr>
<td>Innovation in an existing business</td>
<td>1.400</td>
<td>0</td>
<td>15</td>
<td>0</td>
<td>0.000</td>
</tr>
<tr>
<td>Technology transfer</td>
<td>1.400</td>
<td>0</td>
<td>15</td>
<td>0</td>
<td>0.000</td>
</tr>
<tr>
<td>Launch a new business</td>
<td>4.200</td>
<td>13</td>
<td>0</td>
<td>2</td>
<td>0.000</td>
</tr>
<tr>
<td>Get the perfect score by the students</td>
<td>1.800</td>
<td>0</td>
<td>13</td>
<td>2</td>
<td>0.000</td>
</tr>
<tr>
<td>Entrepreneurial intention</td>
<td>4.200</td>
<td>13</td>
<td>0</td>
<td>2</td>
<td>0.000</td>
</tr>
</tbody>
</table>

Table III. Results of sign test
4.3 Quantitative phase
The structural equation modeling (SEM) was used to analyze data and test the assumptions of the relationship between variables (Heydarali, 2014). One of SEM techniques is Partial Least Squares (PLS), which focuses on the variance between structures (Wu, 2010). This technique provides the simultaneous evaluation of validity and reliability for measurement instrument of theoretical structures. Also, it is used to evaluate the measurement and structural models with multi-index structures which have direct and indirect effects (Chou and Chen, 2009). In this study, SmartPLS software has been used to investigate the research hypotheses due to the small sample size.

4.3.1 Reliability and validity analysis. In this study, a confirmatory factor analysis was performed to determine to what extent any of the research structures are align with the selected indicators to measure them (Kothari, 2004). The results showed that all indicators were significant as shown in Table IV. To measure internal consistency, a reliability test was done using Cronbach’s $\alpha$ (Ketchen et al., 2007) which Cronbach’s $\alpha$ coefficient for all the variables was reported higher than 0.7 as displayed in Table IV.

Construct validity; as well as, convergent and divergent validity are used to confirm the validity of the instrument. The convergent validity shows that the indices of each construct are highly correlated with each other. To confirm convergent validity, the average variance extracted (AVE) benchmark is used. The value of this coefficient varies from 0 to 1, which the values greater than 0.5 are accepted (Marczyk et al., 2005).

Results of Table V revealed that the indices of each construct are highly correlated with each other.

<table>
<thead>
<tr>
<th>Indicators</th>
<th>Standard coefficient</th>
<th>t-value</th>
<th>Cronbach’s $\alpha$ coefficient</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Students (Ss) (Es)</td>
<td></td>
<td>Educators (Ss) (Es)</td>
</tr>
<tr>
<td>Essence of EEPs</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Launch a new business</td>
<td>0.904 0.93</td>
<td>95.865</td>
<td>42.162 0.846 0.843</td>
</tr>
<tr>
<td>Entrepreneurial intention</td>
<td>0.911 0.93</td>
<td>106.471</td>
<td>34.682 0.875 0.875</td>
</tr>
<tr>
<td>Objectives of EEPs</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Launch a new business</td>
<td>0.871 0.93</td>
<td>65.089</td>
<td>50.771 0.715 0.831</td>
</tr>
<tr>
<td>Increasing entrepreneurial intention</td>
<td>0.708 0.919</td>
<td>19.361</td>
<td>26.71 0.715 0.831</td>
</tr>
<tr>
<td>Content of EEPs</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Creativity and innovation</td>
<td>0.758 0.819</td>
<td>11.627</td>
<td>8.003 0.701 0.823</td>
</tr>
<tr>
<td>Recognizing an opportunity</td>
<td>0.795 0.806</td>
<td>25.392</td>
<td>5.235 0.701 0.823</td>
</tr>
<tr>
<td>Creating a business plan</td>
<td>0.759 0.817</td>
<td>11.628</td>
<td>11.841 0.701 0.823</td>
</tr>
<tr>
<td>Business management</td>
<td>0.729 0.481</td>
<td>23.374</td>
<td>2.267 0.701 0.823</td>
</tr>
<tr>
<td>History and theories of entrepreneurship</td>
<td>0.878 0.883</td>
<td>47.086</td>
<td>6.647 0.701 0.823</td>
</tr>
<tr>
<td>Methods of EEPs</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>A life survey of successful entrepreneurs</td>
<td>0.833 0.755</td>
<td>30.249</td>
<td>6.607 0.921 0.760</td>
</tr>
<tr>
<td>Role models and guest speakers</td>
<td>0.77 0.849</td>
<td>16.665</td>
<td>18.924 0.775 0.855</td>
</tr>
<tr>
<td>Lectures by professor</td>
<td>0.783 0.861</td>
<td>12.205</td>
<td>12.645 0.775 0.855</td>
</tr>
<tr>
<td>Impact of EEPs</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Launch a new business</td>
<td>0.952 0.923</td>
<td>51.066</td>
<td>25.071 0.785 0.855</td>
</tr>
<tr>
<td>Entrepreneurial intention</td>
<td>0.972 0.945</td>
<td>211.549</td>
<td>71.007 0.785 0.855</td>
</tr>
</tbody>
</table>

Table IV. Results of confirmatory factor analysis and Cronbach’s $\alpha$ coefficient
Divergent validity indicates the existence of partial correlations between the indices of one construct with the others. It shows that the square root of AVE of each construct should be greater than the correlation values of that construct with the others (Marczyk et al., 2005). As it is shown in Table VI, since the square root of AVE of all constructs is greater than the correlation of constructs with the others, the measurement instruments have high validity.

Based on the results of Tables IV–VI, the measurement instruments have high validity (construct, convergent and divergent) and reliability (Cronbach’s α coefficient).

4.3.2 Structural equation modeling. In SEM, the relationships between latent constructs that are extracted based on the theory, are explained by the data collected from the sample; thus, it is necessary to ensure the goodness and proper fitting of the structural pattern before testing the hypotheses. The fitness indices of the model are examined in order to evaluate the model and its fitness. The general criterion for PLS is called Goodness-of-fit index (GOF) which has four indices. If the values of indices are greater than or equal to 0.5, then the model will be appropriate (Ketchen et al., 2007). The research hypotheses were tested using the path analysis with SEM. Table VII shows GOF index values that represent the suitability of the model (Table VIII).

The results of testing the hypotheses are investigated through t-value and z-value and are compared with the number of 1.96 (Behboodiyan, 2015). According to the results of Table VIII, the H1–H5, H7–H9 have been confirmed, while H6 has been rejected based on the students’ viewpoint. Moreover, the H1, H2, H4–H9 have been confirmed, while the H3 has been rejected based on educators’ viewpoint.

5. Discussion
Based on previous literature, the essence of EEPs influences on objectives, content and methods of EEPs. Educators’ recognition of EEPs’ essence assists them to select the

<table>
<thead>
<tr>
<th>Table V.</th>
<th>Results of convergence validity</th>
</tr>
</thead>
<tbody>
<tr>
<td>Variables</td>
<td>Impact of EEPs</td>
</tr>
<tr>
<td>Students</td>
<td>0.925</td>
</tr>
<tr>
<td>Educators</td>
<td>0.925</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Table VI.</th>
<th>Correlation matrix and investigation of divergent validity</th>
</tr>
</thead>
<tbody>
<tr>
<td>Variables</td>
<td>Impact of EEPs</td>
</tr>
<tr>
<td>Students</td>
<td>Ss</td>
</tr>
<tr>
<td>Educators</td>
<td>Ss</td>
</tr>
<tr>
<td>Impact of EEPs</td>
<td>1.000</td>
</tr>
<tr>
<td>Objectives of EEPs</td>
<td>0.302</td>
</tr>
<tr>
<td>Methods of EEPs</td>
<td>0.239</td>
</tr>
<tr>
<td>Essence of EEPs</td>
<td>0.311</td>
</tr>
<tr>
<td>Content of EEPs</td>
<td>0.327</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Table VII.</th>
<th>GOF index value of SEM</th>
</tr>
</thead>
<tbody>
<tr>
<td>Index</td>
<td>Students</td>
</tr>
<tr>
<td>GOF</td>
<td>0.501</td>
</tr>
</tbody>
</table>
proper objectives, content and methods (Fayolle and Gailly, 2008; Samwel Mwasalwiba, 2010). Objectives, content (Dehghanpour Farashah, 2013), and methods are under the influence of essence of EEPs; thus, the essence of EEPs distinguishes objectives, content, and methods of EEPs (Fulgence, 2015; Hejazi et al., 2015). Therefore, the first hypothesis anticipated that essence of EEPs has a positive direct and significant effect on objectives of EEPs (based on students’ viewpoint, t-value equals to 44.624 and is greater than 1.96 while based on educators’ viewpoint, t-value equals to 20.014 and is greater than 1.96); and the second hypothesis predicted that essence of EEPs has a positive direct and significant effect on content of EEPs (based on students’ viewpoint, t-value equals to 12.965 and is more than 1.96 while based on educators’ viewpoint, t-value equals 5.135 and is more than 1.96). Nonetheless, students’ approach showed a higher effect of the essence on objective and content rather than educators’ approach. Additionally, the third hypothesis foreseen that essence of EEPs has a positive direct and significant effect on methods of EEPs (based on students’ viewpoint, t-value equals to 1.993 and is greater than 1.96); while it has not a positive direct and significant effect on methods of EEPs based on educators’ viewpoint (t-value equals to 0.696 and is less than 1.96). A review of the prior studies revealed that they investigated the managers’ viewpoint not educators’ (Dehghanpour Farashah, 2013; Fulgence, 2015; Hejazi et al., 2015); thus, the educators of Applied Science and Technology universities might think that there is no need to adopt different methods for various types of EEPs.

According to Fulgence (2015), recognizing objectives and examining the content of EEPs by educators results in creativity and innovativeness in designing appropriate methods. Methods of EEPs should be in accordance with the objectives and content of EEPs. Based on Farsi et al. (2014), objective and content of EEPs determine the proper methods. Therefore, the fourth hypothesis forecasted that objectives of EEPs have a positive direct and significant effect on methods of EEPs (based on students’ viewpoint, t-value equals to 3.855 and is greater than 1.96), while it has not a positive direct and significant effect on methods of EEPs based on educators’ viewpoint (t-value equals to 0.696 and is less than 1.96). A review of the prior studies revealed that they investigated the managers’ viewpoint not educators’ (Dehghanpour Farashah, 2013; Fulgence, 2015; Hejazi et al., 2015); thus, the educators of Applied Science and Technology universities might think that there is no need to adopt different methods for various types of EEPs.

<table>
<thead>
<tr>
<th>Relationships/Hypotheses</th>
<th>Path coefficient</th>
<th>The SD</th>
<th>t-value</th>
<th>Significance</th>
</tr>
</thead>
<tbody>
<tr>
<td>H1. The effect of essence on objectives of EEPs</td>
<td>0.804 0.866</td>
<td>0.018 0.043</td>
<td>44.624 20.014</td>
<td>0.000 0.000</td>
</tr>
<tr>
<td>H2. The effect of essence on content of EEPs</td>
<td>0.486 0.538</td>
<td>0.038 0.270</td>
<td>12.965 5.135</td>
<td>0.000 0.000</td>
</tr>
<tr>
<td>H3. The direct effect of essence on methods of EEPs</td>
<td>0.145 0.148</td>
<td>0.073 0.213</td>
<td>1.990 0.696</td>
<td>0.047 0.486</td>
</tr>
<tr>
<td>H4. The effect of objectives on methods of EEPs</td>
<td>0.232 0.239</td>
<td>0.086 0.270</td>
<td>1.995 0.000</td>
<td>0.047</td>
</tr>
<tr>
<td>H5. The effect of content on methods of EEPs</td>
<td>0.140 0.403</td>
<td>0.070 0.162</td>
<td>2.474 0.049</td>
<td>0.036</td>
</tr>
<tr>
<td>H6. The effect of methods on impact of EEPs</td>
<td>0.117 0.362</td>
<td>0.071 0.118</td>
<td>3.073 0.099</td>
<td>0.002</td>
</tr>
<tr>
<td>H7. The effect of essence on impact of EEPs</td>
<td>0.256 0.603</td>
<td>0.083 0.103</td>
<td>5.867 0.002</td>
<td>0.000</td>
</tr>
</tbody>
</table>

Results of Sobel test

<table>
<thead>
<tr>
<th>Path coefficient</th>
<th>The SD</th>
<th>z-value</th>
<th>Significance</th>
</tr>
</thead>
<tbody>
<tr>
<td>H8. The indirect effect of essence on methods of EEPs through objectives</td>
<td>0.267 0.466</td>
<td>0.069 0.234</td>
<td>3.855 1.983</td>
</tr>
<tr>
<td>H9. The indirect effect of essence on methods of EEPs through content</td>
<td>0.068 0.217</td>
<td>0.034 0.097</td>
<td>1.970 2.228</td>
</tr>
</tbody>
</table>

Based on the sixth hypothesis, the results proposed that methods of EEPs have not a positive direct effect on impact of EEPs based on students’ viewpoint (t-value equals to 1.652.
and is less than 1.96), while educators’ viewpoint showed a positive direct effect ($t$-value equals to 3.073 and is greater than 1.96). Students’ perspective is contradicted by prior literature that emphasized the effect of methods of EEPs on the impact of EEPs. Methods of EEPs influence impact of EEPs; accordingly, different methods of EEPs will be influential for entrepreneurial intention and business creation (Fayolle and Gailly, 2008; Samwel Mwasalwiba, 2010; Fulgence, 2015). Consequently, the students of Applied Science and Technology universities might think that methods of EEPs are not sufficient to influence on their entrepreneurial intention and business creation. Moreover, based on the seventh hypothesis, essence of EEPs has a positive direct effect on impact of EEPs based on students’ and educators’ viewpoint (based on students’ viewpoint, $t$-value equals to 3.086 and is greater than 1.96 while based on educators’ viewpoint, $t$-value equals to 5.867 and is greater than 1.96). The essence of EEPs influence entrepreneurial intention of students to initiate self-enterprise; hence, the essence of EEPs provides intention and ability for business creation (Fayolle and Gailly, 2008; Samwel Mwasalwiba, 2010).

The results of the current study supported the eighth and ninth hypotheses which demonstrated the mediator role of objectives and content in the relationship between essence and methods of EEPs. The findings confirmed that essence of EEPs has a positive indirect effect on methods of EEPs through objectives of EEPs (based on students’ viewpoint, $z$-value equals to 3.885 and is greater than 1.96 while based on educators’ viewpoint, $z$-value equals to 1.983 and is greater than 1.96); likewise, essence of EEPs has a positive indirect effect on methods of EEPs through content of EEPs (based on students’ viewpoint, $z$-value equals to 1.970 and is greater than 1.96 while based on educators’ viewpoint, $z$-value equals to 2.228 and is greater than 1.96). According to Fayolle and Gailly (2008), Samwel Mwasalwiba (2010), the essence of EEPs influences on methods of EEPs, while objectives and content of EEPs have effects on selecting appropriate methods to increase students’ entrepreneurial intention and venture creation.

6. Conclusion
The aim of this research was to evaluate EEPs from students’ and educators’ perspective through the conceptual framework shown in Figure 1. Based on the results, the essence of EEPs influences on the impact of EEPs. Although Applied Science and Technology universities of Iran offer EEPs, students are not satisfied with the methods, while educators believe that the essence of EEPs has not effect on methods of teaching. Students’ beliefs about the effect of methods on the impact of EEPs shows the importance of improving the current methods. Therefore, a life survey of successful entrepreneurs, lectures by a professor, and guest speakers are not sufficient methods to satisfy students’ needs of EEPs. Consequently, the study recommends policy-makers to be aware of the students’ needs from methods of EEPs, as well inform educators of effective and initiative methods to enhance the impact of EEPs. Thus, other methods of EEPs may be helpful to increase the impact of EEPs.

Using specific methods of EEPs cannot always guarantee the impact of EEPs (Maghsudi, 2016). Thus, practical and creativity-centered methods such as plays, games, problem-solving practices, case studies, simulations, interviews with entrepreneurs, consulting projects and a whole array of other experiential learning tools may play a significant role to satisfy students’ needs from methods of EEPs. Moreover, educators should have entrepreneurship background or degree (Mazbouhi et al., 2013), because this kind of educators can significantly realize the effect of essence of EEPs on the methods.

7. Limitations and recommendation
The study was limited to Applied Science and Technology universities which were selected by convenience sampling method. Similar studies in other universities by simple random
sampling need to be conducted to evaluate EEPs among students and educators of other universities. Moreover, it is recommended to do experimental research on all methods to consider their effect on the impact of EEPs in order to improve the quality of current methods. As well, it is proposed to examine the disabilities or reluctance of educators preventing them from using other methods.

References


**Corresponding author**

Seyyedeh Khatereh Daneshjoovash can be contacted at: khatereh.daneshjoo@gmail.com

For instructions on how to order reprints of this article, please visit our website: www.emeraldgrouppublishing.com/licensing/reprints.htm

Or contact us for further details: permissions@emeraldinsight.com
Gender and university degree: a new analysis of entrepreneurial intention

Pilar López-Delgado
Department of Statistics and Econometric, Facultad de Ciencias Economicas y Empresariales, Universidad de Malaga, Malaga, Spain
Patricia P. Iglesias-Sánchez
Department of Economics and Business Organisation, Marketing Research Area, Malaga University, Malaga, Spain, and Carmen Jambrino-Maldonado
Facultad de Ciencias Economicas y Empresariales, Universidad de Malaga, Malaga, Spain

Abstract

Purpose – The purpose of this paper is to determine how and why differences in gender affect entrepreneurial intention (EI). Although there are many studies in this area, scholars have yet to reach a consensus.

Design/methodology/approach – This study uses a survey of students at Malaga University in two stages to introduce a new perspective that links gender and university degree subject with the predisposition towards business creation. Structural equation modelling (SEM) is applied.

Findings – Comparing the explanatory power of an additive model and a multiplicative model, this paper confirms that socialisation conditions both men and women in their choice of university studies. Consequently, gender and university degree subject choice are shown to be linked and both affect EI.

Research limitations/implications – These findings provide a starting point for closing the information gap in the literature, but deeper analysis is required to combine other factors, such as international variations and the influence of different education systems on entrepreneurship.

Practical implications – These results are of special value to universities interested in fomenting entrepreneurship in their graduates, allowing them to better propose educational policies and communication campaigns reducing the effect of gender on degree choice.

Originality/value – The contribution of this research is the development of introducing university degree subjects as tied to gender. The study forms one construct together, and not a descriptive variable of the sample selected or as two independent exogenous variables, as is the case in most of the literature in this area.

Keywords Gender, Entrepreneurial intention, Theory of planned behaviour, Structural equation modelling (SEM), University degree, Women’s entrepreneurship

Paper type Research paper

Introduction

Entrepreneurship is considered a strategic instrument for the economic growth and development of nations (Kraus et al., 2014), which has led to the proliferation of research on this area from various angles. As many studies on women’s entrepreneurship evidenced a lower rate of both female business activity and entrepreneurial intention (EI) among men and women (GEM, 2017), it is necessary to pinpoint what factors are responsible for this persistent stratification (Brush et al., 2009; DeTienne and Chandler, 2007). The present paper focusses on the way that degree choice is influenced by the process of socialisation and gender. “Previous studies have a tendency to underestimate the influence of external factors and overestimate the influencing of internal or personal factors when making judgements about the behaviour of other individuals” (Gartner, 1995, p. 70), forgetting that the latter are, to a great extent, a consequence of the first. Society provides us with different ways of
understanding what it means to be a man or a woman; this condition is associated with social constructs that limit our “socially” acceptable repertoire from birth, which affects, by extension, entrepreneurship. While it is fair to acknowledge the considerable progress made by women in recent years, certain gender-related stereotypes and roles still prevail.

While the existing literature offers several explanatory elements for women’s entrepreneurship, there is still a lack of studies that would present a more cross-curricular and integrating vision, beyond the statistical differences, as well as those that incorporate variables where crossed influences can be found. In recent years, there has been a great increase in the number of studies that combine gender with education for entrepreneurship (Bae et al., 2014; Fayolle et al., 2006; Krueger and Brazel, 1994). The focus has been on whether participation in educational programmes has a bearing on entrepreneurship and EI for men and women, respectively. There have also been studies conducted that analyse how to minimise one’s own perception of the differences resulting from socialisation (De Bruin et al., 2007; DeTienne and Chandler, 2007). It is precisely this area that the present study addresses, offering a combined view of gender and university degree as two interdependent elements relating to EI – an innovation with respect to previous perspectives.

This study attempts to understand the relationship between gender and the choice of university degree programme that has been conditioned by the process of socialisation. Until now, few studies have analysed the interface between gender and university degree, investigating their relationship with respect to EI. At best, both variables are incorporated as part of the general statistical descriptors of the sample of university students.

In this case, the focus is on university degrees, since the process of choosing a degree is influenced by one’s family, the media and the stereotypes in the world of work (Solesvik, 2013; Susanj et al., 2015); so much so that studies by Achtenhagen and Welter (2003) speak of degrees and professions that are correct for one’s sex. A recent development has been made in gender equality; however, further corroboration is required (Eurostat, 2017; GEM, 2017).

De Bruin et al. (2007) insist on the need to evolve with respect to the descriptive and comparative studies carried out thus far, applying more complex and solid statistical approaches. Therefore, this study uses two samples of Spanish public university students from two separate years, which are analysed through a structural equation model.

First, a review of the existing literature focussed on women’s and university degree entrepreneurship is presented. The basis for the analysis herein is the theory of planned behaviour (TPB) (Ajzen, 1991).

Second, a discussion of the methodology used – structural equation modelling (SEM) – follows. Third, the most important results of the study are provided. SEM has contributed to defining a model that responds to questions formulated about the various types of behaviour and motivation regarding entrepreneurship demonstrated by both men and women. Finally, the main insight to be shared is the explanatory power of an addition model that combines gender and university degree in a single variable compared with a multiplicative model, which works independently with these variables. Consequently, the main conclusion to be drawn from our research is that gender and choice of university degree are linked and both affect EI. The findings have implications for encouraging EI in higher education through better-thought-out educational policies that reduce the impact of gender on degree choice.

Literature review

The role of women’s entrepreneurship in society

Business creation is considered an instrument for socio-economic development in any nation (Kraus et al., 2014; Santos et al., 2017). Although it is true that gender differences related to EI and venture creation have been decreasing in recent years, the differences are still
significant (GEM, 2017). There is clear evidence that even though “women are one of the fastest rising populations of entrepreneurship and they make a significant contribution to innovation, job and wealth creation in economies across the globe, they are vastly understudied” (De Bruin et al., 2006, p. 585).

Entrepreneurship and university degree
The influence of numerous factors on EI has been studied over time, but there are not many studies that focus in a specific way on whether the branch of knowledge chosen by university students conditions their level of EI (Maresch et al., 2016; Susanj et al., 2015; Tkachev and Kolvereid, 1999). Moreover, one should emphasise the assiduity of incorporating into these studies the relationship between entrepreneurship education programmes and the branch of knowledge, observing whether cause and effect is stronger in degrees in the field of sciences and engineering, or business. However, few studies have focussed on the variable of university degree in relation to EI. In any case, this point should be approached with caution, as it is common to select a sample of students from business (Susanj et al., 2015), or to a lesser extent engineering (Morales-Alonso et al., 2016), but on very few occasions are the two groups compared (Maresch et al., 2016; Solesvik, 2013).

For the purposes of this study, the most common relationship for university degree is with entrepreneurship education programmes, and not with gender. The interest (or rather lack thereof) in studying gender and university degree in a combined way is one of the main gaps that this research attempts to address. In the research on entrepreneurship and university degree, it has been noted that: it does not incorporate a very wide selection of degrees for the whole university institution, and if the sample is representative of the entire university community, or if international comparisons are made, the variable of university degree is only a statistical descriptor (Díaz-Casero et al., 2012; Engle et al., 2010; Liñán et al., 2013). In short, in no case do previous studies draw conclusions with regard to gender. However, some studies have endeavoured to provide a deeper explanation about the impact of gender on degree choice. It seems that constructed gender roles have a direct effect on degree choice and, in a certain way, maintain the disaggregation of masculine and feminine jobs (Bebbington et al., 1997; Livanos and Pouliakas, 2009; Machin and McNally, 2007) and gender discrimination in the labour market (Eurostat, 2017). Specifically because of these issues, this research aims to contribute to introducing a new gendered perspective in the field of entrepreneurship.

After the analysis of the study framework of women’s entrepreneurship as the relationships between university degree, EI and gender, it is established that the innovation of this research paper lies in introducing a gender perspective in a cross-curricular way, meaning that gender is not treated as an isolated individual factor capable of producing statistical differences between the female and male university collectives, but is understood in the context of its interrelationship with university degrees. Therefore, this proposal introduces a non-conventional manner to analyse how gender and degree are factors influencing attitudes and intentions toward entrepreneurship jointly. In searching for new insights in this field, we deal with three types of combinations between gender and university degree: each variable independently, additive vision and multiplicative. This multivariate approach alone is a contribution to the field of study, opening a line of analysis that combines both gender and university degree, and aiming to use this combination to find explanations for the lower level of EI witnessed in the female collective.

Theoretical model framework
Ajzen’s (1991) TPB is considered the dominant (Krueger and Brazael, 1994) and most rigorous model for explaining the predisposition and intention to set up a business (Armitage and Conner, 2001; Kolvereid, 1996; Krueger and Carsrud, 1993), especially if the
focus is on pedagogical processes and learning contexts (Fayolle et al., 2006; Krueger et al., 2000; Aloulou, 2016). Nevertheless, there are other consolidated models used in this field as proposed by Shapero (1982) and Krueger and Brazael (1994). Both of them, unlike Ajzen’s TPB model, are much more focused on long-term creation business behaviours and include additional contextual and personal factors in entrepreneurial decisions. Ajzen’s (1991) theory is based on three issues that the individual internalizes as a result of the social environment in which they find themselves. EI is a result of the interaction between personal attitudes (PA), subjective norms (SN) and perceived behavioural control (PBC). Thus, a person becomes an entrepreneur because of their attitude, a positive image of entrepreneurship projected by society and support from the most influential groups of people in their life. The perception of one’s own ability is also key here, as well as one’s confidence in the business project being successful.

Attitudes towards EI. The first set of variables that determine EI are what are known as PA towards entrepreneurship, i.e., people’s positive or negative opinion of entrepreneurship. The more favourable this opinion, the greater the likelihood of the individual demonstrating the potential for entrepreneurial behaviour in the future. This relationship has been demonstrated extensively in the body of literature on gender (Díaz-Casero et al., 2012; Joensuu et al., 2013) and this study presents the following hypothesis:

H1a. There is a relationship between PA and EI.

Subjective norms. The term SN refers to perceived support from the groups of people closest to the person. The model establishes a link between the intention to start a business and the expectations and approval of one’s behaviour by one’s closest community.

In the reviewed literature, scholars are far from reaching a consensus, and the varied results still show the controversial influence of SN and EI in the field of entrepreneurship. While some studies have found that this indicator usually influences EI less than the other two (PA and PBC) (Autio et al., 2001; Díaz-Casero et al., 2012; Iakovleva et al., 2011; Iglesias-Sánchez et al., 2016; Iqbal et al., 2013), other studies found a significant relationship with EI (Kolvereid, 1996; Kolvereid and Isaksen, 2006; Tkachev and Kolvereid, 1999). In general, it seems to have more influence in research conducted in Russia, KSA and other Eastern countries than those conducted in the USA or UE (southern and western Europe). As a result of this, the choice made leads us to rethink the relationships between the factors proposed in the TPB model.

In this sense, a substantial modification to the classic model is incorporated, based on the fact that SN exercise their influence primarily through PA and not independently, just as proposed by Krueger and Brazael (1994). Although the SN could link with PBC or EI as well, the choice is justified according to Aloulou (2016), Armitage and Conner (2001) and Engle et al. (2010) since SN associated with PBC and EI has a lower regression coefficient. Therefore, SN has a more significant influence on PA and, as a consequence, through this variable its explanatory power increases:

H1b. SN increases the positive effect on EI through the mediating variable PA.

Perceived behavioural control. The third issue influencing EI is the university degree of PBC. This entails a person’s perception of being an entrepreneur as either easy or difficult, as well as their opinion of their own ability to overcome problems and achieve an acceptable degree of success if they accept the risk associated with setting up a business. The positive influence of PBC on EI is well documented (Díaz-Casero et al., 2012; Iqbal et al., 2013), which allows us to formulate the following hypothesis:

H1c. PBC exercises a positive influence over EI.

Gender and training in the TPB. The literature on women’s entrepreneurship demonstrates, extensively, the assimilation of stereotypes that relate the qualities typical of
entrepreneurship more to the personality socially attributed to men (Marlow, 2002). As a result, gender seems to be linked directly to PA in Ajzen’s model.

With regard to training, it is worth relating the number of studies that demonstrate the need to generate confidence in women through programmes providing support, advice and education for entrepreneurship to a greater extent than for men (Cowling and Taylor, 2001; Dolinski et al., 1993). Additionally, some studies, such as Krueger et al. (2000) and Wilson et al. (2007), prove that the relationship between education and self-efficacy is indisputable, affecting, again, PA more directly and through these attitudes EI. This is so overwhelmingly the case that these authors assert that any exogenous variable included in the study of entrepreneurship models should be related directly to PA, and not with the rest of the defined indicators.

This previous theory allows us to formulate hypotheses related to the structure of the TPB model and the proposal model from this study’s point of view:

- **H2.** The exogenous variables of gender and university degree through PA increase the explanatory power of Ajzen’s TPB model through PA.
- **H2a.** Gender (masculine) influences EI positively.
- **H2b.** Degree (business) influences EI positively.
- **H2c.** Both gender and degree, when considered together, influence EI positively.
- **H2d.** Gender and degree, both combined and interrelated, influence EI positively.

Figure 1 illustrates the relationships between the variables, as well as the relationship of the hypothesis to the proposal formulated in this study to Ajzen’s (1991) original model.

**Methods**

*Data collection*

Fieldwork was conducted over two academic years – 2016 and 2017 – at a Spanish public university. The sample consisted of 784 students (Table I). The criterion for choosing these students was that they were pursuing university degrees that included specific courses on business creation. This study endeavours to maintain a fair distribution between degrees (economic and business and management vs non-economic and business and management)
and lower- and higher-level courses. Participation in the study was completely voluntary for students, but the response rate should be emphasised. More than 85 per cent of students reached answered the questionnaire despite a higher rate of response in 2016 than 2017. According to the student population at Malaga University, the sample in both academic courses maintains recommended levels of statistical confidence (95 per cent) and margin of error (5 per cent). The questionnaire was chosen based on the tested TPB model applied to EI measurement, which was distributed on the virtual campus by collaborators in this project, including professors and the careers guidance service.

It is important to emphasise the soundness that a methodological design with two samples brings, one corresponding to the academic year 2016 and the other to 2017. The composition of both samples is the motivation for considering this a two-stage study. The Wilcoxon signed-rank test has demonstrated that there are no differences in the distribution of the two groups that make up the sample of each period. Thus, for the analysis, only the evidence that works in the two groups is considered reliable. Moreover, the robustness and the explanatory power of the model and the hypotheses are demonstrated on the condition that sufficient significance levels are reached for drawing conclusions.

Variables
In this study there are two types of variables: the descriptive ones of gender and university degree, and the variables that make up Ajzen’s TPB model, constituting the core of our research. As explained in the section on theory, Ajzen’s (1991) proposal identifies PA, SN and PBC as independent variables, and EI as a directly dependent variable (Table AI). A seven-point scale (Likert scale) has been used for the analysis of each one. Finally, the following clarifications have been made regarding the incorporation of the exogenous variables of gender and university degree. The aim is to test whether the different combinations of gender and degree increase the explanatory power of the model, in such a way that $H2a$ and $H2b$ prove, independently, whether these variables improve the fit of the model. $H2c$ opts for an addition framework in which the explanatory capacity of the exogenous variable gender is added to the variable of degree to arrive at a fourth proposal, $H2d$, which uses a multiplicative framework, creating a single variable that combines gender and degree (Figure 1).

The differences between the addition model and the multiplicative model in establishing the relationships between gender and degree with PA not only provide a different way of

<table>
<thead>
<tr>
<th>Gender</th>
<th>2016 Frequency</th>
<th>2016 Per cent</th>
<th>2017 Frequency</th>
<th>2017 Per cent</th>
</tr>
</thead>
<tbody>
<tr>
<td>Male</td>
<td>170</td>
<td>44.5</td>
<td>165</td>
<td>41</td>
</tr>
<tr>
<td>Female</td>
<td>212</td>
<td>55.5</td>
<td>237</td>
<td>59</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Degree</th>
<th>2016 Frequency</th>
<th>2016 Per cent</th>
<th>2017 Frequency</th>
<th>2017 Per cent</th>
</tr>
</thead>
<tbody>
<tr>
<td>Telecommunications/computer sciences</td>
<td>16</td>
<td>4.2</td>
<td>24</td>
<td>5.97</td>
</tr>
<tr>
<td>Industrial engineering</td>
<td>19</td>
<td>5</td>
<td>19</td>
<td>4.73</td>
</tr>
<tr>
<td>Sciences</td>
<td>14</td>
<td>3.7</td>
<td>37</td>
<td>9.2</td>
</tr>
<tr>
<td>Economic and business sciences and business and management</td>
<td>212</td>
<td>55.5</td>
<td>175</td>
<td>43.53</td>
</tr>
<tr>
<td>Social studies and labour sciences</td>
<td>28</td>
<td>7.3</td>
<td>12</td>
<td>2.99</td>
</tr>
<tr>
<td>Law</td>
<td>26</td>
<td>6.8</td>
<td>9</td>
<td>2.24</td>
</tr>
<tr>
<td>Communications sciences</td>
<td>22</td>
<td>5.8</td>
<td>52</td>
<td>12.94</td>
</tr>
<tr>
<td>Tourism</td>
<td>20</td>
<td>5.2</td>
<td>74</td>
<td>18.41</td>
</tr>
<tr>
<td>Other</td>
<td>25</td>
<td>6.5</td>
<td>0</td>
<td>0</td>
</tr>
</tbody>
</table>

Table I. Demographic factors (2016-2017)
quantifying the variables, but also mean that the interpretation of both models is very different. The multiplicative model, however, requires a combination of both factors to assess the positive influence on EI.

Descriptive statistics
The empirical collation of the TPB has been conducted using SEM (Iakovleva et al., 2011; Joensuu et al., 2013; Liñán et al., 2013). This provides greater flexibility to the regression models, given that they are less restrictive, allowing for the inclusion of measurement errors in both the dependent and independent variables, particularly because of their ability to measure the direct and indirect effects among factors. But before applying this multivariate technique, it is important to conduct an analysis at the univariate level, i.e., the different items of the survey according to the individual’s gender and degree.

Table II presents the averages per item, discriminating both between men and women and between business students and those in other degree courses for 2016[1]. In addition, both a parametric (t-student) and non-parametric (Mann–Whitney) test were run to see if the difference in the averages is significant. With respect to gender, the differences are significant in most of the items corresponding to PA and EI, and always in favour of men who show stronger attitudes and intentions than women. Furthermore, there are significant differences in favour of economics and business students in almost all the items in the survey. However, in order to confirm whether the differences are real or simply the result of random fluctuations due to sampling, a multivariate analysis is applied. This decision provides the information about the relationships path and thus indicates whether the observed differences are structural and are held once all relationships between variables are included.

SEM analysis
An SEM analysis of the survey was undertaken using the AMOS programme (version 22). SEM was selected as the statistical methodology because of its many advantages, including: its more flexible assumptions; the use of confirmatory factor analysis to reduce measurement error by having multiple indicators per latent variable or construct (survey);
the desirability of testing models overall rather than coefficients individually; the ability to test models with multiple dependents; the ability to model mediating variables (PA includes the influence of SN on EI); the ability to model error terms; the ability to test coefficients across multiple between-subjects groups; and the desirability of its strategy of comparing alternative models to assess relative model fit (models with and without the exogenous variables of sex and university degree).

But before applying SEM it is necessary to check whether the data meet the assumptions that the technique requires and the estimation method that it is going to use, i.e., maximum likelihood. First of all, the data set exceeds the recommended sample size (Hair et al., 2001, p. 632) with 382 surveys for 2016 and 402 for 2017, more than the requirements of SEM, which is an advantage.

Another important assumption is normality. The coefficients of skewness and kurtosis are kept in the acceptable range of ±1.5 (Schumacker and Lomax, 2004). Reliability and discriminant validity are initial tests relevant to SEM. Reliability analysis of the final constructs indicated that all measurement scales exceeded the 0.7 threshold for Cronbach’s \( \alpha \), thereby demonstrating a satisfactory internal validity. A list of all latent variable items, their standardized factor loadings and \( \alpha \) for each scale is presented in Table AI. Finally, Harman’s one-factor test was conducted to examine the discriminant validity. Results indicate that no single method factor exists, as the first factor accounts for less than 50 per cent of the variance. Thus, “common method bias does not appear to be a significant problem” (Koropp et al., 2014, p. 8). It is also interesting to see the average variance extracted (AVE) in each construct: 0.666 for PA, 0.579 for SN, 0.770 for PBC and 0.834 for EI in 2016 (Table AI). All values are higher than 0.5, so the convergence validity is ensured. Similarly, the discriminant validity is ensured since the values are sufficient to overcome the square correlations between latent variables (Fornell and Larcker, 1981).

Results
The hypotheses were tested following a two-step approach using SEM (Anderson and Gerbing, 1988). First, it assesses measurement model accuracy. Second, an analysis is conducted showing the path of relationships. Table AI shows the measurement model for 2016 with constructs grouped appropriately and indicators always positive. In addition, the fit is correct. With respect to 2017, the group comparisons confirm that the result has been maintained since 2016. The coefficients for both 2016 and 2017 are estimated, and the hypothesis regarding whether the coefficients for the two groups are equal is validated (\( p \)-value is 0.232). As mentioned previously, the same results have been maintained for both years, thereby giving credence to our study. The matrix of correlations is shown in Table AII.

Researches using SEM rely on a variety of fit indices for evaluating model goodness of fit. Garson (2015) offers a critical review of the main guidance given by other authors as regards which indexes to use, and recommends reporting \( \chi^2 \) (CMIN), RMSEA and one of the baseline fit measures (NFI, RFI, IFI, TLI and CFI), and if there is model comparison, also reporting one of the parsimony measures (PNFI, PCFI) and one of the information theory measures (AIC, BIC, CAIC, BCC, ECVI and MECVI) as well as advising us to insert a note in the table to remind us of the conventional cut-off used (Table III).

The good fit of the measurement model suggests that the survey respondents were able to distinguish between the latent variables. Therefore, the hypothesised model is tested on the second part and depicted in Figure 1. First of all, only the relationships between the constructs based on the survey (PA, SN, PBC and EI, Model 1) are observed, to later and successively add the exogenous variables gender (Model 2) and degree (Model 3), both of them in an addition framework (gender and degree, Model 4) and also in a multiplicative framework (gender × degree, Model 5). The results in terms of coefficients are shown in Table III.
The coefficients of the relationship between the variables are always positive and significant, as was expected according to the previous studies of the first four models. In addition, the same is true in Model 5, which to our knowledge has not been considered until now. Table IV shows the level of fit of the models and all of them are sufficient except for Model 5, which includes the interaction between gender and university degree. The model that introduces gender and degree as interrelated in the TPB, proving to be the most suitable, is presented in full in Figures A1 and A2, from both the 2016 and 2017 surveys.

The main objective of this study is to observe whether the variables of gender and degree have particular relevance in PA. While pursuing this aim, no alternative theoretical and empirical models have been considered. The TPB model was the basis of the study, as relationships between different indicators were changing. It is relevant to highlight the analysis of SN influence on EI and SN influence on PBC. In the first proposal, the relationship was significant neither in the 2016 sample (standardized path coefficient 0.02) nor in the 2017 sample (standardized path coefficient 0.02).

### Table III.
Summary of hypothesis (2016)

<table>
<thead>
<tr>
<th>Hypotheses</th>
<th>Predicted influence</th>
<th>Model 1</th>
<th>Model 2</th>
<th>Model 3</th>
<th>Model 4</th>
<th>Model 5</th>
</tr>
</thead>
<tbody>
<tr>
<td>H1a Personal Attitudes (PA) → Entrepreneurship Intention (EI)</td>
<td>+</td>
<td>0.800***</td>
<td>0.799***</td>
<td>0.799***</td>
<td>0.798***</td>
<td>0.800***</td>
</tr>
<tr>
<td>H1c Perceived Behavioural Control (PBC) → Entrepreneurship Intention (EI)</td>
<td>+</td>
<td>0.165***</td>
<td>0.166***</td>
<td>0.164***</td>
<td>0.165***</td>
<td>0.164***</td>
</tr>
<tr>
<td>H1b Subjective Norms (SN) → Personal Attitudes (PA)</td>
<td>+</td>
<td>0.343***</td>
<td>0.346***</td>
<td>0.327***</td>
<td>0.329***</td>
<td>0.335***</td>
</tr>
<tr>
<td>H2a Gender → Personal Attitudes</td>
<td>+</td>
<td>0.202***</td>
<td>0.205***</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>H2b Degree → Personal Attitudes</td>
<td>+</td>
<td>0.110**</td>
<td>0.113**</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>H2c Interaction Gender × Degree → Personal Attitudes (PA)</td>
<td>?</td>
<td>0.171***</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Notes:** Model 1 lists only Theory of Planned Behaviour (TPB) variables: PA, SN, PBC and EI. ***,***,**,*Significant difference at 10, 5 and 1 per cent, respectively.

### Table IV.
Fit indices (2016–2017)

<table>
<thead>
<tr>
<th>Year</th>
<th>CMIN (df)</th>
<th>GFI</th>
<th>RMSEA</th>
<th>CFI</th>
<th>PNFI</th>
<th>AIC</th>
</tr>
</thead>
<tbody>
<tr>
<td>2016</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Model 1</td>
<td>133.7 (59)</td>
<td>0.950</td>
<td>0.060</td>
<td>0.978</td>
<td>0.727</td>
<td>217.743</td>
</tr>
<tr>
<td>Model 2</td>
<td>142.8 (71)</td>
<td>0.950</td>
<td>0.053</td>
<td>0.979</td>
<td>0.748</td>
<td>210.881</td>
</tr>
<tr>
<td>Model 3</td>
<td>161.5 (71)</td>
<td>0.943</td>
<td>0.060</td>
<td>0.974</td>
<td>0.744</td>
<td>229.477</td>
</tr>
<tr>
<td>Model 4</td>
<td>170.2 (83)</td>
<td>0.944</td>
<td>0.054</td>
<td>0.975</td>
<td>0.752</td>
<td>244.234</td>
</tr>
<tr>
<td>Model 5</td>
<td>140.5 (71)</td>
<td>0.951</td>
<td>0.052</td>
<td>0.980</td>
<td>0.749</td>
<td>208.565</td>
</tr>
<tr>
<td>2017</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Model 1</td>
<td>162.7 (55)</td>
<td>0.941</td>
<td>0.070</td>
<td>0.968</td>
<td>0.672</td>
<td>233.704</td>
</tr>
<tr>
<td>Model 2</td>
<td>257.2 (67)</td>
<td>0.920</td>
<td>0.084</td>
<td>0.946</td>
<td>0.683</td>
<td>333.239</td>
</tr>
<tr>
<td>Model 3</td>
<td>223.6 (67)</td>
<td>0.928</td>
<td>0.076</td>
<td>0.955</td>
<td>0.703</td>
<td>299.604</td>
</tr>
<tr>
<td>Model 4</td>
<td>286.4 (79)</td>
<td>0.916</td>
<td>0.081</td>
<td>0.944</td>
<td>0.695</td>
<td>368.420</td>
</tr>
<tr>
<td>Model 5</td>
<td>189.9 (67)</td>
<td>0.937</td>
<td>0.068</td>
<td>0.964</td>
<td>0.697</td>
<td>265.987</td>
</tr>
</tbody>
</table>

**Rules (good fit):**
- CMIN/df < 5
- GFI > 0.9
- RMSEA < 0.1
- CFI > 0.9
- PNFI > 0.5

**Notes:** Model 1 lists only Theory of Planned Behaviour (TPB) variables: PA, SN, PBC and EI; Model 2 includes TPB variables and gender; Model 3 includes TPB variables and degree; Model 4 includes TPB variables and gender and degree; Model 5 includes TPB variables and the interaction of gender and degree.
nor in 2017 (standardized path coefficient 0.10). Moreover, the dependency ratio of SN influence on PBC implies a lowering of the adjustment measurements for the model. This places particular stress on the indicators linked with the principle of parsimony. Given the above, they were not considered because these models are supported neither by the chosen hypothesis nor the empirical test carried out with the available Spanish data.

The results support the hypothesis and, in consequence, the assumptions made regarding the original TPB model are well supported by $H1a$ and $H1c$. Nevertheless, it is important to highlight that SN increases the positive effect on EI through the mediating variable PA ($H1b$).

Further, applying a multiplicative model not only increases the explanatory capacity of EI but also introduces certain developments in the way of approaching entrepreneurship. While the addition model demonstrates an influence on EI if the individual is a man ($H2a$) or is studying business ($H2b$), in the multiplicative model it is necessary that both these circumstances occur together in order to demonstrate a difference in behaviour. In summary, as shown in Table V, it can be observed that an addition model shows a growth in EI by the simple fact of being a man or studying business ($H2c$), while the multiplicative model only shows an increase in EI when the subject is a man and also studies business ($H2d$). In essence, the tested model produced a better fit when the gender and university degree variables formed one construct together, and not a descriptive variable of the sample selected or as two independent exogenous variables, agreed on by the multiplicative model.

Discussion

The results of the research conducted demonstrate with evidence that there exists a positive relationship between entrepreneurship education programmes (Fayolle and Gailly, 2015; Iqbal et al., 2013; Liñán et al., 2013) and show the direct effect between the PA, SN and PBC indicators categorised by Ajzen (1991) and EI. From this point of view, the research confirms the results of previous work (Díaz-Casero et al., 2012; Fayolle and Gailly, 2015; Gasse and Tremblay, 2006; Liñán et al., 2013). In any case, a variation is established that introduces a less frequent change in the literature on Ajzen’s TPB model, which consists of the interrelationship between SN and PA (Krueger and Brazel, 1994). According to this, SN affects PA, increasing the influence on EI more than if the influence of PA and SN independently on EI is considered (Aloulou, 2016; Armitage and Conner, 2001; Engle et al., 2010).

On the other hand, two additional variables are added to the TPB model, i.e., gender and university degree, with both finally being combined, both in an addition way and interacting in the same construct. There are many studies that demonstrate the gender-based differences in entrepreneurship and in EI (Brush et al., 2009; Díaz-Casero et al., 2012; Joensuu et al., 2013; Peruta et al., 2014). By contrast, there are practically no studies that take degree subject as an element to consider in order to detect a greater or lesser predisposition to entrepreneurship. In any case, some studies have focused on degree choice as an

<table>
<thead>
<tr>
<th>Cases</th>
<th>Addition</th>
<th>Multiplicative</th>
</tr>
</thead>
<tbody>
<tr>
<td>Woman no business</td>
<td>$PA = \alpha_1 + \alpha_2 SN + \alpha_3 G + \alpha_4 D + u_i$</td>
<td>$PA = \beta_1 + \beta_2 SN + \beta_3 G \times D + u_i$</td>
</tr>
<tr>
<td>Woman business</td>
<td>$PA = \alpha_1 + \alpha_2 SN + u_i$</td>
<td>$PA = \beta_1 + \beta_2 SN + u_i$</td>
</tr>
<tr>
<td>Man no business</td>
<td>$PA = (\alpha_1 + \alpha_2) + \alpha_3 SN + u_i$</td>
<td>$PA = \beta_1 + \beta_2 SN + u_i$</td>
</tr>
<tr>
<td>Man business</td>
<td>$PA = (\alpha_1 + \alpha_2 + \alpha_3) + \alpha_4 SN + u_i$</td>
<td>$PA = (\beta_1 + \beta_3) + \beta_2 SN + u_i$</td>
</tr>
</tbody>
</table>

Notes: PA is personal attitudes; SN is social norms; G and D are dummies variables; G is 1 in man and 0 in woman; D is 1 if the individual student business or economics and 0 in the rest.
explanatory element of such gender differences in the labour market (Bebbington et al., 1997; Livanos and Pouliakas, 2009; Machin and McNally, 2007). As has been demonstrated in the literature review, the few studies that do include, specifically, university degree do so to make comparisons between students of technical and scientific degrees vs business-related ones (Maresch et al., 2016; Morales-Alonso et al., 2016; Susanj et al., 2015). With the exception of the last study, which focusses on female entrepreneurship within Science, Technology, Engineering and Mathematics fields (STEM) (Simon et al., 2017; Stout et al., 2011), none of these make a connection between gender and university degree. This study demonstrates that both variables, in conjunction, exert a positive influence and combining them increases the explanatory power of the exogenous variables that are added to the aforementioned TPB model. The studies that had observed these variables in isolation, and how they increased EI, obtained correct but biased solutions, due to not observing two variables, i.e., gender and university degree, as interconnected. It is this issue that is the study’s most significant contribution with respect to the previous theoretical framework, and the basis for further investigation on this question, to consolidate this research with the joint view of the variables of gender and university degree.

Conclusions
This study has analysed EI from two angles: gender and university degree. The combination of both multiplies the explanatory value of this phenomenon and reinforces the importance of theories that point to socialisation as the main reason for the differences between men and women in the field of entrepreneurship (Butler, 1993). The contribution of this study to the fields of entrepreneurship and gender is the development of forming one construct, combining gender and university degree, and not simply as a descriptive variable of the sample selected or as two exogenous variables independent of each other, as is most often presented in the literature analysed (Díaz-Casero et al., 2012; Gasse and Tremblay, 2011; Liñán et al., 2013).

This research is not free of limitations and these issues will be related to the challenge for future research directions. First of all, this study’s contributions are eminently empirical and it is therefore necessary to repeat it. On the one hand, entrepreneurs of other nationalities should be taken into account to verify whether there are differences between countries at different levels of development (Autio et al., 2001; De Bruin et al., 2007; Engle et al., 2010; Gasse and Tremblay, 2011) and universities in order to weigh up the role of institutions (De Bruin et al., 2007). In fact, the main limitation arises from the specific research context. Therefore, future studies might consider exploring differences in other cultural, academic and social ecosystems. This not only provides complete information about the main topic in the study – gender – but in the specific TPB proposal made as well, especially regarding the moderating effect of PA on SN. Furthermore, a comparison between entrepreneurs with different education levels (university degree and no university degree) would be an avenue well worth exploring. Future studies of these contexts require a more in-depth approach to conclude whether the results generated are resolved in a similar manner to those obtained in this study.

In conclusion, other factors could be incorporated into the TPB model, as suggested by Shapero’s (1982) model and Krueger and Brazael’s (1994) model. Regardless, the contributions found to be the most interesting are the influence on the level of employability linked to each university degree (Kolvereid, 1996; Kolvereid and Isaksen, 2006; Tkachev and Kolvereid, 1999) and the specific situation for the female collective given that the literature reviewed recognises that choice of degree subject is a strategic decision that is very much conditioned by whether one is male or female (Achtenhagen and Welter, 2003). It is precisely these issues that should be at the forefront of future research.

From this study, numerous practical implications can be deduced for universities interested in fomenting entrepreneurial tendencies in their graduates. In light of the results of this study, we can state that socialisation conditions the choice of university degree, and this interplay
with gender reveals that EI is influenced by both of them. Despite this contribution, the present study does provide a detailed explanation about the influence on degree choice by gender, or how the issue of socialisation or social norms impacts on choice of degree by gender. Further research can hopefully illuminate this aspect by utilising a qualitative approach. As of now, the literature on this topic is too sparse, making it difficult to fully support this claim (Bebbington et al., 1997; Livanos and Pouliakas, 2009; Machin and McNally, 2007).

On the whole, it is convenient to work on educational policies and communication campaigns to increase the predisposition to university degrees that are today considered masculine, if the intention is to close the gap between male and female entrepreneurship. Consequently, the educational system – not only higher education – might strengthen the participation of women in STEM by helping to boost and provide encouragement in this direction for their young people. On the one hand, women empowerment policies are necessary specifically in the domain of entrepreneurship. On the other hand, more emphasis should be placed on women’s role: their visualisation and adaptation of some programmes to potentiate their strengths and reduce the socialisation effects on degree choice. These are challenges for any university with gender perspective as a way to potentiate the talent and not maintain traditional social models.

### Glossary

- **TPB** | Theory of Planned Behaviour
- **PA** | Personal Attitudes
- **SN** | Subjective Norms
- **PBC** | Perceived Behavioural Control
- **EI** | Entrepreneurial Intention
- **GEM** | Global Entrepreneurship Monitor
- **SEM** | Structural Equation Modelling

### Notes

1. For 2016 there are also significant gender- and degree-related differences, which are not very different from those observed in 2017. For the sake of brevity, we have not included these data, but they are available upon request to the authors.

2. \( \text{CMIN} = 407.907, \text{df} = 114, \text{GFI} = 0.925, \text{RMSEA} = 0.058, \text{CFI} = 0.957 \)

3. The introduction of exogenous variables is common practice in SEM; however, Garson (2015) explains that SEM is appropriate for the latent variables that reflect the effect of more than one indicator. Nonetheless, it is correct provided that the variable is reliable, and the gender variable is mentioned expressly. In addition, he states: “The usual procedure is to create a latent variable (ex., Gender) which is measured by a single indicator (sex). The path from sex to gender must be specified with a value of 1 and the error variance must be specified as 0”. If the variable is not as reliable, other parameters are taken, but as both sex and degree are reliable variables, since they are indicated by the students who answer the survey themselves, we will use Garson’s recommendation for this case.

### References


Livanos, I. and Pouliakas, K. (2009), The gender Wage Gap as a Function of Educational Degree Choices in an Occupationally Segregated EU Country, Federal Reserve Bank of St Louis, St. Louis, MO.


### Appendix 1

<table>
<thead>
<tr>
<th>Construct</th>
<th>Item</th>
<th>Standardized factor loading</th>
<th>Cronbach’s α</th>
<th>AVE</th>
</tr>
</thead>
<tbody>
<tr>
<td>PA</td>
<td>Being an entrepreneur implies more advantages than disadvantages to me (PA1)</td>
<td>0.571</td>
<td>0.883</td>
<td>0.666</td>
</tr>
<tr>
<td></td>
<td>A career as entrepreneur is attractive for me (PA2)</td>
<td>0.861</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>If I had the opportunity and resources, I’d like to start a firm (PA3)</td>
<td>0.867</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Being an entrepreneur would mean great satisfactions for me (PA4)</td>
<td>0.919</td>
<td></td>
<td></td>
</tr>
<tr>
<td>SN</td>
<td>If you decided to create a firm, would your close family approve of that decision? (SN1)</td>
<td>0.667</td>
<td>0.787</td>
<td>0.579</td>
</tr>
<tr>
<td></td>
<td>If you decided to create a firm, would your friends approve of that decision? (SN2)</td>
<td>0.892</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>If you decided to create a firm, would your colleagues approve of that decision? (SN3)</td>
<td>0.704</td>
<td></td>
<td></td>
</tr>
<tr>
<td>PBC</td>
<td>I have knowledge about the creation process of a new firm (PBC3)</td>
<td>0.882</td>
<td>0.909</td>
<td>0.770</td>
</tr>
<tr>
<td></td>
<td>I know the necessary practical details to start a firm (PBC4)</td>
<td>0.890</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>I know how to develop an entrepreneurial project (PBC5)</td>
<td>0.861</td>
<td></td>
<td></td>
</tr>
<tr>
<td>EI</td>
<td>I will make every effort to start and run my own firm (EI3)</td>
<td>0.843</td>
<td>0.936</td>
<td>0.834</td>
</tr>
<tr>
<td></td>
<td>I am determined to create a firm in the future (EI4)</td>
<td>0.937</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>I have very seriously thought of starting a firm (EI5)</td>
<td>0.956</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Table AI.** Measurement model, questionnaire and Cronbach’s α.
### Table AII. Descriptive statistics and correlation matrix 2016

<table>
<thead>
<tr>
<th></th>
<th>PA</th>
<th>SN</th>
<th>PBC</th>
<th>EI</th>
<th>PA1</th>
<th>PA2</th>
<th>PA3</th>
<th>PA4</th>
<th>SN1</th>
<th>SN2</th>
<th>SN3</th>
<th>PBC3</th>
<th>PBC4</th>
<th>PBC5</th>
<th>E1</th>
<th>E2</th>
<th>E3</th>
<th>E4</th>
<th>E5</th>
</tr>
</thead>
<tbody>
<tr>
<td>PA</td>
<td>0.339***</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>SN</td>
<td></td>
<td>0.294***</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>PBC</td>
<td>0.363***</td>
<td>0.294***</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>EI</td>
<td></td>
<td></td>
<td>0.412***</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>PA1</td>
<td>0.571***</td>
<td>0.311***</td>
<td>0.412***</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>PA2</td>
<td>0.861***</td>
<td>0.295***</td>
<td>0.716***</td>
<td>0.594***</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>PA3</td>
<td>0.847***</td>
<td>0.277***</td>
<td>0.298***</td>
<td>0.721***</td>
<td>0.443***</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>PA4</td>
<td>0.909***</td>
<td>0.250***</td>
<td>0.315***</td>
<td>0.764***</td>
<td>0.519***</td>
<td>0.793***</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>SN1</td>
<td>0.234***</td>
<td>0.687***</td>
<td>0.299***</td>
<td>0.279***</td>
<td>0.289***</td>
<td>0.258***</td>
<td>0.260***</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>SN2</td>
<td>0.285***</td>
<td>0.882***</td>
<td>0.262***</td>
<td>0.278***</td>
<td>0.240***</td>
<td>0.242***</td>
<td>0.205***</td>
<td>0.237***</td>
<td>0.594***</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>SN3</td>
<td>0.255***</td>
<td>0.704***</td>
<td>0.297***</td>
<td>0.219***</td>
<td>0.302***</td>
<td>0.213***</td>
<td>0.174***</td>
<td>0.216***</td>
<td>0.445***</td>
<td>0.629***</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>PBC3</td>
<td>0.303***</td>
<td>0.259***</td>
<td>0.882***</td>
<td>0.363***</td>
<td>0.230***</td>
<td>0.289***</td>
<td>0.240***</td>
<td>0.282***</td>
<td>0.399***</td>
<td>0.194***</td>
<td>0.220***</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>PBC4</td>
<td>0.366***</td>
<td>0.262***</td>
<td>0.889***</td>
<td>0.366***</td>
<td>0.233***</td>
<td>0.269***</td>
<td>0.255***</td>
<td>0.243***</td>
<td>0.162***</td>
<td>0.185***</td>
<td>0.137***</td>
<td>0.789***</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>PBC5</td>
<td>0.255***</td>
<td>0.253***</td>
<td>0.861***</td>
<td>0.354***</td>
<td>0.257***</td>
<td>0.323***</td>
<td>0.280***</td>
<td>0.268***</td>
<td>0.198***</td>
<td>0.240***</td>
<td>0.218***</td>
<td>0.764***</td>
<td>0.766***</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>E1</td>
<td>0.701***</td>
<td>0.263***</td>
<td>0.347***</td>
<td>0.843***</td>
<td>0.506***</td>
<td>0.642***</td>
<td>0.674***</td>
<td>0.665***</td>
<td>0.225***</td>
<td>0.243***</td>
<td>0.252***</td>
<td>0.346***</td>
<td>0.286***</td>
<td>0.284***</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>E2</td>
<td>0.779***</td>
<td>0.292***</td>
<td>0.326***</td>
<td>0.937***</td>
<td>0.509***</td>
<td>0.683***</td>
<td>0.687***</td>
<td>0.694***</td>
<td>0.254***</td>
<td>0.190***</td>
<td>0.187***</td>
<td>0.352***</td>
<td>0.332***</td>
<td>0.352***</td>
<td>0.787***</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>E3</td>
<td>0.795***</td>
<td>0.278***</td>
<td>0.394***</td>
<td>0.956***</td>
<td>0.536***</td>
<td>0.710***</td>
<td>0.877***</td>
<td>0.702***</td>
<td>0.351***</td>
<td>0.273***</td>
<td>0.235***</td>
<td>0.342***</td>
<td>0.352***</td>
<td>0.371***</td>
<td>0.801***</td>
<td>0.899***</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>E4</td>
<td>0.812***</td>
<td>0.343***</td>
<td>0.716***</td>
<td>0.594***</td>
<td>0.721***</td>
<td>0.443***</td>
<td>0.793***</td>
<td>0.810***</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>E5</td>
<td>0.812***</td>
<td>0.343***</td>
<td>0.716***</td>
<td>0.594***</td>
<td>0.721***</td>
<td>0.443***</td>
<td>0.793***</td>
<td>0.810***</td>
<td>0.812***</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Notes:** *p < 0.1; **p < 0.05; ***p < 0.01
Appendix 3. Path diagram 2016 and 2017

Figure A1. Path diagram 2016

Figure A2. Path diagram 2017

Gender and university degree
About the authors

Pilar López-Delgado is Associate Professor of Statistics and Econometrics at the University of Málaga (Spain), Faculty of Economics and Business Sciences. She holds degrees in Economics and Business Administration (BA, major in management) and Business Administration (PhD). She has published her research findings in International journals such as *Journal of Family Business Strategy*, *Papers in Regional Science*, *Review of Managerial Science*, and in Spanish journals such as *Revista de Estudios Regionales*, *Estudios de Economía Aplicada* or *Revista de Empresa* Familiar, among others. Her main lines of research are: family business, innovation, regional economics and entrepreneurship.

Patricia P. Iglesias-Sánchez holds a Doctorate in Economics with a specialisation in Marketing Research (2010) and lectures at Malaga University. She combines her research and teaching activities with her professional development as Project Manager in a business organisation (Confederación de Empresarios de Málaga), and thanks to this experience she has in-depth expertise and knowledge about companies and their management. Additionally, she is an external advisor for several companies. Her main lines of research are: university spin-offs, open innovation in new product development, innovation for SMEs and entrepreneurship. She has attended international and national conferences and her work has been published in different indexed journals.

Carmen Jambrino-Maldonado is Associate Professor of Marketing and holds a degree in Economics and Business Administration and Marketing (PhD). She is the Managing Director of the research team “Marketing for SMEs” of Malaga University. It receives a grant from the Andalusian Regional Government. Carmen is the coordinator of a postgraduate studies. She teaches strategic Marketing and Communication. Carmen has attended some international conferences and her work has been published in different indexed journals. Also she participates as an ad hoc reviewer for several Spanish and international academic journals. Her research interests are focused on open innovation, strategies of fundraising, spin-offs and collaborative learning. Carmen Jambrino-Maldonado is the corresponding author and can be contacted at: carmina@uma.es

For instructions on how to order reprints of this article, please visit our website:
www.emeraldgrouppublishing.com/licensing/reprints.htm
Or contact us for further details: permissions@emeraldinsight.com
Abstract

Purpose – The purpose of this paper is to quantify the relative importance of four key entrepreneurial characteristics identified in the literature (proactiveness, attitude to risk, innovativeness and self-efficacy) in predicting students’ entrepreneurial intention (EI) across a range of faculties offering different subjects at a UK higher education institution (HEI). This approach will help to identify whether there are variations across the faculties in the predictors of EI. This enables recommendations to be made with regard to the development of educational delivery and support to encourage and develop the specific predictors of EI within the different subject areas.

Design/methodology/approach – This research uses a 40-item questionnaire to obtain information on students’ demographics, entrepreneurial characteristics and EI, based on a five-point Likert-type scale. Principle component analysis, correlation analysis and multiple hierarchical regression analysis are used to analyse the data from 1,185 students to develop models which predict EI for each of the six faculties.

Findings – Individual models which predict EI are developed for each of the six faculties showing variations in the makeup of the predictors across faculties in the HEI. Attitude to risk was the strongest predictor in five of the six faculties and the second strongest predictor in the sixth. The differences, together with the implications, for educational approaches and pedagogy are considered.

Originality/value – This research breaks down the level of analysis of EI to the individual faculty level in order to investigate whether different entrepreneurial characteristics predict EI in different academic disciplines across a UK HEI. This enables entrepreneurship educational approaches to be considered at a faculty level rather than a one size fits all approach.

Keywords Entrepreneurial intention, Entrepreneurship education, Enterprise education, Entrepreneurial characteristics, Entrepreneurial orientation

Paper type Research paper

Introduction

The importance of the role of entrepreneurship in helping to achieve economic development, competitiveness, job creation and national prosperity has led to a marked global interest into the development of both business and entrepreneurship education, in the hope that that this will lead to an increase in social, economic and organisational development (Martínez et al., 2010; Singer et al., 2015). The creation of new enterprises is regarded as essential for the development of national economies (Fayolle et al., 2016). It is now generally accepted that entrepreneurship, or at least certain facets of it, can be taught and learned and that it is not restricted to those who are born with certain skills, attributes or characteristics (Harris and Gibson, 2008; Kuratko, 2005). Education can thus play a critical role in the development of enterprising graduates by identifying and generating aptitudes or by helping to promote entrepreneurial behaviours and intent (Ferreira and Trusko, 2018). This has led to an exponential increase in both the number and status of entrepreneurship education programmes in higher education institutions (HEIs) worldwide (Fayolle, 2013; Neck and Greene, 2011). In the past, entrepreneurship courses have primarily been found in business schools within HEIs (Collins et al., 2006), often taught alongside traditional business disciplines. The scope of entrepreneurship education has widened more recently, from traditionally a business school topic, to include other departments and faculties (Karlsson and Moberg, 2013).

The study of entrepreneurial intention (EI) is a rapidly evolving field of research (Liñán and Fayolle, 2015). It has become a consolidated area of research within the
entrepreneurship discipline dating back to the 1990s which, despite much research, still requires further research to advance understanding (Fayolle and Liñán, 2014). However, research into EI has often been conducted in business schools using business students or undefined populations (Maresch et al., 2016) in one or multiple settings, in one academic discipline (e.g. González-Serrano et al., 2018) or by aggregating students from several academic disciplines into one sample (e.g. Koe, 2016). The widening focus of entrepreneurship education from traditionally a business school topic to other fields of education (Kuratko, 2005; Karlsson and Moberg, 2013) necessitates an understanding of what characteristics drive EI in the different faculties. The aim of this research is to break down the level of analysis to individual faculties in order to investigate whether different entrepreneurial characteristics predict EI in different academic disciplines across a UK HEI.

The concept of entrepreneurial orientation (EO) (Covin and Slevin, 1989) based on risk propensity, innovation and proactiveness has been extensively researched and has often been associated with superior firm performance (Rauch et al., 2009). Other researchers have included other variables such as competitive aggressiveness and autonomy (Lumpkin and Dess, 1996), although these variables have exhibited less promise. More recently, the EO firm-level constructs have been extended to use at an individual level as a measure of individual EO or tendencies (Bolton and Lane, 2012). Research has confirmed the relationship or correlation between individual EO and EI (Bolton and Lane, 2012), opening up new fields of research including the study of the impact of entrepreneurship education on student EO and the impact that it has on EI (Robinson and Stubberud, 2014). This research will adopt these three EO variables, together with the self-efficacy construct (a key cognitive antecedent of EI and entrepreneurial behaviour), to investigate the role of these four variables in the development in EI. Self-efficacy has been highlighted widely as an important factor in the shaping of EI (Solesvik, 2017; Tsai et al., 2016; Piperopoulos and Dimov, 2015) and will provide further insights in this research.

This HEI wide research thus seeks to contribute to the literature by addressing the issue of a lack of research in less researched faculties across the HEI and is designed to investigate the impact of four key entrepreneurial characteristics on EI across a range of faculties at a HEI, in order to establish if those predictors vary between faculties. Such information can help to inform educational delivery and support to make it more effective and in line with the needs and requirements of individual students in developing their entrepreneurial potential and individual goals.

This research does not seek to compare the relative entrepreneurial or EI levels of the different faculties; previous research has sought to explore this (e.g. Passoni and Glavam, 2018; Taatila and Down, 2012) but instead seeks to compare the relative abilities of the four well established and researched variables to predict EI in the individual faculties across the HEI.

This paper is organised as follows. The next section is the literature review which first considers the concept of entrepreneurial intent and its measurement and this is followed by a consideration of the entrepreneurial characteristics and the variables that are used in this research. Next, the development of the questionnaire measurement instrument scales and the data collection is discussed. The results and data analysis are then presented. This is followed by the discussion and then the conclusions of the research.

**Literature review**

**Entrepreneurial intent and its measurement**

Entrepreneurship is a complex multi-stage process, one of which is the development of EI (Hisrich et al., 2013). The stronger an individual’s intention to perform a given behaviour then the more likely it will be executed effectively (Maresch et al., 2016). EI can be considered as a reflection of the state of mind of an individual which prompts them towards taking up self-employment rather than being employed (Karimi et al., 2016).
Intention is the key in explaining human behaviour (Sheeran, 2002) and research suggests that EI is an important precursor, or critical step, to becoming an entrepreneur (Zhao et al., 2010), so developing those behaviours that predict an increase in EI should encourage students to take that step. The intention of carrying out a specific behaviour will depend on the individual’s attitudes towards that behaviour (Ajzen, 1991). Ajzen’s (1991) theory of planned behaviour proposes three motivational factors that influence behaviour; behavioural control (perception of difficulty in the realisation of the behaviour); the attitude in relation to the behaviour (a positive or negative evaluation or attitude towards the behaviour); and the perception of societal norms (social pressures towards the behaviour). This can be considered in EI terms as perceived entrepreneurial effectiveness: personal preference or attractiveness of the idea; and perceived social norms (Linan, 2004). Thus, having a favourable attitude, in terms of these factors, towards an act will eventually make the intention appear more feasible. Self-efficacy is related to an individual’s optimistic perception of their competences to start and run a business (Solesvik, 2017). Since these attitudes can change over time, then EI can change as perceptions change or are modified through, for example, education and experience. Research suggests that education should include active learning by doing, experiential pedagogies to develop competences and confidence (Henry and Treanor, 2012).

EI has often been studied against the entrepreneurial nature or characteristics of individuals on the basis that those with certain entrepreneurial characteristics will be more likely to start their own entrepreneurial ventures. The results of student cohort research into the correlation of entrepreneurial characteristics with EI are mixed (Bolton and Lane, 2012). This, in part, may be due to factors such as the different propensities of different international participants to become entrepreneurs (Levenburg and Schwarz, 2008; Gürol and Atsan, 2006) and factors such as previous experiences with entrepreneurial firms (Harris and Gibson, 2008). However, Bolton and Lane (2012) found correlations between the entrepreneurial intent of students and their individual entrepreneurial orientations (IEOs) based on proactiveness, innovativeness and attitude to risk, which have previously been positively correlated with entrepreneurial performance at firm level in the past (Covin and Slevin, 1989; Lumpkin and Dess, 1996).

EI is often measured by the use of one or more questions relating to the future intent, plans, aspirations, desire or perceived likelihood that individuals will work independently or start a new venture (e.g. Levenburg and Schwarz, 2008; Packham et al., 2010) and are usually measured through the use of Likert style measurement scales.

**Entrepreneurial characteristics**

Research into entrepreneurship has often focussed on the differences in personality characteristics between successful entrepreneurs and non-entrepreneurs (Armstrong and Hird, 2009). These include characteristics such as attitude to risk, innovativeness, proactiveness, a need for achievement, an internal locus of control and self-efficacy. As a result many different approaches and models have been adopted to measure the relative entrepreneurial nature of individuals and/or organisations. These have included, for example, approaches such as entrepreneurial attitude orientation (Robinson et al., 1991), EO (Covin and Slevin, 1989; Lumpkin and Dess, 1996) and IEO (Bolton and Lane, 2012).

The so-called EO of an organisation has emerged as a major construct within the strategic management and entrepreneurship literature over the last 20 years (Tang et al., 2008). Based on Miller’s (1983) conceptualization, Covin and Slevin (1989) adopted an approach based on three dimensions, namely, the proactiveness, innovativeness and attitude to risk of an enterprise to measure the EO of the enterprise. More recently, this approach has been adopted to measure the EO of individuals, on the basis that the EO of an enterprise is in fact based on the behaviours of entrepreneurial individuals (Lumpkin and
Dess, 1996; Miller, 1983). The development of EO as an individual level construct, based on
the measurement of combinations of individual characteristic dimensions, to investigate the
entrepreneurial behaviour/tendencies/characteristics of individuals (Bolton and Lane, 2012;
Koe, 2016; Taatila and Down, 2012) has gained support in recent years (Robinson and
Stubberud, 2014) and has led to the opening up of new areas of research.

This research will focus on four characteristics, namely, innovativeness, proactiveness,
attitude to risk and self-efficacy, in order to quantify the relationship between these four
identified entrepreneurial characteristics of individual students and their EI, across a range
of academic faculties. In short, this approach will enable this research to investigate the
relative importance of the four entrepreneurial characteristics in predicting students’ EI
across a range of different faculties at a UK HEI.

The four dimensions are briefly described below.

Preference for innovation
Innovation is a constant theme within entrepreneurship literature (Lumpkin and Dess, 1996)
and innovation often involves creation or creative destruction (Schumpeter, 1942). It is
reflected in the tendency to engage in and support new ideas, new approaches,
experimentation and new processes that may result in new products, services or technical
processes. It has been proposed that entrepreneurs need a preference for innovation to
explore new venture opportunities (Nasip et al., 2017).

Attitude to risk
The attitude to risk has been extensively researched in an attempt to discover why
successful entrepreneurs are able to perceive and act upon opportunities that others either
do not see or do not act upon (Palich and Bagby, 1995). It has long been associated with
entrepreneurship (Covin and Slevin, 1989; Miller, 1983), although evidence has been mixed
and does not always provide conclusive evidence for the claim (Macko and Tyszka, 2009).
Some researchers believe that risk is inherent in the definition of entrepreneurship since the
process of starting a new venture always carries a risk (Aldrich and Martinez, 2007).
However, entrepreneurship does not involve reckless risks but a reasonable awareness of
associated risks and an attempt to manage those risks (Davis et al., 1991).

Proactiveness
Proactiveness can be considered to be the opposite of reactiveness and can be reflected in
implementation and on making things happen, by using whatever means necessary.
In contrast to passive behaviour, proactiveness is deliberate, active, change and future
orientated (Belschak et al., 2010). It implies a “hands on” management style or approach in
order to overcome any barriers or obstacles (Davis et al., 1991). It is reflected in the ability to
engage in opportunistic expansion by seizing opportunities in the process of new market
entry (Lumpkin and Dess, 1996). It has been linked with career success (Seibert et al., 2001)
and as an employability asset (Bell, 2016; Tymon and Batistic, 2016).

Self-efficacy
Self-efficacy is a belief in one’s ability to successfully complete a task or attain a desired goal
and as such is a useful construct with which to predict an entrepreneur’s behavioural choice,
persistence and effectiveness (Chen et al., 1998). Self-efficacy is thus a key cognitive
antecedent of EI and entrepreneurial behaviour (Laviolette et al., 2012). Entrepreneurial
self-efficacy has been widely researched as one of the personality behaviours that motivates
entrepreneurial behaviour (Chen et al., 1998; de Pillis and Reardon, 2007), and enables
entrepreneurs to successfully undertake the entrepreneurship process including the
recognition of opportunities, the management of resources and the challenges of the management of the entrepreneurship process itself (Kumar, 2007). Research suggests that entrepreneurial self-efficacy is a prerequisite for the start-up of new ventures (Karlsson and Moberg, 2013) and since research suggests that the intent to become an entrepreneur is correlated with becoming an entrepreneur (Zhao et al., 2010), self-efficacy has provided a focus for research into the EO of students and the role of HEI education.

**Questionnaire development and data collection**

This research uses a 40-item questionnaire to obtain information on students’ demographics, entrepreneurial characteristics and EI, based on five-point Likert-type scales. In order to assess the students’ entrepreneurial characteristics this research adopted the previously validated ten item measurement instrument developed by Bolton and Lane (2012) based on the three IEO variables (innovation, proactiveness and attitude to risk). In addition to these three entrepreneurial characteristics, this research also considered self-efficacy as an entrepreneurial dimension, as self-efficacy has also previously been found to be an important predictor of EI (Pruett et al., 2009). The questions used to measure self-efficacy were based on those validated by Florin et al. (2007) and were chosen as they were specifically developed to measure self-efficacy in university level students. In order to further strengthen this research, equivalent reverse worded questions were mixed into the questionnaire in order to minimise answering inertia, reduce boredom and to control for acquiescent response sets (Schriesheim and Hill, 1981). Although this increased the number of questions in the instrument, this further ensures the robustness of the measurement. EI was measured by two questions based on those used by Levenburg and Schwartz (2008) and adopted by Bolton and Lane (2012). The respondent’s gender, current level of study, and whether they had previous work experience was collected so that these data could be controlled for in the regression analysis. These variables have been identified within the literature as having an impact on EI (Tsai et al., 2016).

As the research is interested in exploring the link between the individual’s entrepreneurial characteristics and their EI, both sets of measures needed to be collected from the same source, the individual. This meant that it was not possible to obtain the measures from different sources, as they are personal measures. This can potentially lead to common method variance (CMV) where systematic variance is shared amongst the variables collected, which is variation introduced by the measurement method rather than the constructs the measures represent (Jakobsen and Jensen, 2015). In order to reduce the potential for CMV, three procedural remedies were included within the questionnaire. These included proximal separation between the questions relating to each variable, a clear statement explaining there were no right or wrong answers to reduce social desirability, and the inclusion of negative questions to provide balanced positive and negative questions (Podsakoff et al., 2012). In addition to the procedural remedies put in place to reduce CMV, the presence of CMV within the data set was tested for within the data analysis stage.

A link inviting students to complete an online survey was e-mailed to students studying within six different faculties (Business, Creative Arts, Health and Society, Sport and Exercise, Education, and the Science and Environment faculties) at a UK HEI. The invitation was completed by 1,185 respondents, giving a response rate of 13.9 per cent. A breakdown of the respondents’ demographics are presented in Table I.

**Data analysis and results**

*Data screening*

Prior to subjecting the data to principle component analysis (PCA), the Kaiser–Meyer–Olkin (KMO) test was conducted to determine whether the data were suitable for PCA. The KMO
value was 0.79, which is above the recommended minimum value of 0.6 (Kaiser, 1974) and Bartlett’s test of sphericity reached statistical significance (Bartlett, 1954). To check if a problematic level of CMV existed within the data, Harman’s one-factor test was conducted. This test indicated that one factor accounted for 18.9 per cent of the variance, this is below the 50 per cent level which has been suggested to indicate a potentially problematic level of CMV (Podsakoff and Organ, 1986).

**Principle component analysis**

The data collected from the 26 entrepreneurial characteristics scale questions were then subjected to PCA and scale purification, and item reduction was undertaken based on the removal of items demonstrating factor loadings below 0.4, producing four distinct factors (shown in Tables II and III). Two of the questions did not exhibit factor loadings of a minimum of 0.4 so were removed to support a clean factor structure. These items were “I often like to try new and unusual activities that are not typical” and “I believe that the respect that others have for me is due to my knowledge and success”. The total variance explained by the four factors was 43.75 per cent (see Table II). The Cronbach’s $\alpha$ scores contained in Table III indicate that the internal consistency for all five factors is acceptable. The results from the PCA helped to demonstrate construct validity and validate the use of reverse worded questions to minimise answering inertia and ensure control for acquiescent response sets (Schriesheim and Hill, 1981). Anderson–Rubin factor scores were computed for each of the four factors; this method was chosen as it has the advantage of producing uncorrelated factor scores (Tabachnick and Fidell, 2007). This ensured that the variance inflation factor was 1, the mean score was 0 and the standard deviation 1 for each factor (DiStefano et al., 2009).

**Correlation analysis**

In order to further validate and confirm the usability of the refined entrepreneurial attitude measurement instrument and its component sub-dimensions, the sub-dimensions were correlated with the EI measurement. Based on previous research such as Bolton and

<table>
<thead>
<tr>
<th>Faculty</th>
<th>Male respondents</th>
<th>Female respondents</th>
<th>Total respondents</th>
</tr>
</thead>
<tbody>
<tr>
<td>Faculty of Education</td>
<td>10</td>
<td>171</td>
<td>181</td>
</tr>
<tr>
<td>Faculty of Health and Society</td>
<td>46</td>
<td>193</td>
<td>239</td>
</tr>
<tr>
<td>Faculty of Creative Arts</td>
<td>78</td>
<td>183</td>
<td>261</td>
</tr>
<tr>
<td>Faculty of Science and the Environment</td>
<td>60</td>
<td>88</td>
<td>148</td>
</tr>
<tr>
<td>Faculty of Sports and Exercise Science</td>
<td>89</td>
<td>41</td>
<td>130</td>
</tr>
<tr>
<td>Faculty of Business</td>
<td>101</td>
<td>125</td>
<td>226</td>
</tr>
<tr>
<td>Total</td>
<td>384</td>
<td>801</td>
<td>1,185</td>
</tr>
</tbody>
</table>

Table I. Demographics

<table>
<thead>
<tr>
<th>Factor</th>
<th>Initial eigenvalues</th>
<th>Rotation sums of squared loadings</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>% of variance</td>
<td>Cumulative %</td>
</tr>
<tr>
<td>Factor</td>
<td>Total</td>
<td></td>
</tr>
<tr>
<td>1</td>
<td>4.554</td>
<td>18.976</td>
</tr>
<tr>
<td>2</td>
<td>2.512</td>
<td>10.467</td>
</tr>
<tr>
<td>3</td>
<td>1.814</td>
<td>7.539</td>
</tr>
<tr>
<td>4</td>
<td>1.620</td>
<td>6.749</td>
</tr>
</tbody>
</table>

Note: Extraction method: principle component
Lane (2012) it would be expected that a correlation would exist between the entrepreneurial characteristics adopted and EI. A partial correlation was undertaken, whilst controlling for the effect of whether the students were within the Business Faculty or a non-business faculty. The results from the correlation analysis are presented in Table IV. The correlation analysis demonstrates the existence of statistically significant correlations between all of the entrepreneurial characteristic variables and EI. This demonstrates concurrent validity in line with the findings of other research and supports the external validity of the measures.

<table>
<thead>
<tr>
<th>Dimensions</th>
<th>Item description</th>
<th>Factor 1</th>
<th>Factor 2</th>
<th>Factor 3</th>
<th>Factor 4</th>
</tr>
</thead>
<tbody>
<tr>
<td>Preference for innovation</td>
<td>I prefer focusing on well-known techniques and routines when learning new things^a</td>
<td>0.758</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>I like to engage in established practices and approaches when trying to solve problems^a</td>
<td>0.714</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>I prefer to engage in tried and trusted activities and practices rather than new and untested activities and practices^a</td>
<td>0.599</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>I favour experimentation and original approaches to problem solving rather than using methods others generally use for solving their problems</td>
<td>0.586</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>I prefer to try my own unique way when learning new things rather than doing it like everyone else does</td>
<td>0.581</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>In general, I prefer a strong emphasis in projects on unique, one-of-a-kind approaches rather than revisiting tried and true approaches used before</td>
<td>0.485</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>I know what activities I enjoy doing and I prefer to stick with them rather than trying new activities^a</td>
<td>0.424</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Attitude to risk</td>
<td>I like to take bold action by venturing into the unknown</td>
<td>0.712</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>I tend to act “boldly” in situations where risk is involved</td>
<td>0.684</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>I prefer to engage in low risk activities rather than risky ones^a</td>
<td>0.658</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>I prefer to tread cautiously in risky situations^a</td>
<td>0.644</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>I am willing to invest a lot of time and/or money on something that might yield a high return</td>
<td>0.567</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>I prefer to adopt a cautious approach towards the investment of time and money^a</td>
<td>0.512</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Self-efficacy</td>
<td>I feel very self-conscious when making presentations^a</td>
<td>0.816</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>I am confident and comfortable when making presentations</td>
<td>0.722</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>I feel self-conscious when I am with very successful people^a</td>
<td>0.625</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>I often struggle to perform to the same level of other team members^a</td>
<td>0.616</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>I usually perform very well on my part of any project I am involved with</td>
<td>0.517</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Proactiveness</td>
<td>I prefer to “step-up” and get things going on projects rather than sit and wait for someone else to do it</td>
<td>0.700</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>I tend to plan ahead on projects</td>
<td>0.696</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>I usually act in anticipation of future problems, needs or changes</td>
<td>0.663</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>I wait to see how a situation develops and prefer to wait and see before making changes^a</td>
<td>0.542</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>I prefer to sit back and listen to other people’s views before decisions are made about starting a new project^a</td>
<td>0.494</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>I prefer to make decisions immediately before they are required^a</td>
<td>0.419</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Notes: Extraction method: principle component analysis; rotation method: varimax with Kaiser normalisation. ^aItems in these sections are reversed score.

Table III. Rotated factor matrix.
Regression analysis

The final stage of the analysis involved conducting a multiple hierarchical regression for students studying in each faculty, using the entrepreneurial characteristics as the independent variables and the EI variable as the dependent variable, to create a model predicting EI for each faculty. The respondent’s gender, year of study and work experience was controlled to reduce the possibility of alternative explanations, through developing a baseline model for each faculty (model 1). Only two of the baseline models were statistically significantly able to predict an increase in EI. However, in both cases, the models were only able to explain a relatively small percentage of the variance in EI, 4.3 per cent in the Business Faculty and 3.3 per cent in the Creative Arts Faculty. Building on this baseline model, the entrepreneurial characteristics were added within model 2 for each faculty. A statistically significant model was developed for each faculty by adding the entrepreneurial characteristic variables; however, the models contained a range of different combinations of the entrepreneurial characteristic variables which statistically significantly predicted EI. The ability of the models developed from the entrepreneurial characteristic variables to explain the variance in the EI of students ranged from 26.2 per cent in the Business Faculty to 17.9 per cent in the Science and Environment Faculty. The ability of the four entrepreneurial characteristic variables to explain the variance in the EI of students is relatively high given that a wide range of demographic and economic factors have also been found to impact on EI (Arenius and Minniti, 2005). The hierarchical regression models for each faculty are presented in Table V.

For the Business Faculty, the second model (containing the entrepreneurial characteristics) explained an additional 26.2 per cent of the variance of EI, beyond the control variables ($R^2$ change between models 1 and 2). An increase in all four of the entrepreneurial characteristic variables was able to statistically predict an increase in EI. Attitude to risk followed by self-efficacy was found to have the biggest impact on EI.

The second model developed for the Creative Arts Faculty was able to explain an additional 23.8 per cent of the variance in students’ EI. In common with the Business Faculty an increase in all four of the entrepreneurial characteristics statistically predicted an increase in EI and again the attitude to risk was found to have the biggest impact on EI. However, the preference for innovation had the second biggest impact on students’ EI, whilst self-efficacy had the smallest impact.

The second model developed for the Health and Society Faculty was able to explain an additional 22.3 per cent of the variance in students’ EI, beyond the baseline control variable model. Within the model developed, an increase in three of the entrepreneurial characteristics statistically predicted an increase in EI. Proactiveness had the biggest impact on students’ EI, followed by attitude to risk and preference for innovation.

The second model developed for the Sport and Exercise Faculty was able to explain an additional 23.0 per cent of the variance in students’ EI. Within the model developed, an increase in two of the entrepreneurial characteristics statistically predicted an increase in EI. Attitude to risk had the biggest impact on students’ EI, followed by proactiveness.

The second model developed for the Education Faculty was able to explain an additional 18.9 per cent of the variance in student’s EI. Within the model developed, an increase in three of the entrepreneurial characteristics statistically predicted an increase in EI.

<table>
<thead>
<tr>
<th>Preference for innovation</th>
<th>Attitude to risk</th>
<th>Proactiveness</th>
<th>Self-efficacy</th>
</tr>
</thead>
<tbody>
<tr>
<td>Entrepreneurial intent</td>
<td>0.195*</td>
<td>0.350*</td>
<td>0.199*</td>
</tr>
</tbody>
</table>

Note: *Correlation is significant at the 0.01 level (two-tailed)
Attitude to risk had the biggest impact on students’ EI, followed by self-efficacy and then preference for innovation.

The second model developed for the Science and the Environment Faculty was able to explain the lowest of the additional variance in students’ EI (17.9 per cent). The model developed contained three entrepreneurial characteristics, which in order were attitude to risk, preference for innovation and proactiveness.
Discussion
This research was designed to quantify the relative importance of four entrepreneurial characteristics identified in the literature (proactiveness, attitude to risk, innovativeness and self-efficacy), in predicting students’ EI across a range of faculties offering different subjects at a UK HEI. A summary of the results is shown in Table VI.

The ability of the four entrepreneurial characteristics to explain up to 26.2 per cent of EI (Business Faculty) provided strong evidence of the role that these entrepreneurial characteristics have in supporting EI. However, the difference in the makeup and success of the individual models for each faculty in predicting EI highlights the differences that exist between students in different faculties.

The attitude to risk was the only entrepreneurial characteristic which appeared in all of the models predicting EI. Furthermore, it was the greatest contributor to EI in five of the six faculties and the second largest in the sixth (Health and Society Faculty). This highlights the importance that developing a positive attitude to risk plays in supporting the development of EI. The attitude to risk has often been associated with entrepreneurs (Levenburg and Schwarz, 2008) and has been regarded by some as inherent in the definition of entrepreneurship since starting a venture is inherently risky (Aldrich and Martinez, 2007).

Attitude to risk has been widely studied, both at the business level (Rauch et al., 2009), and at the individual level (Taatila and Down, 2012; Koe, 2016). Zhao et al. (2005) concluded that risk propensity was positively associated with students’ EI and was a particularly significant influence early on at the early prelaunch stage of entrepreneurship, which might reflect why attitude to risk is such a major predictor across the faculties in this research.

<table>
<thead>
<tr>
<th>Table VI.</th>
<th>Summary of significant entrepreneurial characteristic predictors of entrepreneurial intention by department</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Entrepreneurial characteristics</strong></td>
<td><strong>β</strong></td>
</tr>
<tr>
<td><strong>Business Faculty</strong></td>
<td></td>
</tr>
<tr>
<td>Attitude to risk</td>
<td>0.342</td>
</tr>
<tr>
<td>Self-efficacy</td>
<td>0.318</td>
</tr>
<tr>
<td>Preference for innovation</td>
<td>0.192</td>
</tr>
<tr>
<td>Proactiveness</td>
<td>0.172</td>
</tr>
<tr>
<td><strong>Creative Arts Faculty</strong></td>
<td></td>
</tr>
<tr>
<td>Attitude to risk</td>
<td>0.348</td>
</tr>
<tr>
<td>Preference for innovation</td>
<td>0.316</td>
</tr>
<tr>
<td>Proactiveness</td>
<td>0.157</td>
</tr>
<tr>
<td>Self-efficacy</td>
<td>0.121</td>
</tr>
<tr>
<td><strong>Health and Society Faculty</strong></td>
<td></td>
</tr>
<tr>
<td>Proactiveness</td>
<td>0.324</td>
</tr>
<tr>
<td>Attitude to risk</td>
<td>0.294</td>
</tr>
<tr>
<td>Preference for innovation</td>
<td>0.168</td>
</tr>
<tr>
<td><strong>Sport and Exercise Faculty</strong></td>
<td></td>
</tr>
<tr>
<td>Attitude to risk</td>
<td>0.365</td>
</tr>
<tr>
<td>Proactiveness</td>
<td>0.252</td>
</tr>
<tr>
<td><strong>Education Faculty</strong></td>
<td></td>
</tr>
<tr>
<td>Attitude to risk</td>
<td>0.339</td>
</tr>
<tr>
<td>Self-efficacy</td>
<td>0.198</td>
</tr>
<tr>
<td>Preference for innovation</td>
<td>0.185</td>
</tr>
<tr>
<td><strong>Science and Environment Faculty</strong></td>
<td></td>
</tr>
<tr>
<td>Attitude to risk</td>
<td>0.246</td>
</tr>
<tr>
<td>Preference for innovation</td>
<td>0.238</td>
</tr>
<tr>
<td>Proactiveness</td>
<td>0.183</td>
</tr>
</tbody>
</table>
Attitude to risk is the biggest predictor of the variables tested in the Business, Science and the Environment, Creative Arts, Sport and Exercise, and Education faculties and the second biggest predictor in the Health and Society Faculty. This result does, however, suggest that more risk-averse students across all the six faculties may potentially be put off from entrepreneurship by a negative attitude to risk. However, since the attitude to risk can change over time, then EI can change as perceptions change or are modified through education and experience. Importantly, entrepreneurship does not necessarily have to involve reckless risks but a reasonable awareness of associated risks and an attempt to manage those risks (Davis et al., 1991). Recent research suggests, for example, that the practical experience of attempting to make a profit in a non-threatening and scaffolded competitive situation as part of an experiential learning project can have a positive impact on students’ perception of risk and their ability to calculate it (Bell and Bell, 2018). This however, requires such experiential learning approaches to be available to all students across all faculties. Following a systematic review of the impact of entrepreneurship education, Nabi et al. (2017) highlight a range of entrepreneurship pedagogical approaches (e.g. supply, supply–demand, demand and demand competence) and specific outcomes.

Preference for innovation was a predictor of EI in five of the six models and was the second largest predictor in the Creative Arts Faculty and the Science and Environment Faculty. It was the third predictor in the Business, Health and Society, and Education Faculties. It was not a statistically significant predictor for EI in the Sport and Exercise Faculty. “Entrepreneurship is a dynamic process of vision, change and creation” (Kuratko and Hodgetts, 2004, p. 30) and innovation is reflected in the tendency to engage in new ideas, experimentation and new processes that may result in new approaches, new products or new services. It is perhaps not surprising that this particular entrepreneurial characteristic is more important as a predictor in EI in faculties that perhaps have a more creative license. As a result, innovation may play a greater role in the EI of students in these faculties and development of this characteristic will help to stimulate this. Competitive experiential learning formats can encourage students to devise innovative approaches to problems and new ways of thinking when faced with new challenges and limited resources (Bell, 2015).

Self-efficacy was only a statistically significant predictor in three of the models. It was, however, the second biggest predictor in the business school and education faculties, both after the attitude to risk variable. The self-efficacy predictor played a more subsidiary role in the Creative Arts (fourth predictor), where again the attitude to risk was the most dominant factor followed by innovativeness and proactiveness. The impact of self-efficacy on EI in this research is consistent with previous research that has found it to be a significant predictor (Zhao et al., 2010; Sesen, 2013). Zhao et al. (2005) opined that strengthening students’ confidence by increasing their self-efficacious beliefs could positively impact their EI.

EI can be considered in terms of three motivational factors that influence attitude: perceived entrepreneurial effectiveness; personal preference or attractiveness of the idea; and perceived social norms (Linan, 2004). Thus, having a favourable or positive attitude towards one’s entrepreneurial effectiveness will eventually make the intention appear more feasible. This can be achieved in numerous ways through experiential “hands on” learning which is becoming increasingly popular within business schools to supplement traditional teaching formats (Piercy, 2013). Such approaches can include interviewing entrepreneurs, composing business plans (Sherman et al., 2008), mentoring experiences, involvement in consulting in business initiatives and case studies (Chang et al., 2013). These can all help to develop individual self-efficacy which can help to encourage individual EI at an early stage.

Proactiveness was a predictor in five of the six models and was the most important predictor in the Health and Society Faculty, the second predictor in the Sport and Exercise Faculty, the third in the Creative Arts and Science and Environment Faculties and the
fourth in the Business Faculty. Different entrepreneurial characteristics are more important at different stages of an entrepreneurial venture (Styles and Genua, 2008) and this may suggest that this is an attitude that is less important as a driver of EI at the student stage but may perhaps be of more importance later in the early stages of launching a venture.

Conclusion

This research focussed on four well-researched characteristics, which could be developed, to determine their relative abilities to predict EI across six different faculties at a UK HEI. In short, this research sought to breakdown the level of analysis to individual faculties in order to investigate whether different entrepreneurial characteristics predict EI in different academic disciplines.

The first conclusion was that all of the four variables had some ability to predict EI in various combinations across some of the faculties. However, the results highlighted that there were different predictors of EI between the faculties. In two faculties all four variables played a part, in three faculties three variables, and in one faculty two variables. This is a significant finding and can help to advise future training and workshops to encourage EI and future entrepreneurship. Whilst training in entrepreneurship should be widely available across all faculties, this research suggests that some targeted experiential learning focussed on specific characteristics might be particularly efficacious in increasing EI in particular faculties.

In the Business Faculty four variables were predictors of EI (26.2 per cent variance), as was the case in the Creative Arts Faculty (23.8 per cent variance). Similarly, three of the variables in this study (risk, proactiveness and innovation) were predictors of EI in the Health and Society Faculty (22.3 per cent variance), the Education Faculty (risk, self-efficacy and innovation) (18.9 per cent variance), and in the Science and Environment Faculty (risk, innovation and proactiveness) (17.9 per cent variance), and two variables were predictors in the Sport and Exercise Science Faculty (risk and proactiveness) (23 per cent variance). This would suggest that entrepreneurship courses across faculties that focus on these four areas will help to develop these characteristics and also potentially increase EI in so doing.

In particular, attitude to risk was the biggest individual predictor across five of the six faculties and the second predictor in the sixth. The former included the Business, Creative Arts, Sport and Exercise, Education and the Science and Environment faculties. This research suggests that a positive attitude to risk is an important facet in the early development of EI.

Self-efficacy was the second biggest predictor in predicting EI in the Business and Education Faculties and fourth in the Creative Arts Faculty. Self-efficacy can be developed particularly through active experiential approaches which can help to bridge the gap between the education and the real business world (Nabi et al., 2017). Whilst entrepreneurship education has traditionally been found in business schools, many researchers have called for it to be more widely available (Karlsson and Moberg, 2013; Kuratko, 2005). More recently, it has been available in other fields of education and in cross-faculty/departmental events and training which can result in the cross-fertilisation of ideas (Bell and Bell, 2016). Universities can provide entrepreneurship learning environments tailored to the needs of the students. This may involve widening the availability of courses tailored at developing specific entrepreneurial needs. Westhead and Solesvik (2016) suggested that gender-specific entrepreneurship courses may be advantageous in some cases.

A well-developed university wide entrepreneurial ecosystem can lead to the development of students with an entrepreneurial mindset and the creation of graduates with EI (Isenberg, 2010). Researchers have called for the need to create conducive entrepreneurial ecosystems to complement entrepreneurship education (Olutuase et al., 2018). Miller and Acs (2017)
describe a strong ecosystem as involving alumni, partners in industry and commerce, joint research projects and incubators, all of which can offer opportunities to provide encouragement, the practice of ideas and the development of an entrepreneurial mindset and increased EI. Entrepreneurial ecosystems can help to provide business social support, which has been found to positively influence EI (Farooq et al., 2018).

In common with all research, this research has a number of limitations. First, this research was carried out across six faculties in one UK HEI. Further research can be undertaken across a wider range of locations to test the generalisability of these findings. This is particularly appropriate as students from different cultural backgrounds and studying in different economic and business climates may perceive entrepreneurial opportunities differently. In addition, this research focussed on four key variables highlighted in the literature and which had the potential to be encouraged and developed. Other variables which may be important could be tested in the future.

References


**Corresponding author**
Robin Bell can be contacted at: r.bell@worc.ac.uk

For instructions on how to order reprints of this article, please visit our website: [www.emeraldgrouppublishing.com/licensing/reprints.htm](http://www.emeraldgrouppublishing.com/licensing/reprints.htm)
Or contact us for further details: permissions@emeraldinsight.com
Classroom interdisciplinary diversity and entrepreneurial intentions

Laura Padilla-Angulo  
*Department of Economics, Universidad Loyola Andalucía, Seville, Spain*

René Díaz-Pichardo  
*South Champagne Business School, Troyes, France and Universite de Technologie de Troyes, Troyes, France*

Patricia Sánchez-Medina  
*Interdisciplinary Research Center for Integral Regional Development, Instituto Politécnico Nacional, Mexico City, Mexico, and*

Lovainirina Ramboarison-Lalao  
*EM Strasbourg Business School, Strasbourg, France*

**Abstract**

**Purpose** – The purpose of this paper is to examine the impact of classroom interdisciplinary diversity, a type of classroom diversity that has been under-examined by previous literature, on the formation of university students’ entrepreneurial intentions (EI).

**Design/methodology/approach** – Based on Ajzen’s theory of planned behaviour and the interactionist model of creative behaviour by Woodman et al. (1993), this paper provides empirical evidence demonstrating that classroom interdisciplinary diversity is important in the formation of university students’ EI at early educational stages using a cross-sectional study design and survey data on first-year business school students and partial least squares analysis.

**Findings** – Classroom interdisciplinary diversity is important in the formation of university students’ EI through its positive impact on entrepreneurial perceived behavioural control (PBC) (self-efficacy), a key antecedent of EI.

**Practical implications** – The results have important implications for educational practice as well as for both public and private organisations willing to promote entrepreneurial activity, in particular, the positive effects of combining people with different profiles and career fields of interest on entrepreneurial PBC (self-efficacy).

**Originality/value** – This study contributes to the scant literature on early university experiences in entrepreneurship education and their influence on EI. It studies the impact of an under-examined dimension of diversity (classroom interdisciplinary diversity) on the formation of students’ EI.

**Keywords** Self-efficacy, Entrepreneurship education, Entrepreneurial intentions, Interdisciplinary groups, Classroom interdisciplinary diversity, First year in higher education

**Paper type** Research paper

**Introduction**

A major challenge for any economy is the promotion of entrepreneurship and the creation of new jobs. Students are potential entrepreneurs, and it is important to understand the way in which students form entrepreneurial intentions (EI) because EI are the single best predictor of actual entrepreneurship (Krueger et al., 2000).

Previous research has shown that the EI of university students remain stable after graduation (Audet, 2004; Liñán et al., 2011); however, although a main objective of academic institutions such as business schools is to promote entrepreneurship among students, graduate needs for entrepreneurship education may not match actual outcomes in terms of entrepreneurial skills, knowledge, and attitudes (Matlay, 2008). The proportion of students who create their own businesses after graduating remains very low. For example,
Sieger et al. (2011), using a sample of 27 countries, reported that only approximately 14 per cent of students intend to found or assume control of a company directly after completing their studies; in France, this proportion is approximately nine per cent. Consequently, it is crucial for academic institutions to identify the actions and academic environments that more effectively promote students’ EI. This need is particularly relevant for students at an early stage of their educational development because there is more room for academic action for these students, and it is still relatively possible for the academic environment and content of academic programmes to influence EI (Maritz, 2017). Despite the importance of this student population for the analysis of the formation of EI, this population has been largely ignored by the literature, which mostly focusses on students in their final year (Payolle et al., 2006; Krueger et al., 2000; Veciana et al., 2005). The importance of addressing the scarcity of the research on the early university experiences in entrepreneurial education and the influence of these experiences on EI has already been highlighted by the previous literature (Nabi et al., 2016). There has been recent recognition that it is important to develop EI at an early stage (EU, 2012; Smith and Beasley, 2011); for example, Degeorge and Payolle (2008) found that the early development of EI can lead to later persistence in the intention to start a business.

In this study, based on the theory of planned behaviour (TPB) (Ajzen, 1991) and the interactionist model of creative behaviour by Woodman et al. (1993), we examine the value of classroom interdisciplinary diversity in increasing the EI of first-year students. The educational benefits of classroom diversity have been highlighted by the education literature (Chang et al., 2004, 2006; Gurin et al., 2002; Hu and Kuh, 2003; Jayakumar, 2008; Milem, 2003; Pascarella et al., 1996; Loes et al., 2012). Many classic and contemporary theories suggest that exposure to diversity (e.g., in terms of race, interests, and values) plays a key role in student learning and development (Hurtado, 2001). Students who interact with diverse peers show a greater openness to diverse perspectives and a willingness to challenge their own beliefs (Pascarella et al., 1996). However, the empirical studies on classroom diversity mostly focus on gender and ethnic origin, and they have examined the impact of these factors almost exclusively on students’ academic performance (Pascarella et al., 1996; Hurtado, 2001; Zeynep et al., 2006). We investigate one type of classroom diversity that has been under-examined by the previous literature: classroom interdisciplinary diversity. Interdisciplinary groups in this research are conceived as a mixture of students with different profiles and career fields of interest.

Due to the lack of a formal theory and additional research that explains how classroom interdisciplinary diversity affects EI, this research focuses using the theoretical perspectives of the TPB (Ajzen, 1991) and the interactionist model of creative behaviour (Woodman et al., 1993) to observe if this particular type of diversity really drives EI. This paper is original because it contributes to the entrepreneurship education literature by providing empirical evidence that classroom interdisciplinary diversity is significant in the formation of students’ EI. It also contributes to the development of the TPB and the interactionist model of creative behaviour because new theoretical relationships are proposed and tested, including the analysis of constructs vaguely studied in the literature. These results have important implications for academic institutions such as business schools, as well as public and private universities that offer entrepreneurship courses and are interested in the promotion of entrepreneurial activity. The results can also be of interest to other stakeholders, including businesses, incubators in partnership with academic institutions and other organisations providing financial support to academic institutions for the promotion of entrepreneurial activity.

The remainder of the paper is organised as follows: first, in the theoretical framework and hypotheses section, we review the literature on EI and the TPB and on the benefits of
diversity in a variety of environments to develop our hypotheses; second, we describe the research design, data and measures we use for the different variables and the empirical analysis in the method section; third, we discuss our main results; finally, we conclude and provide practical implications for academic institutions, discuss this study’s limitations and make suggestions for future research in the conclusions section.

**Theoretical framework and hypotheses**

**EI and the TPB**

The entrepreneurship literature has long recognised that intentions are key precursors to the creation of a new company (Bird, 1988). The psychological literature studies intentions in terms of process models (intention models), including models based on Ajzen’s (1991) TPB. Although several models such as the entrepreneurial event model (Shapero and Sokol, 1982) and the model of implementing entrepreneurial ideas (Bird, 1988) are present in the literature, the TPB is the best-established model in the literature and is extensively used in entrepreneurship research (Liñán and Chen, 2009; Liñán et al., 2011; Rauch and Hulsink, 2015). The TPB explains EI in particular (Iakovleva and Solesvik, 2014; Schlaegel and Koening, 2013; Souitaris et al., 2007; Veciana et al., 2005; Wu and Wu, 2008).

The TPB helps to explain and predict entrepreneurial activities by taking into account both personal and social factors (Krueger et al., 2000). According to the TPB, EI are directly influenced by three motivational factors:

1. **Entrepreneurial personal attitude (PA)**, which refers to the degree of attraction towards becoming an entrepreneur and believing that it will lead to a favourable outcome.

2. **Entrepreneurial perceived behavioural control (PBC)**, which refers to the perception of the ease or difficulty of becoming an entrepreneur. The PBC concept is a proxy of self-efficacy defined by Bandura (1997, p. 193) as “the conviction that one can successfully execute the behaviour required to produce the outcomes”. In some studies (Krueger et al., 2000; Moriano, 2005), self-efficacy applied to entrepreneurship intentions has replaced PBC by showing how confident one feels when creating a new company. Both PBC and self-efficacy refer to the self-perception of the ability to perform a certain task, for example, starting a new business.

3. **Perceived subjective norms (SN)**, which refers to the perception that “reference people” (friends and family, for instance) may or may not approve of the decision to become an entrepreneur.

Previous research has found strong evidence supporting the TPB, particularly the influence of PA and PBC on EI (Armitage and Conner, 2001; Rauch and Hulsink, 2015). However, studies on the influence of SN on EI are not conclusive (Krueger et al., 2000; Autio et al., 2001).

Human capital and other demographic factors also have an influence on EI through the three main TPB components (Boyd and Vozikis, 1994; Liñán and Chen, 2009; Liñán et al., 2011). Marvel et al. (2016) showed, through meta-analysis, the importance of human capital in entrepreneurship; they reported that the majority of empirical examinations focussed on direct relationships between human capital and entrepreneurial outcomes. Among the most common human capital constructs in entrepreneurship research, Marvel et al. (2016) identified work experience, education, entrepreneurial experience, demographics and cognition/psychological factors, mostly measured at the individual level. These authors distinguished between task-related human capital constructs (e.g. start-up experience and industry experience) and non-task-related human capital constructs (e.g. formal education and employment experience), arguing that task-related
constructs may be of greater benefit to understanding entrepreneurship. These authors also distinguished between human capital investments (e.g. knowledge and skills) and human capital outcomes (e.g. entrepreneurship-success relationship), as the former is more common than the latter in entrepreneurship research but not necessarily more useful to understanding entrepreneurship.

In relation to gender, previous research suggests that gender influences attitudes towards new business creation (Kolvereid, 1996; Mazzarol et al., 1999) and self-efficacy (Zhao et al., 2005). Role models influence self-efficacy, personal attraction and SN (Boyd and Vozikis, 1994; Scherer et al., 1991). Age or work experience influence a person’s propensity to start a company (Cooper, 1993; Robinson et al., 1991). Personal initiative mediates the effect of self-efficacy on EI (Solesvik, 2017). Additionally, self-efficacy and personality traits such as openness interact to explain EI (Wang et al., 2016).

We use the TPB to examine the impact of classroom interdisciplinary diversity on students’ EI. Following previous studies that also use the TPB model (Liñán et al., 2011; Rauch and Hulsink, 2015), we propose the following set of hypotheses to empirically confirm the functioning of the TPB model with our data:

\[ H1. \] Our data confirms the functioning of the TPB model.

\[ H1a. \] Entrepreneurial PA has a positive and significant impact on EI.

\[ H1b. \] Entrepreneurial PBC has a positive and significant impact on EI.

\[ H1c. \] SN has a positive and significant impact on EI.

\[ H1d. \] SN has a positive and significant impact on entrepreneurial PA.

\[ H1e. \] SN has a positive and significant impact on entrepreneurial PBC.

Classroom interdisciplinary diversity and EI

The benefits of diversity, beyond the search for social equality, have long been acknowledged in a variety of environments. For example, top management team diversity is assumed to have a positive impact on company performance (Boone and Hendriks, 2009; Naranjo-Gil et al., 2008; Nielsen, 2010) by enhancing innovation (Bantel and Jackson, 1989). Diversity is also considered favourable for corporate boards (Johnson et al., 2013) because it is positively associated with company value, performance, innovation and strategic change (Simkins and Simpson, 2003; Erhardt et al., 2003; Miller and Triana, 2009; Haynes and Hillman, 2010).

The benefits of diversity in the workplace have also been extensively documented (Mannix and Neale, 2005; Nkomo and Cox, 1996). In organisational performance studies, the diversity dimensions typically examined are function/education (Naranjo-Gil et al., 2008), gender (Carter et al., 2003, 2010), race (Williams and O’Reilly, 1998), ethnicity (Jackson and Joshi, 2004) and age (Kunze et al., 2013; Richard and Shelor, 2002). Studies have found that the advantages of diversity include increased creativity and innovation (Bassett-Jones, 2005; Milliken and Martins, 1996; Richard, 2000) and increased productivity (Joshi et al., 2006).

In the entrepreneurship education literature, an overwhelming majority of studies have shown the positive impact of entrepreneurship education on entrepreneurial self-efficacy and EI (Nabi et al., 2017; Segal et al., 2007; Solesvik et al., 2013; Zhao et al., 2005). Other studies, such as that by Piperopoulos and Dimov (2015), showed that the impact on EI depends on the orientation (theoretical or practical) of the entrepreneurship course. However, research that focusses on the potential influence of diversity on entrepreneurial self-efficacy and intentions is surprisingly scarce. In one study, Zhao et al. (2005) showed...
that a diversity of learning experiences in entrepreneurship courses promotes the development of self-efficacy. Wu and Wu (2008) analysed the impact of academic major on EI through TPB dimensions (PA, SN and PBC) on university students in China. They found differences in PA, PBC and EI across university students with different academic majors. The non-ERM (non-entrepreneurship related majors) students showed lower attitudes towards start-ups compared to ERM and engineering students; the non-ERM students seemed to feel that they possessed less of an ability to create a new venture, and the comparison showed the lowest levels of EI for students from non-ERM majors.

Padilla-Angulo (2017) found that the participation of first-year students in students associations, where students with diverse academic profiles are mixed, increases first-year students’ EI through their impact on entrepreneurial attitudes, which are instrumental in the formation of EI.

In a longitudinal analysis, Barakat et al. (2010) examined five cohorts of 263 students in the arts, social sciences, sciences, maths, engineering and other disciplines to study the impact of an entrepreneurship programme on students’ entrepreneurial self-efficacy and the differences between students, depending on their disciplines over time. The results showed that mathematicians, scientists and engineers have higher levels of self-efficacy than arts, humanities and social science students; British students show greater improvement in self-efficacy than overseas students; and women are less self-efficacious than men, which is in line with some previous literature on gender (Chen et al., 1998; Kickul et al., 2008; Marlino and Wilson, 2002). They also showed that the diversity of students and the interactions between gender and time as well as discipline and time led to different self-efficacy effects.

Many educational studies have documented the benefits of diversity on a wide range of academic outcomes measuring performance (Chang, 1999, 2001; Chang et al., 2004, 2006; Gurin et al., 2002; Hansen et al., 2015; Hu and Kuh, 2003; Hurtado, 2001; Jayakumar, 2008; Milem, 2003; Pascarella et al., 1996; Loes et al., 2012). However, these studies have mostly focussed on gender, race and ethnic diversity, while other important dimensions of diversity such as differences in career fields of interests and profiles (i.e. interdisciplinary diversity) remain under-explored.

Some researchers have investigated the current practices in entrepreneurship education, highlighting the importance of the actual entrepreneurship experience of entrepreneurship educators, personal motivation, a combination of theoretical and practical pedagogical approaches, and a mix of embedded and extracurricular entrepreneurship courses (Penaluna et al., 2012). Rae (2004) emphasised the use of “practical theories” emerging from the implicit, intuitive, tacit and situated resource of entrepreneurial practice, in opposition to academic theories, which are abstract, generalised, explicit, and seek to be provable. Maritz (2017) worked on the identification of current and missing dimensions of entrepreneurship education programs, Kabongo and McCaskey (2011) studied the profiles of entrepreneurship educators in the USA, and Matlay (2008) studied the actual outcomes of entrepreneurship education.

Some authors, such as Gurin et al. (2002) and Loes et al. (2012), suggested that exposure to diversity might foster the development of more complex forms of thought, including the capability to think critically, and some studies found a positive relationship between critical thinking and self-efficacy (Bandura, 2001; Zulkosky, 2009; Greene et al., 2004). Jones and Matlay (2011) proposed a model to audit entrepreneurship education programmes based on the awareness of the value that heterogeneity has in student learning.

Entrepreneurship has long been recognised as an act of creativity (Amabile, 1996; Nyström, 1993; Ward, 2004). Studies on students’ creativity have shown that creative classroom environments are critical for students’ propensity to engage in creative acts (De Souza Fleith, 2000; King Mildrum, 2000).
In the organisational literature, the interactionist model of creative behaviour by Woodman et al. (1993), states that, “individual creativity is a function of antecedent conditions, cognitive styles and abilities, personality such as self-efficacy, motivational factors, and knowledge”. As stated by Woodman et al. (1993): “These individual factors are influenced by and influence social and contextual factors. The group in which individual creativity occurs establishes the immediate social influences on individual creativity” (p. 201). In the literature on work groups, King and Anderson (1990) suggested that creative outcomes are more likely to appear in groups that are composed of individuals from diverse fields and/or functional backgrounds. In a similar vein, Payne (1990) identified group functional diversity as one of the crucial factors in creative performance. Andrews (1979) provided empirical evidence of the positive impact of group diversity on the creative performance of R&D teams. Thornburg (1991) also found that group diversity fosters group creativity. According to these authors, group diversity fosters group creativity by providing an environment in which members can increase their knowledge through others, not only by adding others’ knowledge to their own previous knowledge, but by using others’ knowledge to improve the usefulness of their own skills.

Other scholars and practitioners have suggested that group cognitive diversity is critical for enhanced idea generation (Paulus, 2000; Jackson, 1996; Gardenswartz and Rowe, 1994). Alves et al. (2007) also found that functional and disciplinary group diversity fosters creativity and innovation.

Based on this empirical evidence and theory, we examine whether classroom interdisciplinary diversity influences students’ EI in the context of entrepreneurship education. We expect that classroom interdisciplinary diversity will positively influence students EI directly and/or indirectly through the three EI antecedents (PBC, SN and PA). For this purpose, interdisciplinary groups are defined as groups in which students with different career fields of interest or profiles are mixed. Consequently, based on the interactionist model of creative behaviour, we hypothesise that:

**H2.** Classroom interdisciplinary diversity has a positive and significant impact on students EI directly and/or indirectly through EI antecedents (PBC, SN and PA).

**H2a.** Classroom interdisciplinary diversity has a positive and significant impact on entrepreneurial PA.

**H2b.** Classroom interdisciplinary diversity has a positive and significant impact on entrepreneurial SN.

**H2c.** Classroom interdisciplinary diversity has a positive and significant impact on entrepreneurial PBC.

**H2d.** Classroom interdisciplinary diversity has a positive and significant impact on entrepreneurial EI.

Figure 1 shows the conceptual framework to be tested.

**Method**

**Research design**

A quantitative cross-sectional study design was used in this research, according to the maturity of the TPB and the interactionist model of creative behaviour (Edmondson and McManus, 2007). Lortie and Castogiovanni (2015) noted that many papers using the TPB are empirical: “This is somewhat expected as the TPB is a well-established theory and empirical research often tests hypotheses derived from established theory” (p. 14). In addition, many of these papers used quantitative and cross-sectional data.
We examine a sample of business school students. Samples of students have already been extensively used in the entrepreneurship literature for analysing the formation of EI (Fayolle et al., 2006; Kolvereid, 1996; Krueger et al., 2000; Veciana et al., 2005).

In particular, we analyse first-year students from a French business school. The school places great emphasis on entrepreneurship and it offers programmes that are highly focussed on this subject. At this school, students take courses on entrepreneurship from the very beginning.

The sample we analyse includes students from three schools in different fields: the School of Management and Business, the School of Tourism and Leisure Management, and the School of Design. The School of Management and Business offers a Bachelor’s in International Management and the Grande École Programme (PGE, a generalist programme in management). The School of Tourism offers a Bachelor’s in Tourism, Leisure and Travel Management, and the Design School offers a Bachelor’s in Graphic Arts and Design. The students in each school differ in terms of profile, career fields of interest, skills and academic background.

First-year students of the bachelor’s programme in each school have some courses in common and interact and work together on many different projects during the academic year.

To collect data, questionnaires were administered to students while they were in class by the same researcher at the end of the second semester (May 2015). Students had been studying full time at the school, so they had been in the same courses, interacting and working together for two complete semesters. We collected 258 questionnaires. From these, 21 questionnaires were removed due to a high level of missing data. From the 237 remaining questionnaires, 124 correspond to students in interdisciplinary (mixed) groups and 113 to students in non-interdisciplinary (non-mixed) groups. Table I provides descriptive statistics for the full sample, the interdisciplinary group and the non-interdisciplinary group. Missing data in the final sample of 237 questionnaires are negligible (less than 2 per cent).

Table II provides descriptive statistics of the students in the interdisciplinary group by programme. Students from the different programmes are, on average, the same age but differ slightly in terms of gender, knowledge of at least one entrepreneur and work experience.
Table III provides descriptive statistics about the academic backgrounds of the students from the interdisciplinary and non-interdisciplinary groups by programme.

**Measures**

We adapted the entrepreneurial intention questionnaire developed by Liñán *et al.* (2011) to test the proposed hypotheses. The items used to measure the variables in the EI model are shown in Table AI. The questionnaire was translated into French by native speakers. We analysed the validity and reliability of scales to ensure the appropriateness of the survey instrument in the French version.

The questionnaire uses Likert-type scales to measure the four central constructs of the TPB (EI, PA, PBC and SN). All four constructs are measured as reflective models, in which each latent variable is assumed to be the cause of the corresponding observable variables or items in the questionnaire. As a result of the confirmatory factor analysis, two items were deleted from the entrepreneurial personal attraction construct. Regarding demographic variables, age is measured in years, and the other three demographic variables are treated as dummy variables: the value one means male

<table>
<thead>
<tr>
<th>Variable</th>
<th>Full sample</th>
<th>Interdisciplinary group</th>
<th>Non-interdisciplinary group</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>n Mean SD</td>
<td>n Mean SD</td>
<td>n Mean SD</td>
</tr>
<tr>
<td>Age</td>
<td>236 20 1.608</td>
<td>123 19.06 1.326</td>
<td>113 21.03 1.213</td>
</tr>
<tr>
<td>Gender</td>
<td>237 0.43 0.496</td>
<td>124 0.29 0.456</td>
<td>113 0.58 0.497</td>
</tr>
<tr>
<td>Knows entrepreneur</td>
<td>237 0.76 0.431</td>
<td>124 0.73 0.448</td>
<td>113 0.79 0.411</td>
</tr>
<tr>
<td>Work experience</td>
<td>237 0.83 0.379</td>
<td>124 0.79 0.409</td>
<td>113 0.87 0.341</td>
</tr>
</tbody>
</table>

**Note:** a,b Mean differences between interdisciplinary and non-interdisciplinary groups are significant for $p < 0.001$

<table>
<thead>
<tr>
<th>Academic background</th>
<th>Non-interdisciplinary group</th>
<th>Interdisciplinary group</th>
<th>Design</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>PGE International business</td>
<td>Tourism</td>
<td></td>
</tr>
<tr>
<td>Science</td>
<td>8.8</td>
<td>15.1</td>
<td>13.9</td>
</tr>
<tr>
<td>Economics and social sciences</td>
<td>17.7</td>
<td>54.7</td>
<td>44.4</td>
</tr>
<tr>
<td>Literature</td>
<td>1.8</td>
<td>3.8</td>
<td>19.4</td>
</tr>
<tr>
<td>Technology</td>
<td>13.3</td>
<td>11.3</td>
<td>16.7</td>
</tr>
<tr>
<td>Higher school preparatory courses</td>
<td>31.9</td>
<td>3.8</td>
<td>0.0</td>
</tr>
<tr>
<td>Other</td>
<td>25.7</td>
<td>11.3</td>
<td>5.6</td>
</tr>
</tbody>
</table>

**Note:** a Part of the French post-secondary education system consists of two very intensive years (extendable to three or, exceptionally, four years) that act as a preparatory course (or cram school) with the primary goal of training undergraduate students for enrolment in one of the Grandes Ecoles (higher education establishments, including business schools, which have considerable autonomy and their own specific pedagogical curricula)
(for the gender variable), knows at least one entrepreneur personally (for the role model variable) and has work experience (for the work experience variable). The value zero means the opposite. The variable in interdisciplinary group is a dummy variable equal to one if the respondent belongs to an interdisciplinary group and zero otherwise. Apart from these variables, we also include the control variable programme to account for the potential impact of programme characteristics on the different constructs in the model.

**Data analysis**

Following previous literature (Liñán et al., 2011), we use partial least squares (PLS) and SmartPLS V3 software, which has extensively been used in the behavioural sciences over the last several years (Shook et al., 2004). This technique is considered to be appropriate for exploratory studies (Sánchez-Franco and Roldán, 2005). The analysis of the measurement model with all of the included items showed satisfactory factor loadings and construct reliability. However, the discriminant validity analysis showed some problems regarding the constructs of EI and entrepreneurial personal attraction. Some items loaded heavily on both constructs. To address this problem, we examined the cross factor loadings for EI and personal attraction and removed those items with the closest factor loadings for the two constructs one by one until we obtained satisfactory discriminant validity. We ultimately eliminated items EPA6 and EPA18. Table IV reports the results for the reliability and convergent validity analysis after the elimination of these two items. The factor loadings are satisfactory for all of the remaining items and are above the 0.4 threshold that was proposed by Floyd and Widaman (1995) and Kline (2013). Table V reports the convergent and discriminant validity results. The diagonal elements are the square root of the average variance extracted between the constructs and their measures. The off-diagonal elements are the correlations between the constructs. The discriminant validity is confirmed because the diagonal elements are larger than the off-diagonal elements in the same row and column.

<table>
<thead>
<tr>
<th>Construct</th>
<th>Items</th>
<th>Factor loadings</th>
<th>Composite reliability coefficient</th>
<th>Average variance extracted (AVE)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Entrepreneurial intentions</td>
<td>EI1</td>
<td>0.873</td>
<td>0.952</td>
<td>0.769</td>
</tr>
<tr>
<td></td>
<td>EI5</td>
<td>0.965</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>E9</td>
<td>0.703</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>EI13</td>
<td>0.937</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>EI17</td>
<td>0.917</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>EI20</td>
<td>0.905</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Entrepreneurial personal attraction (EPA)</td>
<td>EPA2</td>
<td>0.830</td>
<td>0.900</td>
<td>0.751</td>
</tr>
<tr>
<td></td>
<td>EPA10</td>
<td>0.878</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>EPA14</td>
<td>0.890</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Entrepreneurial subjective norms (ESN)</td>
<td>ESN4</td>
<td>0.814</td>
<td>0.871</td>
<td>0.632</td>
</tr>
<tr>
<td></td>
<td>ESN8</td>
<td>0.871</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>ESN12</td>
<td>0.861</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>ESN16</td>
<td>0.605</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Entrepreneurial perceived behavioural control (EPBC)</td>
<td>EPBC3</td>
<td>0.753</td>
<td>0.903</td>
<td>0.609</td>
</tr>
<tr>
<td></td>
<td>EPBC7</td>
<td>0.848</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Table IV. Reliability and convergent validity analysis
Results and discussion

Figure 2 presents the results of the PLS procedure. The model explains 78 per cent of the variance in EI. This result is highly satisfactory because most previous studies using linear models typically explain less than 70 per cent. Moreover, the model also explains nearly 30 per cent of the variance in PA and PBC. The analysis supports the core EI model. Only the relationship between SN and EI is not significant, in accordance with results from previous research (Autio et al., 2001; Krueger et al., 2000; Liñán and Chen, 2009). Therefore, \( H1 \) is confirmed (except for \( H1c \)).

We can observe that being in an interdisciplinary group has a positive and significant impact on PBC (0.232). Thus, the model confirms \( H2c \): being in an interdisciplinary group contributes to higher levels of PBC. That is, mixing students who have different career fields of interest, skills and backgrounds and having them interact and work together for an entire academic year significantly improves the entrepreneurial PBC (or self-efficacy) of students.

<table>
<thead>
<tr>
<th>Construct</th>
<th>EI</th>
<th>EPA</th>
<th>ESN</th>
<th>EPBC</th>
</tr>
</thead>
<tbody>
<tr>
<td>Entrepreneurial intentions (EI)</td>
<td>0.877</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Entrepreneurial personal attraction (EPA)</td>
<td>0.833</td>
<td>0.867</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Entrepreneurial subjective norms (ESN)</td>
<td>0.436</td>
<td>0.492</td>
<td>0.795</td>
<td></td>
</tr>
<tr>
<td>Entrepreneurial perceived behavioural control (EPBC)</td>
<td>0.774</td>
<td>0.677</td>
<td>0.416</td>
<td>0.780</td>
</tr>
</tbody>
</table>

Note: The square root of the average variance extracted (AVE) between the constructs and their measures is in italic face.

Table V. Convergent and discriminant validity of constructs

Figure 2. Structural model and path coefficients
This result, in turn, has important consequences for the development of students’ EI, given the strong influence of PBC on EI (0.379). In fact, the relationship between self-efficacy and EI is widely recognised in the entrepreneurship literature, and promoting self-efficacy is increasingly identified as a key objective in entrepreneurship education (Barakat et al., 2010; Pittaway and Hannon, 2006). Our results show that mixing people with different profiles is highly beneficial for the promotion of entrepreneurial self-efficacy.

In mixed groups, the students might become aware of the different resources within the group that can be applied in venture creation, e.g., design students can design new products and business students can provide the venture with business competences, and this combination allows the students to perceive entrepreneurship as something feasible, desirable and therefore strengthen their intentions, like the TPB suggests.

Regarding control variables, all but one makes at least one significant contribution to explaining the constructs. Being male contributes to higher levels of both PA and PBC, in line with results from previous research (Liñán et al., 2011; Santos et al., 2014). Having work experience contributes to higher PBC, as expected, which is also in line with previous research (Liñán and Chen, 2009; Liñán et al., 2011). The results indicate that being older decreases the need for perceived approval by “reference people” as captured by the social norms construct.

A factorial invariance analysis confirms that the measurement and structural models work well for both men and women. However, the impact of being in an interdisciplinary group on PBC is more significant for men (p < 0.023) than for women (p < 0.15), although the difference in path coefficients for men and women is not significant. Further analyses should be conducted with larger data sets to confirm our results.

Conclusions
Entrepreneurial activity is a central factor in economic development: it drives economic growth and creates new economic wealth and employment. Therefore, it is important to understand the conditions that more effectively promote the emergence of entrepreneurs in different contexts and among different groups of people. Young people represent a segment that deserves special attention because unemployment rates are much higher in this segment than in others (International Labour Organization, 2016). Consequently, fostering entrepreneurship among young people is a way of addressing the problem of youth unemployment. Although educational institutions occupy a privileged position in the promotion of entrepreneurship among young people, there is a need to improve the identification of those academic activities that most effectively encourage entrepreneurship, considering the small proportion of students who ultimately create their own businesses after graduation.

In this study, we examine the impact of a diversity dimension on students’ EI that has been overlooked by previous research: interdisciplinary groups, a particular type of classroom diversity defined as a mixture of students with different profiles and career fields of interest. The benefits of group diversity have already been recognised in many different contexts, and based on the diversity-performance link paradigm, we believe that diversity could be similarly beneficial in the formation of EI (Mannix and Neale, 2005).

We provide empirical evidence that interdisciplinary groups have a positive and significant impact on the EI of students by improving their entrepreneurial PBC, an important predecessor of EI. The results have important implications for academic institutions providing entrepreneurship education that are interested in improving EI among students. A mixture of students with different profiles should be promoted to encourage entrepreneurship.

Higher education institutions should place greater emphasis on initiatives that help exploit the diversity of groups to support the formation of EI. Students from different
disciplines could be integrated – for example, not only in common entrepreneurship courses but also in projects such as mini-enterprises or business plan contests. Moreover, initiatives can incorporate professionals who mentor students in the development of business projects. This role can be incorporated in companies’ corporate social responsibility programmes. Some academic institutions have already put such initiatives in place by, for example, assigning students to participate in groups that include students of different profiles in programmes such as “Entreprendre Pour Apprendre” (Learning by Doing), part of the global network “Junior Achievement Worldwide”, in which students create mini-enterprises and are mentored by business professionals and teachers.

One limitation of this study is that it is not longitudinal. Future studies could apply this model to a longitudinal study to evaluate the impact of interdisciplinary groups over several years and, finally, to observe the impact of this variable on actual entrepreneurship. It is also possible to examine the relative effectiveness of the different initiatives that foster entrepreneurship among students to help identify the strategies that work most effectively. The analysis could be extended to other populations, in particular, population segments associated with sectors that receive more support from governmental institutions such as high-tech or renewable energy organisations. It could also be extended to explore social issues such as the formation of entrepreneurial goals among the long-term unemployed, people in retirement, people who cannot take full-time jobs because of childcare responsibilities, people with long-term illnesses, the elderly, or people with certain handicaps. These segments of the population can engage in internet-based entrepreneurial activities from home, such as online direct selling.

References


Marlino, D. and Wilson, F. (2002), *Teen Girls on Business: Are They Being Empowered?*, The Committee of 200 and Simmons School of Management, Boston, MA and Chicago, IL.


Further reading


### Appendix

<table>
<thead>
<tr>
<th>Item</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
<th>6</th>
<th>7</th>
</tr>
</thead>
<tbody>
<tr>
<td>EI1: I am ready to do anything to be an entrepreneur</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>EPA2: Being an entrepreneur implies more advantages than disadvantages to me</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>EPBC3: Starting a company and keeping it viable would be easy for me</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>ESN4: My immediate family would approve of my decision to start a business</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>EI5: My professional goal is to become an entrepreneur</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>EPA6: A career as an entrepreneur is attractive to me</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>EPBC7: I believe I would be able to start a business</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>ESN8: My friends would approve of my decision to start a business</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>EI9: I will make every effort to start and run my own company</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>EPA10: If I had the opportunity and resources, I'd love to start a company</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>EPBC11: I believe I would be able to control the creation process of a new business</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>ESN12: My colleagues would approve of my decision to start a business</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>EI13: I am determined to create a company in the future</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>EPA14: Being an entrepreneur would give me great satisfaction</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>EPBC15: I know the necessary practical details to start a company</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>ESN16: My teachers would approve of my decision to start a business</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>EI17: I have very serious thoughts of starting a company</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>EPA18: Among the various options, I would rather be an entrepreneur</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>EPBC19: It would be easy for me to develop a business idea</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>EI20: I have the intention to start a company some day</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>EPBC21: If I tried to start a business, I would have a high probability of being successful</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Note:** Indicate your level of agreement with the following statements about entrepreneurial activity from 1 (total disagreement) to 7 (total agreement) (originally in French)

---

**Corresponding author**

Laura Padilla-Angulo can be contacted at: lpadilla@uloyola.es

---

For instructions on how to order reprints of this article, please visit our website: www.emeraldgrouppublishing.com/licensing/reprints.htm

Or contact us for further details: permissions@emeraldinsight.com
Entrepreneurial competences in a higher education business plan course

Raquel Ferreras-Garcia
School of Business and Economics, Universitat Oberta de Catalunya, Barcelona, Spain

Ana Beatriz Hernández-Lara
School of Economics and Business, Universitat Rovira I Virgili, Reus, Spain, and
Enric Serradell-López
School of Business and Economics, Universitat Oberta de Catalunya, Barcelona, Spain

Abstract
Purpose – The purpose of this paper is twofold: first, to study which perceived and attained entrepreneurial competences acquired by students while developing a business plan are rated most highly; and second, to analyse the differences observed in entrepreneurial competences, depending on whether the business plan developed is real or fictitious.

Design/methodology/approach – To analyse the role played by business plans in perceptions and attainment of competence, data were collected from students enrolled on a final project course of a bachelor’s degree, specifically the Bachelor’s Degree in Business Administration and Management at the Universitat Oberta de Catalunya. The course in question focussed on entrepreneurship and business plans. The data on perceived and attained competences were obtained through questionnaires and assessment rubrics, respectively. Mean comparison analyses were conducted to investigate any differences in entrepreneurial competences existing between students developing real or fictitious business plans.

Findings – The paper finds evidence that the process of creating a business plan results in entrepreneurial competence being highly rated and that whether the business plan is real or fictitious does not affect the level of entrepreneurial competence.

Research limitations/implications – A longitudinal study will be required to analyse how entrepreneurial competences evolve during the business plan creation process.

Originality/value – This paper finds that few studies have been conducted to explore entrepreneurial competences in relation to business plan development and shows that more complete research is required. Moreover, both perceived and achieved competences are considered, an analysis not previously carried out.

Keywords Competences, Higher education, Entrepreneurship, Online education, Business plan

Paper type Research paper

1. Introduction
With the Bologna Declaration (European Higher Education Area, 1999) and subsequent implementation of the European Higher Education Area (EHEA), a reform of the university education system was begun that led to a profound transformation of the university as an institution, impacting its management, organisation and all the agents involved in higher education. The new paradigm has brought about changes in the methodology used for and the planning and assessment of the teaching and learning processes.

The competence-based approach to education is one of the most significant changes implemented by the EHEA, with a shift from a content-centred model to a competence-based one,
in which competences become the core element of the learning process (Fitó-Bertran et al., 2014; Hernández-Lara, Perera-Lluna and Serradell-López, 2018).

Under this new approach of learning, objective indicators must be established for quantifying and measuring the progress achieved in learning by students enrolled on educational programmes (Sánchez-Rebull et al., 2011). To do this, each university must equip itself with instruments and tools for objectively measuring this progress.

Accordingly, European universities have adopted the EHEA’s guidelines and included competences in their programmes of study, with the aim of closing the gap between university and society and training graduates with the necessary skills to meet the needs of the job market. To fulfil this goal, universities are providing training in competences and preparing students for active citizenship.

Among these competences, within the field of business studies, the scientific literature has extensively discussed how important it is for future business practitioners to acquire entrepreneurial competences (Carrier, 2009; Lans et al., 2008; Sánchez, 2011; Taatila, 2010). In addition to identifying these competences, the pedagogy implemented to develop them is fundamentally important (Loué et al., 2008). Although many different and varied teaching typologies exist (Lautenschläger and Haase, 2011; Pittaway and Edwards, 2012), the most prevalent typology currently in use includes the development of business plans (Carrier, 2009; Honig, 2004). This business plan-based pedagogy also offers a learning framework that enables us to gain a better understanding of how entrepreneurship learning takes place (Brinckmann et al., 2010).

In spite of the large number of authors who have studied competences (Bartlett and Ghoshal, 1997; Bird, 1995; Man et al., 2002), and especially the entrepreneurial competences that students are capable of developing (Bakkali et al., 2010; Chandler and Jansen, 1992; Mitchelmore and Rowley, 2010), the role played by developing a business plan in attaining these competences is not yet fully understood. Indeed, the scarce research that has come to our knowledge focusses on analysing students’ perceptions of their attainment of these competences (Tounés et al., 2014). However, to the authors’ best knowledge, no study has examined the effect on actual attainment of the competences in question. Accordingly, more detailed research is needed to identify the benefits of business plans in terms of developing entrepreneurial competences.

The goal of this study is to analyse the effectiveness of business plans in terms of the competences acquired by the students by considering students’ and teachers’ perspectives of competence development. The teachers’ perspectives can be observed in their assessment of students’ actual competence attainment.

In terms of entrepreneurship skills, it has always been considered important for the entrepreneurship projects to be as close to reality as possible. As Peterman and Kennedy (2003) pointed out, real projects have a much greater impact on students’ intentions and perceptions than fictitious business plans, while Tounés et al. (2014) find that both typologies (real and fictitious business plans) have a positive influence on students’ entrepreneurial competences.

In order to achieve our goal, we conducted a comparative analysis, differentiating between cases where the business plan was for a real-life company and where it was for a fictitious company, in order to ascertain whether this variable has any effect on students’ development of entrepreneurial competences. By choosing this approach, our study makes two basic contributions. The first is to ascertain which entrepreneurial competences are most likely to be perceived as being attained by students when developing a business plan, together with their actual attainment of these competences, and the second is to determine whether development of the students’ competences is related to the business plan typology. The results will allow us to improve the planning of business plan dynamics and question the usefulness of the current teaching method.
2. Literature review

The concept of entrepreneurial competences

In the academic world, there are as many definitions of the concept of competence as there are studies that have been undertaken on this subject. Barraycoa and Lasaga (2009) warn us that exploring the concept of competence is a complex, arduous task, as it encompasses a multiplicity of aspects that range from personality traits to technical knowledge.

Although the definitions vary, there are some recurrent aspects referred to when discussing the concept of competence. The most frequently mentioned include knowledge, abilities, attitudes and features, all of which are considered to be underlying characteristics that are required for effective or successful work performance (Bartlett and Ghoshal, 1997; Mitchelmore and Rowley, 2010).

The field of entrepreneurship has also tried to provide definitions for entrepreneurial competence although, as in the definition of competence itself, there are a myriad of approaches. Mitchelmore and Rowley (2010) point out that there is a general consensus in the discussion that, presumably, individuals who start and transform a business possess entrepreneurial skills. Bird (1995) suggests that entrepreneurial skills refer to individuals, or entrepreneurs, who start or transform enterprises and add value through the organisation of resources and opportunities. Man et al. (2002) summarise that entrepreneurial competences can be defined as higher level features that represent entrepreneurs’ capacities to succeed in the workplace. Entrepreneurial skills are recognised as key competences to promote employability, involving personal initiative, self-learning and enterprise development (Servicio Público de Empleo Estatal, 2016). Loué et al. (2008) divide entrepreneurial competences into five groups: identification of a business opportunity, preparation of an entrepreneurial vision, development of a business model, creation of a business plan and the organisation’s drive. Along the same lines, Chandler and Jansen (1992) argue that there are three main families of competences that entrepreneurs need to have in order to be successful: managerial, technical/functional and entrepreneurial. Thus, entrepreneurial competences are only one of several types that the entrepreneur needs, although there is agreement in the literature (Bakkali et al., 2010; Sánchez, 2011) on the importance of this branch of competences when we talk about business builders and a company’s growth and success.

Therefore, one key point is to identify the groups of competences that, in one way or another, should be required of and/or used by entrepreneurs. Despite the considerable amount of research carried out on entrepreneurial skills, it is still difficult to find a precise identification of entrepreneurial competences, understood as the holistic set of skills that entrepreneurs should possess. Mitchelmore and Rowley (2010) propose a list of key competences that entrepreneurs should have, after conducting detailed research on the different frameworks proposed by different authors (Chandler and Jansen, 1992; Man et al., 2002; Smith and Morse, 2005). “Entrepreneurs’ skills” categorises these entrepreneurial skills within five main groups. The first four are extracted from the classification proposed by Mitchelmore and Rowley (2010) and entail entrepreneurial skills, business and management skills, human relations skills and conceptual and relationship skills. The fifth group has been incorporated after consulting the work of Penchev and Salopaju (2011) and refers to one of the basic components within the competence concept – attitudes or features.

Entrepreneurs’ skills:

1. Entrepreneurial competences:
   - identification and definition of a viable market niche;
   - development of products of services appropriate to the firms chosen market niche/product innovation;
   - idea generation;
• environmental scanning;
• recognising and envisioning taking advantage of opportunities; and
• formulating strategies for taking advantage of opportunities.

(2) Business and management competences:
• development of the management system necessary for the long term functioning of the organisation;
• acquisition and development of resources required to operate the firm;
• business operational skills;
• previous involvement with start-ups;
• managerial experience;
• familiarity with industry and market;
• previous experience;
• financial and budgeting skills;
• marketing skills;
• technical skills;
• industry skills;
• management skills;
• information search skills;
• goal setting skills;
• the ability to implement strategy (develop programmes, budgets, procedures, evaluate performance); and
• business plan preparation.

(3) Human relations competences:
• development of the organisational culture management feel necessary to guide the firm;
• delegation skills;
• the ability to motivate others individual and in groups;
• hiring skills;
• human relations skills;
• leadership skills; and
• social skills, networking.

(4) Conceptual and relationship competences:
• organisational skills;
• interpersonal skills;
• strategic thinking;
• the ability to manage customers;
• mental ability to coordinate activities;
• written communication skills;
• oral communication skills;
• decision-making skills;
• analytical skills;
• logical thinking skills;
• deal-making skills; and
• commitment competences.

(5) Attitudes or features competences:
• risk taking;
• innovativeness;
• creativity;
• proactiveness;
• orientation to results;
• problem-solving;
• flexibility and rapid adaptability to changes;
• persistence and perseverance; and
• self-confidence.

Another consideration is that research and practice have identified entrepreneurial competences as an integral part of the dynamic teaching and learning process (Lans et al., 2008). Thus, the teaching of entrepreneurship must endow students with the competences required to start a business (Kakkonen, 2011; Pfeifer and Borozan, 2011), while students’ learning in this area must facilitate the development of knowledge that is essential for starting and managing a company (Politis, 2005). Therefore, entrepreneurship teaching must provide students with a learning foundation so that they can then develop entrepreneurial competences (Sánchez, 2011; Sitzmann et al., 2010).

The importance of developing entrepreneurial competences is not addressed solely within the field of education; in recent years, it has also become a priority for local authorities as part of their endeavour to foster innovation and business creation (Russell et al., 2008; Servicio Público de Empleo Estatal, 2016). However, the key question is what can the university do to apply these competences in the teaching of entrepreneurship?

Business plans
Business plans are a typical part of introductory courses in entrepreneurship. In almost any course on entrepreneurship, the business plan is the typical end product. According to Katz (2014), it is an excellent task and method for improving students’ level of learning.

According to Honig (2004), a business plan can be defined as a written document that describes an organisation’s current status and possible future; it is a maturing process that facilitates progression from an idea to a final project. The evidence suggests that business schools teach business plans because they help current and future entrepreneurs manage activities that involve a high degree of complexity and uncertainty (Kahrs, 1995; Rich and Gumpert, 1985). Although there are different suggestions about how to build a business plan, most include the following items (Blenker et al., 2006): description of the business field, description of the management team, description of the market segment, marketing plan, business system and organisation, implementation and risk assessment and funding.
Research in entrepreneurship is immersed in an intense debate on the value of business planning. Most previous empirical findings move along the same lines and come to similar conclusions: the process of creating a business plan is essential for successfully completing a project (Barringer and Gresock, 2008; Honig, 2004) and enables students to enhance their reflection and planning skills (Ashamalla et al., 2008). It even increases the chances of success in launching a business, helps guide risk-taking and supports the performance of certain activities during the initial start-up phase (Brinckmann et al., 2010; Giunipero et al., 2008), and also has a positive influence on students’ entrepreneurial competences (Tounès et al., 2014). However, there is also a debate about teaching methods based on real or fictitious business plans and a number of authors question the usefulness of teaching methods in which the business plans are created for fictitious companies. Peterman and Kennedy (2003) confirm that pedagogies to create business plans based on real projects have a greater impact on the intentions and perceptions of high school students than pedagogies that create fictitious business plans. Honig (2004) questions the usefulness of teaching methods in which business plans are created for fictitious companies. Vincett and Farlow (2008) maintain that students do not have enough motivation and do not spend enough time developing the project, which suggests serious doubts regarding the suitability of business plans for developing entrepreneurial skills.

Therefore, in spite of the extensive research that has been carried out with respect to business plans, there are still no conclusive results that confirm their usefulness and effectiveness on the basis of the entrepreneurial competences acquired, as measured by the learning results. Given this situation, it is important to attempt to analyse the usefulness of business plans in order to verify whether they can really be considered a useful tool for improving student performance and fostering a high level of entrepreneurial competence.

3. Research focus
Taking into account these arguments, the study’s first objective is to assess the effects that creating business plans have on the development of students’ entrepreneurial competences in a university environment.

This objective gives rise to the following research question:

*RQ1.* What are the most significant perceived and attained entrepreneurial competences acquired through the development of business plans?

The second objective refers to the analysis of whether attainment of entrepreneurial competences is influenced by the business plan typology. In this respect, comparing real and fictitious business plans.

This second objective gives rise to the following research question:

*RQ2.* Are there any significant differences in the entrepreneurial competences perceived and attained by students when developing a business plan depending on the business plan typology?

The analysis will be carried out from two viewpoints: the students’ perceived level of attainment of entrepreneurial competences and their real level of attainment, as assessed by the teacher. This analysis will enable us to review current practices in entrepreneurship education and implement future actions to improve the learning and teaching of entrepreneurial skills.

4. Methodology

*Data collection*
In order to provide answers to the research questions, we collected data from the students enrolled on the final project course of a bachelor’s degree specializing in entrepreneurship. The participants were Business Administration and Management students at the Universitat Oberta de Catalunya (UOC, an online university), during the second semester of the 2014/2015 academic
year and both semesters of 2015/2016 academic year. These students were selected because the development of a business plan forms an integral part of the course in which they were enrolled. The total number of students in the course during the selected semesters was 306.

The information about the students’ perceived competences was compiled from a questionnaire, which is a commonly used method in this type of research (Faria and Wellington, 2004). The questionnaire was designed to ascertain students’ perception of entrepreneurial competences and the learning process resulting from the development of a business plan. Given the impossibility of finding a validated questionnaire to assess entrepreneurial skills, we decided to use the items considered by the tuning project and the white paper of the Bachelor’s Degree in Economics and Business Administration (ANECA, 2005). This questionnaire has been used by previous research focused on assessing the level of generic and specific competences of students enrolled on the Economics and Business Administration degree programmes, to measure the effectiveness of different learning tools (Fitó-Bertran et al., 2015; Hernández, Serradell-López and Fitó-Bertran, 2018). Before its administration, we verified whether the items on the questionnaire involved entrepreneurial competences and other competences developed while working on a business plan. In order to examine the association between the competences described in the literature and the competences addressed in the questionnaire, each entrepreneurial competence was analysed together with its possible equivalence with any of the competences presented in the questionnaire. A total of 262 replies were obtained using the online questionnaire.

The information about attained competences was compiled from the assessment rubrics used in the course by the teachers, which describe the levels of attainment of entrepreneurial competences during the development of the business plan. By this means, a total of 267 assessment rubrics were obtained, corresponding to the students who took the course during the semesters included in the study.

In selecting the sample, only the students who had answered the questionnaire about perceived competences and for whom we had the assessment rubrics were considered. Thus, the study sample finally totalled 254 students.

Assessment rubrics
The rubrics are one of the tools used to avoid subjectivity and ensure the greatest possible objectivity in the assessment (Stevens and Levi, 2005). The rubrics enable students to know what the assessment criteria are beforehand; they foster responsibility, are easy to understand and improve the students’ learning (Gatica-Lara and Uribarren-Berrueta, 2013; Reddy and Andrade, 2010).

The business plan is considered a highly practical and applied piece of work, with the main objective of developing a business idea. The business plan is structured around eight main activities: choice of business model, analysis of the environment, preliminary design of the business model, marketing plan, resources and operations plan, financial plan, delivery of the final report (final bachelor’s degree project) and presentation of the final project.

Each one of the activities is evaluated through an assessment rubric which states the different competences and the weight given to them in the final mark. Assessment of the activities using the rubrics is carried out by the students’ academic teachers. Each academic tutor mentors a group of students.

Objectivity is assured since the rubrics specify and carefully describe the items to be considered in the evaluation, which are measured on the same scale, specifically from 0 to 10 points.

The questionnaire
In order to obtain information about the students’ perception of their entrepreneurial competences and to confirm the research hypotheses, the aforementioned questionnaire was
sent to the students via a link in the online classroom. In this questionnaire, students
self-assessed their level of attainment of the entrepreneurial competences.

The questionnaire was designed using a non-comparative Likert rating scale (Likert,
1932) with five points (where 1 means “Strongly disagree” and 5 means “Strongly agree”).
This scale is used extensively in scientific literature.

The questionnaire is divided into five blocks. The first block includes questions intended
to gather information about the characteristics of the sample. The second and third blocks
correspond to the generic and specific competences explored by the authors in previous
research (Ferreras-Garcia and Serradell-López, 2016; Fito-Bertran et al., 2014). The fourth
and fifth blocks refer to the cross-disciplinary and specific competences obtained from the
official report on this particular qualification (UOC Bachelor’s Degree in Business
Administration and Management). The variables used are described as follows.

Variables:

(1) Generic competences that the business plan has helped develop or acquire:
   • [C1] Process and analyse a body of general information referring to a company.
   • [C2] Process and analyse partial information referring to parts of a company.
   • [C3] Make decisions.
   • [C4] Draw conclusions from the information obtained or provided.
   • [C5] Relate information or data.
   • [C6] Apply theoretical decision-making concepts.
   • [C7] Manage time.
   • [C8] Solve problems related with deadlines.
   • [C9] Use new technologies.
   • [C10] Creativity.
   • [C11] Capacity for innovation.
   • [C12] Ability to work with uncertainty.

(2) Specific competences that the business plan has helped develop or acquire:
   • [C13] Improve a company’s competitive position.
   • [C14] Develop strategies.
   • [C16] Process and analyse financial information.
   • [C17] Identify and work with sources of relevant financial information.
   • [C18] Integrate ethics in organisational decisions.

(3) Cross-disciplinary competences for the final bachelor’s degree project:
   • [C19] Show attitudes and behaviours that are consistent with ethical, responsible
     professional practice.
   • [C20] Search, identify, organise and make adequate use of information.
   • [C21] Optimally organise and plan the professional activity.
   • [C22] Interpret and assess the information critically and synthetically.
   • [C23] Work as a team, in on-site or online environments, in multidisciplinary
     environments.
Specific competences for the final bachelor's degree project:

- [C24] Negotiate in a professional environment.
- [C25] Communicate correctly, verbally and/or in writing, both in the mother tongue and in a foreign language, in the academic and professional spheres.
- [C26] Use and apply information and communication technologies in the academic and professional spheres.
- [C27] Undertake entrepreneurial ventures and innovate.

In order to compare the students’ perceived and attained competences, responses are nominative, the competences are treated as “CP” or “CA”, depending on whether they refer to perceived attainment (CP) or real attainment (CA).

**Data analysis**

We performed Cronbach’s α test to assess the degree of consistency of the measurements (Cronbach, 1942). According to De Vellis and Dancer (1991) and general consensus, the lower acceptance limit for Cronbach’s α is 0.70.

The values of the Cronbach’s α coefficients for the variables “perceived competences” and “attained competences” were 0.96 and 0.93, respectively, which were higher than 0.70 in both cases. Thus, we consider that the data obtained show a high level of internal consistency and the results we obtain will be reliable.

Table I shows the sample’s frequency and percentage with respect to the variable “business plan typography”.

**5. Results**

**First research question**

Table II shows the mean ratings given by the students to their perceived attainment (CP) and real attainment (CA) of entrepreneurial competences by developing a business plan.

<table>
<thead>
<tr>
<th>Business plan typology</th>
<th>Frequency</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Fictitious</td>
<td>159</td>
<td>62.6</td>
</tr>
<tr>
<td>Real</td>
<td>95</td>
<td>37.4</td>
</tr>
<tr>
<td>Total</td>
<td>254</td>
<td>100</td>
</tr>
</tbody>
</table>

Table I. Distribution by business plan typology.
With respect to the perceived attainment, the students rated the competences acquired during the development of a business plan very positively. In most cases, the competences have mean values greater than 3.9, except for competences CP23 and CP24 (related to teamwork and negotiation, respectively). It should be noted that these data are not entirely comparable since only 23 students in the sample have had the experience of working within a team. The highest rated competences are CP4, CP20, CP1, CP5 and CP2, referring to skills related to the obtainment of information.

As regards the actual attainment of entrepreneurial competences, in most cases the values obtained were greater than 3.48 points, except for competences CA32, CA15 and CA12. The attained competences with the highest scores are competences CA23 and CA24 (related to teamwork and negotiation, respectively). However, these refer to a small sample of students (23) who undertook the final bachelor’s degree project within a team. Thus, according to the course instructors, these students attained an excellent level in these competences, with a score of 4.53 points in both cases. If we compare the results of these attained competences with the results of the perceived competences on a global level, we obtain slightly lower values in the latter case, with scores of 3.17 and 3.44, respectively. However, the perception of the achievement of competences CP23 and CP24 for students who have worked within a group is

<table>
<thead>
<tr>
<th>Var.</th>
<th>n</th>
<th>Min.</th>
<th>Max.</th>
<th>Mean</th>
<th>SD</th>
<th>Var.</th>
<th>n</th>
<th>Min.</th>
<th>Max.</th>
<th>Mean</th>
<th>SD</th>
</tr>
</thead>
<tbody>
<tr>
<td>CP4</td>
<td>254</td>
<td>1</td>
<td>5</td>
<td>4.44</td>
<td>0.63</td>
<td>CA24</td>
<td>23</td>
<td>3.4</td>
<td>5</td>
<td>4.53</td>
<td>0.51</td>
</tr>
<tr>
<td>CP20</td>
<td>254</td>
<td>3</td>
<td>5</td>
<td>4.40</td>
<td>0.62</td>
<td>CA23</td>
<td>23</td>
<td>3.4</td>
<td>5</td>
<td>4.53</td>
<td>0.51</td>
</tr>
<tr>
<td>CP1</td>
<td>254</td>
<td>1</td>
<td>5</td>
<td>4.39</td>
<td>0.62</td>
<td>CA6</td>
<td>174</td>
<td>2.2</td>
<td>5</td>
<td>4.17</td>
<td>0.49</td>
</tr>
<tr>
<td>CP5</td>
<td>254</td>
<td>1</td>
<td>5</td>
<td>4.35</td>
<td>0.68</td>
<td>CA5</td>
<td>174</td>
<td>2.2</td>
<td>5</td>
<td>4.17</td>
<td>0.49</td>
</tr>
<tr>
<td>CP2</td>
<td>254</td>
<td>2</td>
<td>5</td>
<td>4.31</td>
<td>0.64</td>
<td>CA4</td>
<td>174</td>
<td>2.2</td>
<td>5</td>
<td>4.17</td>
<td>0.49</td>
</tr>
<tr>
<td>CP30</td>
<td>254</td>
<td>1</td>
<td>5</td>
<td>4.31</td>
<td>0.73</td>
<td>CA3</td>
<td>174</td>
<td>2.2</td>
<td>5</td>
<td>4.17</td>
<td>0.49</td>
</tr>
<tr>
<td>CP33</td>
<td>254</td>
<td>2</td>
<td>5</td>
<td>4.30</td>
<td>0.66</td>
<td>CA2</td>
<td>174</td>
<td>2.2</td>
<td>5</td>
<td>4.17</td>
<td>0.49</td>
</tr>
<tr>
<td>CP21</td>
<td>254</td>
<td>3</td>
<td>5</td>
<td>4.29</td>
<td>0.62</td>
<td>CA1</td>
<td>174</td>
<td>2.2</td>
<td>5</td>
<td>4.17</td>
<td>0.49</td>
</tr>
<tr>
<td>CP22</td>
<td>254</td>
<td>3</td>
<td>5</td>
<td>4.26</td>
<td>0.66</td>
<td>CA25</td>
<td>254</td>
<td>2.9</td>
<td>5</td>
<td>4.09</td>
<td>0.46</td>
</tr>
<tr>
<td>CP3</td>
<td>254</td>
<td>1</td>
<td>5</td>
<td>4.23</td>
<td>0.70</td>
<td>CA26</td>
<td>243</td>
<td>2.1</td>
<td>5</td>
<td>4.07</td>
<td>0.52</td>
</tr>
<tr>
<td>CP26</td>
<td>254</td>
<td>1</td>
<td>5</td>
<td>4.23</td>
<td>0.73</td>
<td>CA9</td>
<td>243</td>
<td>2.1</td>
<td>5</td>
<td>4.07</td>
<td>0.52</td>
</tr>
<tr>
<td>CP14</td>
<td>254</td>
<td>2</td>
<td>5</td>
<td>4.23</td>
<td>0.69</td>
<td>CA27</td>
<td>254</td>
<td>2.0</td>
<td>5</td>
<td>4.05</td>
<td>0.47</td>
</tr>
<tr>
<td>CP16</td>
<td>254</td>
<td>2</td>
<td>5</td>
<td>4.20</td>
<td>0.72</td>
<td>CA28</td>
<td>174</td>
<td>2.3</td>
<td>5</td>
<td>4.01</td>
<td>0.57</td>
</tr>
<tr>
<td>CP34</td>
<td>254</td>
<td>1</td>
<td>5</td>
<td>4.19</td>
<td>0.77</td>
<td>CA30</td>
<td>174</td>
<td>1.0</td>
<td>5</td>
<td>4.00</td>
<td>0.64</td>
</tr>
<tr>
<td>CP27</td>
<td>254</td>
<td>2</td>
<td>5</td>
<td>4.18</td>
<td>0.72</td>
<td>CA33</td>
<td>174</td>
<td>2.9</td>
<td>5</td>
<td>3.98</td>
<td>0.53</td>
</tr>
<tr>
<td>CP6</td>
<td>254</td>
<td>1</td>
<td>5</td>
<td>4.17</td>
<td>0.69</td>
<td>CA22</td>
<td>254</td>
<td>1.0</td>
<td>5</td>
<td>3.96</td>
<td>0.76</td>
</tr>
<tr>
<td>CP7</td>
<td>254</td>
<td>1</td>
<td>5</td>
<td>4.17</td>
<td>0.85</td>
<td>CA34</td>
<td>174</td>
<td>1.0</td>
<td>5</td>
<td>3.92</td>
<td>0.66</td>
</tr>
<tr>
<td>CP19</td>
<td>254</td>
<td>1</td>
<td>5</td>
<td>4.16</td>
<td>0.75</td>
<td>CA14</td>
<td>254</td>
<td>2.6</td>
<td>5</td>
<td>3.89</td>
<td>0.52</td>
</tr>
<tr>
<td>CP11</td>
<td>254</td>
<td>2</td>
<td>5</td>
<td>4.15</td>
<td>0.75</td>
<td>CA31</td>
<td>254</td>
<td>2.5</td>
<td>5</td>
<td>3.88</td>
<td>0.50</td>
</tr>
<tr>
<td>CP18</td>
<td>254</td>
<td>1</td>
<td>5</td>
<td>4.13</td>
<td>0.81</td>
<td>CA11</td>
<td>254</td>
<td>2.6</td>
<td>5</td>
<td>3.84</td>
<td>0.50</td>
</tr>
<tr>
<td>CP13</td>
<td>254</td>
<td>1</td>
<td>5</td>
<td>4.11</td>
<td>0.73</td>
<td>CA10</td>
<td>254</td>
<td>2.6</td>
<td>5</td>
<td>3.84</td>
<td>0.50</td>
</tr>
<tr>
<td>CP12</td>
<td>254</td>
<td>1</td>
<td>5</td>
<td>4.11</td>
<td>0.73</td>
<td>CA13</td>
<td>254</td>
<td>2.2</td>
<td>5</td>
<td>3.76</td>
<td>0.56</td>
</tr>
<tr>
<td>CP10</td>
<td>254</td>
<td>1</td>
<td>5</td>
<td>4.10</td>
<td>0.81</td>
<td>CA19</td>
<td>254</td>
<td>1.0</td>
<td>5</td>
<td>3.73</td>
<td>0.89</td>
</tr>
<tr>
<td>CP25</td>
<td>254</td>
<td>1</td>
<td>5</td>
<td>4.09</td>
<td>0.82</td>
<td>CA18</td>
<td>254</td>
<td>1.0</td>
<td>5</td>
<td>3.73</td>
<td>0.89</td>
</tr>
<tr>
<td>CP31</td>
<td>254</td>
<td>1</td>
<td>5</td>
<td>4.09</td>
<td>0.76</td>
<td>CA29</td>
<td>254</td>
<td>1.5</td>
<td>5</td>
<td>3.67</td>
<td>0.70</td>
</tr>
<tr>
<td>CP17</td>
<td>254</td>
<td>2</td>
<td>5</td>
<td>4.08</td>
<td>0.73</td>
<td>CA16</td>
<td>254</td>
<td>1.5</td>
<td>5</td>
<td>3.67</td>
<td>0.70</td>
</tr>
<tr>
<td>CP29</td>
<td>254</td>
<td>1</td>
<td>5</td>
<td>4.06</td>
<td>0.77</td>
<td>CA20</td>
<td>254</td>
<td>1.0</td>
<td>5</td>
<td>3.52</td>
<td>0.95</td>
</tr>
<tr>
<td>CP12</td>
<td>254</td>
<td>1</td>
<td>5</td>
<td>4.01</td>
<td>0.77</td>
<td>CA17</td>
<td>254</td>
<td>1.0</td>
<td>5</td>
<td>3.52</td>
<td>0.95</td>
</tr>
<tr>
<td>CP8</td>
<td>254</td>
<td>1</td>
<td>5</td>
<td>3.99</td>
<td>0.80</td>
<td>CA21</td>
<td>243</td>
<td>1.0</td>
<td>5</td>
<td>3.48</td>
<td>0.74</td>
</tr>
<tr>
<td>CP9</td>
<td>254</td>
<td>1</td>
<td>5</td>
<td>3.97</td>
<td>0.90</td>
<td>CA8</td>
<td>243</td>
<td>1.0</td>
<td>5</td>
<td>3.48</td>
<td>0.74</td>
</tr>
<tr>
<td>CP28</td>
<td>254</td>
<td>1</td>
<td>5</td>
<td>3.95</td>
<td>0.79</td>
<td>CA7</td>
<td>243</td>
<td>1.0</td>
<td>5</td>
<td>3.48</td>
<td>0.74</td>
</tr>
<tr>
<td>CP15</td>
<td>254</td>
<td>2</td>
<td>5</td>
<td>3.91</td>
<td>0.81</td>
<td>CA32</td>
<td>254</td>
<td>1.0</td>
<td>5</td>
<td>2.97</td>
<td>1.15</td>
</tr>
<tr>
<td>CP24</td>
<td>254</td>
<td>1</td>
<td>5</td>
<td>3.44</td>
<td>1.01</td>
<td>CA15</td>
<td>254</td>
<td>1.0</td>
<td>5</td>
<td>2.97</td>
<td>1.15</td>
</tr>
<tr>
<td>CP23</td>
<td>254</td>
<td>1</td>
<td>5</td>
<td>3.17</td>
<td>1.18</td>
<td>CA12</td>
<td>254</td>
<td>1.0</td>
<td>5</td>
<td>2.97</td>
<td>1.15</td>
</tr>
</tbody>
</table>

Table II. Competences ordered by mean

Higher education business plan course
of 4.17 and 3.91 points, respectively; that is, students who have had the opportunity to produce a business plan within a team perceive that their level of teamwork competence is high, although their perceived level is lower than their actual achievement.

After that, the attained competences with the highest ratings are CA1, CA2, CA3, CA4, CA5, and CA6, referring to skills related to obtaining information, with a score of 4.17, which matches the results obtained for the perceived competences. These are followed by competences CA25 (referring to communication), CA26, and CA9 (referring to ICT), with scores of 4.09 and 4.07, respectively.

As regards the competences with a lower level of attainment (CA23, CA12, and CA15), it should be highlighted that these relate to risk. Thus, if we compare the values of these attained competences with the respective values of the perceived competences, we obtain a score of 2.97 vs 4.11, 4.01 and 3.91, respectively. In other words, the students’ level of perception is much higher than their actual attainment of these competences. This difference may be due to the fact that risk aversion reflects a particular attitude and it is therefore difficult for the teacher to evaluate the students’ intent. Thus, these competences are measured on different scales, depending on whether it is the student or the teacher who evaluates them.

In conclusion, we can say that students who develop business plans perceive that their level of attainment of entrepreneurial competences is high; their real level of attainment of these competences has also been observed to be high. Therefore, developing a business plan favours the development of entrepreneurial skills, perhaps because students who create business plans have special entrepreneurship-oriented attitudes.

Second research question
Perceived competences. The data were analysed by differentiating between real and fictitious business plans, and the results (Table III) show that, in general, creating a business plan based on a real company tends to have a positive influence on the perceived attainment of entrepreneurial competences, except for competences CP1, CP9, and CP31, which are related to the analysis of information, the use of ICT, and management, respectively.

The differences were also tested using the Mann–Whitney U test (Table IV) in order to assess the probability of these groups being different. The results show that at a level of significance $\alpha = 0.05$, there are no significant differences between the means of most of the perceived competences, except for the variables CP3, CP4, CP5, CP13, and CP32. These competences are those related to information, decision-making, improving the company’s competitive position and critical assessment. It should be pointed out that in spite of the differences between these perceived competences, the mean for each one is high (above 4 points) and, in all cases, the rating given by the students who have created a real business plan is higher than the rating of those who have created a fictitious business plan.

Attained competences. The analysis of the means of the attained competences for the real and fictitious business plans (Table V) shows that, for most competences (26 out of 34), the mean attainment of the competences for the real business plans is higher than that of the fictitious business plans. Accordingly, we can expect the students who develop real-life projects to show a higher level of attainment of most competences.

<table>
<thead>
<tr>
<th>CPs for the grouping variable “typology”</th>
<th>Fictitious</th>
<th>Real</th>
</tr>
</thead>
<tbody>
<tr>
<td>CP1</td>
<td>4.4</td>
<td>4.37</td>
</tr>
<tr>
<td>CP2</td>
<td>4.28</td>
<td>4.36</td>
</tr>
<tr>
<td>CP3</td>
<td>4.14</td>
<td>4.38</td>
</tr>
<tr>
<td>CP4</td>
<td>4.39</td>
<td>4.54</td>
</tr>
<tr>
<td>CP5</td>
<td>4.26</td>
<td>4.49</td>
</tr>
<tr>
<td>CP6</td>
<td>4.13</td>
<td>4.24</td>
</tr>
<tr>
<td>CP7</td>
<td>4.16</td>
<td>4.18</td>
</tr>
<tr>
<td>CP8</td>
<td>3.99</td>
<td>3.99</td>
</tr>
<tr>
<td>CP9</td>
<td>4.00</td>
<td>4.13</td>
</tr>
<tr>
<td>CP10</td>
<td>4.08</td>
<td>4.21</td>
</tr>
<tr>
<td>CP11</td>
<td>4.12</td>
<td>4.24</td>
</tr>
<tr>
<td>CP12</td>
<td>3.98</td>
<td>4.24</td>
</tr>
<tr>
<td>CP13</td>
<td>4.03</td>
<td>4.29</td>
</tr>
<tr>
<td>CP14</td>
<td>4.19</td>
<td>4.30</td>
</tr>
<tr>
<td>CP15</td>
<td>3.86</td>
<td>4.04</td>
</tr>
<tr>
<td>CP16</td>
<td>4.16</td>
<td>4.25</td>
</tr>
<tr>
<td>CP17</td>
<td>4.05</td>
<td>4.13</td>
</tr>
<tr>
<td>CP18</td>
<td>4.11</td>
<td>4.21</td>
</tr>
<tr>
<td>CP19</td>
<td>4.13</td>
<td>4.43</td>
</tr>
<tr>
<td>CP20</td>
<td>4.38</td>
<td>4.31</td>
</tr>
<tr>
<td>CP21</td>
<td>4.28</td>
<td>4.32</td>
</tr>
<tr>
<td>CP22</td>
<td>4.23</td>
<td>3.19</td>
</tr>
<tr>
<td>CP23</td>
<td>3.16</td>
<td>3.48</td>
</tr>
<tr>
<td>CP24</td>
<td>3.42</td>
<td>4.15</td>
</tr>
<tr>
<td>CP25</td>
<td>4.06</td>
<td>4.24</td>
</tr>
<tr>
<td>CP26</td>
<td>4.23</td>
<td>4.24</td>
</tr>
<tr>
<td>CP27</td>
<td>4.14</td>
<td>4.04</td>
</tr>
<tr>
<td>CP28</td>
<td>3.89</td>
<td>4.16</td>
</tr>
<tr>
<td>CP29</td>
<td>4.00</td>
<td>4.32</td>
</tr>
<tr>
<td>CP30</td>
<td>4.30</td>
<td>4.06</td>
</tr>
<tr>
<td>CP31</td>
<td>4.10</td>
<td>4.23</td>
</tr>
<tr>
<td>CP32</td>
<td>4.03</td>
<td>4.38</td>
</tr>
<tr>
<td>CP33</td>
<td>4.25</td>
<td>4.25</td>
</tr>
<tr>
<td>CP34</td>
<td>4.16</td>
<td>4.25</td>
</tr>
<tr>
<td>Typology</td>
<td>CP1</td>
<td>CP2</td>
</tr>
<tr>
<td>----------</td>
<td>-----</td>
<td>-----</td>
</tr>
<tr>
<td>Mann–Whitney U test</td>
<td>7,392.0</td>
<td>6,939.5</td>
</tr>
<tr>
<td>Wilcoxon W test</td>
<td>11,952.0</td>
<td>19,659.5</td>
</tr>
<tr>
<td>Z</td>
<td>-0.319</td>
<td>-1.216</td>
</tr>
<tr>
<td>Asymptotic significance (2-sided)</td>
<td>0.750</td>
<td>0.224</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Typology</th>
<th>CP11</th>
<th>CP12</th>
<th>CP13</th>
<th>CP14</th>
<th>CP15</th>
<th>CP16</th>
<th>CP17</th>
<th>CP18</th>
<th>CP19</th>
<th>CP20</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mann–Whitney U test</td>
<td>7,128.5</td>
<td>7,228.0</td>
<td>6,376.5</td>
<td>6,826.5</td>
<td>6,865.0</td>
<td>6,880.0</td>
<td>7,056.5</td>
<td>7,202.5</td>
<td>7,117.5</td>
<td>7,299.5</td>
</tr>
<tr>
<td>Wilcoxon W test</td>
<td>19,848.5</td>
<td>19,948.0</td>
<td>19,096.5</td>
<td>19,546.5</td>
<td>19,585.0</td>
<td>19,600.0</td>
<td>19,776.5</td>
<td>19,922.5</td>
<td>19,837.5</td>
<td>19,979.5</td>
</tr>
<tr>
<td>Z</td>
<td>-0.812</td>
<td>-0.627</td>
<td>-2.282</td>
<td>-1.411</td>
<td>-1.305</td>
<td>-1.295</td>
<td>-0.965</td>
<td>-0.667</td>
<td>-1.305</td>
<td>-0.579</td>
</tr>
<tr>
<td>Asymptotic significance (2-sided)</td>
<td>0.417</td>
<td>0.531</td>
<td>0.022</td>
<td>0.158</td>
<td>0.192</td>
<td>0.195</td>
<td>0.339</td>
<td>0.505</td>
<td>0.404</td>
<td>0.563</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Typology</th>
<th>CP21</th>
<th>CP22</th>
<th>CP23</th>
<th>CP24</th>
<th>CP25</th>
<th>CP26</th>
<th>CP27</th>
<th>CP28</th>
<th>CP29</th>
<th>CP30</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mann–Whitney U test</td>
<td>7,444.5</td>
<td>7,055.0</td>
<td>7,494.0</td>
<td>7,265.5</td>
<td>7,180.0</td>
<td>7,550.5</td>
<td>7,212.0</td>
<td>6,718.5</td>
<td>6,595.5</td>
<td>7,516.0</td>
</tr>
<tr>
<td>Wilcoxon W test</td>
<td>20,164.5</td>
<td>19,775.0</td>
<td>20,214.0</td>
<td>19,985.5</td>
<td>19,838.0</td>
<td>20,270.5</td>
<td>19,932.0</td>
<td>19,438.5</td>
<td>19,215.5</td>
<td>20,236.0</td>
</tr>
<tr>
<td>Z</td>
<td>-0.214</td>
<td>-0.969</td>
<td>-1.07</td>
<td>-0.530</td>
<td>-0.826</td>
<td>-0.004</td>
<td>-0.659</td>
<td>-1.635</td>
<td>-1.865</td>
<td>-0.071</td>
</tr>
<tr>
<td>Asymptotic significance (2-sided)</td>
<td>0.830</td>
<td>0.333</td>
<td>0.915</td>
<td>0.596</td>
<td>0.409</td>
<td>0.997</td>
<td>0.510</td>
<td>0.102</td>
<td>0.062</td>
<td>0.943</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Typology</th>
<th>CP31</th>
<th>CP32</th>
<th>CP33</th>
<th>CP34</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mann–Whitney U test</td>
<td>7,250.0</td>
<td>6,354.0</td>
<td>6,872.5</td>
<td>7,113.5</td>
</tr>
<tr>
<td>Wilcoxon W test</td>
<td>11,810.0</td>
<td>19,074.0</td>
<td>19,592.5</td>
<td>19,833.5</td>
</tr>
<tr>
<td>Z</td>
<td>-0.586</td>
<td>-2.312</td>
<td>-1.337</td>
<td>-0.836</td>
</tr>
<tr>
<td>Asymptotic significance (2-sided)</td>
<td>0.558</td>
<td>0.021</td>
<td>0.181</td>
<td>0.403</td>
</tr>
</tbody>
</table>

Table IV. Statistical tests of the CPs for the grouping variable "typology".
However, an additional analysis showed that these differences in the means cannot be considered statistically significant. If we analyse the significance of the attained competences that follow a normal distribution (Table VI), we observe that Levene’s test concludes the non-existence of a significant difference in the variability of both groups’ (fictitious and real) attained competences, as the value of the levels of significance for all variables is greater than 0.05. With respect to the attained competence variables that do not follow a normal distribution, the degree of significance of the contrast’s \( z \)-score (Table VII) leads us to accept the non-existence of significant differences between the means of all the attained competences with a level of significance \( \alpha = 0.05 \). Therefore, according to the results obtained, creating a business plan for a real or fictitious company does not affect the level of attainment of entrepreneurial competences.

6. Discussion

*First research question*

The first conclusion we can draw from the results is that the students rate the competences acquired during the development of the business plan positively, both as regards perception and attainment.

This result is consistent with previous results obtained in the scientific literature (Fitó-Bertran *et al.*, 2014; Henry *et al.*, 2003; Kakkonen, 2011). To answer the question of how students perceive their entrepreneurial competences after developing the business plan, we can say that the students feel reasonably confident when rating their competences. Except for two cases, the perceived competences have mean values of above 3.9. Thus, most students self-rate themselves highly for most competences, as was also the case in the studies performed by Henry *et al.* (2003) and Kakkonen (2011).

With respect to the real level of attainment of the competences, except for 3 of the 34 competences, the mean attainment is above 3.48 points.

Furthermore, the level of perception is highest for competences referring to the ability to obtain information, while these competences come second in the case of attainment. The competences with the highest levels of attainment are those related to teamwork and negotiation, which also show very high values if we consider only students who have worked in a team.

Thus, we can say that most competences have a high level of perception and attainment, although, in general, the students’ perceptions are higher than their actual attainment, since they tend to overrate their accomplishments in competence acquisition. In conclusion, we can say that the development of a business plan has a positive influence on the perception and attainment of entrepreneurial competences, confirming the statements made by Lans *et al.* (2008), Sánchez (2011) and Sitzmann *et al.* (2010): entrepreneurial competences are becoming consolidated as an integral part of the entrepreneurship teaching and learning process, providing students with a learning base from which they can further develop these competences. Furthermore, the results of Brinckmann *et al.* (2010) are partly confirmed, according to which teaching entrepreneurship reduces uncertainty in decision-making, since in our case the decision-making competence is ninth in terms of level of perception and second in attainment. The results of Ashamalla *et al.* (2008) are also confirmed, since they

<table>
<thead>
<tr>
<th>CA1</th>
<th>CA2</th>
<th>CA3</th>
<th>CA4</th>
<th>CA5</th>
<th>CA6</th>
<th>CA7</th>
<th>CA8</th>
<th>CA9</th>
<th>CA10</th>
<th>CA11</th>
<th>CA12</th>
<th>CA13</th>
<th>CA14</th>
<th>CA15</th>
<th>CA16</th>
<th>CA17</th>
</tr>
</thead>
<tbody>
<tr>
<td>Fictitious</td>
<td>7.86</td>
<td>7.86</td>
<td>7.86</td>
<td>7.86</td>
<td>7.86</td>
<td>7.86</td>
<td>6.06</td>
<td>6.06</td>
<td>7.61</td>
<td>7.04</td>
<td>7.04</td>
<td>4.87</td>
<td>6.91</td>
<td>7.23</td>
<td>4.87</td>
<td>6.54</td>
</tr>
<tr>
<td>Real</td>
<td>8.05</td>
<td>8.05</td>
<td>8.05</td>
<td>8.05</td>
<td>8.05</td>
<td>8.05</td>
<td>6.41</td>
<td>6.41</td>
<td>7.76</td>
<td>7.21</td>
<td>7.21</td>
<td>5.02</td>
<td>6.88</td>
<td>7.19</td>
<td>5.02</td>
<td>6.91</td>
</tr>
<tr>
<td>CA18</td>
<td>CA19</td>
<td>CA20</td>
<td>CA21</td>
<td>CA22</td>
<td>CA23</td>
<td>CA24</td>
<td>CA25</td>
<td>CA26</td>
<td>CA27</td>
<td>CA28</td>
<td>CA29</td>
<td>CA30</td>
<td>CA31</td>
<td>CA32</td>
<td>CA33</td>
<td>CA34</td>
</tr>
<tr>
<td>Fictitious</td>
<td>6.82</td>
<td>6.82</td>
<td>6.26</td>
<td>6.06</td>
<td>7.50</td>
<td>8.88</td>
<td>8.88</td>
<td>7.66</td>
<td>7.61</td>
<td>7.53</td>
<td>7.59</td>
<td>6.54</td>
<td>7.62</td>
<td>7.17</td>
<td>4.87</td>
<td>7.46</td>
</tr>
<tr>
<td>Real</td>
<td>6.84</td>
<td>6.84</td>
<td>6.37</td>
<td>6.41</td>
<td>7.36</td>
<td>8.67</td>
<td>8.67</td>
<td>7.86</td>
<td>7.76</td>
<td>7.76</td>
<td>7.42</td>
<td>6.91</td>
<td>7.27</td>
<td>7.22</td>
<td>5.02</td>
<td>7.42</td>
</tr>
</tbody>
</table>

Table V. Means of the CAs for the grouping variable “typology”
<table>
<thead>
<tr>
<th>Typology</th>
<th>Levene's test for equality of variances</th>
<th>[ t ]-test for the equality of means</th>
<th>95% confidence interval of the difference</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>( F )</td>
<td>( \text{Sig.} )</td>
<td>( df )</td>
</tr>
<tr>
<td>CA7</td>
<td>0.04</td>
<td>0.83</td>
<td>-1.44</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>CA8</td>
<td>0.04</td>
<td>0.83</td>
<td>-1.44</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>CA9</td>
<td>0.48</td>
<td>0.49</td>
<td>-0.87</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>CA13</td>
<td>0.57</td>
<td>0.45</td>
<td>0.15</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>CA14</td>
<td>0.33</td>
<td>0.56</td>
<td>0.25</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>CA21</td>
<td>0.04</td>
<td>0.83</td>
<td>-1.44</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>CA25</td>
<td>0.65</td>
<td>0.42</td>
<td>-1.32</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>CA26</td>
<td>0.48</td>
<td>0.49</td>
<td>-0.87</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>CA31</td>
<td>0.02</td>
<td>0.89</td>
<td>-0.30</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>CA33</td>
<td>0.23</td>
<td>0.63</td>
<td>0.21</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Table VI. Parametric statistical tests of the CAs for the grouping variable: typology.
### Table VII.
Non-parametric statistical tests of the CAs for the grouping variable "typology"

<table>
<thead>
<tr>
<th>Typology</th>
<th>CA1</th>
<th>CA2</th>
<th>CA3</th>
<th>CA4</th>
<th>CA5</th>
<th>CA6</th>
<th>CA7</th>
<th>CA8</th>
<th>CA9</th>
<th>CA10</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mann-Whitney U test</td>
<td>3,235.0</td>
<td>3,235.0</td>
<td>3,235.0</td>
<td>3,235.0</td>
<td>3,235.0</td>
<td>6,234.0</td>
<td>6,234.0</td>
<td>6,234.0</td>
<td>7,011.5</td>
<td>19,731.5</td>
</tr>
<tr>
<td>Wilcoxon W test</td>
<td>8,563.0</td>
<td>8,563.0</td>
<td>8,563.0</td>
<td>8,563.0</td>
<td>8,563.0</td>
<td>17,862.0</td>
<td>17,862.0</td>
<td>17,862.0</td>
<td>17,899.0</td>
<td>19,731.5</td>
</tr>
<tr>
<td>Z</td>
<td>−0.771</td>
<td>−0.771</td>
<td>−0.771</td>
<td>−0.771</td>
<td>−0.771</td>
<td>−1.288</td>
<td>−1.288</td>
<td>−1.288</td>
<td>−0.963</td>
<td>0.336</td>
</tr>
<tr>
<td>Asymptotic significance (2-sided)</td>
<td>0.441</td>
<td>0.441</td>
<td>0.441</td>
<td>0.441</td>
<td>0.441</td>
<td>0.198</td>
<td>0.198</td>
<td>0.222</td>
<td>0.336</td>
<td>0.336</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Typology</th>
<th>CA11</th>
<th>CA12</th>
<th>CA13</th>
<th>CA14</th>
<th>CA15</th>
<th>CA16</th>
<th>CA17</th>
<th>CA18</th>
<th>CA19</th>
<th>CA20</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mann-Whitney U test</td>
<td>7,011.5</td>
<td>7,304.5</td>
<td>7,469.0</td>
<td>7,436.5</td>
<td>7,304.5</td>
<td>6,521.5</td>
<td>7,115.0</td>
<td>7,430.0</td>
<td>7,430.0</td>
<td>7,115.0</td>
</tr>
<tr>
<td>Wilcoxon W test</td>
<td>19,731.5</td>
<td>20,024.5</td>
<td>12,029.0</td>
<td>11,996.5</td>
<td>20,024.5</td>
<td>19,241.5</td>
<td>19,835.0</td>
<td>20,150.0</td>
<td>20,150.0</td>
<td>19,835.0</td>
</tr>
<tr>
<td>Z</td>
<td>−0.963</td>
<td>−0.442</td>
<td>−0.148</td>
<td>−0.205</td>
<td>−0.442</td>
<td>−1.821</td>
<td>−0.782</td>
<td>−0.219</td>
<td>−0.219</td>
<td>−0.782</td>
</tr>
<tr>
<td>Asymptotic significance (2-sided)</td>
<td>0.336</td>
<td>0.659</td>
<td>0.883</td>
<td>0.838</td>
<td>0.659</td>
<td>0.434</td>
<td>0.826</td>
<td>0.434</td>
<td>0.434</td>
<td>0.434</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Typology</th>
<th>CA21</th>
<th>CA22</th>
<th>CA23</th>
<th>CA24</th>
<th>CA25</th>
<th>CA26</th>
<th>CA27</th>
<th>CA28</th>
<th>CA29</th>
<th>CA30</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mann-Whitney U test</td>
<td>6,234.0</td>
<td>7,314.0</td>
<td>47.0</td>
<td>47.0</td>
<td>6,780.5</td>
<td>6,271.0</td>
<td>6,601.0</td>
<td>3,300.0</td>
<td>6,521.5</td>
<td>3,157.5</td>
</tr>
<tr>
<td>Wilcoxon W test</td>
<td>17,862.0</td>
<td>11,874.0</td>
<td>68.0</td>
<td>68.0</td>
<td>19,500.5</td>
<td>17,899.0</td>
<td>19,321.0</td>
<td>5,253.0</td>
<td>19,241.5</td>
<td>5,110.5</td>
</tr>
<tr>
<td>Z</td>
<td>−1.288</td>
<td>−0.430</td>
<td>−0.296</td>
<td>−0.296</td>
<td>−1.363</td>
<td>−1.220</td>
<td>−1.693</td>
<td>−0.542</td>
<td>−1.821</td>
<td>−1.008</td>
</tr>
<tr>
<td>Asymptotic significance (2-sided)</td>
<td>0.198</td>
<td>0.668</td>
<td>0.768</td>
<td>0.768</td>
<td>0.173</td>
<td>0.222</td>
<td>0.069</td>
<td>0.588</td>
<td>0.069</td>
<td>0.313</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Typology</th>
<th>CA31</th>
<th>CA32</th>
<th>CA33</th>
<th>CA34</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mann-Whitney U test</td>
<td>7,375.5</td>
<td>7,304.5</td>
<td>3,423.5</td>
<td>3,363.5</td>
</tr>
<tr>
<td>Wilcoxon W test</td>
<td>20,095.5</td>
<td>20,024.5</td>
<td>5,376.5</td>
<td>9,691.5</td>
</tr>
<tr>
<td>Z</td>
<td>−0.313</td>
<td>−0.442</td>
<td>−0.153</td>
<td>−0.348</td>
</tr>
<tr>
<td>Asymptotic significance (2-sided)</td>
<td>0.754</td>
<td>0.659</td>
<td>0.879</td>
<td>0.728</td>
</tr>
</tbody>
</table>
showed that creating a business plan offers a learning context in which students can boost their planning skills and, in our case, project management competence is sixth in terms of level of perception and eighth in attainment.

We can therefore state that the learning objectives of the final bachelor’s degree project are attained, as also confirmed by Tounès et al. (2014), who stated that creating a business plan has a positive influence on students’ entrepreneurial competences. Thus, our study corroborates the results of these authors and reaffirms the idea that students who have the opportunity to develop a business plan will have an advantage in the acquisition of entrepreneurial skills over those who do not.

Second research question
With respect to the business plan typology, if we analyse the mean values of the perceptions and attainments of entrepreneurial competences, it seems that developing a business plan has a positive influence on the perception and attainment of entrepreneurial competences. However, significant differences are only found between creating a real or fictitious business plan in the perceived competences related to information, decision-making, improving the company’s competitive position and critical assessment. For the other perceived competences, undertaking a final project on a real or fictitious company does not affect the level of perception of these competences. In the case of the attained competences, none of the differences can be considered significant.

Some possible reasons for not finding any differences in the entrepreneurial competences between developing a real or fictitious business plan could be that developing the business plan follows the same structure, whether it is real or fictitious and, unlike the results obtained by Vincett and Farlow (2008), our students have the same motivation and devote the same time to developing the project irrespective of whether the business plan is for a real or fictitious company. These facts could help explain why the competence attainment and perception of the students is not affected by the business plan typology and why, for both types, the competences have obtained high values. Thus, these differences could occur when there is an evident lack of motivation in the students, which is not our case.

Accordingly, our results contribute to the scholarly debate on the importance of entrepreneurship projects being as close to reality as possible, contradicting the results of some authors (Honig, 2004; Peterman and Kennedy, 2003; Sánchez, 2011) who challenge the usefulness of teaching methods in which business plans are developed for fictitious companies and reaffirming the results obtained by Tounès et al. (2014), as both typologies (real and fictitious business plans) have a positive influence on students’ entrepreneurial competences. Even more, according to these authors and as was the case in our study, there are no significant differences between the two protocols.

7. Conclusions
With this study, we wish to contribute to broadening knowledge on the relationship between the perception and attainment of entrepreneurial competences within the framework of a final bachelor’s degree project in the field of entrepreneurship, as well as helping to broaden the analysis of entrepreneurial skills, which are of vital importance for future graduates.

The empirical analysis performed in this study seeks to remedy some of the shortcomings in the scientific literature on the development of entrepreneurial competences through business plans. Thus, it was observed that there are many studies on entrepreneurial skills, but studies on the achievement of entrepreneurial skills when developing a business plan are scarce. Additionally, all previous studies analysed entrepreneurial competences from the perception or viewpoint of the students, only obtaining results for perceived entrepreneurial competences (e.g. Henry et al., 2003; Kakkonen, 2011). However, none of the papers we
reviewed analysed attained entrepreneurial competences using the teachers’ assessment and comparing both perspectives. All of the studies of which we are aware use perception as a measure of competence attainment and only refer to the students’ perceptions. The reason for approaching the analysis solely from the perception viewpoint is the lack of data on real competence attainment; the data typically available to authors are obtained from questionnaires administered to students about their perceptions. Kakkonen (2011) observed that, in order to determine how realistic the competence perceptions were, it would be necessary to compare them with the assessment made by teachers. This is precisely what we have done in our study. Accordingly, our study contributes significantly to research in this field by taking into account teacher assessments, which indicate the level of real achievement of entrepreneurial competences, and by performing an analysis never previously performed.

This paper makes two main contributions: the first is to identify the most significant entrepreneurial competences that are developed through the preparation of business plans as part of university studies; and the second is to offer an analysis of the differences in entrepreneurial competence development depending on the business plan typology. The statistical analysis performed showed that both the perception and the attainment of entrepreneurial competences through preparing a business plan are very high and the fact that the business plan is developed for a real or fictitious company does not give rise to any significant differences in entrepreneurial competences. Thus, developing a business plan, whether real or fictitious, is a tool that will allow students to develop their entrepreneurial skills and, therefore, improve their ability to create a new business. However, whether the business plan is real or fictitious does not seem to be a measure of the degree of achievement of entrepreneurial learning. Additionally, although the main indicators that are taken into account when it comes to measuring entrepreneurship learning are entrepreneurial intention and business creation (Kozlinska, 2011), we provide an alternative measure, that of entrepreneurial skills, which are proven to be effective in measuring learning. Thus, the competences allow us to evaluate the level of entrepreneurship of potential business creators.

However, in order to ascertain how the acquisition of entrepreneurial competences evolves during creation of a business plan, a longitudinal study would need to be carried out. Future research would need to focus on determining the link between the level of competence attainment at the beginning of the process and at the end and the quantification of the possible differences.

We can conclude, therefore, that creating a business plan generates positive synergies for entrepreneurial competences and, in the long run, these results may translate into new entrepreneurship projects that foster economic growth.

Furthermore, this study will allow university institutions to improve their educational processes to enhance the development of certain competences. Thus, if these competences are developed, entrepreneurial behaviour will improve and, by extension, the competitiveness of organisations, or even of the economic system as a whole, will also improve. At the same time, it will be easier to bridge elements with the labour market. In any case, the only way to reveal the true level of competences and how competent the students really are in their professional activities is through assessment by future employers once the students have entered the labour market.

References


**Corresponding author**
Raquel Ferreras-Garcia can be contacted at: rferreras@uoc.edu
The contribution of emotional intelligence and spirituality in understanding creativity and entrepreneurial intention of higher education students

Ana Paula Rodrigues  
Department of Economics, Sociology and Management,  
Centre for Transdisciplinary Development Studies,  
University of Trás-os-Montes and Alto Douro, Vila Real, Portugal  
Filipa Eira Jorge  
Department of Economics, Sociology and Management,  
University of Trás-os-Montes and Alto Douro, Vila Real, Portugal  
Carlos André Pires  
University of Trás-os-Montes and Alto Douro, Vila Real, Portugal, and  
Patrícia António  
Department of Economics, Sociology and Management,  
University of Trás-os-Montes and Alto Douro, Vila Real, Portugal

Abstract
Purpose – The purpose of this paper is to analyse the role of spirituality and emotional intelligence in understanding creativity, attitudes towards entrepreneurship, perceived behavioural control (PBC) and entrepreneurial intention of students of a Portuguese higher education institution. A conceptual model is proposed representing direct and indirect relationships among these constructs.

Design/methodology/approach – A quantitative approach was adopted in the form of a survey questionnaire applied to a sample of 345 university students. To test the hypothesised relationships between the constructs, the authors used the path analysis technique.

Findings – Results show that personal attitudes towards entrepreneurship and PBC have a positive effect on entrepreneurial intention, and mediate the effect of emotional intelligence on entrepreneurial intention. Emotional intelligence has a direct positive effect on creativity. The results reveal no or a tenuous influence of spirituality in the various concepts studied.

Practical implications – It is expected that the model can serve as a support for facilitating and promoting entrepreneurship in higher education environments. It could be of valuable use to furthering our understanding of the role of individual/psychological characteristics, motivational and attitudinal factors in fostering entrepreneurial intention of university students.

Originality/value – Some studies suggest that psychological factors play an essential role in developing alternative models to the entrepreneurial process. However, the studies that directly explore how individual differences in emotional intelligence, spirituality and creativity relate to entrepreneurial intention are relatively few.

Keywords Spirituality, Emotional intelligence, Creativity, Personal attitudes towards entrepreneurship, Perceived behavioural control, Entrepreneurial intention, Students

Paper type Research paper

1. Introduction
Entrepreneurship is a critical factor in fostering innovation and job creation and it is believed to be an effective strategy in handling the issue of employability. Research in the area of entrepreneurial intention continues to represent a fruitful area of study. Intentions are direct predictors of behaviour (Ajzen, 1991); hence, entrepreneurial intention is closely
related to entrepreneurship behaviour. Since entrepreneurial behaviour is intentional and a planned behaviour (Krueger et al., 2000), intentions have been highlighted as reliable predictors of entrepreneurial action (Krueger et al., 2000; Zampetakis et al., 2009).

Over time, several factors that seek to explain the entrepreneurial intention have been considered. The study of factors that influence entrepreneurial intention is relevant, especially given the socio-economic benefits commonly attributed to entrepreneurship. Entrepreneurial intention is a key element in entrepreneurial activity performance (Liñán, 2004) corresponding to an important indicator of these activities. There are studies showing that the success of entrepreneurs can be influenced by personal characteristics, and several psychological/cognitive factors have been associated with the development of these entrepreneurial intentions and to the entrepreneurial process itself (Ferreira et al., 2012; Paladina-Meléndez et al., 2014).

The present study follows a recommendation for future research of Fayolle and Liñán (2014), in which the authors recommended the examination of the role of variables that, on a personal level, are able to influence the entrepreneurial intention of an individual. There are some studies suggesting that psychological factors play an essential role in developing alternative models to the entrepreneurial process (Gelard and Emamisaleh, 2014). However, there is still little research dedicated to explore how individual differences in spirituality, emotional intelligence and creativity relate to entrepreneurial intention.

In this context, the purpose of this study is to empirically investigate the effects of spirituality and emotional intelligence on creativity, personal attitudes towards entrepreneurship (PA) and perceived behavioural control (PBC) and their simultaneous impact on entrepreneurial intention. By proposing and testing a conceptual model, this study tries to understand some entrepreneurial intention antecedents. Drawing on Liñán and Chen (2009) and Zampetakis et al. (2009), the proposed model incorporates the traditional entrepreneurial intention drivers, based on the theory of planned behaviour (Ajzen, 1991) and adds three other individual-level influences in examining one’s intention to become entrepreneur. Moreover, spirituality and emotional intelligence are included as variables that influence the entrepreneurial intention directly and indirectly (through the mediation of the creativity, PA and PBC variables). We applied this study to students of a Portuguese higher education institution.

Empirical studies analysing the relation of emotional intelligence with entrepreneurial attitudes and intentions only recently have started to be carried out (Davis and Peake, 2014; Mortan et al., 2014; Zampetakis et al., 2009). Because very little research on emotional intelligence has been conducted in the entrepreneurship realm, we consider that additional tangible outcome data are needed to fully test the predictive power of emotional intelligence on university students’ entrepreneurial intention.

Similarly to the growing interest in emotional intelligence and its application to entrepreneurial intention, there is also an increasing interest in the integration and application of spirituality to the field of entrepreneurship. The idea of relating the spiritual dimension to the entrepreneurship study field is intuitively attractive and has already been done theoretically by some studies (Kauanui et al., 2010; Balog et al., 2014). Indeed, the human being has physical, emotional, mental and spiritual needs. Therefore, drawing on an integral theory (which seeks to comprehensively and holistically understand reality in all its facets; Wilber, 2006), the spiritual dimension, in its quest for unity, and for the integration of our thoughts and actions, will probably influence attitudes and entrepreneurial intentions. However, the notion of spirituality in its relation to entrepreneurship in higher education is relatively new and empirical studies are still few. As Kauanui et al. (2010) call attention to, there have recently been calls for research to understand more deeply the “entrepreneurial mindset” and to explore deep beliefs that motivate entrepreneurs. To fill this gap, this study introduces the spirituality construct to the entrepreneurial intention and higher education literatures, and intents to empirically examine its influence on creativity, PA, PBC and entrepreneurial intention.
Parallel to spirituality, the topic of “students’ creativity has also only recently emerged as a significant area of scientific inquiry” (Zacher and Johnson, 2014, p. 2), especially as a predictor of entrepreneurial intention and as a mediator variable (Zampetakis et al., 2009). For some scholars, it seems that creativity, innovation and entrepreneurship are intricately linked (Tsai, 2014). Nevertheless, entrepreneurial intention models have generally overlooked the creativity–entrepreneurial intention connection (Zampetakis et al., 2011). Moreover, given the important role that creativity plays in the entire entrepreneurial process, researchers have highlighted the necessary conditions to enhance creativity in entrepreneurship (Lerch et al., 2015). For example, Lerch et al. (2015, p. 17) critically reviewed the literature on creativity in the entrepreneurship field and pointed out that “there is a high need for studies of the mechanisms for creativity development which can be effectively deployed in educational programs”, especially because, as mentioned by Zampetakis and Moustakis (2006), the promotion of entrepreneurial intention through the development of creative thinking is not encouraged by contemporary university environment. To fill this gap, this study posits that creativity could be cultivated through the development of the spiritual and emotional dimensions and can also act as a mediator in the relationship between the previous variables and entrepreneurial intention.

While some of these studies have made important contributions to a better understanding of the roles of spirituality, emotional intelligence and creativity in the realm of entrepreneurial intention, so far, no study has investigated these topics in combination in the higher education context. As Zampetakis et al. (2011) alluded, traditionally, much of the entrepreneurship literature have focused heavily on the role that an individual’s attitude towards entrepreneurship, perceived social norms and PBC plays in understanding the drivers of entrepreneurial intention. However, as the authors recognised, studies have also turned their attention to cognitive dimensions of entrepreneurship. Our research is a small contribution to shed further light on these understudied antecedents in the higher education and the entrepreneurship literatures.

Finally, the choice of the higher education institutions context is also important in explaining the relevance of this study. In recent years, higher education institutions have come to regard the promotion of entrepreneurship as a priority. Currently, a major target of the entrepreneurship incentive programmes is university students (Paladina-Meléndez et al., 2014). Thus, it is clear the need to conduct further research in this context, so that universities can become structuring places to raise entrepreneurship awareness and to develop psychological and behavioural characteristics that strengthen students’ entrepreneurial spirit. This study aims to contribute to entrepreneurial education field through the understanding of what psychological factors should be stimulated in higher-level education programmes to encourage student’s entrepreneurial intention. Besides, if we recognise the exogenous factors that influence entrepreneurial intentions, we will have a better understanding of the factors that trigger companies’ creation by potential entrepreneurs. These insights could be important for academic researchers interested in entrepreneurship field but also for education institutions and agencies and policy makers.

2. Literature review and proposed hypothesis

2.1 Entrepreneurial intention
According to Fayolle and Liñán (2014) and Liñán and Fayolle (2015), entrepreneurial intention is a consolidated area of research within the field of entrepreneurship. Much of entrepreneurship is intentional and the use of structured and tested intention models is a good way to examine the precursors for starting a business (Krueger et al., 2000). Liñán and Chen (2009) showed that, in the literature, there is an increase of scholars who argue that the intentions are crucial in deciding to start a new company since the decision of an individual to become an entrepreneur is considered voluntary and conscious (Krueger et al., 2000).
In the entrepreneurial intention literature, two of the most widely used theoretical approaches to analyse these intentions are the theory of planned behaviour that was introduced by Ajzen (1991), and the Shapero and Sokol (1982) model of the entrepreneurial event. Both models offer a coherent, highly generalisable and robust theoretical structure to understand and predict individuals’ entrepreneurial intention (Krueger et al., 2000).

The use of theory of planned behaviour as a conceptual framework for studying entrepreneurial intention is the choice of a growing number of studies (Autio et al., 2001; Ferreira et al., 2012; Liñán and Chen 2009; Paço et al., 2011) and is also the basis of this research. Following Liñán and Chen (2009), entrepreneurial intention indicates the effort that the person will do to perform that entrepreneurial behaviour, capturing three motivational factors or antecedents: PA, PBC and subjective norms.

The conceptual model illustrated in Figure 1 provides a framework for our analysis. The proposed model focusses on six (latent) constructs to predict entrepreneurial intention. The model proposes a direct impact of spirituality and emotional intelligence on entrepreneurial intention. In alignment with the theory of planned behaviour and also with some research evidence (Zampetakis et al., 2009), the model suggests that the intention to become an entrepreneur is directly influenced by creativity, PA, PBC, emotional intelligence and spirituality. However, the model also predicts that the impact of emotional intelligence and spirituality on entrepreneurial intention is mediated by creativity, PA and PBC, that is, it is assumed that the spiritual values and emotional patterns of the individual indirectly influence the intention to become an entrepreneur through their effect on creativity, PA and PBC.

The subjective norm (i.e. the perceived social pressure to undertake an entrepreneurial career) was not included in our model. Some of the reasons that account for that decision are related to, as acknowledged by Heuer and Liñán (2013), the fact that, in the theory of planned behaviour, the role of the subjective norm has varied substantially. Several studies found it to be non-significant (Autio et al., 2001; Krueger et al., 2000; Liñán and Chen, 2009; Lee-Ross, 2017), and several authors have suggested the presence of interactions and indirect effects of the subjective norm on entrepreneurial intention (Heuer and Liñán, 2013). Besides, Krueger et al. (2000) suggested that subjective norm may only be important in ethnic groups with strong entrepreneurial traditions, which is not the case of the higher education organisation studied. Therefore, because of the exploratory nature of our study and because of the limited number of variables that we can model, we decided to drop this variable. Further justifications are given in the limitations section of the present study.

The hypotheses to be tested are summarised in Table I.

In what follows next, each independent variable (antecedents of entrepreneurial intention) of the conceptual model is discussed.
2.2 Antecedents of entrepreneurial intention

PA, PBC and entrepreneurial intention. Several findings have supported the applicability of the theory of planned behaviour to the field of entrepreneurship (Liñán and Chen, 2009). The importance of specific attitudes to understand human behaviour is widely recognised (Ajzen and Fishbein, 1980). In its application to the field of entrepreneurship, PA refers to the degree to which the individual has a positive or negative personal evaluation about being an entrepreneur, including not only emotional (I like), but also evaluative considerations (has advantages) (Liñán and Chen, 2009). PBC is defined as the perception of ease or difficulty associated with being an entrepreneur, including not only the feeling of being able, but also the perception of the extent to which one can control the behaviour (Liñán and Chen, 2009).

Previous research has established the link between attitudes and intentions, as well as between PBC and intentions (Ajzen, 1991; Ferreira et al., 2012; Liñán and Chen, 2009; Paço et al., 2011; Zampetakis et al., 2009). The general arguments of these investigations are that the more favourable the attitude towards entrepreneurship as a career option, the stronger the entrepreneurial intention and also, the greater a person’s PBC, the stronger is that person’s intention to become self-employed (Ferreira et al., 2012).

Creativity and entrepreneurial intention. Creativity is an important component of human behaviour (Hughes et al., 2013), and is undoubtedly a multifaceted phenomenon that cannot be seen by the light of a single approach (Puhakka, 2012). It is, according to Gilad (1984), one of the main cognitive tools used by human beings in proactive behaviour. It expresses the ability of an
individual to expand and go beyond the existing realities (Puhakka, 2011). Analogous definition is that of Amabile et al. (1996), in which creativity is defined as the production of a new and useful idea in any domain. More recently, Carmeli et al. (2014) considered creativity as a process of germinating the idea, solving problems and implementing a current idea or solution within a given social context.

The individual creativity within organisations is a very fertile field of research due to its contribution to individual and organisational success (Carmeli et al., 2014). Accordingly, this can also be an influential variable in the intention to undertake a new action or become an entrepreneur. Entrepreneurship is a creative activity (Sarasvathy, 2001), thus to understand the behaviour of an entrepreneurial individual it is crucial to consider the entrepreneur’s psychological abilities. In this context, models of entrepreneurial intention should append creative disposition (Hamidi et al., 2008; Zampetakis and Moustakis, 2006).

Only recently creativity has been considered in intention-based models (Hamidi et al., 2008) and it has become a central subject in entrepreneurial process research (Hu et al., 2018). Lerch et al. (2015) argued that creativity plays important roles in entrepreneurship, namely, it rises entrepreneurial orientation, enables opportunity recognition and firm formation, and boosts individual, corporate and regional entrepreneurial performance. Therefore, it is relevant to analyse whether creativity can directly predict entrepreneurial intention. In this regard, Zampetakis et al. (2011) argued that cognitive approaches to entrepreneurship highlight a person’s creativity as an important, yet understudied antecedent of entrepreneurial intention. Some studies have explored this association, for example, Hamidi et al. (2008), Phipps et al. (2015), Zampetakis et al. (2009, 2011) and Zampetakis and Moustakis (2006). Hamidi et al. (2008) claimed that additional research on the creative dispositions among students is necessary to confirm the strong influence of personal creativity on entrepreneurial intention. In this context, Hu et al. (2018) argued that creativity has an important role in the study of the effects of cognitive variables on entrepreneurial intention; however, the results of their study point out that if entrepreneurial alertness performs as a mediator, the relationship between creativity and entrepreneurial intention is non-significant. Meanwhile, Zampetakis et al. (2009) adverted that attitudes towards entrepreneurship fully mediate the effects of creativity (and proactivity) on entrepreneurial intent: the direct effects of proactivity and creativity on entrepreneurial intent were not statistically significant.

Emotional intelligence, creativity, PA, PBC and entrepreneurial intention. Much of the literature suggests that emotions play a central role in cognitive processes and behaviours (George, 2000). Wong and Law (2002) had already considered it, more than a decade ago, an emerging topic, which remains very relevant until the present day, being used in several research spectres.

Emotional intelligence is a term that has its origin in the concept of social intelligence and was mentioned first by Thorndike (1920). But it was only with the book published by Goleman (1995) that emotional intelligence was recognised as a key element of the concept of intelligence (Schutte et al., 1998). Zhou and George (2003) summarised the emotional intelligence as the ability to understand and manage emotions and their interrelationships with cognition as much of oneself as of others.

The conceptualisation of Wong and Law (2002) is used in our study, in which emotional intelligence is understood as a set of interrelated abilities that individuals have in order to deal with emotions. Wong and Law (2002) developed a four-dimensional scale of emotional intelligence, based on the model of Mayer and Salovey (1997), that relates to: the ability to understand one’s own emotions as well as to express them naturally, the ability to perceive, recognising and understanding the emotions of others, the ability to regulate emotions for faster recovery, and the ability to use one’s own emotions, guiding them towards constructive activities and personal performance.
Although emotional intelligence has attracted considerable research attention in a diversity of fields, little has been done to examine why and how emotional intelligence may enable creative behaviours (Carmeli et al., 2014).

Some studies have established associations between emotional intelligence and creativity (Carmeli et al., 2014; Hamidianpour et al., 2015; Ramy et al., 2014; Mofidi et al., 2012; Zampetakis et al., 2009; Zhou and George, 2003). Zampetakis et al. (2009) suggested that creativity can be particularly susceptible to emotional influences: since reasoning about emotions (even at a minimal, self-reflective level) is part of emotional self-efficacy, we can say that it is conceivable that individuals with high levels of emotional intelligence can report higher scores of creativity. The authors argued that students with knowledge of their own emotions may conduct negative and/or positive affections on the proper identification and resolution of business creation relevant problems. Following this line of thinking, Othman and Muda (2018) also suggested that emotional intelligence is associated with creative and innovative attitudes among students. Individuals with high emotional intelligence are able to generate creative ideas, which eventually shape their entrepreneurial characteristics, ultimately leading to entrepreneurial behaviours (Ngah and Salleh, 2015). The results of Hamidianpour et al. (2015) confirm a direct and positive (but relatively weak) effect of emotional intelligence on employee creativity. Other studies that have been done (see Ramy et al., 2014) do not support the direct relationship between emotional intelligence and creativity. Thus, it seems useful to do more investigations in this subject.

Zampetakis et al. (2009) study’s was one of the first to relate the emotional intelligence and the entrepreneurial attitudes and intentions. According to the authors, to increase, effectively, PA it is relevant to enable both the cognitive and the emotional basis of entrepreneurial attitudes. However, they concluded that the relationship between emotional intelligence and PA is indirect, mediated by proactivity and creativity. That is, students who have high emotional self-efficacy would be more vigorously involved in the search for information, trying to prevent or minimise potential stressors, which, in turn, helps the perception of creativity, making attitudes towards entrepreneurship more favourable (Zampetakis et al., 2009).

Emotional intelligence plays an important role in predicting entrepreneurial processes (Mortan et al., 2014). The authors stated that the ability to, appropriately, manage and use emotions plays an important role in entrepreneurial self-efficacy.

The relationship between emotional intelligence and entrepreneurial intention is identified in several studies (Davis and Peake, 2014; Gelard and Emamisaleh, 2014; Mortan et al., 2014; Archana and Kumari, 2018; Kanonuhwa et al., 2018). Individuals feel more competent to take the frustrations and struggles associated with being an entrepreneur if they are confident in their ability to regulate their emotions and recognise emotions in others (Davis and Peake, 2014). Gelard and Emamisaleh (2014) empirically showed that college students with more emotional intelligence have more entrepreneurial intention. Also, results of the study of Kanonuhwa et al. (2018) revealed that there is a direct association between emotional intelligence and entrepreneurial intention, with the strongest association recorded between regulation of emotion (ROE) and entrepreneurial intention and the least significant association between use of emotion (UOE) and entrepreneurial intention.

Students’ emotional intelligence can help them to develop some entrepreneurial characteristics and possibly to have entrepreneurial behaviour (Hassan and Omar, 2016). Othman and Muda (2018) had analysed the importance of emotional intelligence while managing the moments of difficulty in making the right choices for a future profession. Emotional intelligence may be one of the ways to manage feelings of disappointment and help recover the confidence needed to fight such feelings. The authors argued that students with a low level of emotional intelligence lack the enthusiasm to make career decisions due to incapacity to sustain good social networks which may keep them from obtaining the right information to make a career decision.
Other authors (Zampetakis et al., 2009; Mortan et al., 2014; Chamola and Jain, 2017) have empirically supported a mediation effect between emotional intelligence and entrepreneurial intention. Chamola and Jain (2017) found out that perceived desirability and feasibility fully mediate the effects of emotional intelligence on intention because the effect of emotional intelligence on entrepreneurial intention was no longer significant after the addition of two mediating variables. With a sample of 394 Spanish and Portuguese students, Mortan et al. (2014) showed that regulation and use of the emotions (two dimensions of emotional intelligence) positively affect self-efficacy, which, in turn, mediates the relationship between emotional intelligence and entrepreneurial intention. Also, Zampetakis et al. (2009) had established a mediating effect of creativity and proactivity on the relationships between emotional intelligence and entrepreneurial intention and also between attitude and entrepreneurial intention.

**Spirituality, creativity, PA, PBC and entrepreneurial intention.** There is a growing recognition that spirituality is a fundamental aspect of human existence (Gallup and Lindsay, 1999). Human beings can be considered spiritual beings embodied in the physical world who have materialistic and non-materialistic desires and motivations (Illes, 2017).

There is no universally accepted definition of spirituality, but generally it can be considered as a complex, multi-cultural and multi-dimensional concept (Illes, 2017). Spirituality is an enduring journey and learning experience from the inside out (Pathak, 2012). It is a vast phenomenon related to inner qualities that are independent of any religion or belief system (Agbim et al., 2013). According to Mitroff and Denton (1999), spirituality is a basic feeling of being connected with the self, with others and with the universe. It is an inner experience of an individual who, by connecting with others and with a higher power, discover the meaning and purpose in life (Rust and Gabriels, 2011). This viewpoint is backed by Nandram (2016), who concluded that underlying spirituality is a process of harmonisation with the self, with the environment and belief in a transcendent power originating in higher levels of consciousness. The author acknowledged that when we define spirituality in terms of attitudes, behaviours or practices from the inner self, then it is possible to examine it as part of the management science. Therefore, spirituality is an emerging theme in the social sciences and in particular in the field of management (Balog et al., 2014; Shinde and Shinde, 2011; Nandram, 2016).

Also, at the university context, it has become an area of study ever more acceptable (Bradley and Kauanui, 2003). The authors stated that it is within the academic environment that the totality of the person needs to be developed, with regard to his mind, body and, also, spirit. Similar idea is pointed out by Bowman and Small (2010, p. 505), when they argued that “Although it has received relatively little attention in the higher education literature, spiritual development may constitute one of the most important outcomes of the college experience”. The rational, but also emotional and spiritual dimensions are always present in human beings. Indeed, according to Ashmos and Duchon (2000), the spiritual development may be pivotal to mental development. Having this in regard, a comprehensive view of individual’s reality should always incorporate a spiritual dimension.

Establishing a connection between spirituality and creativity is rather intuitive and natural. Creativity corresponds to a human capacity that has a transcendental nature because it leads us beyond ourselves in a similar way as spirituality (Paintner, 2007). Spirituality acts in all stages of creativity and innovation as a catalyst to facilitate the creative process (Gholipour et al., 2014). For the authors, spiritual intelligence corresponds to a key variable in predicting students’ creativity and, self-consciousness and enthusiasm (variables of spiritual intelligence) had the highest contribution in creativity. Chin et al. (2012) proposed a conceptual framework that suggests that spiritual (and emotional) intelligence plays an important role in promoting creativity among entrepreneurs. For the authors, both spiritual and emotional intelligence encourage and improve levels of creativity and innovation among entrepreneurs.
Farsani et al. (2015) confirmed that there is a significant and positive relationship spiritual intelligence and employee’s creativity. Kauanui et al. (2010) argued that flow characteristics are experienced more frequently by spiritual connected entrepreneurs, suggesting that, most likely, they can provide a more creative work environment. In the context of organisational development, Pathak (2012) contended that a spiritual workplace offers means to help people reveal their creative potential and to practice creativity within the organisation. For the author, it is important to provide a deeper sense of meaning and purpose for employees because this enables them to perform better and to be more productive and creative at work. Spirituality seems to be a prerequisite of creativity in good and caring management (Illes, 2017): Generating free space and letting the future to arise is an essential condition for bringing forth creative, ethically sound ideas and practices.

The spiritual facets of entrepreneurship were either completely ignored or relegated to a role of non-importance by studies in entrepreneurship (Shinde and Shinde, 2011). As acknowledged by Godwin et al. (2016), there is a gap in the literature concerning the investigation of how the integration of spirituality and self-leadership might influence entrepreneurial behaviour. Indeed, the relationship between spirituality and entrepreneurship seems unusual but there are reasons to address this issue (Nandram, 2016).

Interest in spirituality in the field of entrepreneurship is increasing since the connection of these concepts provides an understanding of how the increased awareness of an entrepreneur, in terms of personal values and beliefs, can influence the business and crucial features of the entrepreneurial process (Balog et al., 2014). Agbim et al. (2013) studied the importance of certain spiritual dimensions in the development of entrepreneurship, and proposed that the introduction of spirituality in entrepreneurship development programmes for students is relatively important. Spirituality forms the foundation for major values and beliefs that influence how entrepreneurs perceive and approach events (Godwin et al., 2016). Deeper motivations based on visions, dreams, passion, creativity, courage and intuition are intangible capacities inherent to entrepreneurial processes (Nandram, 2016) that could be enhanced by core beliefs, values and assumptions anchored in one’s spirituality.

3. Research methodology

3.1 Research method and sample

Considering the study objectives, the methodology employed for this study was a positivist approach, and a quantitative research design was adopted. In the context of studies on entrepreneurial intention, the adoption of the positivist paradigm through the use of quantitative approaches has been made by most researchers (Liñán and Fayolle, 2015).

The target population is comprised of students from a Portuguese university, distributed into its five schools (Humanities and Social Sciences; Technological Sciences; Agricultural and Veterinary Sciences; Life Sciences and Environment; and Nursing). Of all students in each school the data collection tool was applied only to the third-year undergraduate and postgraduate students.

The use of a university student’s sample is particularly well suited for studying entrepreneurial intention. Such a sample was specifically chosen since we were primarily interested in entrepreneurial intention and third-year undergraduate and postgraduate students will move on their working life sooner than others, that is they are about to face their professional career choice. This is in line with other similar studies such as Liñán and Chen (2009), Zampetakis and Moustakis (2006) and Krueger et al. (2000). Also, similar to the arguments of Mayhew et al. (2012), the sample for this study included undergraduate and postgraduate students from diverse study areas, not only from the commonly business and economics ones. Such diversity of areas will expectantly allow an interdisciplinary perspective about students’ entrepreneurial intention.
We developed a survey to collect primary data directly from students. According to Saunders et al. (2009), surveys are a popular search strategy because they allow the collection of a large amount of data from a considerable population in an economical way. The cross-section descriptive questionnaire survey was considered as the most appropriate research approach to gather information for the purpose of this study. Therefore, data collection was carried out by personal survey (questionnaire) applied to students of this higher education institution.

Since this study aimed to assess the role of spirituality, emotional intelligence and creativity in the development of entrepreneurial intention, and since these constructs are relatively newer, the greatest care and attention was devoted to explain the conceptualisations used and in the selection of reliable and valid measures. In this context, the questionnaires were administered in person and returned directly to the researchers during several lectures. All the necessary explanations were given to ensure that concepts used were not misconstrued by participants.

In adherence to the ethical considerations of conducting this study, ethical authorisation was obtained from the University Ethics Committee prior to carrying out the research.

Due to financial and time constraints, a non-probability sampling was used in selecting a sample for this study. We chose that participants should be registered university students in the studied higher education institution and that at leastwise there should be participants belonging to the five existing schools (third-year undergraduate and postgraduate students). A total of 345 usable responses were obtained.

This study was conducted at a higher education institution in Northern Portugal. Public universities in Portugal have increasingly become involved in entrepreneurial activities and this is also the case of the studied university. The studied higher education institution is a general university, offering diverse curricula, ranging from engineering and exact sciences to human arts. The institution is situated in a challenging territory (low density territory), implying several responsibilities at the level of territorial cohesion and sustainable development.

Selecting this university (single site) is appropriate because focussing on one case enhances homogeneity of university characteristics and facilitates research techniques and procedures application; other scholars have successfully applied single-site studies (Kanonuhwa et al., 2018); and it is particularly suitable site because the general entrepreneurial tendency of Portuguese universities, inspired by growing financial challenges, is especially evident in this institution’s strategic plan for the 2017–2021 cycle, in which some values are related to innovation, creativity and entrepreneurship, and having as one of its strategic objectives the promotion of innovation and entrepreneurship (UTAD, 2017).

3.2 Measures
A structured questionnaire was developed consisting of several questions related to the student’s perceptions regarding the concepts of the model. A five-point Likert-type scale (1 = strongly disagree; 5 = strongly agree) was used for all the variables except for spirituality. Upon review of the literature, the following scales were chosen to measure the constructs (Table II).

<table>
<thead>
<tr>
<th>Construct</th>
<th>Used scale</th>
</tr>
</thead>
<tbody>
<tr>
<td>Entrepreneurial intention</td>
<td>Liñán and Chen (2009): the scale comprises six items</td>
</tr>
<tr>
<td>PA</td>
<td>The scale used to measure PA was adopted from Liñán and Chen (2009) and contains five items</td>
</tr>
<tr>
<td>PBC</td>
<td>Liñán and Chen (2009): the scale has six items</td>
</tr>
<tr>
<td>Creativity</td>
<td>Puhakka (2011): there are five items in the scale</td>
</tr>
<tr>
<td>Emotional intelligence</td>
<td>Puhakka (2011): there are five items in the scale</td>
</tr>
<tr>
<td>Spirituality</td>
<td>Wong and Law (2002); WLEIS scale is composed of four dimensions and 16 items</td>
</tr>
<tr>
<td></td>
<td>Hodge (2003): intrinsic spirituality scale (ESS) comprises six items</td>
</tr>
</tbody>
</table>

Source: Elaborated by the authors
In the literature, there are many definitions of spirituality. In terms of its measurement, Kapuscinski and Masters (2010) reported that the experience of spirituality is not easy to measure due to the difficulty to verbalise spirituality, which complicates matters in terms of the operationalisation of empirical research on this theme. In this study, the intrinsic spirituality scale was used (Hodge, 2003) with six items. It assesses the degree to which spirituality serves as the primary reason for an individual both to the theistic and non-theistic population, whether inside or outside of religious structures (Hodge, 2003). Respondents are asked to read an incomplete statement (e.g. “Spirituality is [...]”) and response options range from 0 to 10, with 0 indicating low levels of spirituality (e.g. “It is not part of my life”) and 10 indicating high levels of spirituality (e.g. “The main motive of my life, directing all other aspects of my life”). Three statements were reverse-coded.

The measure of emotional intelligence used in this study was the Wong and Law Emotional Intelligence Scale (WLEIS) and intents to measure the knowledge that individuals have about their own emotional abilities rather than their actual abilities. The scale consist of 4 dimensions and 16 items: self-emotional appraisal (“I have good understanding of my own emotions”) measures the individual’s ability to understand their emotions; others emotional appraisal (“I am a good observer of others’ emotions”) is the ability to recognise and understand other people’s emotions; UOE (“I am a self-motivated person”) is the tendency to motivate oneself to enhance performance; and ROE (“I am quite capable of controlling my own emotions”) measures the ability to regulate emotions (Wong and Law, 2002).

Creativity was measured by the Puhakka (2011) scale, with five items, and is understood as the capacity of an individual to extend and go beyond existing realities. Similar to the study by Zampetakis et al. (2011), a self-perceived measure was used.

The scales of PA, PBC and entrepreneurial intention were taken from the study by Liñán and Chen (2009). The concept of PA presents five items and the scale of PBC is composed of six items. The dependent variable, entrepreneurial intention, has been operationalised with a scale that aggregates six items, in which respondents were asked to indicate whether they intended to start a business, answering questions about their entrepreneurial intention. These are general phrases that indicate different aspects of intention.

3.3 Data analysis
The stability and consistency of measured items of each latent construct were evaluated by reliability analysis. To test the hypothesised relationships between the constructs, we used the path analysis technique, which is an extension of linear regression used to study structural relationships between manifest variables (Marôco, 2010). The estimation of the model was achieved with the method of maximum likelihood, implemented in the software Amos – version 22 for Windows. Other analyses were performed with SPSS – version 22 for Windows.

4. Results
4.1 Respondents’ profile
Table III shows the sample profile.

The sample consists of 345 individuals, mostly composed of women (62 per cent) with a mean age of 23 years. Most respondents are studying outside their hometown (72 per cent) and are full-time students (83 per cent). Most participants (60 per cent) did not attend, during their degree, to any curricular unit related to entrepreneurship. In total, 37 per cent of surveyed students attended degrees in the Humanities and Social Sciences, followed by the area of Life Sciences and Environment (22.6 per cent). There are 71 per cent of the participants in the first cycle of study and 29 per cent in the second cycle.

Students who have responded to questionnaire attend 27 different courses/degrees: in the undergraduate degrees (first cycle), for example, Multimedia Communication; Computer
Engineering; Economy; Management; Social service; Tourism; Sport Sciences; Genetics and Biotechnology; and Nursing. In the postgraduate degrees (second cycle), for example, Basic education; Communication Sciences; Health Services Management; Economics and Business Studies; and Veterinary Medicine.

In total, 55.4 per cent of respondents have in the immediate family, someone who owns their own business/company; the majority (73 per cent) have some work experience; and 95 per cent have never been an owner of a business/company.

4.2 Descriptive analysis

Descriptive statistics for all measures of interest to the current study are presented in Table IV. The internal reliability of the scales was examined by Cronbach’s αs for each construct. All the scales had Cronbach’s α higher than 0.70 (ranged from 0.796 to 0.914) and high values of corrected item-total correlations (all above 0.50).

The mean (4.63 ± 2.44) and median (5.00) of spirituality score were close to the middle point of the scale, indicating moderate levels of spirituality in the sample. The means of emotional intelligence (3.74 ± 0.52), creativity (3.64 ± 0.60) and PA (3.44 ± 0.94) were higher than the middle point of the scales (3), suggesting high levels of emotional intelligence, creativity and PA. The students presented moderate levels of entrepreneurial intention (3.05 ± 1.00) and low levels of PBC (2.80 ± 0.81).

Table V shows the results of the correlation analysis. Strong positive correlations ($R > 0.57; p < 0.01$) were observed between entrepreneurial intention, PA and PBC. With the

<table>
<thead>
<tr>
<th>Variable</th>
<th>Categories</th>
<th>n</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Gender</td>
<td>Female</td>
<td>214</td>
<td>62.0</td>
</tr>
<tr>
<td></td>
<td>Male</td>
<td>131</td>
<td>38.0</td>
</tr>
<tr>
<td>Age</td>
<td>Minimum</td>
<td>20</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Maximum</td>
<td>44</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Average</td>
<td>23.23</td>
<td></td>
</tr>
<tr>
<td></td>
<td>SD</td>
<td>4.16</td>
<td></td>
</tr>
<tr>
<td>Study out of hometown</td>
<td>Yes</td>
<td>247</td>
<td>71.6</td>
</tr>
<tr>
<td></td>
<td>No</td>
<td>98</td>
<td>28.4</td>
</tr>
<tr>
<td>Status of student</td>
<td>Full-time student</td>
<td>286</td>
<td>82.9</td>
</tr>
<tr>
<td></td>
<td>Working student</td>
<td>53</td>
<td>15.4</td>
</tr>
<tr>
<td></td>
<td>Student with a status of collectivity membership</td>
<td>6</td>
<td>1.7</td>
</tr>
<tr>
<td>Entrepreneurial education&lt;sup&gt;a&lt;/sup&gt;</td>
<td>Yes</td>
<td>138</td>
<td>40</td>
</tr>
<tr>
<td></td>
<td>No</td>
<td>207</td>
<td>60</td>
</tr>
<tr>
<td>Study field</td>
<td>Humanities and Social Sciences</td>
<td>128</td>
<td>37</td>
</tr>
<tr>
<td></td>
<td>Technological Sciences</td>
<td>69</td>
<td>20</td>
</tr>
<tr>
<td></td>
<td>Agricultural and Veterinary Sciences</td>
<td>53</td>
<td>15.4</td>
</tr>
<tr>
<td></td>
<td>Life sciences and Environment</td>
<td>78</td>
<td>22.6</td>
</tr>
<tr>
<td></td>
<td>Nursing</td>
<td>17</td>
<td>4.9</td>
</tr>
<tr>
<td>Cycle of studies</td>
<td>1° cycle (undergraduate)</td>
<td>245</td>
<td>71</td>
</tr>
<tr>
<td></td>
<td>2° cycle (postgraduate)</td>
<td>100</td>
<td>29</td>
</tr>
<tr>
<td>Background family entrepreneurs (someone in the immediate family, you have your own business/company)</td>
<td>Yes</td>
<td>191</td>
<td>55.4</td>
</tr>
<tr>
<td></td>
<td>No</td>
<td>154</td>
<td>44.6</td>
</tr>
<tr>
<td>Work experience</td>
<td>None</td>
<td>95</td>
<td>27.5</td>
</tr>
<tr>
<td></td>
<td>Some</td>
<td>250</td>
<td>72.5</td>
</tr>
<tr>
<td>Own business ownership (if he/she ever was owner of a business/company)</td>
<td>Yes</td>
<td>19</td>
<td>5.5</td>
</tr>
<tr>
<td></td>
<td>No</td>
<td>326</td>
<td>94.5</td>
</tr>
</tbody>
</table>

Notes: n = 345. aCorresponds to having attended to a curricular unit associated with entrepreneurship

Source: Elaborated by the authors

Table III. Socio-demographic profile of the sample
exception of spirituality, all correlations with creativity are moderate positive. More creative students have higher levels of entrepreneurial intention ($R = 0.330, p < 0.01$), have better PA ($R = 0.270, p < 0.01$) and more PBC ($R = 0.422, p < 0.01$). There was a moderate correlation between emotional intelligence and creativity ($R = 0.473; p < 0.01$) and between emotional intelligence and PBC ($R = 0.262; p < 0.01$).

### 4.3 Structural model and hypotheses testing

Table VI shows the estimated direct effects of the structural model. The proposed model explains 7.8 per cent of the variance in entrepreneurial intention. Besides, it explains 22.2 per cent in creativity, 7.6 per cent in PBC and 3.7 per cent in PA. The findings supported 5 of 11 proposed hypotheses.

#### Table IV.
**Descriptive analysis of the scales**

<table>
<thead>
<tr>
<th>Scales</th>
<th>Minimum</th>
<th>Median</th>
<th>Maximum</th>
<th>Mean (SD)</th>
<th>Skewness</th>
<th>Kurtosis</th>
<th>α</th>
</tr>
</thead>
<tbody>
<tr>
<td>Spirituality</td>
<td>0.00</td>
<td>5.00</td>
<td>10.00</td>
<td>4.63 (2.44)</td>
<td>−0.16</td>
<td>−0.74</td>
<td>0.914</td>
</tr>
<tr>
<td>Emotional intelligence</td>
<td>1.80</td>
<td>3.73</td>
<td>5.00</td>
<td>3.74 (0.52)</td>
<td>−0.31</td>
<td>0.49</td>
<td>0.874</td>
</tr>
<tr>
<td>Creativity</td>
<td>2.00</td>
<td>3.90</td>
<td>5.00</td>
<td>3.64 (0.60)</td>
<td>−0.03</td>
<td>−0.12</td>
<td>0.796</td>
</tr>
<tr>
<td>PA</td>
<td>1.00</td>
<td>3.60</td>
<td>5.00</td>
<td>2.44 (0.94)</td>
<td>−0.63</td>
<td>−0.02</td>
<td>0.885</td>
</tr>
<tr>
<td>PBC</td>
<td>1.00</td>
<td>2.83</td>
<td>5.00</td>
<td>2.80 (0.81)</td>
<td>−0.07</td>
<td>−0.47</td>
<td>0.881</td>
</tr>
<tr>
<td>Entrepreneurial intention</td>
<td>1.00</td>
<td>3.00</td>
<td>5.00</td>
<td>3.05 (1.00)</td>
<td>−0.17</td>
<td>−0.60</td>
<td>0.914</td>
</tr>
</tbody>
</table>

**Note:** $n = 345$

**Source:** Elaborated by the authors

#### Table V.
**Correlation between the constructs (Pearson’s correlation coefficient)**

<table>
<thead>
<tr>
<th>Constructs</th>
<th>Entrepreneurial Intention</th>
<th>PA</th>
<th>PBC</th>
<th>Creativity</th>
<th>Spirituality</th>
</tr>
</thead>
<tbody>
<tr>
<td>Entrepreneurial intention</td>
<td>1</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Personal attitudes towards entrepreneurship (PA)</td>
<td>0.853**</td>
<td>1</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Perceived behavioural control (PBC)</td>
<td>0.658**</td>
<td>0.571**</td>
<td>1</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Creativity</td>
<td>0.330**</td>
<td>0.270**</td>
<td>0.422**</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>Spirituality</td>
<td>0.102</td>
<td>0.113*</td>
<td>0.112*</td>
<td>0.085</td>
<td>1</td>
</tr>
<tr>
<td>Emotional intelligence</td>
<td>0.169**</td>
<td>0.168**</td>
<td>0.262**</td>
<td>0.473**</td>
<td>0.103</td>
</tr>
</tbody>
</table>

**Notes:** $n = 345$. * $p < 0.05$; ** $p < 0.01$

**Source:** Elaborated by the authors

#### Table VI.
**Estimated coefficients of the structural model**

<table>
<thead>
<tr>
<th>Hypothesis</th>
<th>Coefficients</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Non-standardised ($B$)</td>
</tr>
<tr>
<td>$H1a$: spirituality → creativity</td>
<td>0.009</td>
</tr>
<tr>
<td>$H1b$: spirituality → PA</td>
<td>0.037</td>
</tr>
<tr>
<td>$H1c$: spirituality → PBC</td>
<td>0.082</td>
</tr>
<tr>
<td>$H1d$: spirituality → entrepreneurial intention</td>
<td>−0.002</td>
</tr>
<tr>
<td>$H2a$: emotional intelligence → creativity</td>
<td>0.563</td>
</tr>
<tr>
<td>$H2b$: emotional intelligence → PA</td>
<td>0.297</td>
</tr>
<tr>
<td>$H2c$: emotional intelligence → PBC</td>
<td>0.410</td>
</tr>
<tr>
<td>$H2d$: emotional intelligence → entrepreneurial intention</td>
<td>−0.076</td>
</tr>
<tr>
<td>$H3$: creativity → entrepreneurial intention</td>
<td>0.091</td>
</tr>
<tr>
<td>$H4$: PA → entrepreneurial intention</td>
<td>0.759</td>
</tr>
<tr>
<td>$H5$: PBC → entrepreneurial intention</td>
<td>0.301</td>
</tr>
</tbody>
</table>

**Source:** Elaborated by the authors
H2a, H2b and H2c predicted that emotional intelligence has a positive effect on creativity, PA and on PBC. These three hypotheses were supported by the data. There is a significant and positive relation between emotional intelligence and creativity (H2a: $\beta = 0.465; p < 0.001$). That is, the capacity to understand and manage both their own emotions as well as the emotions of others affects individual's creativity. It seems that the ability to recognize and manage emotions facilitates creative behaviors: participants with high levels of emotional intelligence demonstrate higher creativity.

Also, emotional intelligence has a positive direct effect on PA (H2b: $\beta = 0.158; p = 0.003$) and there is a direct and positive relationship between emotional intelligence and PBC (H2c: $\beta = 0.253; p < 0.001$). In other words, the capacity to know and manage emotions causes positive PA and positively influences individuals' beliefs about their control of the potential outcomes of becoming an entrepreneur and the capability to overcome potential external constraints in this process. Students with high self-perceived emotional intelligence hold more favourable PA and exhibit higher PBC.

H4 and H5 stated that PA and PBC are direct contributors in explaining students' entrepreneurial intention. The findings support both hypotheses. The direct path between the PA and entrepreneurial intention is very strong and significant (H4: $\beta = 0.791; p < 0.001$). The impact of PBC on the entrepreneurial intention is also fairly high (H5: $\beta = 0.301; p < 0.001$). Taken together, the findings imply that students who have a more favourable attitude towards being an entrepreneur and those who perceive that the outcomes of their behaviour are under their control have more entrepreneurial intention. This means that the intention to engage in entrepreneurship is directly and positively affected by these two key motivational factors. The individual's belief about becoming an entrepreneur (PA) exerted a greater impact on the intention than the students' perception of the ease or difficulty of carrying out the task of starting and running a company (PBC).

Three hypotheses were rejected, two of which related with the spirituality construct. Contrary to expectations, spirituality does not have a direct significant influence on creativity (H1a was not supported). Creativity does not seem to increase if students consider themselves to be more spiritual persons. Likewise, spirituality did not directly influence significantly entrepreneurial intention (H1d was not supported). This result provided evidence that students' perceptions of their spirituality do not seem to pose a direct effect on students' entrepreneurial intention.

Furthermore, emotional intelligence did not directly affect entrepreneurial intention (H2d was not supported). This result seems to imply that entrepreneurial intention may not be filtered directly through students' perceptions of their emotional abilities. The possible existence of indirect influences between this variable and the students' entrepreneurial intention may help to understand this result.

The relationship between spirituality and PA (H1b: $\beta = 0.097; p = 0.069$) and between spirituality and PBC (H1c: $\beta = 0.086; p = 0.099$) was only significant at a 10 per cent level; however, the effect was very low. This was also the case of the direct relationship between creativity and entrepreneurial intention (H3: $\beta = 0.061; p = 0.061$).

Indirect effects. To analyse if spirituality and emotional intelligence indirectly influence the entrepreneurial intention through their effect on PA, PBC and creativity, indirect effects were estimated. Table VII shows these results.

Emotional intelligence has an indirect positive effect on entrepreneurial intention, mediated by PA ($\beta = 0.125; p = 0.003$) and by PBC ($\beta = 0.068; p < 0.001$). Thus, the ability to regulate, use and manage the emotions correctly impacts attitudes students have towards entrepreneurship and their perception about the ease or difficulty in becoming an entrepreneur, and then in their entrepreneurial intention. Mortan et al. (2014) have supported that self-efficacy mediates the relationship between certain emotional intelligence dimensions and entrepreneurial intention.
To sum up, emotional intelligence has a direct positive effect on creativity, on PA and on PBC. PA and PBC have a positive effect on entrepreneurial intention, and mediate the effect of emotional intelligence on entrepreneurial intention. Creativity has a low positive effect (only significant at a 10 per cent level) on entrepreneurial intention. The results reveal a non-existent or a tenuous influence (only significant at a 10 per cent level) of spirituality in the various concepts studied.

5. Discussion
Despite the development of the literature dealing with determinants of entrepreneurial intention, the contribution of spiritual values, emotions and creative dispositions in forming entrepreneurial intention has received relatively little attention so far. The current paper is an attempt to fill this gap.

We have argued theoretically that both emotional intelligence and spirituality play important roles in explaining why some people consider themselves as being creative persons and other do not. The empirical results only show that the capacity to appropriately understand, manage and use emotions plays an important role in creativity. Consistent with the findings obtained in previous studies (Carmeli et al., 2014; Hamidiyanpour et al., 2015; Hosseini and Dabaghi, 2014; Mofidi et al., 2012; Zampetakis et al., 2009; Zhou and George, 2003), individuals with high emotional intelligence perceive themselves as being more creative persons. Being creativity a learnable behaviour (Tsai, 2014), an effective lever of the cultivation of student’s creativity should be based in the improvement of theirs emotional intelligence abilities. As asserted by Ramy et al. (2014), developing creativity is considered as one of the most important objectives of training and education, and the results presented here point out that a possible way to reinforce creativity is through university programmes that emphasises students’ emotional intelligence.

Contrasting the arguments of Gholipour et al. (2014) and Moghimi et al. (2007), this study’s findings did not demonstrate a relationship between spirituality and creativity. Agbim et al. (2013) reported that although the research on spirituality is still in its infancy, there is growing evidence to show that the more an individual is spiritual, more benefits are perceived in terms of satisfaction, commitment, productivity, flexibility and creativity. The results of this study seem to contradict this finding. In the present study, the lack of significant direct linkage between these two variables may be due to characteristics of the student sample and because of the novelty of the topic to this higher education institution students (they reveal moderate to low levels of spirituality) and to the Portuguese higher education system in general. Also, this somewhat unexpected finding could be explained by the limitations of our research design.

Emotional intelligence has a positive direct effect on PA. This result suggests that PA of university students can be developed through the improvement of emotional skills (Zampetakis et al., 2009). A significant positive and direct relationship between emotional intelligence and PA indicates that the degree to which the individual has a positive or

<table>
<thead>
<tr>
<th>Paths of indirect effects</th>
<th>Standardised coefficients (β)</th>
<th>Sobel test</th>
</tr>
</thead>
<tbody>
<tr>
<td>Spirituality → creativity → entrepreneurial intention</td>
<td>0.002</td>
<td>p = 0.487</td>
</tr>
<tr>
<td>Spirituality → PA → entrepreneurial intention</td>
<td>0.077</td>
<td>p = 0.066</td>
</tr>
<tr>
<td>Spirituality → PBC → entrepreneurial intention</td>
<td>0.023</td>
<td>p = 0.105</td>
</tr>
<tr>
<td>Emotional intelligence → creativity → entrepreneurial intention</td>
<td>0.028</td>
<td>p = 0.068</td>
</tr>
<tr>
<td>Emotional intelligence → PA → entrepreneurial intention</td>
<td>0.125</td>
<td>p = 0.003</td>
</tr>
<tr>
<td>Emotional intelligence → PBC → entrepreneurial intention</td>
<td>0.068</td>
<td>p &lt; 0.001</td>
</tr>
</tbody>
</table>

Table VII.
Estimated indirect effects

Source: Elaborated by the authors
negative personal evaluation about being an entrepreneur does not only depend on cognitive aspects of intelligence but also it is affected by emotional abilities. It seems that entrepreneurial attitudes might be filtered through students’ perceptions of their emotional abilities, that is, the stronger the individual’s capacity to appropriately regulate and use emotions, the stronger the individual’s emotional and evaluative deliberations towards entrepreneurship. Emotional intelligence seems to play an important role as the potential underlying mechanism in the development of attitudes to start a path of self-employment.

Due to the fact that the formation of attitudes can occur in various ways (the main distinction being the extent to which individuals consciously embrace or reject an attitude object) (Crano and Prislin, 2006), the ability to perceive, facilitate, understand and manage an individual’s own emotions should be important. Crano and Prislin (2006) argued that in general, the more closely attitudes are tied to the self, the more probable they are to serve as a foundation for attitude-consistent actions. All attitudes, including entrepreneurial attitudes, can change (Robinson et al., 1991), and self-awareness (one of the basic capabilities of emotional intelligence) may play a significant role in shaping these attitudes towards entrepreneurship.

These results are in line with the outcomes of the study conducted by Mofidi et al. (2012) and Hassan and Omar (2016), but contradict the study of Zampetakis et al. (2009) who found out that the effects of emotional intelligence on PA were fully mediated by proactivity and creativity, and the study of Farahbod et al. (2013) who rejected the hypothesis that there is a positive relationship between students’ trait emotional intelligence and their entrepreneurship attitudes.

The results further show that there is a direct and positive relationship between emotional intelligence and PBC. This result suggests that individuals with high emotional intelligence perceive themselves as having more capacity to become an entrepreneur, managing to control the steps to achieve it. Individuals with higher emotional skills experience more self-confidence and greater control of environment demands (which enables them to act in an entrepreneurial way), because they tend to be better able to regulate their emotions (Wong and Law, 2002). Other studies have also empirically confirmed this positive and direct association (Mortan et al., 2014; Salvador, 2008).

In this study, it was predicted that spirituality influences PA and PBC. The findings denote a very low effect, only significant at a 10 per cent level. Furthermore, in this sample spirituality did not influence significantly and directly students’ entrepreneurial intention. In its application to this sample we can begin to understand this result. It was the first study, applied to the students of this university, on the topic of spirituality. Although careful attention was given to questions of conceptualisation at the time of application of the questionnaires, the students knew that they were being asked about their spirituality and showed some ignorance about the subject.

Existing research on the intersection of entrepreneurship and spirituality is still considered relatively young (Balog et al., 2014). In this sense, given the limitations of the research design of this study, this result needs further explorations and much more research in this area needs to be done.

Emotional intelligence does not directly affect entrepreneurial intention. This means that in this sample the intention to start a business cannot be directly explained by the emotional intelligence of the individual. Our first interpretation would be that some effects with other factors may explain this result. In fact, in this study the indirect effects were analysed and it was found that there exists an indirect positive effect of emotional intelligence on entrepreneurial intention, through the mediation of PA and PBC. Emotional intelligent individuals will be more prone to start their own business, if they have a positive personal evaluation about becoming self-employed and if they feel they are able of being an entrepreneur. Zampetakis et al. (2009), Mortan et al. (2014) and Chamola and Jain (2017) also found out that the association between emotional intelligence and entrepreneurial intention was mediated by specific variables. However, these results contradict the findings of the...
studies conducted by Gelard and Emamisaleh (2014), Hassan and Omar (2016), Davis and Peake (2014) and Kanonuhwa et al. (2018) who discovered a positive and direct relationship between emotional intelligence and entrepreneurial intention.

The results of this study point that creativity has a direct and positive effect on entrepreneurial intention only at a significance level of 10 per cent. Using a sample of university students, Farzaneh et al. (2010) empirically concluded that the association between creativity and entrepreneurship was significant. Nevertheless, the regression analysis showed that creativity was a low predictor. Hence, creativity, as factor in influencing entrepreneurship, can be seen as a necessary condition, although not sufficient (Tsai, 2014). Also, the results from the study of Ghasemi et al. (2011) indicate that there is a weak relation between creativity and entrepreneurship in high school students in Shiraz. In many situations creativity is not under an individual’s complete volitional control (Choi, 2012), hence considering ourselves creative persons may not be sufficient to predict our future intentions for a self-employment career. Moreover, Hu et al. (2018) had confirmed that creativity and a proactive personality manifest themselves in personal entrepreneurial intention through mediating processes and mechanisms. Further research is needed to clarify this point. This weak association could be explained by the characteristics of the higher education institution studied, namely, the inexistence of specific effective training programmes that promote creative thinking and behaviour.

The use of the Azjen (1991) theory of planned behaviour as the main explanatory framework to study entrepreneurial intention is found in various studies (Autio et al., 2001; Liñán and Chen, 2009; Ferreira et al., 2012; Krueger et al., 2000; among others). Following the past literature, this study also adapts this theory in determining the factors affecting the university students’ intention in becoming entrepreneurs. As expected, the results of the present study point out that both PA and PBC are strong predictors of entrepreneurial intention. On the one hand, PA influence directly and significantly entrepreneurial intention, that is, an individual’s intent to pursue an entrepreneurial career is explained by degree to which the individual holds a positive or negative personal valuation about being an entrepreneur. This result is consistent with several studies (Autio et al., 2001; Ferreira et al., 2012; Mofidi et al., 2012; Liñán and Chen, 2009; Paço et al., 2011; Zampetakis et al., 2009). Among other factors Paço et al. (2011) and Ferreira et al. (2012) identified that attitude actually plays the most important role in explaining entrepreneurial intention.

On the other hand, there is a direct relationship between the PBC and entrepreneurial intention, that is, the student’s perception of the easiness or difficulty of becoming an entrepreneur predicts their intentions to start a path of self-employment, which is consistent with results obtained in various investigations (Autio et al., 2001, Ferreira et al., 2012; Liñán and Chen 2009; Paço et al., 2011).

6. Conclusions and implications
Seeking to understand the determinants of entrepreneurial intention does not guarantee the creation of new ventures; however, as mentioned by Krueger et al. (2000), to analyse the consequences of the intentions we need to understand its antecedents. This study was motivated by the need for research that can lead to a deeper understanding of the role of variables that, on a personal level, are able to trigger and enact the entrepreneurial intention of an individual (Fayolle and Liñán, 2014). Since fostering entrepreneurship has become a topic of the highest priority in higher education institutions, the study was applied to students of a Portuguese higher education institution.

In the introduction of this paper, we expose some identified gaps in the literature about entrepreneurial intention determinants. To address the above gaps, this study proposed and tested a model of entrepreneurial intention and its antecedents (spirituality, emotional intelligence, creativity, AP and PBC). According to the suggested model and findings of this
study, entrepreneurial intention is predicted by AP and PBC. Furthermore, emotional intelligence positively and directly affects creativity, AP and PBC, and, indirectly, entrepreneurial intention. On the other hand, the results show that spirituality fails to directly predict creativity and entrepreneurial intention and only has a weak impact (on a significance level of 10 per cent) on AP and PBC.

This study contributes to the development of research in the field of entrepreneurship, in its application to the university context. First, our results confirm the findings of previous studies on the antecedents of entrepreneurial intention assumed by the theory of planned behaviour, thereby lend further support to the application of this theory in predicting and understanding entrepreneurial behaviour. Second, as far as we know, research on the predictor role of spirituality, emotional intelligence and creativity as determinants of students’ entrepreneurial intention is still relatively low, especially in the Portuguese context. This study empirically assessed the predictive validity that spirituality, emotional intelligence and creativity variables have on entrepreneurial intention.

We predicted that the introduction of spiritual values in a university context would lead to improvements in the creativity of students, in their PA, PBC and entrepreneurial intention. Contrary to what was expected, the results only support the idea that the introduction of spiritual values in entrepreneurial development programmes has a fragile relevance. Despite this modest effect, it is considered that the results of this study provide an additional contribution to the strengthening of investigation in spirituality, especially which relates this concept to entrepreneurship. As far as we know, this was the first study to be conducted in this higher education institution on the topic of spirituality, particularly in its relation with entrepreneurial intention.

Also, the results show the importance of emotions in forming attitudes towards entrepreneurship and in entrepreneurial intention. Hence, the results of this study extend previous research on emotional intelligence and its relationship with entrepreneurial processes in educational settings. Sharing the view expressed by Kanhai (2014) that the modern concept of emotional intelligence is still young and that much work remains to be done (to find out exactly what it covers and how it should be applied), the present study results contribute to the set of research linking this area of research with others (specifically, creativity and entrepreneurship). Kanhai (2014) argued that intellectual reasoning ability and the domain of particular competences are fostered by the kind of creative thinking and problem solving provided by emotional intelligence. In addition, Kanhai (2014) stated that emotional capabilities integrated into emotional intelligence permit that creative thinking could be used in interpersonal relationships, in particular by facilitating the ability for empathy, and the ability to “read” the context of a particular situation and taking appropriate decisions. Therefore, in educational settings, it seems to be highly important to equip university students with such emotional competences that are essential for a healthy personality development and to be a successful entrepreneur. As reinforced by Kanonuhwa et al. (2018), it is important that the educational system is imbued with a learning environment that promotes effective expression and UOE so that the students’ emotional intelligence is nurtured.

Lerch et al.’s (2015, p. 17) results show that “while educators recognize the importance of creativity in entrepreneurship and emphasize it in their curriculum, their efforts have not yet made an impact”. In this regard, Kanonuhwa et al. (2018) remarked that it can be argued that the conventional stream of education promotes cognitive conformity and tends to suppress creativity, one of the essential components of entrepreneurship. In this context, the present study sought to extend current theoretical knowledge in the field of creativity, by analysing this concept having regard to their antecedents (spirituality and emotional intelligence) and its impacts in entrepreneurial intention. Particularly, our findings enhance the understanding of the relationship between emotional intelligence and creativity in the context of higher education. Boren (2010) asserted that creativity is generated by emotions,
that is, creativity is understood as the ability to cognitively create an idea or concept inspired by emotions. Hence, the ability to formulate original ideas prompted by emotions is of highest importance.

Considering the practical implications of this study, some recommendations can be made. The results of this study may be useful to the higher education institution studied, in that it allows to understand some of the skills to be developed in students in order to increase their entrepreneurial attitudes and intentions. Educational institutions are fundamental places in building a culture and an entrepreneurial environment among their students. In this type of environment, it should be instilled in their students, knowledge and entrepreneurial skills, which will be useful in their future career efforts. By stimulating student’s emotional intelligence (or to provide students with tools that enable them to perceive, understand and manage emotions) through, for example, a specific programme of soft skills, the analysed university will improve, directly, the creativity, the PA, the PBC and, indirectly, the entrepreneurial intention. Therefore, in educational settings, to achieve better entrepreneurial outcomes, due consideration should be given to affective aspects of intelligence.

Moreover, the study has implications for educators relatively to the influence of emotional intelligence and creativity on entrepreneurial development. Emotional intelligence capabilities should be recognised when designing entrepreneurial courses, because besides management and planning skills, entrepreneurial abilities related to emotional control and creative characteristics are a valuable set of skills for future entrepreneurs. As suggested by Othman and Muda (2018), in addition to the practical and theoretical aspects of entrepreneurship, educational curricula related to entrepreneurship should reinforce students’ emotional intelligence, allowing them to cultivate the skills required to meet challenges and competition associated with the business world.

Regarding entrepreneurship education, the basic instrument provided by the great majority of courses and programmes are limited to the business plan elaboration (Honig, 2004), and this is also the case of in the higher education institution studied. Before students learn how to develop a business plan, a wider entrepreneurship education programme should be strengthened (Liñán and Chen, 2009), and contents specifically designed to allow a student to be able to understand, appraise, use and regulate his/her own and others’ emotions and to increase their personal attitude towards entrepreneurship should be included. As emotional intelligence abilities can be learned and taught (Ngah and Salleh, 2015), the integration of emotional intelligence in university programmes is important and should be emphasised because emotional intelligence is related to attitude and feeling towards entrepreneurial which promote motivation and the development of other aspects of an individual. Therefore, emotional intelligence cannot be a missing factor in entrepreneurship studies, and particularly in entrepreneurship education.

In this study, we analysed some key factors that influence the development of intentions to start a path of self-employment. Thus, more generally, the results of this study may be relevant to public organisations linked to education and training, because it can enable the creation of educational strategies for stimulating intentions to self-employment, based on the development of relational abilities and the promotion of creative thinking and behaviour.

Portuguese Government and Portuguese public universities are playing a relevant role in fostering and supporting entrepreneurial behaviours. With the aim of creating a national strategy for entrepreneurship, the Portugal Government has, during the last years, adopted various entrepreneurial support programmes to stimulate entrepreneurial activity and has launched in 2016 the “Startup Portugal” plan. This programme contains several measures to be implemented in the short, medium and long term to stimulate Portuguese entrepreneurial activity (Startup Portugal, 2018). Among these measures the creation of “Startup voucher” and “Momentum programme” are directly linked to support university students to the creation and development of their startup. In this context, intention models, such as the one
proposed in this study, can serve as an evaluation tool for such programmes (Fayolle and Liñán, 2014). Therefore, for government and university policy makers the results of this study can be important because it allows the design of effective education initiatives and it helps to understand how to develop and nurture potential entrepreneurs.

7. Limitations and future research suggestions
This study had some limitations that should be addressed by future studies.

First, all variables in the analysis were measured from the same key informant perceptions and were collected simultaneously. This can result in a risk of common method variance that future studies may avoid. Also, the use of self-report measures relies highly on a person’s self-understanding. It is assumed that people denote self-analysis capabilities and self-knowledge, but there are risks inherent to this approach since there is no certainty that participants perform accurate self-analysis and therefore can cause the problems of socially desirable responding.

Second, on the one hand, having used a convenience sample implies that the results should be analysed with caution. Facility in access to the students and financial constraints did not allow applying the research instrument at other universities. The use of a more diverse sample relative to the demographic characteristics of students and higher education institution of origin could provide greater variance of the data and a better understanding of the phenomenon under study. On top of that, other characteristics of the sample may present further limitations. Being the sample composed by undergraduate and postgraduate students from diverse study areas could present some advantages (as mentioned previously) but also could have influenced the results since this heterogeneity in the studying subjects (non-business-related knowledge) may affect the choice of the working path and could have a negative or positive impact on the intention of considering entrepreneurial actions. Therefore, it seems relevant that in future studies, some effort should be made to control the heterogeneity of the sample.

On the other hand, the study was limited to one country (Portuguese culture) and to one university; therefore, it is suggested that future research may extend the study to other countries and universities as well as to investigate the cultural variables that can moderate the results, to include a broader socio-cultural context. It seems interesting, in this regard, that future studies focus on university culture and climate (the context) as factors shaping students' entrepreneurial intention.

Third, in future studies, other antecedent variables may also explain the entrepreneurial intention of students such as entrepreneurial motivations, and socio-demographic characteristics. Moreover, in this study, the subjective norm (being one of the variables of the theory of planned behaviour) was not examined. In fact, we chose not to put this variable in the model considering the results of several studies (Autio et al., 2001; Krueger et al., 2000) that point to their non-significance. Despite being a limitation of this study, the decision to not include subjective norm was also related with the extension of the questionnaire. In entrepreneurship research, significant dissimilarities can be found in the quantification of this variable (Heuer and Liñán, 2013). The authors argued that to solve these contradictions linked to measurement issues alternative measures of subjective norm in the same model and on the same sample should be used, something that taking into account the already large size of the questionnaire applied could not be done. Also, although there has been some evidence of the importance of subjective norm in multi-country analyses (Engle et al., 2010), the present study only focusses in a single-country and a single higher education institution. However, we think it should deserve better attention in future studies.

Furthermore, it might be useful to introduce a qualitative methodology to better understand the antecedents of entrepreneurial intention, especially considering that the study of spirituality related to entrepreneurship is still relatively limited.
Finally, drawing from the theory of planned behaviour, the underlying assumption this study relies on the notion that understanding an individual's intention could help in forecasting whether a behaviour will be performed or otherwise, that is, entrepreneurial intention is an effective predictor for entrepreneurial behaviour as entrepreneurial actions always fall into the category of intentional behaviour. However, it has to be acknowledged that other scholars might argue otherwise. As reinforced by Fayolle and Liñán (2014) and Liñán and Fayolle (2015), an urgent need exists to empirically and theoretically investigate the intention–behaviour link. In this regard, future studies could be suggested, namely, evaluate whether students actually started their business, since entrepreneurial intention only measures an intention.

References


Corresponding author
Ana Paula Rodrigues can be contacted at: anarodri@utad.pt

For instructions on how to order reprints of this article, please visit our website: www.emeraldgrouppublishing.com/licensing/reprints.htm
Or contact us for further details: permissions@emeraldinsight.com
Training effects on subsistence entrepreneurs’ hope and goal attainment

Andres Barrios
School of Management, Universidad de los Andes, Bogota, Colombia

Ezequiel Reficco
EGADE Business School,
Instituto Tecnológico y de Estudios Superiores de Monterrey,
Nuevo León, Mexico, and

Rodrigo Taborda
School of Management, Universidad de los Andes, Bogota, Colombia

Abstract

Purpose – The purpose of this paper is to explore the extent to which hope and perceived goal attainment can be developed in subsistence entrepreneurs through the right training tools.

Design/methodology/approach – A longitudinal study of a subsistence entrepreneurship training program in three Central American countries was carried out. Participants were divided on the basis of their exposure to training (yes, no), and of the type of training received (none, business plan, business model). The authors carried out three assessments (just before the program, six months and one year after the program) of participants’ business goals and their hope of attaining them. Information was analyzed using linear regression.

Findings – Participants exposed to training reported significant increases in perceived goal attainment and in their hope levels. Training based on the business plan affected hope agency in the short term, as predicted by the logic of causation theory. Training based on the business canvas affected hope pathways, as predicted by the logic of effectuation theory.

Research limitations/implications – Given the data collection process (a non-random sample and selection of participants), the findings are not generalizable without stringent procedures and further replication.

Practical implications – If hope is a reliable predictor of goal attainment, it should be promoted and measured. Given the limited means of gathering data and making reliable projections that most entrepreneurs endure, the business canvas’ contribution to entrepreneurs’ “emotional equipment” ceteris paribus should be more valuable for subsistence entrepreneurs.

Originality/value – This is the first study comparing the short- and long-term effects of two entrepreneurial learning devices on entrepreneurs’ hope and business goal attainment.

Keywords Entrepreneurship education, Goal attainment, Hope (pathways and agency), Multivariate methods

Entrepreneurship has been suggested as an engine for economic development in emerging countries (Acs and Amorós, 2008; Christensen et al., 2010). Universities, public agencies and mission-driven organizations have attempted to support these self-driven efforts by the poor, building the human capital of micro-entrepreneurs in developing countries through business training (Karlan and Valdivia, 2011). But despite the positive outcomes of entrepreneurial training (Galloway and Brown, 2002; Martin et al., 2013), calls have been made for further research on the effects of different types of entrepreneurial training on entrepreneurs’ capability improvements in developing countries (Nabi and Liñán, 2011). This paper aims to shed light on that relationship through the constructs of hope and goal attainment.

Hope and goal attainment have been identified as fundamental interrelated psychological variables that influence individuals’ economic development. Goals reflect a conceptual bridge between socioeconomic structures “what society offers” and individuals...
“what a person aspires for her/his own life”. Vigh (2009) uses the social navigation metaphor to articulate how people make sense of uncertain circumstances, disentangle them and use goals to plot their escape toward better positions. However, goals do not materialize in a vacuum. Individuals need motivation to attain their desired goals; hope emerges then as a motivator for individuals pursuing a sought-after outcome (McGeer, 2004). Hope has been identified as a fundamental variable motivating individuals to create change in their lives via innovation, which is key for entrepreneurial development (Rosa et al., 2012).

This study aims to explore the extent to which entrepreneurial training programs may trigger hope for subsistence entrepreneurs, so that they can achieve their business-related goals. We are interested in establishing the specific effects of two of the most widely used tools for entrepreneurial training (i.e. business plan and business canvas) on the hope levels that individuals will hold about their chances of attaining their business goals. To this end, we carry out a longitudinal study to examine the short- and long-time effects of receiving a particular type of entrepreneurial training on individuals’ levels of hope and perceptions of business goal attainment.

The paper is structured as follows. We start by reviewing the literature on the link between hope and entrepreneurship and discussing the most popular approaches to entrepreneurial training. We then describe the longitudinal study, including its context and methodology, as well as the multivariate regression analysis. Finally, results and its implications for entrepreneurship teaching and learning are presented.

**Literature review**

*Hope, goal attainment and entrepreneurship*

A robust literature has looked into the connection between entrepreneurial education (in formal educational programs) and training (in non-formal settings) on the one hand, with skills (human capital) and outcomes (venture success), on the other hand (Brooks et al., 2018). For example, a meta-analysis by Martin et al. (2013) identified a “significant relationship between entrepreneurship education and training (EET) and entrepreneurship-related human capital assets and entrepreneurship goal outcomes” (p. 211). Consistent findings link human capital investments (including education, experience, knowledge and skills) and entrepreneurial success in pursuit of business-related goals (Unger et al., 2011).

Recently, studies identified different psychological traits as determinants of entrepreneurial performance that may be enhanced through training programs, such as self-efficacy (Abaho et al., 2015). Among the different variables, hope is the one with the most predictive power to explain how entrepreneurs facing economic hardship can score and thrive (Magaletta and Oliver, 1999). To these authors, hope has a focused nature that allows people to link their sense of self with the accomplishment of particular goals, including those that are business related (Luthans and Jensen, 2002).

One of the most widely used theories relating hope and goals was developed by C.K. Snyder. This theory postulates that “a person constructs meaning in his or her life through self-reflection about important life goals and the perceived progress towards these goals” (Snyder, 2002, p. 262). Such hope is a bi-dimensional construct, which includes individuals’ perceived capability to derive pathways to desired goals (“way power”), and the capacity to motivate oneself via agency thinking to use those pathways “will power” (Snyder, 2002, p. 249). These two dimensions were further refined and developed as a **pathway** dimension, which provides individuals alternative adaptive contingency plans to achieve such goal, and an **agency** dimension, which gives individuals determination and motivation to accomplish a goal.

Hope theory has been used to analyze goal attainment in three levels: global-hope related to an individual’s belief about achieving goals in a general sense; domain-specific hope related to individuals’ beliefs about achieving goals in particular contexts such as social,
academic and family; and goal-specific hope, related to individuals’ beliefs to achieve a particular goal at a particular time (Snyder et al., 2002). Given that prospective entrepreneurs pursue various goals with their venture, this paper focuses on goal-specific hope, which integrates individuals’ capacity to conceptualize goals, and develop pathways and motivation to achieve these goals. Practical skills have proven to be vital in the success of small businesses.

At the goal-specific level, hope operates in a virtuous reciprocal iterative process between agency thoughts (willpower), pathway thoughts (waypower) and goal attainment. A person’s hope has a positive impact toward goal attainment, and if progress is made toward a specific goal, her hope toward the attainment of such goal increases as well (Snyder, 2002). The effects of goal-specific hope on goal attainment have been analyzed in various domains, including academic and athletic achievement (Curry et al., 1997) and physical and mental health (Kwon, 2002). In the management literature, hope has been identified as an important element for leadership (Peterson and Luthans, 2003), workplace attitudes and employee retention (Youssef and Luthans, 2007) and organizational profitability (Adams et al., 2002). In the entrepreneurship field, hope has been linked with satisfaction with the decision of business ownership (Jensen and Luthans, 2002), and with business creativity enhancement (Rosa et al., 2012). However, questions remain in relation to the effect of entrepreneurial training on individuals’ goal-specific hope and the attainment of entrepreneurial objectives.

The temporal effects of entrepreneurial training over hope and goal attainment
Entrepreneurial training aims to improve participants’ performance to attain their business-related goals (Jamieson, 1984). However, questions about the effects of entrepreneurial training programs on entrepreneurs’ hope and goal attainment in the short term (immediately after the training finishes) and long term (one year after) remain unanswered. Previous studies show that training can enhance hope by giving people the ability to find alternative pathways and renewed agency to attain their goals (Jensen and Luthans, 2002). On the temporal level, studies show different temporary effects of hope over goal attainment. In the short term, empowering an individual to achieve a particular goal (hope agency) increases his perception of goal attainment, more than the generation of multiple routes toward that goal (hope pathways). In the long term, the ability to generate multiple alternative ways of reaching her goals (hope pathways), especially when the original ones are blocked, is more useful (Feldman et al., 2009).

The preceding discussion leads to the formulation of the following hypotheses:

H1. Entrepreneurial training influences participants’ goal attainment perceptions in the (a) short term and (b) long term.

H2. Entrepreneurial training enhances participants’ levels of hope (pathways and agency) in the (a) short term and (b) long term.

H3. Participants’ levels of hope (pathways and agency) positively influence their goal attainment perceptions in the (a) short term and (b) long term.

Approaches to entrepreneurial training
Jamieson (1984) proposed a classification for entrepreneurship education with three categories: education about enterprise, education for enterprise and education in enterprise. This paper focuses on the second dimension: teaching the practical skills for business startup – or more specifically, training devised for small business owners, “to provide practical help to those seeking to make the transition from traditional employment to self-employment” (Henry et al., 2005, p. 102). Previous studies have shown the critical importance of practical skills for small ventures’ success (Abdullah et al., 2018; Dana, 1987).
Traditionally, the business plan has been a cornerstone of entrepreneurship training, both in academia and development organizations. Brinckmann et al. (2010) report that universities around the globe teach students interested in entrepreneurship how to prepare a business plan, that 80 percent of US most prominent business schools train students in business plan preparation, and that leading entrepreneurship professors claim that developing business plans is the most important feature in their courses. The centrality of the business plan in entrepreneurial training for small firms is based on the benefits associated with planning. An early wave of studies around this linkage emerged during the 1980s and consistently found a positive relation between business plan and small firms performance (Robinson et al., 1984; Sexton and Van Auken, 1985; Bracker and Pearson, 1986). The following decade saw a new wave of studies that pointed in a different direction, weakening the relationship. For example, McKiernan and Morris (2005) found that “the formality of planning systems is not associated with superior performance” (p. 39), and Carter et al. (1996) reached similar conclusions.

Over time, the primacy of the business plan came to be challenged. During the startup process, entrepreneurs need to define the way in which they will create value in the marketplace, setting boundaries to company activities and defining the good or service to be offered. These elements are defined in the venture’s business model, a document that “describes the rationale of how an organization creates, delivers, and captures value” (Osterwalder and Pigneur, 2010, p. 14). While there are various popular emergent tools around business model design and innovation (Trimi and Berbegal-Mirabent, 2012), we focus on the most widely used: the business canvas as defined by Osterwalder and Pigneur (2005, 2010).

Primarily, both the business plan and the business canvas are tangible document templates. At the same time, both are more than that and serve as learning devices. Each has assumptions about what “really” matters, directing our attention toward certain activities and priorities (while disregarding others), in pursuit of expected benefits. On the one hand, the business plan is seen as useful to reduce guesswork and guide the analysis that will assure alignment between the organization and the environment (Armstrong, 1982). As Jones et al. (2013) point out, developing a business plan “must therefore be deemed as a learning activity” (p. 493). Proponents of the business canvas, on the other hand, argue that the planning and analysis upon which the business plan stands is close to futile. “A business plan is essentially a research exercise written in isolation at a desk before an entrepreneur has even begun to build a product. The assumption is that it’s possible to figure out most of the unknowns of a business in advance […] (However) business plans rarely survive first contact with customers […] These plans are generally fiction, and dreaming them up is almost always a waste of time” (Blank, 2013b, p. 67). Advocates of the business canvas place their emphasis not on forecasting or analysis, but rather on ongoing experimentation and learning.

These arguments given in support of the business plan and business canvas reflect implicit assumptions about the way entrepreneurs make decisions. The traditional causation school of entrepreneurship assumes goal-oriented behavior, based on planning, where the entrepreneur looks for areas in which demand for a given product exceeds supply (Khilstrom and Laffont, 1979; Casson, 2003). On the other hand, the so-called effectuation school considers that goal-oriented behavior makes little sense in the absence of firms or industries: “How do we make the pricing decision when the firm does not yet exist (i.e. no revenue functions or cost functions are given) or, even more interesting, when the market for the product/service does not yet exist (i.e. there is no demand function)” (Sarasvathy, 2001, p. 244).

While the traditional approach “causation” focuses on selecting means to create the desired effects, the “effectuation” approach takes means as given and focuses on effects that can be created within the constraints of available means (Sarasvathy, 2001). This difference
in emphasis determines different priorities. Causation seeks to predict aspects of the future, in order to control it. This is achieved through sound planning. Effectuation, on the other hand, focuses on identifying controllable aspects of a future that is deemed unpredictable. This is achieved through learning and experimentation – thus making planning almost irrelevant (Sarasvathy, 2001; Mullins, 2006; Mullins and Komisar, 2010).

Despite the widespread use of the business plan to date, since the early 2000s an emerging literature within the field of entrepreneurial learning began to challenge its theoretical basis and usefulness as a learning tool (Daxhelet and Witmeur, 2011; Bridge and Hegarty, 2013; Jones and Penaluna, 2013). As Honig (2004) explains, “neither the teaching of business plans, nor the plans themselves, are sufficiently justified on the basis of theoretical or empirical literature” (p. 258). The business plan came to be criticized because it lacked the flexibility needed in the inherent uncertainty of new venture creation (Bridge and Hegarty, 2013; Watson et al., 2014). A tectonic movement displaced causation from center stage to the periphery of entrepreneurial training, in favor of effectuation. In the words of Jones et al. (2013), “the wonder of effectual logic […] has descended upon the domain of entrepreneurship [education] to seemingly endless effect” (p. 493). The irresistible tide of effectuation “has cast doubt and skepticism among entrepreneurship educators and practitioners regarding the usefulness of writing a formal business plan for training the next generation of entrepreneurs” (DeNoble and Zoller, 2017, p. 21). This study seeks to address that chasm.

Complements or substitutes?
In their original formulations, there was no direct opposition between the business plan and the business canvas; rather, the latter was considered a stepping stone toward the implementation of the former (Osterwalder and Pigneur, 2005). However, overtime that view evolved and changed. For example, Osterwalder (2013) – widely considered the “father” of the business canvas – describes both as substitutes. In a piece that seeks to describe a better way to think about your business model, he explains that “The business model canvas – as opposed to the traditional, intricate business plan – helps organizations conduct structured […] conversations around new businesses or existing ones” (p. 1). Blank (2013a) also sees the business model as a superior alternative to the business plan, as suggested by the title of a recent post: business model versus business plan.

Perhaps more importantly, the canvas is increasingly perceived among practitioners and educators as a direct alternative to the business plan, one that offers advantages when it comes to new venture creation: “we conceive the business model (canvas) as a learning tool that allowed us to overcome some shortcomings that we found in the business plan” (Aldana et al., 2011, p. 197). Similarly, in recent years Stanford and Harvard began “championing alternative approaches to business plans” (Jones et al., 2013, p. 494), namely the business canvas (Osterwalder and Pigneur, 2010; Blank and Dorf, 2012), and the lean startup approach (Ries, 2011). A recent article by Hanshaw and Osterwalder (2016) tracked how the business canvas has progressively replaced the business plan in managerial practice.

“The policy issue is not simply whether such [business] education is beneficial. Much debate also exists in the policy community regarding the optimal method of introducing such interventions” (Karlan and Valdivia, 2011, p. 511). Despite the increasing popularity of the canvas, when it comes to venture creation the claims made on its advantages over the business plan are based on anecdotal evidence. As Eppler and Hoffmann (2012) state, referring to Osterwalder and Pigneur’s business canvas: “despite evidence that the template is [increasingly] applied in practice, its effectiveness has not yet been scientifically investigated” (p. 389). If we consider the practical implications of such a research gap, its relevance becomes evident. As Honig (2004) puts it: “a significant portion of contemporary entrepreneurship education appears to be […] largely unsupported by empirical evidence of its practical effects” (p. 270).
It could be argued that both tools aim at different dimensions of hope. The logic of causation (on which the business plan is premised) assumes a causal link between the present (planning exercise) and the future (performance and results). Causation empowers the individual, as it puts in her hands the promise of shaping the future—provided that the right information is gathered (costs, customers, competitors), and the right analysis is carried out (willingness to pay, competitive dynamics, industry structure, etc.), results will follow. Thus, one would expect entrepreneurs who go through a business-plan-based training to see their levels of hope agency rise substantially. Moreover, as discussed earlier, the increase in hope agency is likely to be more effective in the short term, dwindling as time elapses. Thus, the following hypothesis emerges:

**H4.** Entrepreneurial training based on the business plan will enhance entrepreneurs' hope agency, particularly in the short term.

In contrast to the causation arguments, the logic of effectuation (Sarasvathy, 2001) that underpins the business canvas depicts the individual as fundamentally incapable of shaping future events, thus making planning futile—in this view, ultimately no plan survives first contact with customers (Blank, 2010). What really matters is figuring out what to do with the resources at hand through ongoing experimentation—available means determine ends. Thus, one might expect a pedagogical approach that focuses entirely on learning through trial and error—that is, on “failing quickly to learn fast” (Sims, 2011, p. 51)—to boost entrepreneurs’ hope pathways. Additionally, as it has pointed out earlier, the impact of training on hope agency is likely to decrease in the long run, as reality challenges the assumptions and predictions of the business plan. Conversely, the ability to generate multiple alternative ways of reaching goals (hope pathways) will become particularly useful (Feldman et al., 2009). Thus, the following hypothesis emerges:

**H5.** Entrepreneurial training based on the business canvas will enhance entrepreneurs’ hope pathway, particularly in the long term.

The program studied

This study was developed in collaboration with Technoserve, an international nonprofit whose mission is to reduce poverty by promoting entrepreneurship and economic activities. Technoserve developed the *Impulsa Tu Empresa* “Boost your business” program, to promote the development of local small growing businesses via business training and advisory to subsistence entrepreneurs in three Central American countries: Nicaragua, Honduras and Guatemala. Subsistence entrepreneurship is defined as individuals launching new ventures as a means of obtaining a necessary income for themselves, which constitute the most frequent case in the emerging world (Schoar, 2010).

The second cohort of the program began in the first quarter of 2014 with an online call to participate in the program[1]. Entrepreneurs had to present a business proposal, either as a mere idea or as an established business. The former category encompassed entrepreneurs who had a business project in mind or had been in business for less than two years, with sales between $0 and 19,999 per year. The latter targeted entrepreneurs with established businesses, with a market presence of at least two years and sales between $20,000 and 2,000,000 per year. A total of 710 entrepreneurs applied in the three countries. Once the call finished, Technoserve evaluated the proposals based on their feasibility and impact upon their local communities, and randomly selected a group of 420 proposals (140 per country: 70 business ideas and 70 established businesses).

The selected participants received entrepreneurial training and follow-up mentorship to start or develop their business. For three months, 44 h of training in either business plan or business model was delivered. Once the training finished, Technoserve provided a one-year
follow-up and individual advice to entrepreneurs. Such follow-up included visiting the business, as well as remote support (e-mail, Skype and others). At the same time, Technoserve maintained contact with those entrepreneurs who were not selected and conducted the same data collection exercised upon those who received training.

**Entrepreneurship in the Latin American context**

We now review the landscape for entrepreneurial activity in Latin America, and in the studied countries in particular, in order to understand the regional context that the program intervened. It has been claimed that “to be truly successful, training programs must be relevant to the host environment” (Dana, 2001, p. 405). According to the latest GEM Latin America and Caribbean Regional Report, on average two-thirds of Latin American citizens report positive societal attitudes toward entrepreneurship (Bartesaghi et al., 2016). A large majority of adults (69 percent) claim to see opportunities for starting a business where they live and/or perceive they have the right skill set to launch a business – only Africa features a higher proportion (62 percent). Of those favorable inclined toward entrepreneurship, 13 percent actually do start a business – Latin America has the world’s highest rate of conversion from latent to nascent entrepreneurs. Out of these, 7 percent move on to become established entrepreneurs – about the same rate than North America and the emergent efficiency-driven economies.

While most Latin American entrepreneurs are moved by opportunity (70 percent), the percentage of necessity-driven entrepreneurs (those start a business out of lack of choices) is the world’s highest (30 percent), together with Africa. By contrast, in the highly developed innovation-driven economies that percentage falls down to 22 percent. Lackluster economic growth and few opportunities in the formal economy have pushed important swaths of the population to necessity entrepreneurship. Most Latin American entrepreneurs are young, and fall within the 25–34 age bracket, followed by the 35–44 category. About two-thirds of entrepreneurs operate wholesale or retail business, mainly consumer oriented, which is consistent with the prevalent profile of necessity-driven entrepreneurship. Finally, despite some advances in the last years, Latin America features a weak support ecosystem (government policies, access to funds, education, infrastructure, etc.) for entrepreneurial activity.

For this study, we focus on Nicaragua, Honduras and Guatemala. These countries have faced similar political turbulence during the 1980s and 1990s, including military coups and subsequent civil wars, which obviously affected their economies. With the new millennium, their economies gained new dynamism, leveraging businesses in agriculture and services sector (e.g. tourism). According to the World Bank (2018) in the last years these economies have experienced consistent growth, based on the export of agricultural commodities. In spite of this, they still feature a high percentage of their populations below the poverty line.

Entrepreneurial activity in these three nations falls within the patterns described for the region. Entrepreneurship is widespread, and mostly driven by necessity. Most businesses start at a subsistence level, as a means of obtaining a necessary income for their owners – the most frequent case in emerging economies (Schoar, 2010). According to the Global Entrepreneurship Index, which measures the extent and support of the entrepreneurial ecosystem (Acs et al., 2018), in these three countries government provides low institutional support to entrepreneurship.

**Methodology**

The *Impulsa Tu Empresa* program offered a valuable opportunity to develop a longitudinal analysis to establish the short- and long-run effects of receiving entrepreneurial training, and the different impact of the two types of training previously discussed, over individuals’
levels of hope and perceived goal attainment. A quasi-experimental design was deemed as the appropriate methodological approach, in which goal attainment and hope are the dependent variables to be explained by entrepreneurial training and type of training, among other control variables available from the follow-up exercise. Thanks to TechnoServe's follow-up, the statistical analysis assessed the short- and long-term effects of the experimental treatment.

**Measurements**

The encompassing model to unveil the evolution of hope, agency and pathways, along with goal attainment in an environment of entrepreneurial training is the one proposed in Feldman et al. (2009). This is a hope theory model which links goal attainment to hope pathways and agency of individuals and their evolution over time. A modified version of that model, as shown in Figure 1, guided the empirical approach undertaken in this study. The model was adapted to the scenario and data related with Impulsa Tu Empresa program.

In line with Feldman et al. (2009), participants were asked to mention five business-related goals they wanted to pursue while in the program, or after it. For each of these objectives the following variables were measured:

- **Goal-specific hope scale.** This variable developed by Feldman et al. (2009) measures individuals’ hope for a particular goal at a particular time. The scale contains six items: three tapping pathways and three tapping agency. Respondents rated each item on a 1 (definitely false) to 8 (definitely true) scale.

- **Goal attainment.** This variable developed by Feldman et al. (2009) measures individuals' perception of progress toward achieving a particular goal at a particular time. The progress is measured in a single question using a percentage scale from 0 to 100 percent.

- **Training.** This variable classifies whether firms received training or not.

- **Type of training.** This variable classified the type of training the participant received, whether it was business canvas (coded with 1) or business plan (coded with 0).

Besides the training-, goal- and hope-related questions, other variables were measured to control our results in the regression estimations:

- **Locus of control.** This variable determines whether people believe that they have control over events and are responsible for their outcomes, or whether they believe that forces outside of their control (such as luck or destiny) condition their life events. We used the ten-item Likert scale developed by Sapp and Harrod (1993).

**Figure 1.** Model of the training effect on entrepreneurs' hope and hope attainment perceptions.
Self-efficacy. This variable determines individuals’ perceptions on how well one can execute the courses of action required to deal with prospective situations (Bandura, 1982). People successfully execute tasks that fall within their enhanced range of perceived self-efficacy but shun or fail those that exceed their perceived capabilities. Given that self-efficacy influences people’s commitments to their goals and the goals they create for themselves (Locke and Latham, 1990), we believed this variable was likely to affect goal attainment. We used the eight-item Likert general self-efficacy scale developed by Chen et al. (2001).

Technoserve’s evaluation score. As part of its activities in the Impulsa Tu Empresa program, assesses all participants applying a standardized evaluation process to characterize the entrepreneurial ability of the program’s participants. For this study, we expected higher evaluation scores to affect entrepreneurs’ goal attainment.

In addition to the previous variables, we controlled the estimation regressions by entrepreneur gender, country, and status of the business (whether it is a project/idea or is an existing/functioning business).

Tasks and procedures
Data for this study were collected in three stages \((t = 0, 1, 2)\), during the 24 months that Technoserve ran the program. Stage 0 occurred between January and June 2014; at this point a baseline was set for the study. Before being exposed to any training participants filled a questionnaire with all the control variables, identified and ranked the five most important business-related goals they wanted to pursue through the entrepreneurship program and the specific hope to attain each of them.

Stage 1 occurred between June and December 2014. At this point, the first measurement of hope and goal attainment was collected. Individuals who accepted to participate at Stage 0 were divided into three groups: those who were not selected into the program, and therefore received no entrepreneurial training (control group); participants selected into the program, who received entrepreneurial training based on the business plan; and participants selected into the program who received training based on the business canvas.

After completing 44 hours of entrepreneurial training, participants from all groups were asked to fill a questionnaire associated with the five goals they nominated at Stage 0 accompanied by a questionnaire to assess the corresponding level of attainment, and the hope level for each goal. A total of 61 participants responded to the questionnaire: 8 who did not receive any training, 29 who received training based on the business plan and 24 who received training based on the business canvas. Data attrition from Stages 0 to 1 can be explained by two reasons: participants selected for training quit the program or refrain to participate in the follow-up measurement, and participants non-selected for training quit their entrepreneurship initiative and affiliation with the program and study.

Stage 2 took place between January and December 2015, while participants were receiving individual advisory by the program. The inclusion of this stage was meant to measure a longer-term effect of entrepreneurial training. At this point, participants who filled the questionnaires at Stage 1 were asked again to assess the level of goal attainment for each of the five goals stated at Stage 0, and to state their hope level for each goal. A total of 48 participants responded to the questionnaire: 8 who had not received any training, 25 who had received training based on the business plan and 15 who had received training based on the business canvas. Table I summarizes the characteristics of the resulting participants’ sample and the distribution of our dependent variables.
Results
Following the work of Schwarz et al. (2009), Sandhu et al. (2012), Solesvik et al. (2014), Joensuu-Salo et al. (2015), Mohamad et al. (2015) and Hasan et al. (2017) in entrepreneurial intention and entrepreneurial training and given the continuous nature of our dependent variables (see Table I), a multivariate linear regression modeling strategy was chosen to address the hypotheses proposed above. This approach implies estimating three equations to measure the association between entrepreneurial training goal accomplishment; entrepreneurial training and hope; and hope and goal accomplishment. Although a regression analysis is constrained to a linear relationship between variables and neglects a variety of interactions, as proposed in the hope model (Figure 1), this approach reduces the proposed relationship to a single equation that enables narrowing the variables association. The unit of analysis is the five goals stated by the entrepreneurs. The estimation method employed was ordinary least squares (OLS) with clustered standard errors at the entrepreneur level, which recognizes that goals are not independent within entrepreneurs and performs the necessary adjustment for such phenomena.

Two sources of selection bias can appear in the analysis. First, the number of participants in the training program is lower than the total number of participants in the Impulsa Tu Empresa. While participating in the training program, firms can self-select based on their non-observable characteristics. Second, the number of entrepreneurs who continued participating up to Stage 2 decreased due to unobserved reasons (lack of interest, failure to complete the questionnaire properly or a decline in their entrepreneurial ambition). To subdue this issue, parallel to OLS estimation, a Heckman selection model regression was also estimated[3].

All the estimation results include control variables such as participants’ gender, country of origin and if they have a business idea or established businesses. The results also
distinguish between short and long term. Accomplishment and hope measurements at Stage 1 (6 months after the entrepreneurial training) imply short term and the same measurements at Stage 2 (18 months after the entrepreneurial training) imply long term.

Initially, to estimate the effect of training over participants’ perception of their business goal attainment \( (H1) \) an initial set of regressions was estimated (Equation (1)). These estimations analyze if training had an effect on goal accomplishment in the short and long term, considering participants’ business characteristics. The regression analysis estimation results are presented in Table II:

\[
\text{Goal Attainment}_{t=1,2} = f(\text{Training, Characteristics}). \tag{1}
\]

The coefficients for Equation (1) (Table II) show that training positively influences participants’ goal attainment perceptions in the short and long term (supporting \( H1 \)). On average participants who were involved in some sort of training rated their goal attainment as 27 percent above those who did not receive any training in the short term. In the long term, participants who received training rated their goal attainment 38 percent higher than the ones who did not. The control variables included, such as gender, country and the status of the entrepreneurial project, are not statistically significant at conventional levels of 10, 5 or 1 percent. However, the general fit of both estimation results is fairly good for a cross-section analysis, and the \( F \)-stat of general fit suggests the explanatory variables are jointly significant.

To estimate the effect of training \( (H2) \) and type of training \( (H4) \) to participants’ hope levels evolution, the second set of linear regressions was estimated (Table III):

\[
\Delta \% \text{Hope Pathways, Agency} = f(\text{Training, Characteristics}). \tag{2}
\]

\[
\Delta \% \text{Hope Pathways/Agency} = f(\text{Type of training, Characteristics}). \tag{3}
\]

The coefficients in Table III show that training has a significant positive impact on participants’ hope agency and pathway evolution over time. In those participants who did

<table>
<thead>
<tr>
<th>Variables</th>
<th>( t = 1 )</th>
<th>( t = 2 )</th>
</tr>
</thead>
<tbody>
<tr>
<td>Training</td>
<td>27.70*** (5.765)</td>
<td>38.28*** (6.310)</td>
</tr>
<tr>
<td>Control</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Entrepreneur (gender) = 1</td>
<td>-3.747 (4.835)</td>
<td>-0.221 (4.882)</td>
</tr>
<tr>
<td>Country (num) = 2, Honduras</td>
<td>-2.670 (6.280)</td>
<td>-0.326 (6.550)</td>
</tr>
<tr>
<td>Country (num) = 3, Nicaragua</td>
<td>-5.129 (6.923)</td>
<td>0.892 (6.239)</td>
</tr>
<tr>
<td>Status (Idea = 0, Firm = 1) = 1</td>
<td>5.680 (6.152)</td>
<td>3.737 (5.435)</td>
</tr>
<tr>
<td>Constant</td>
<td>26.94 (18.57)</td>
<td>39.11 (27.56)</td>
</tr>
<tr>
<td>Observations</td>
<td>810</td>
<td>810</td>
</tr>
<tr>
<td>( R^2 )</td>
<td>0.153</td>
<td>0.215</td>
</tr>
<tr>
<td>SE clustered entrepreneur</td>
<td>Yes</td>
<td>Yes</td>
</tr>
<tr>
<td>( R^2 )-adj</td>
<td></td>
<td></td>
</tr>
<tr>
<td>( F )-stat</td>
<td>13.58</td>
<td>5.309</td>
</tr>
<tr>
<td>( \rho ) \text{ test - } \chi^2</td>
<td>-0.136</td>
<td>-0.273</td>
</tr>
<tr>
<td>( \rho ) \text{ test - } p-value</td>
<td>0.0422</td>
<td>0.0790</td>
</tr>
<tr>
<td>( \rho ) \text{ test - } p-value</td>
<td>0.837</td>
<td>0.783</td>
</tr>
</tbody>
</table>

Table II. Effect of training over goal attainment

Notes: Robust standard errors in parentheses. \( *p < 0.1; **p < 0.05; ***p < 0.01 \)
receive training, hope pathways level increased 29 percent in the short term, and 18 percent in the long term (supporting H2). Something similar happened with hope agency. Participants who received training increased their hope agency level by 27 percent in the short term, and 20 percent in the long term.

With regard to the effect of the type of entrepreneurial training received over participants’ hope levels, coefficients in Table III suggest a negative effect upon hope agency from entrepreneurial training based on the business canvas, as compared with the results of training based on the business plan, both in the short and the long term. However, these results are not statistically significant in the OLS and the Heckman estimation (see the full set of results in Table AI). The results differ when looking at the effect upon hope pathways from entrepreneurial training based on the business canvas, compared to training

<table>
<thead>
<tr>
<th>Variables</th>
<th>Pathways % t = 0 to t = 1</th>
<th>Pathways % t = 0 to t = 2</th>
<th>Agency % t = 0 to t = 1</th>
<th>Agency % t = 0 to t = 2</th>
</tr>
</thead>
<tbody>
<tr>
<td>Training</td>
<td>Training (Yes/No) = 1, Yes</td>
<td>29.18*** (7.462)</td>
<td>18.58* (10.66)</td>
<td>27.73*** (7.510)</td>
</tr>
<tr>
<td>Control</td>
<td>Entrepreneur (gender) = 1</td>
<td>-0.895 (4.210)</td>
<td>-1.835 (6.674)</td>
<td>1.553 (4.713)</td>
</tr>
<tr>
<td></td>
<td>Country (num) = 2, Honduras</td>
<td>-1.621 (4.413)</td>
<td>-4.413 (7.955)</td>
<td>5.024 (4.889)</td>
</tr>
<tr>
<td></td>
<td>Country (num) = 3, Nicaragua</td>
<td>0.756 (5.158)</td>
<td>-2.217 (9.648)</td>
<td>7.742 (5.540)</td>
</tr>
<tr>
<td></td>
<td>Status (Idea = 0, Firm = 1) = 1</td>
<td>-0.415 (4.411)</td>
<td>-13.11* (6.758)</td>
<td>-0.837 (5.020)</td>
</tr>
<tr>
<td></td>
<td>Constant</td>
<td>-64.93*** (13.07)</td>
<td>10.93 (13.69)</td>
<td>-58.50*** (14.79)</td>
</tr>
<tr>
<td>Observations</td>
<td>810</td>
<td>240</td>
<td>810</td>
<td>240</td>
</tr>
<tr>
<td>R²</td>
<td>0.078</td>
<td>0.068</td>
<td>0.081</td>
<td>0.080</td>
</tr>
<tr>
<td>SE clustered entrepreneur</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
</tr>
<tr>
<td>F-stat</td>
<td>2.65</td>
<td>2.385</td>
<td>2.74</td>
<td>2.444</td>
</tr>
<tr>
<td>ρ = 0 test – χ²</td>
<td>0.942</td>
<td>0.887</td>
<td>0.002</td>
<td></td>
</tr>
<tr>
<td>ρ = 0 test – p-value</td>
<td>0</td>
<td>1.97e-05</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Variables</th>
<th>Pathways % t = 0 to t = 1</th>
<th>Pathways % t = 0 to t = 2</th>
<th>Agency % t = 0 to t = 1</th>
<th>Agency % t = 0 to t = 2</th>
</tr>
</thead>
<tbody>
<tr>
<td>Training</td>
<td>Training (Canvas vs Plan) = 1, Canvas</td>
<td>4.178 (4.095)</td>
<td>11.42* (6.380)</td>
<td>-5.082 (4.262)</td>
</tr>
<tr>
<td>Control</td>
<td>Entrepreneur (gender) = 1</td>
<td>-2.771 (4.785)</td>
<td>3.452 (6.101)</td>
<td>-0.783 (4.971)</td>
</tr>
<tr>
<td></td>
<td>Country (num) = 2, Honduras</td>
<td>2.479 (5.057)</td>
<td>11.88 (7.372)</td>
<td>5.973 (5.406)</td>
</tr>
<tr>
<td></td>
<td>Country (num) = 3, Nicaragua</td>
<td>1.274 (5.055)</td>
<td>11.77 (7.869)</td>
<td>6.539 (5.792)</td>
</tr>
<tr>
<td></td>
<td>Status (Idea = 0, Firm = 1) = 1</td>
<td>-0.709 (4.070)</td>
<td>-7.246 (6.159)</td>
<td>-0.681 (4.747)</td>
</tr>
<tr>
<td></td>
<td>Constant</td>
<td>-39.06*** (8.620)</td>
<td>-67.05*** (12.82)</td>
<td>-27.02** (10.63)</td>
</tr>
<tr>
<td>Observations</td>
<td>785</td>
<td>785</td>
<td>785</td>
<td>785</td>
</tr>
<tr>
<td>R²</td>
<td>0.15</td>
<td>0.125</td>
<td>0.147</td>
<td>0.135</td>
</tr>
<tr>
<td>SE clustered entrepreneur</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
</tr>
<tr>
<td>F-stat</td>
<td>2.992</td>
<td>2.88</td>
<td>2.692</td>
<td>3.012</td>
</tr>
<tr>
<td>ρ = 0 test – χ²</td>
<td>0.944</td>
<td>0.970</td>
<td>0.862</td>
<td>0.956</td>
</tr>
<tr>
<td>ρ = 0 test – p-value</td>
<td>0</td>
<td>0</td>
<td>3.52e-06</td>
<td>2.82e-08</td>
</tr>
</tbody>
</table>

Table III. Effect training and type of training over hope

Notes: Robust standard errors in parentheses. *p < 0.1; **p < 0.05; ***p < 0.01
based on the business plan: participants’ hope pathways levels grew 4 percent in the short term, and 11 percent in the long term, supporting $H_5$. The statistical significance of these results decreases from the OLS to the Heckman estimation, suggesting that after correcting for sample selection, the ability of the type of training received to explain the evolution of hope pathways and agency weakens. This result points out toward an effect of sample selection upon the relationship between canvas training and hope pathways. After correction for selection bias, the short term shows no statistical significance at standard levels; however, the positive effect remains in the OLS estimation. This result suggests that in the short term the strength of type of training is tamed by the participants who remained in the study, but such taming diffuses and a solid result in favor of a positive effect of business-canvas-based training upon hope pathways remains in the long term. This finding has solid policy implications, as discussed in the next section.

Finally, to measure the effect of hope, pathways and agency, over participants’ goal attainment perceptions ($H_3$), the following equation is estimated (Table IV):

$$\text{Goal attainment}_{t=1,2} = f(\Delta\% \text{ Hope Pathways}, \Delta\% \text{ Hope Agency}, \text{ Characteristics}).$$

The coefficients in Table IV show that hope pathways and agency have a small (statistically significant) effect on participants’ goal accomplishment. While hope pathways has an effect in the long term ($0.21$), hope agency has a significant effect over goal accomplishment in the short term ($0.39$). Control variables results show that there is no significant difference according to participants’ characteristics, still general fit of the regression ($R^2$) and global significance of the estimation ($F$-stat) suggest that the existing results are appropriate. Equations (1)–(4) were also estimated using additional controls such as self-efficacy, internal control, chance, power without the ability to identify a valuable effect upon the estimated relationship[4].

**Discussion**

This study sought to analyze the short- and long-term effects of entrepreneurial training over trainees’ perceived goal attainment. To that end, we analyzed the entrepreneurship and psychology literature and developed a model that involved the two most popular entrepreneurial

<table>
<thead>
<tr>
<th>Variables</th>
<th>Accomplishment $t=1$</th>
<th>Accomplishment $t=2$</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Hope</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Pathways (% $\Delta T=0$ to $T=1$)</td>
<td>0.114 (0.0934)</td>
<td>0.217*** (0.0591)</td>
</tr>
<tr>
<td>Pathways (% $\Delta T=0$ to $T=2$)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Agency (% $\Delta T=0$ to $T=1$)</td>
<td>0.392*** (0.0811)</td>
<td>0.133* (0.0677)</td>
</tr>
<tr>
<td>Agency (% $\Delta T=0$ to $T=2$)</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Control</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Entrepreneur (gender) = 1</td>
<td>-4.051 (4.319)</td>
<td>-4.132 (4.249)</td>
</tr>
<tr>
<td>Country (num) = 2, Honduras</td>
<td>-1.540 (6.009)</td>
<td>0.268 (6.013)</td>
</tr>
<tr>
<td>Country (num) = 3, Nicaragua</td>
<td>-2.742 (5.484)</td>
<td>-2.587 (5.250)</td>
</tr>
<tr>
<td>Status (Idea = 0, Firm = 1) = 1</td>
<td>7.349 (4.846)</td>
<td>7.496 (4.907)</td>
</tr>
<tr>
<td>Constant</td>
<td>44.32*** (4.705)</td>
<td>59.93*** (5.396)</td>
</tr>
<tr>
<td>Observations</td>
<td>305</td>
<td>240</td>
</tr>
<tr>
<td>$R^2$</td>
<td>0.182</td>
<td>0.189</td>
</tr>
<tr>
<td>SE clustered entrepreneur</td>
<td>Yes</td>
<td>Yes</td>
</tr>
<tr>
<td>$R^2$-adj</td>
<td>0.166</td>
<td>0.168</td>
</tr>
<tr>
<td>$F$-stat</td>
<td>7.988</td>
<td>5.462</td>
</tr>
</tbody>
</table>

**Notes:** Robust standard errors in parentheses. *$p < 0.1$; **$p < 0.05$; ***$p < 0.01$
training tools, and their effect on hope and goal attainment, both in the short and long term. We empirically tested that model in a group of subsistence entrepreneurs in Central America. A summary of the model results is shown in Table V.

Our analysis confirms extant theory on the positive outcomes of entrepreneurial training (Galloway and Brown, 2002). We extend this body of theory by providing empirical evidence about training’s positive influence on a particular variable: goal attainment perceptions. The results show that entrepreneurial training does enhance participants’ business goal attainment perception levels, not only by the time training is received, but also in the long term (H1).

Our study also makes an original contribution to the entrepreneurial training literature. Extant theory had mainly focused on the effects of training in the promotion of knowledge and skills (Martin et al., 2013). We show that entrepreneurial training also provides participants with “emotional equipment” that enhances their levels of hope pathways and agency (H2), which in turn has a positive influence on participants’ perceived levels of goal accomplishment (H3). Both types of hope increased through training in the short and long term but agency had a stronger influence on goal attainment in the short term, while pathways had a strong effect on that perception in the long term.

Together, these findings make an original contribution to the understanding of entrepreneurial education in developing countries. A meta-analysis of the wide universe of entrepreneurship education concludes that the empirical literature on training programs effectiveness makes a clear difference between the “art” and the “science” of entrepreneurship: “where the science refers to what is teachable, and the arts refers mainly to what is not” (Henry et al., 2005, p. 165). Our research drives a wedge between the domains of science and art, inserting and measuring the component of the self. Some innate skills may lay beyond the limits of what is teachable, but some attributes of the self that are relevant for entrepreneurial success may be developed through the right training. While the applied psychology and organizational behavior literatures had long established the importance of psychological variables on entrepreneurs’ and organizations’ performance (Magaletta and Oliver, 1999; Luthans and Jensen, 2002), the literature on entrepreneurial education (Carter et al., 2003; Davidsson and Honig, 2003) had barely taken notice. Paraphrasing Datar et al. (2011), it may be said that while the entrepreneurial education literature kept its focus limited to the knowing (conceptual tools) and doing of education (skill development), this study posits the relevance of the being component in entrepreneurial training.

<table>
<thead>
<tr>
<th>Hyp. Description</th>
<th>Support (statistically significant)</th>
<th>Effect (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>H1 Entrepreneurial training influences participants’ goal attainment perceptions in the (a) short term and (b) long term</td>
<td>Yes</td>
<td>27.7% in short term and 38.28% in long term</td>
</tr>
<tr>
<td>H2 Entrepreneurial training enhances participants’ levels of hope (pathways and agency) in the (a) short term and (b) long term</td>
<td>Yes</td>
<td>29.18% in the short term and 18.58 in the long term</td>
</tr>
<tr>
<td>H3 Participants’ level of hope (pathways and agency) positively influences their goal attainment perceptions in the (a) short term and (b) long term</td>
<td>Yes</td>
<td>0.21% pathways in the long term and 0.38 agency in the short term</td>
</tr>
<tr>
<td>H4 Entrepreneurial training based on the business plan will enhance entrepreneurs’ hope agency, particularly in the short term</td>
<td>No</td>
<td>4.17%</td>
</tr>
<tr>
<td>H5 Entrepreneurial training based on the business canvas will enhance entrepreneurs’ hope pathway</td>
<td>Yes</td>
<td>11.42%</td>
</tr>
</tbody>
</table>

Table V. Summary of hypotheses results
Extant literature had established that "Who I am" is every bit as important as "what I know" and "who I know" (Luthans et al., 2004, p. 45); in other words, psychological variables will have a direct effect on how well I can use the acquired conceptual tools and my social capital. This study takes this thinking one step further, highlighting that "Who I am" will impact directly "What I can do" with my venture; entrepreneurial skills do not operate in a vacuum, and require minimum levels of hope to be effective.

This paper’s findings also have clear practical implications, on two dimensions: the importance of entrepreneurs’ psychological variables – and of hope in particular; and the relative strengths of two of the most widely used tools for entrepreneurial training for the promotion of hope. If psychological variables matter, entrepreneurial training programs should be designed with the goal of promoting them. Effectiveness assessment should measure not only knowledge and skills acquired, but also training’s impact on trainees’ hope levels. If hope is a reliable predictor of goal attainment, it should be measured as part of trainees’ baseline situation, and after the program’s completion, to measure short-term outcome and predict long-term effects. This situation is especially important in developing countries, where individuals have strong entrepreneurial intentions (Iakovleva et al., 2011), but the failure rate of new business is above 90 percent in the first year (Global Entrepreneurship Monitor, 2017).

Our study also sheds light on a highly important topic which to the best of our knowledge had never been researched: the relative strengths of the two most popular entrepreneurial training tools (business plan and business canvas), widely seen as substitutes in the eyes of both scholars and practitioners. Can each type of training have a different effect on individuals’ levels of hope? This is a question of the utmost relevance for practitioners who seek to improve social conditions through “guided assistance” programs targeted at entrepreneurs.

The results show that the type of training used did impact the type of hope generated, and the temporal dimension of that effect. Training based on the business plan affected hope agency, not hope pathway, particularly in the short term. This is consistent with the tenets of causation, which suggests that the individual can shape the future through adequate planning. It seems logical that this type of hope will weaken with time, as even the best-laid plans fall prey to unwarranted assumptions or flawed projections.

On the other hand, business canvas-based training had a clear effect on hope pathways – both in the short and long term, but its effects were stronger in the long term. This is consistent with the predictions of effectuation theory (Sarasvathy, 2001), and confirm our expectations, as explained earlier (H4 and H5). Having hope in one’s capacity to find the right pathway appears logical for an approach that puts a premium on experimentation, on “failing quickly to learn fast” (Sims, 2011, p. 51). The entrepreneur does not know – could never know – what the future has in store for her, but she can be sure that when problems arise, she will be able to find the right solution. The ability to generate multiple alternative ways of reaching goals will become increasingly useful overtime, after our initial plans fall short of early expectations (Feldman et al., 2009).

These results cast an interesting light on the debate between proponents of the business canvas and business plan entrepreneurial training tools (Blank, 2010; Aldana et al., 2011), particularly when applied to subsistence entrepreneurs. For this target population, experimentation (the essence of the business canvas) is simply natural to their daily experience; they are “resilient and creative entrepreneurs” (Prahalad, 2005, p. 1), making do with whatever resources they have at hand, constantly challenged to do more with less. As Collins (2009) ask, “how do you manage your money if there is so little of it?” (p. 2). Subsistence entrepreneurs, as Viswanathan et al. (2014) explain, “focus the business on a possessed skill or resource with little regard to whether their business options really represented competitive differentiation in the marketplace (p. 2). Entrepreneurial bricolage – or “making do with what is at hand” (Baker and Nelson, 2005, p. 329) – is simply the natural order of things of subsistence entrepreneurs.
This finding is particularly relevant for entrepreneurial training in the context of emerging nations. It was already pointed out that these countries have a weak entrepreneurial support ecosystem. If that is the case, then training should specifically aim at increasing resilience in aspiring entrepreneurs. The business canvas emerges from this study as being well suited to that end, as it reinforces hope pathways (helping entrepreneurs to overcome the multiple hurdles that this difficult environment will create for them), particularly in the long run (when hope is more needed).

By contrast, making projections into the future (the essence of the business plan) does not come naturally to a population for whom the challenges of navigating the short term cannot be discounted. The context of scarcity can weigh so heavily that they may not prioritize long-term planning, “because the short-term needs are so great and the long-term gains so implausible” (Thompson, 2013). Finally, planning requires a fair degree of abstraction and rationalization; it seems fair to assume that those skills will acutely scarce among subsistence entrepreneurs. If rationalization can impair business planning in well-established organizations (Lenz and Lyles, 1985), it seems only logical that this will also be the case for low-income entrepreneurs.

It seems clear that the business plan tool assumes capabilities (in data gathering and analysis) that can be difficult to find among entrepreneurs and startups – particularly so among subsistence entrepreneurs. This explains why entrepreneurs with nascent ventures engage less in strategic planning than mature organizations (Delmar and Shane, 2003). Ultimately, the business plan found its way into entrepreneurial education (and into the entrepreneurship literature in general) from the strategic planning literature, which was conceived for large organizations. This observation is in line with Shepherd and Douglas (1997), who criticized the use of traditional teaching methods in entrepreneurial training, arguing that they promote logical thinking rather than creative/entrepreneurial thinking. Similarly, Gibb (1997) pointed out that the focus on the business plan in entrepreneurial training programs may inhibit entrepreneurial response to subsequent changes in the environment. Our findings provide empirical support to those theoretical observations. Given the a priori limited means of gathering data and making reliable projections that most entrepreneurs endure, the business canvas’ contribution to entrepreneurs’ “emotional equipment” will be more valuable in most situations for most entrepreneurs – and particularly for subsistence entrepreneurs, who by definition are more challenged by resource scarcity.

Moreover, the context of emerging nations is marked by chronic instability. This suggests that planning deep into the future will be of limited value, in contexts where stability is the exception. Overall, our findings appear to lend support to the migration away from the business plan and toward the business canvas currently underway by development organizations working in emerging countries.

Limitations and further studies
First, the nature of our research design is constrained to the three countries studied, and the three training conditions analyzed. Any further study along our line of reasoning and empirical approach could test our model using other countries, comparable training tools and larger samples. Second, this study refrains from making any claims on the objective impact of the business plan and the business canvas on venture performance, as we limited our query to subjective dimensions, such as hope and perceived goal attainment. Further studies can focus on objective dimensions such as the evolution of a set of performance indicators before and after the entrepreneurial training. Third, entrepreneurial training effects emerge from a host of factors – not only as a result of the cognitive tool (i.e. business plan or business canvas) employed. Further studies can assess the performance of both professor and students and evaluate their impact on
entrepreneurs’ goal accomplishment. Fourth, our study is limited to brief non-formal training programs. Future studies should test the validity of our findings in the context of longer, formal educational programs focused on entrepreneurship. Finally, the study relies on non-random assignment of participation in the program and training, this limits the ability to claim any causal effect in this study. Further studies should rely either on randomization of training or matching methods between trained and untrained to extend any claim of causal effect.

Conclusions
This study has looked into an unexplored dimension of entrepreneurial training so far: how guided preparation can improve subsistence trainee’s emotional equipment—hope in particular. Since hope is among the most reliable predictors of entrepreneurial success, that question warranted investigation. We found that entrepreneurial training can shape not only knowledge and skills, but also aspects of the self. While some personality traits or innate skills may not be affected by training, other attributes of the self that are relevant for entrepreneurial success may be developed through the right training. Hope can be enhanced through proper training. This is important because hope is one of the most reliable predictors of entrepreneurial success.

We also established the relative strengths of the business plan and the business canvas in the promotion of hope. Training based on the business plan stimulated hope agency, particularly in the short term. This is consistent with the tenets of causation, according to which the individual can aspire to shape her future through planning—strengthening agency will only reinforce that aspiration. Conversely, business-canvas-based training stimulated hope pathways, particularly in the long term. This is consistent with the predictions of effectuation theory (Sarasvathy, 2001), a theory that puts a premium on experimentation. The ability to generate multiple alternative ways of reaching goals will become increasingly useful over time, as predictions collide with reality.

Our findings inform the ongoing debate between proponents of the business canvas and business plan as the entrepreneurial training tool of choice—something that, to our knowledge, had not been done hitherto. Although both tools came out of the quasi-experiment with pros and cons, the canvas seems better attuned to the way subsistence entrepreneurs operate. For them, experimentation is simply natural to their experience, which has been described as bricolage (Baker and Nelson, 2005). On the other hand, it seems fair to say analyzing data and forecasting into the future will be rare skills among subsistence entrepreneurs. Insofar as the business plan tool assumes capabilities (in data gathering and analysis) that will be rare among subsistence entrepreneurs, the business canvas’ contribution to their “emotional equipment” will be more useful for most entrepreneurs—and certainly for subsistence entrepreneurs.

Notes
1. A dedicated webpage (http://impulsatuempresa.org) was used to that end.
2. The description of the Latin American entrepreneurial landscape offered in this section relies on that report unless otherwise specified.
3. Estimation results in Tables II–IV report whether the regression coefficient corresponds to an OLS or Heckman regression estimation.
4. Given the weak linkage of such variables upon the proposed relationship and for space constraints and consistency among the fixed characteristics of the entrepreneurs, we refrain from reporting these results, but they are still available from the authors.
References


**Further reading**


**Corresponding author**

Andres Barrios can be contacted at: andr-bar@uniandes.edu.co
### Table AI. Effect training and type of training over hope additional estimation results

<table>
<thead>
<tr>
<th>Variables</th>
<th>Pathways ( t = 0 ) to ( t = 1 )</th>
<th>Pathways ( t = 0 ) to ( t = 1 )</th>
<th>Pathways ( t = 0 ) to ( t = 2 )</th>
<th>Pathways ( t = 0 ) to ( t = 1 )</th>
<th>Agency ( t = 0 ) to ( t = 1 )</th>
<th>Agency ( t = 0 ) to ( t = 2 )</th>
<th>Agency ( t = 0 ) to ( t = 2 )</th>
</tr>
</thead>
<tbody>
<tr>
<td>Training (Canvas vs Plan) = 1, Canvas</td>
<td>7.001* (4.028)</td>
<td>4.178 (4.095)</td>
<td>20.22*** (6.375)</td>
<td>11.42* (3.414)</td>
<td>−6.242* (3.426)</td>
<td>−5.082 (4.262)</td>
<td>−3.966 (5.017)</td>
</tr>
<tr>
<td>Control</td>
<td>-4.297 (4.429)</td>
<td>−2.771 (4.785)</td>
<td>4.069 (5.899)</td>
<td>3.452 (6.101)</td>
<td>−2.969 (3.768)</td>
<td>−0.783 (4.971)</td>
<td>−0.825 (5.664)</td>
</tr>
<tr>
<td>Entrepreneur (gender) = 1</td>
<td>−2.396 (4.191)</td>
<td>2.479 (5.057)</td>
<td>0.188 (7.095)</td>
<td>11.88 (7.372)</td>
<td>1.863 (3.981)</td>
<td>5.973 (5.406)</td>
<td>2.363 (5.362)</td>
</tr>
<tr>
<td>Country (num) = 2, Honduras</td>
<td>−3.031 (5.844)</td>
<td>1.274 (5.505)</td>
<td>3.554 (8.547)</td>
<td>11.77 (7.889)</td>
<td>6.339 (5.792)</td>
<td>7.376 (6.341)</td>
<td>13.69** (6.824)</td>
</tr>
<tr>
<td>Country (num) = 3, Nicaragua</td>
<td>−3.854 (3.879)</td>
<td>−0.709 (4.070)</td>
<td>−13.22** (6.115)</td>
<td>−7.246 (6.159)</td>
<td>0.235 (4.022)</td>
<td>−0.681 (4.747)</td>
<td>−5.359 (5.828)</td>
</tr>
<tr>
<td>Status (Idea = 0, Firm = 1) = 1</td>
<td>10.47* (5.587)</td>
<td>−39.06*** (8.620)</td>
<td>15.27* (8.430)</td>
<td>−67.05*** (12.82)</td>
<td>9.625* (4.913)</td>
<td>−27.02** (10.65)</td>
<td>21.02*** (7.559)</td>
</tr>
<tr>
<td>Observations</td>
<td>265</td>
<td>785</td>
<td>200</td>
<td>785</td>
<td>265</td>
<td>785</td>
<td>200</td>
</tr>
<tr>
<td>( R^2 )</td>
<td>0.038</td>
<td>0.15</td>
<td>0.125</td>
<td>0.125</td>
<td>0.049</td>
<td>0.147</td>
<td>0.034</td>
</tr>
<tr>
<td>SE clustered entrepreneur</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
</tr>
<tr>
<td>( R^2 ) adj</td>
<td>0.0193</td>
<td>0.103</td>
<td>0.103</td>
<td>0.103</td>
<td>0.0308</td>
<td>0.0906</td>
<td>0.0308</td>
</tr>
<tr>
<td>( F )-stat</td>
<td>0.955</td>
<td>2.992</td>
<td>2.992</td>
<td>2.992</td>
<td>1.419</td>
<td>1.419</td>
<td>1.419</td>
</tr>
<tr>
<td>( p )-value</td>
<td>0.094</td>
<td>0.970</td>
<td>0.082</td>
<td>0.082</td>
<td>0.956</td>
<td>0.956</td>
<td>0.956</td>
</tr>
</tbody>
</table>

**Notes:** Robust standard errors in parentheses. *\( p < 0.1 \); **\( p < 0.05 \); ***\( p < 0.01 \)
Enhancing the effectiveness of entrepreneurship education: the role of entrepreneurial lecturers

Innocent Otache
Department of Business Administration and Management, Federal Polytechnic, Idah, Nigeria

Abstract

Purpose – Despite the inclusion of entrepreneurship education (EE) in the curricula of tertiary education institutions in Nigeria, graduate unemployment is still an issue of serious concern. This calls into question the effectiveness of EE in influencing students’ entrepreneurial intentions (EIs) and behaviours. Perhaps, the issue is with the EE lecturers. The questions, which should be answered include: are the lecturers who teach EE entrepreneurially inclined? Can lecturers who are not entrepreneurially inclined teach students to become entrepreneurs? The purpose of this paper, therefore, is to empirically explore the role of entrepreneurial lecturers in the relationship between EE and students’ EIs.

Design/methodology/approach – This study adopted a quantitative approach. Thus, a self-reported questionnaire was administered to a randomly selected sample of 256 Higher National Diploma II students of the Federal Polytechnic, Idah, Nigeria, who were exposed to EE. To analyse the data collected, partial least squares structural equation modelling (PLS-SEM) was performed using SmartPLS 2.0.M3 software.

Findings – Data analysis showed a significantly positive relationship between EE and students’ EIs on the one hand and between EE and perceived entrepreneurial lecturers (PELs) on the other hand. It was also found that PELs had a significantly positive link with students’ EIs. Further analysis indicated that PELs had a mediating effect on the relationship between EE and students’ EIs.

Research limitations/implications – This study was a single institutional study. Thus, the generalisability of its findings to other institutions is limited. Extending the research to other institutions and countries might be required to validate the findings presented.

Practical implications – This research work has some insightful implications for the teaching of EE. By implication, it provides an answer to the question: who should teach EE? To achieve greater impact of EE on students’ EIs and behaviours, entrepreneurial lecturers are required. It implies that EE lecturers should be entrepreneurially inclined. They should demonstrate sufficient entrepreneurial attitudes, intentions and behaviours.

Social implications – It has been argued that graduate unemployment constitutes a social problem to the society. In this regard, the suggestions made in this paper, if applied, would help resolve the problem of graduate unemployment in Nigeria and other countries.

Originality/value – This study is the first to provide empirical evidence of the role of entrepreneurial lecturers in the relationship between EE and students’ EIs. It has demonstrated that entrepreneurial lecturers could transfer the influence of EE to students’ EIs. Also, it has confirmed that EE lecturers are critical in the EE-students’ EIs relationship. Overall, this study makes a significant contribution to the discussion on how to enhance the effectiveness of EE in influencing students’ EIs and behaviours.

Keywords Entrepreneurship education, Entrepreneurial intentions, Theory of planned behaviour, Entrepreneurial lecturers

Paper type Research paper

Introduction

The issue of whether entrepreneurs are born or made, to a large extent, has been resolved (Fenton and Barry, 2011). There seems to be a common understanding and agreement among academics, governments and policymakers that entrepreneurship can be taught and learned (Ismail and Ahmad, 2013; Gerba, 2012b; Kumara, 2012). Thus, the issue is no longer whether entrepreneurs can be made or whether EE can influence students’ entrepreneurial intentions (EIs) and behaviours. The real issues that need to be addressed according to Sirelkhatim and Ganji (2015), Solesvik et al. (2014) and Henry (2013) are as follows:

- Who should teach EE?
This is a serious issue with many tertiary education institutions in Nigeria today. It is noteworthy that the Nigerian government introduced EE into the curricular of tertiary education institutions in the year 2006 and made it compulsory for all undergraduate students, regardless of their disciplines, to take certain entrepreneurship courses before graduation (Agbonlahor, 2016; Olorundare and Kayode, 2014; Anene and Imam, 2011). This entrepreneurship policy aims to equip undergraduate students with entrepreneurial knowledge, skills and competencies, and the motivation to engage in entrepreneurial ventures after graduation (Agbonlahor, 2016; Ojeifo, 2012; Onuma, 2016). To date, one of the major challenges against the success of the policy is that there is a dearth of qualified entrepreneurship lecturers (Agbonlahor, 2016; Onuma, 2016). The practice hitherto in many Nigerian universities, polytechnics and colleges of education is that lecturers are drafted from different departments such as economics, business administration, marketing and accounting, among others, to teach entrepreneurship courses (Agbonlahor, 2016). Note that while majority of these lecturers do not major in entrepreneurship, some of them may not have even taken any entrepreneurship courses during their undergraduate programmes. In effect, such lecturers would not be effective in teaching entrepreneurship courses and the quality of EE provided to the students would be adversely affected. Consequently, EE would not have much impact on students' EIs and behaviours.

It has become very imperative to address the issue of who should teach EE because despite the inclusion of EE in the curricula of higher education systems by many countries like Nigeria, graduate unemployment is still an issue of serious concern to those countries. Strikingly, the number of undergraduate students who became self-employed after graduation as a result of their exposure to EE is insignificant. For example, a study conducted by Othman et al. (2012) in Malaysia reveals that of the 1,968 undergraduate students exposed to EE only 24 of them became self-employed after graduation. This calls into question the effectiveness of EE in influencing students' EIs and behaviours. Even though a great deal of empirical studies have affirmed the positive impact of EE on students' EIs (Bae et al., 2014; Martin et al., 2013), it could be argued that the results of the positive impact of EE on students' EIs and behaviours seem to be more on paper than in reality. Perhaps, the issue is with the EE lecturers. The questions, which should be answered include: are the lecturers who teach EE entrepreneurially inclined? Can lecturers who are not entrepreneurially inclined teach students to become entrepreneurs? The underlying assumption of this paper is that EE has not impacted considerably on students' EIs and behaviours in reality because many of the lecturers who teach entrepreneurship courses are not entrepreneurially minded in terms of attitudes, intentions and behaviours. To underscore the importance of entrepreneurial lecturers, Ismail and Ahmad (2013) concluded that it is not only that the entrepreneurship curriculum in Malaysian polytechnics is ineffective, but also the lecturers who teach entrepreneurship courses do not seem to possess appropriate entrepreneurial skills and knowledge. To put it simply, the lecturers are not entrepreneurially inclined.

There are two important issues regarding who should teach EE. The first issue is about the content of EE. Basically, this is a curriculum issue. The issue of content is important because it helps to determine what is to be taught and who is to teach it. Essentially, the course content should determine who teaches the course. If the purpose of EE is to create fully fledged entrepreneurs, then EE curriculum should have both theoretical and
practical content. The theoretical part should educate students about the general field of entrepreneurship while the practical part should equip students with specific trade-related skills. Both parts should prepare students to become fully fledged entrepreneurs, who would be willing to establish their own businesses after graduation. To this end, the EE curriculum should be designed in such a way that the theoretical part precedes the practical part. The theoretical part helps to lay a solid foundation for the practical part. This enables the students to develop an entrepreneurial mindset. In other words, students’ entrepreneurial mindset must be developed before they acquire specific trade-related skills. Otherwise, they would not have a strong inclination to establish their own businesses after graduation. The second issue is about who should teach the theoretical part and the practical part. The issue of who should teach the practical part is not complicated to decide. Since the practical part involves acquisition of trade-related skills, then experts in those trades should teach the practical part. However, the problem is with who should teach the theoretical part. For clarification purposes, this paper is concerned with the issue of who should teach the theoretical part of EE. Therefore, wherever the phrase “EE lecturers” is used in any part of this paper, it should be taken to mean the lecturers who teach the theoretical part of EE.

The issue of who should teach EE means that not everybody is qualified to teach EE. To all intents and purposes, entrepreneurship itself requires passion. Basically, entrepreneurship is a course that should be taught with passion. Therefore, EE lecturers should be passionate about the course to be able to inculcate entrepreneurial culture into the students. The lecturers’ attitudes and behaviours must be supportive of the main purpose and the intended outcome of EE, which is to create fully fledged entrepreneurs. This implies that if EE lecturers are teaching students to be creative and innovative, they themselves must be creative and innovative. The point is not that EE lecturers must become business entrepreneurs before they can teach EE. The emphasis here is that EE lecturers must be entrepreneurially minded. They must have an entrepreneurial mindset. It should be noted that lecturers (or teachers generally) are sources of influence to the students. They are role models to the students, suggesting that EE lecturers could influence the students entrepreneurially. Moreover, the extant literature has demonstrated the role of role models such as entrepreneurial parents and successful entrepreneurs in the relationship between EE and students’ EIs (Farrington et al., 2012; Muofhe and Toit, 2011).

Furthermore, according to Croci (2016) and Carlsson et al. (2013), the field of entrepreneurship is still evolving, and this makes the issue of who should teach EE more complicated. Up till now, the debate on whether or not entrepreneurship should be regarded as an academic discipline has not been concluded (Croci, 2016). Moreover, entrepreneurship as a subject appears to be interdisciplinary (Croci, 2016). This is because many existing EE curricula cut across different disciplines such as finance, economics, sociology, management, marketing, psychology, anthropology and strategy (Croci, 2016; Carlsson et al., 2013). Apart from that, not many universities offer entrepreneurship as an academic field of study, and consequently, the number of people who major in entrepreneurship is limited (Croci, 2016). For example, out of the 233 degree-awarding institutions in Nigeria, it is only 16 of them that offer entrepreneurship as a major (JAMB, 2018). Otherwise, the issue of who should teach EE should not have arisen. If core medical or engineering courses are taught by experts in those areas, then core entrepreneurship courses should be taught by entrepreneurship scholars.

In summary, while it is justifiable to recommend that the people who studied entrepreneurship as a major should teach EE, it should be noted that the position of this paper goes beyond studying entrepreneurship as a major for one to be qualified to teach EE. This paper stresses further that EE lecturers must be entrepreneurially inclined for EE to
have a significant impact on students’ EIs and behaviours. In other words, even those who studied entrepreneurship as a major must be entrepreneurially minded for EE to have a considerable influence on students’ EIs and behaviours.

**Problem statement/rationale for the study**

Youth unemployment is one of the challenges facing many countries today, particularly the developing countries (David, 2015; Ajubo, 2013; Gorlich *et al.*, 2013). Available statistics shows that about 70.5 per cent of the world’s unemployed are youths (ILO, 2016). In Nigeria, youth unemployment rate is estimated at 53.3 per cent of the total labour force (NBS, 2017). The resultant effects of youth unemployment are numerous, grievous and contagious. These include armed robbery, drug trafficking and addiction, human trafficking, prostitution, kidnapping (or hostage taking), advance fee fraud, cultism, political thuggery, uprising and terrorism (Anene and Imam, 2011).

Of more worrisome is graduate unemployment (Gerba, 2012b; Li and Liu, 2011). For example, the extant literature shows that graduate unemployment rate in Nigeria increased from 25.6 per cent in 2003 to 42.7 per cent in 2011 (Muhammad *et al.*, 2015). Also, according to Olukayode (2017), about 60 per cent of Nigerian graduates are unemployed. To complicate matters further, graduates are churned out in large numbers into the labour market that is already overcrowded on yearly basis (Onuma, 2016; Lourenco *et al.*, 2013). Thus, supply of labour far outweighs demand for labour. Moreover, it has been argued that many Nigerian graduates are unemployable, as they do not possess the requisite knowledge and skills to match today’s challenging jobs (Onuma, 2016). In order to tackle the problem of graduate unemployment in Nigeria, the Federal Government has initiated a number of entrepreneurship development policies and programmes, which include; first, the inclusion of EE in the curricula of tertiary education institutions; second, the establishment of functional entrepreneurship development centres; and third, the introduction of different entrepreneurship development programmes such as Youth Entrepreneurship Support Programme (YES-Programme) and Youth Enterprise with Innovation in Nigeria (YouWin), among others. However, despite government’s efforts to tackle the problem of graduate unemployment through entrepreneurship development, many Nigerian graduates are still unemployed (Agbonlahor, 2016; Ojeifo, 2012; Onuma, 2016).

Ever since EE is integrated into the curricular of tertiary education systems in some countries, a plethora of empirical studies have explored its impact on students’ EIs. While some studies have investigated the direct link between EE and students’ EIs (Bae *et al.*, 2014; Hattab, 2014; Gerba, 2012a; Fayolle *et al.*, 2006), other studies have examined the moderating effects of factors such as role model, self-confidence, family background and support, culture, age and gender on the relationship between EE and students’ EIs (Mahmood and Abdullahieef, 2017; Farrington *et al.*, 2012; Laviolette *et al.*, 2012; Sesen, 2012; Uddin and Bose, 2012; Fayolle *et al.*, 2006). However, there is no empirical evidence of the role of entrepreneurial lecturers in the relationship between EE and students’ EIs; a gap this study addresses. This study addresses the identified gap by providing an answer to the question (who should teach EE?) asked by Sirelkhatim and Ganji (2015), Solesvik *et al.* (2014) and Henry (2013). This paper argues that entrepreneurial lecturers should teach EE. This line of argument is in agreement with the submission made by Lope Pihie and Bagheri (2011) that entrepreneurship teachers should be entrepreneurial. To the author’s knowledge, this study is the first to empirically explore the role of entrepreneurial lecturers in the relationship between EE and students’ EIs. This study argues that the entrepreneurial attitudes and behaviours of EE lecturers are critical in the relationship between EE and students’ EIs and in the teaching of EE as a subject. The study stresses that entrepreneurial lecturers, who are perceived to be entrepreneurially minded by the students, could help transfer the impact of EE to students’ EIs. This suggests that entrepreneurial lecturers
enhance the effectiveness of EE in influencing students’ EIs. Put differently, the more entrepreneurial the EE lecturers are, the greater the impact of EE on students’ EIs.

This study makes theoretical and practical contributions to the existing literature on EE and students’ EIs. Specifically, it contributes greatly to the discussion on how to enhance the effectiveness of EE in influencing students’ EIs and behaviours. More importantly, it addresses the problem of who should teach EE that many tertiary education institutions are facing today. Moreover, this study is able to show that entrepreneurial lecturers help to increase the impact of EE on students’ EIs. Lastly, aside from higher education institutions in Nigeria that would benefit from this research work, higher education institutions in other countries that are facing similar problem of who should teach EE would equally benefit immensely from this study.

In view of the above discussion, the general purpose of this study is to empirically explore the role of entrepreneurial lecturers in the relationship between EE and students’ EIs. The specific objectives of this study are:

- to determine whether EE has a significantly positive relationship with students’ EIs, and
- to empirically establish whether the relationship between EE and students’ EIs is mediated by entrepreneurial lecturers, who are perceived to be entrepreneurially inclined by the students.

To achieve the above objectives, the rest of this paper is structured as follows. After this introduction, the second section reviews the related literature on EIs, antecedents to EIs, EE and the social learning theory. The third section presents and explains the study’s conceptual framework while the fourth section explains the methodological approach adopted for this study. The fifth section presents and discusses the results of the study whereas the sixth section concludes the paper and highlights the implications of the findings of the study. The last section highlights the study’s limitations and suggests for future studies.

**Literature review and hypotheses development**

This section specifically reviews the related literature on EIs, antecedents to EIs, EE, direct impact of EE on students’ EIs, the social learning theory and the role of entrepreneurial lecturers with a view to developing research hypotheses and framework.

**EIs**

Basically, intention is an underlying factor when explaining people’s behaviours. This implies that people's behaviours are intentional. Studies have demonstrated that intention is positively related to behaviour (Ajzen, 1991). In other words, intention is an antecedent to behaviour (Urban and Ratsimanetrimanana, 2015). Intention can be defined as the state of mindset, which guides and directs people’s attention towards performing a particular behaviour (Uygun and Kasimoglu, 2013). Ajzen (1991) defines intention as “the indication of how hard people are willing to try, of how much an effort they are planning to exert, in order to perform the behaviour” (p. 181). Usually, the stronger the intention, the more likely that the person will perform the behaviour (Thu and Hieu, 2017). Based on the general definition of intention, EI is, therefore, defined as an individual’s decision to launch a business venture in the future (Sesen, 2012). It is a state of mind that directs and guides individuals towards the establishment of an entrepreneurial venture (Karimi et al., 2016). The decision to become an entrepreneur involves a conscious and mental process (Sesen, 2012). This means that entrepreneurial behaviour is both planned and intentional (Bellò et al., 2018; Molaei et al., 2014; Yang, 2013; Ulysses et al., 2011). Research evidence shows that entrepreneurial attitudes are positively related to EIs and, by extension, to entrepreneurial behaviours (Bahadur and Naimatullah, 2015; Soutaris et al., 2007).
Antecedents to EIs

Several factors affect people’s EIs (Hattab, 2014). These factors are called antecedents to EIs. The antecedents act as the key to understanding the complexities of the entrepreneurial process. From the extensive review of the existing literature carried out, antecedents to EIs are as follows.

Personality or psychological factors affect people’s EIs and their decisions to start a business. The extant literature has shown that personality characteristics such as self-confidence, risk-taking proclivity, creativity, innovativeness, tolerance for ambiguity and uncertainty, internal locus of control, self-efficacy and independence influence people’s EIs (Solesvik et al., 2014; Sesen, 2012; Uddin and Bose, 2012; Fayolle et al., 2006). It has been argued that people with higher need for achievement, increased self-efficacy and stronger internal locus of control possess stronger EIs than those with lesser need for achievement, lesser self-efficacy and weaker internal locus of control. Also, self-confidence is a significant factor when taking a decision to start a new business. Available empirical evidence has confirmed that self-confidence moderates the EE–EIs relationship (Mahmood and Abdullah, 2017). Additionally, research has demonstrated that internal locus of control and risk-taking propensity are positively related to attitude towards entrepreneurial behaviour (Vuorio et al., 2017; Baaq et al., 2016; Lüthje and Franke, 2003).

Environmental factors such as social, economic, cultural, political and technological factors influence people’s EIs. The existing literature underscores the importance of environmental factors in the entrepreneurship process (Covin and Slevin, 1991). Environmental factors are capable of facilitating or impeding the birth and growth of an enterprise. Environment presents opportunities that people could exploit. Equally, it poses threats that could retard the birth and growth of an enterprise. The presence of viable business opportunities could influence people’s disposition to start a business. Similarly, it has been argued that the impact of EE on people’s entrepreneurial behaviours varies according to cultural settings (Urban and Ratsimametrinana, 2015; Solesvik et al., 2014). More so, technological advancements may possibly mean more business opportunities that could influence people’s decision to engage in the entrepreneurial process.

Contextual or situational factors such as parental influence, role models, prior work experience and social networks affect people’s EIs (Hattab, 2014; Iacobucci and Miccozi, 2012). Generally, parents play an important role in their children’s decision to choose an entrepreneurial career (Muofhe and Toit, 2011; Fayolle et al., 2006). This is true, especially when one has parents who are successful business entrepreneurs. There is the likelihood that successful entrepreneurial parents would tilt their children towards becoming entrepreneurs. Moreover, many children see their parents as role models. Studies have confirmed a positive link between parental role model and preference for a self-employment career (Fayolle et al., 2006). Role models could also be successful businessmen and businesswomen in the society. Empirical research has established that role model moderates the relationship between EE and EIs (Farrington et al., 2012; Muofhe and Toit, 2011). In addition, it has been argued that people with previous work experience in entrepreneurial activities are more likely to start a business than those whose previous experience is not related to entrepreneurial activities (Alessandro et al., 2016; Ucbasaran et al., 2001). Besides, empirical studies have established that previous entrepreneurial experience moderates the relationship between EE and students’ EIs (Alexandros, 2016).

Several motivational factors influence one’s decision to become an entrepreneur. Motivational factors can be categorised into push and pull factors (Deli, 2011). Push motivational factors are negative factors that drive people towards business ownership not so much out of choice but out of necessity (Varghes and George, 2015). Push motivational factors lead to necessity entrepreneurship. Examples of push motivational factors are: dissatisfaction with one’s current financial position, dissatisfaction with a salaried job,
family pressure and difficulty in finding a job. On the other hand, pull motivational factors are positive factors that attract individuals into business ownership (Varghese and George, 2015). Pull motivational factors lead to opportunity entrepreneurship. Examples of pull motivational factors include: desire for independence, existence of viable business idea or opportunity, desire for social status, desire for wealth or financial reward, desire to achieve one’s ambition and desire for security.

Demographical factors such as age and gender influence people’s EIs (Saraf, 2015; Farrington et al., 2012). Generally, owning and managing a business venture is perceived by many people as men’s activities (Chaudhary, 2017; Westhead and Solesvik, 2016). It has been argued that men are significantly more likely to develop strong EIs than their women counterparts (Westhead and Solesvik, 2016). To confirm that submission, research evidence shows that there are more male entrepreneurs than female entrepreneurs (Fayolle et al., 2006; Turker and Selcuk, 2009). Some studies have cited societal norms and cultural factors as barriers to women’s active participation in entrepreneurial activities (Shinnar et al., 2017; Gupta et al., 2009). However, the limiting factors notwithstanding, it has been acknowledged that some women have strong EIs, especially in industries that are considered feminine, for example hospitality industry (Gupta et al., 2009). Also, the extant literature acknowledges that age is related to entrepreneurial behaviour (Chaudhary, 2017). It has been argued that younger people who are energetic and ready to take risks are more likely to engage in entrepreneurship compared to older people who are less energetic and averse to risk-taking. Fung et al. (2001) submit that older people are not willing to invest in a business that takes time to yield returns. To sum up, empirical studies have demonstrated that men and young people are more amenable to entrepreneurial activity than women and old people (Austin and Nauta, 2015; Isabella et al., 2015; Johansen, 2013; Crant, 1992).

Education can influence students’ EIs. Generally, education is a tool that can be used to mould people’s behaviours. Martin et al. (2013) argue that the general human capital that is acquired through education is presumed to provide the motivation, discipline, self-confidence, skills and knowledge that enables one to adapt to new and changing situations. Westhead and Solesvik (2016) describe education as “a key driver of entrepreneurial performance” (p. 4). While education generally helps to equip people with the knowledge, skills, attitudes and values that they need to live and function properly in the society; education programmes that concentrate on entrepreneurship play a significant role in influencing students’ attitudes towards EIs and behaviours. EE is an educational process that is designed to influence people’s attitudes, intentions and behaviours entrepreneurially. More importantly, exposure to EE is an important factor that influences students’ decision to become entrepreneurs. A great deal of empirical studies have demonstrated that students who are exposed to EE are more likely to think and act entrepreneurially and have strong predisposition towards starting a new business venture after graduation than those who are not exposed to EE (Ahmad, 2015; Ismail and Ahmad, 2013; Iacobucci and Micoczi, 2012; Piperopoulos, 2012).

Drawing on Ajzen’s (1991) theory of planned behaviour (TPB), people’s intentions and behaviours are affected by three factors (Henley et al., 2017). The first is attitude towards behaviours, which refers to individual’s perceived positive or negative outcomes of a given behaviour. The second is social or subjective norms, which refer to individual’s perception of people’s opinions for and against performing a particular behaviour. And the third is perceived behavioural control, which refers to individual’s perception of factors that facilitate or impede the performance of a particular behaviour (Rohit, 2016; Bahadur and Naimatullah, 2015; Mohamed et al., 2012; Franco et al., 2010; Ajzen, 1991). Therefore, applying the TPB to entrepreneurship, it has been argued that positive attitude towards entrepreneurial behaviour, encouraging subjective norms for entrepreneurial behaviour and favourable perceived behavioural control for entrepreneurial behaviour are
positively related to people’s EIs (Bahadur and Naimatullah, 2015). This means that people are more likely to engage in entrepreneurial behaviour if they have favourable assessments of the behaviour in question, if they have positive perception that their reference people agree with the behaviour, and if they have positive perception that their engagement in the behaviour is feasible.

Furthermore, Shapero and Sokol’s (1982) entrepreneurial event model (EEM) posits that people’s EIs are influenced by three factors: perceived desirability, propensity to act and perceived feasibility (Guzmán-Alfonso and Guzmán-Cuevas, 2012; Sesen, 2012; Shapero and Sokol, 1982). Perceived desirability is the degree of attractiveness for an individual to start a business venture while propensity to act refers to an individual’s predisposition to act on an identified business opportunity. On the other hand, perceived feasibility is the degree to which an individual perceives his or her ability to become an entrepreneur or to start a business. Research has demonstrated that positive perceived desirability of an entrepreneurial venture, stronger propensity to act entrepreneurially and positive perceived feasibility to start an entrepreneurial venture increase individuals’ predisposition towards choosing an entrepreneurial career (Urban and Kujinga, 2017; Bacq et al., 2016). It implies that people are more likely to engage in entrepreneurship if they perceive that it is attractive and practicable, and if they have the capacity to act on the identified opportunity.

EE
Like its parent field (entrepreneurship), EE defies a commonly accepted definition. It has attracted a plethora of definitions from different entrepreneurship scholars. According to Ramayah et al. (2012), EE is defined “as the collection of formalized teachings that inform, train and educate learners who are interested in setting up a business” (p. 69). Also, Liñán (2004) defined EE as “the whole set of education and training activities – within the education system or not – that try to develop in the participants the intention to perform entrepreneurial behaviours, or some of the elements that affect that intention, such as entrepreneurial knowledge, desirability of the entrepreneurial activity, or its feasibility” (p. 166). Furthermore, according to Iacobucci and Micozzi (2012), EE is defined “as the process of providing individuals with the ability to recognize commercial opportunities and the insight, self-esteem, knowledge and skills to act on them” (p. 678). Similarly, Gerba (2012a, b) defined EE “as the structured formal conveyance of entrepreneurial competencies, which, in turn, refers to the concepts, skills and mental awareness used by individuals during the process of starting and developing their growth oriented ventures” (p. 227).

The above definitions imply that EE is meant to promote the spirit and culture of entrepreneurship among students (Johansen, 2013; Iacobucci and Micozzi, 2012). It has been reported that EE increases students’ propensity to start a new business after graduation (Byabashaija and Katono, 2011; Olomi and Sinyamule, 2009). Also, research evidence has demonstrated that students who studied entrepreneurship are more likely to have the proclivity for an entrepreneurial career than those who did not study entrepreneurship (Piperopoulos, 2012). Basically, EE prepares and encourages students to discover, create and exploit opportunities (Westhead and Solesvik, 2016). It equips students with the necessary knowledge, skills and competencies that they need to translate opportunities into viable ventures. The entrepreneurship literature has acknowledged that EE is capable of tackling the problem of graduate unemployment (Jones and Colwill, 2013).

Development of hypotheses
Direct impact of EE on students’ EIs. A great deal of empirical studies have explored the impact of EE on students’ EIs (Bae et al., 2014; Martin et al., 2013). Also, empirical evidence of the positive impact of EE on students’ EIs abound in the literature on EE and EIs...
(Farashah, 2013; Hattab, 2014; Gerba, 2012a, b; Westhead and Solesvik, 2016). Nevertheless, in spite of the compelling research evidence of the positive impact of EE on students’ EIs, empirical evidence of the direct impact of EE on students’ EIs is limited. Most of the past studies tested the impact of EE on students’ EIs through the TPB constructs (i.e. ATB, SN and PBC) (Aslam et al., 2012; Ahmed et al., 2017; Gerba, 2012a, b; Fayolle et al., 2006; Maresch et al., 2016; Byabashaija and Katono, 2011). Thus, the direct link between EE and students’ EIs is not clearly established in the literature on EE and students’ EIs (Lorz, 2011; Oosterbeek et al., 2010; Pittaway and Cope, 2007; von Graevenitz et al., 2010). This calls for more research on the direct impact of EE on students’ EIs. Note that while the TPB constructs could absorb and transfer the effects of EE to students’ EIs, it is also possible for EE to have a direct link with students’ EIs without being mediated by the TPB constructs (Maresch et al., 2016; Passaro et al., 2018). It has been argued that students’ EIs are affected by a multiplicity of factors; factors other than the TPB constructs (Passaro et al., 2018). Moreover, the effectiveness of EE in influencing students’ EIs does not seem to be affected by the TPB constructs (Maresch et al., 2016). Based on the above premise, it is hypothesised that:

**H1.** EE has a significantly positive relationship with students’ EIs.

*Social learning theory and the mediating role of entrepreneurial lecturers.* A lot of theories have been proposed to explain why people exhibit a particular behaviour. Albert Bandura’s (1971) social learning theory is one of such theories. It is a theory of learning and social behaviour, which postulates that a new behaviour can be acquired by observing and imitating other people (Bandura, 1971). It is argued that learning is a cognitive process that can take place in a social context through observation, imitation and modelling. Bandura theorizes that people learn from one another. In real life, it is evident that people have role models who are sources of influence to them. They look up to them and even desire to be like them. Some people develop behaviours that are similar to the behaviours of those they see as their role models. In other words, people acquire new behaviours by direct observation and imitation of other people’s behaviours.

Social learning theory is very much related to the subject matter under discussion. For instance, EE is taught in a social context, which involves an interaction between the lecturers and the students. Besides, lecturers (or teachers) are widely regarded as role models by the students. Some students aspire to be like their teachers. Role models influence people’s behaviours. A lot of people model themselves on their role models. Besides, it has been noted that role models such as entrepreneurial parents and successful business entrepreneurs influence students’ EIs and behaviours (Saraf, 2015; Laviolette et al., 2012). Therefore, if EE lecturers, who are regarded as role models by the students, are entrepreneurially minded in terms of attitudes and behaviours, there is the likelihood that many of the students would like to be like them, and that would increase the impact of EE on the students’ EIs and behaviours.

From the above discussion, it can be deduced that the impact of EE on students’ EIs would be greater if EE is taught by lecturers who are entrepreneurially minded. According to Lope Pihie and Bagheri (2011), entrepreneurial teachers help to enhance the impact of EE on students’ EIs. Similarly, Ali et al. (2009) stress that an entrepreneurially minded teacher is required for effective implementation of EE. From a practical point of view, EE lecturers transfer entrepreneurial knowledge and skills to students. However, to be able do that, the EE lecturers themselves must possess entrepreneurial knowledge and skills before they can transfer the knowledge and skills to students. More importantly, EE lecturers should possess certain entrepreneurial qualities such as creativity, innovativeness and self-confidence, among others, and they should be perceived by the students that they possess these qualities. In that regard, this paper argues that students are more likely to be
inspired if they perceive their EE lecturers to be entrepreneurially minded. The mere fact that the students perceive their EE lecturers to be entrepreneurially inclined can increase the effects of EE on the students’ EIs. Based on the above premise, it is hypothesised that:

H2. The relationship between EE and students’ EIs is mediated by entrepreneurial lecturers, who are perceived to be entrepreneurially inclined by the students.

Conceptual framework
The detailed literature review undertaken formed the basis for the development of the following conceptual framework. Thus, Figure 1 shows the mediating effect of entrepreneurial lecturers on the relationship between EE and students’ EIs. The assumption here is that the impact of EE on students’ EIs would be greater if EE is taught by entrepreneurial lecturers, who are perceived to be entrepreneurially inclined by the students. Henceforth, entrepreneurial lecturers shall be referred to as perceived entrepreneurial lecturers (PELs). Specifically, in Figure 1, EE is conceptualised to have a direct link with students’ EIs. This suggests that EE is capable of affecting students’ EIs directly, either positively or negatively. Also, EE is hypothesised to have a direct relationship with PELs. Additionally, PELs is conceptualised to have to a direct link with students’ EIs, implying that PELs could predict students’ EIs. Lastly, it is hypothesised that the relationship between EE and students’ EIs is mediated by PELs, suggesting that PELs could absorb and transfer the influence of EE to students’ EIs.

Methods
This section explains the methods adopted in data collection and analysis and how the study’s variables were operationalized.

Research design
The purpose of this study is to infer from the analyses performed the relationships that exist among the variables examined. Thus, this study adopted an inferential research design. It was a cross-sectional study as data were collected at one point in time.

Population and sampling technique
The population of this study consists of 750 Higher National Diploma (HND) II students of the School of Business Studies (SBS), Federal Polytechnic, Idah, Kogi State, Nigeria. From Krejcie and Morgan’s (1970) Population and Sample Size Table, a sample size of 256 was arrived at. Consequently, a sample of 256 HND II students were selected following a simple random sampling technique. The class list served as the sampling frame.

Data collection and analysis
A self-reported questionnaire was administered to the selected students for primary data collection. The questionnaire was administered after the HND II students were exposed to EE.

Figure 1. Conceptual framework
To be precise, the HND II students took an entrepreneurship course (i.e. EED 413: Entrepreneurship Development) as part of their first-semester coursework.

To analyse the data collected, partial least squares structural equation modelling (PLS-SEM) was performed using SmartPLS 2.0.M3. PLS-SEM was employed because it allows different relationships to be tested simultaneously. Also, indirect effects can easily be calculated with PLS-SEM. This study tested a mediation model, which consists of EE as the independent variable, PELs as the mediator variable and EIs as the dependent variable. Specifically, in line with the objectives of this study, two models were tested. Model I was tested for the direct effect of EE on students' EIs while Model II was tested for the indirect effect of PELs on the relationship between EE and students' EIs. Note that PRPPCESS v3.0 procedure for SPSS was followed in order to test for the significance of the indirect effect.

Operationalization of variables
The variables examined in this study were operationalized as follows.

EE. It is the extent to which students have acquired entrepreneurial knowledge and skills as a result of their exposure to EE. EE was measured with five items adopted from Tung (2011) and Souitaris et al. (2007).

EIs. It is the extent to which students desire to become entrepreneurs in the future. It was measured with six items adopted from Kolvereid and Isaksen (2006), Zhao et al. (2005) and Chen et al. (1998).

PELs. It is the extent to which students perceive their EE lecturers to be entrepreneurially inclined. It was measured with four items. Note that all the variables were measured with reflective items using a seven-point Likert scale, where 1 represents “strongly disagree” and 7 represents “strongly agree”.

Common method variance
As was stated before, this study used a self-reported questionnaire to collect data for analysis. It has been noted that data gathered using a self-reported questionnaire is characterised by common method variance (CMV). CMV exists when data on the variables are collected from a single person. Thus, it is recommended that the data be checked to establish whether a single factor is accountable for the variation in the data. One method that is commonly employed to test for CMV is Harman’s single-factor test. In this study, Harman’s single-factor test was carried out to make sure that the data collected for analysis did not suffer from CMV using principal component analysis in SPSS (Podsakoff et al., 2003). The results indicated that a single factor did not emerge. Out of the four-factor solution that emerged with a total variance of 62.566 per cent, the first factor explained only 20 per cent, implying that CMV is not an issue in this study.

Results and discussion
This section presents and discusses the results of the data analysis carried out. More precisely, it presents and discusses the results of the measurement and the structural models examined.

Assessment of the measurement model
Composite reliability, convergent validity and discriminant validity were used to assess the quality of the measurement model. The results of the measurement model showed that all the conditions for assessing a reflective measurement model were met (see Tables I and II).

Composite reliability was employed to assess the internal consistency of the items measuring the variables. An assessment of the measurement model showed that the composite reliability values for all the variables were above the threshold value of 0.70.
This suggests a high internal consistency among the items measuring the variables. Additionally, the average variance extracted (AVE) and the individual indicator reliability were used to evaluate the convergent validity of the variables. An evaluation of the measurement model revealed that the AVE values for all the variables were more than the recommended value of 0.50 (Hair et al., 2014). This means that all the variables passed the convergent validity test criterion. Additionally, the indicator reliability values for all the items measuring the variables were loaded above the recommended value of 0.50 (Hair et al., 2014). The results showed that all indicators’ outer loadings were statistically significant.

Furthermore, Fornell–Larcker criterion and cross loading were used to assess the discriminant validity of the measurement model. Discriminant validity is defined as the extent to which a variable differs from the other variables (Hair et al., 2010, 2014). It is the association between a variable and other variables. Fornell–Larcker criterion matches the square root of the AVE values with the correlations of the latent variables. A variable passes a discriminant validity test if the square root of the variable’s AVE value is more than the highest correlation that the variable has with other variables (Fornel and Larcker, 1981). The results of the measurement model showed that all the variables passed the discriminant validity test. The square root of each variable’s AVE value was more than the correlation that the variable had with other variables (see Table II for details). Note that the numbers shown diagonally in bold and italics represent the square root of the variables’ AVE values and the rest are the correlations between the variables.

Cross loadings, on the other hand, describe how strongly each indicator measuring a variable loads on the other variables. An assessment of the measurement model indicated that the variables passed the discriminant validity criterion. All indicators’ outer loadings on the associated variable were greater than all of their loadings on other variables (see Table III for details).

Assessment of the structural models and hypotheses testing
Table IV and Figure 2 show the details of the bootstrapping results of the structural relationships among the variables.
Model I was tested for the direct effect of EE on students’ EIs. As hypothesised, the results of the structural model indicated a significantly positive relationship between EE and students’ EIs, \( \beta = 0.269, t = 5.293 \). This means that \( H1 \) is supported. The findings show that EE predicts students’ EIs. It suggests that an increase in EE would lead to a corresponding increase in students’ EIs. In practical terms, it means that EE can increase students’ disposition to choose entrepreneurial career paths. The findings are consistent with the findings of the previous studies that examined the links between EE and students’ EIs (Hattab, 2014; Maresch et al., 2016; Passaro et al., 2018).

Model II was tested for the mediating effect of PELs on the relationship between EE and students’ EIs. A mediating effect exists when a third variable intervenes between two variables that are related (Hair et al., 2014). To test for the mediating effect of PELs on the relationship between EE and students’ EIs, the conditions stipulated by Baron and Kenny (1986) were applied. According to the authors, a mediating effect exists if the following four conditions are met:

1. The effect of EE on EIs is significant.
2. The effect of EE on PELs is significant.
3. The effect of PELs on EIs is significant.
4. The effect of EE on EIs becomes nonsignificant or less significant when PELs are included in the model.

Table III. Indicators’ cross loadings

<table>
<thead>
<tr>
<th>Constructs</th>
<th>EE</th>
<th>EIs</th>
<th>PELs</th>
</tr>
</thead>
<tbody>
<tr>
<td>EE3</td>
<td>0.8697</td>
<td>0.2364</td>
<td>0.2481</td>
</tr>
<tr>
<td>EE4</td>
<td>0.7536</td>
<td>0.1581</td>
<td>0.2035</td>
</tr>
<tr>
<td>EIs3</td>
<td>0.1792</td>
<td>0.8634</td>
<td>0.4625</td>
</tr>
<tr>
<td>EIs4</td>
<td>0.1591</td>
<td>0.8996</td>
<td>0.5007</td>
</tr>
<tr>
<td>EIs5</td>
<td>0.2216</td>
<td>0.8615</td>
<td>0.434</td>
</tr>
<tr>
<td>EIs6</td>
<td>0.2936</td>
<td>0.7909</td>
<td>0.4182</td>
</tr>
<tr>
<td>PELs1</td>
<td>0.262</td>
<td>0.2587</td>
<td>0.7139</td>
</tr>
<tr>
<td>PELs3</td>
<td>0.159</td>
<td>0.5425</td>
<td>0.8083</td>
</tr>
<tr>
<td>PELs4</td>
<td>0.2607</td>
<td>0.3942</td>
<td>0.8195</td>
</tr>
</tbody>
</table>

Table IV. Results summary for the structural models

<table>
<thead>
<tr>
<th>Models</th>
<th>Path coefficients</th>
<th>SE</th>
<th>( t )-values</th>
</tr>
</thead>
<tbody>
<tr>
<td>EE ( \rightarrow ) EIs(^a)</td>
<td>0.269</td>
<td>0.0523</td>
<td>5.293</td>
</tr>
<tr>
<td>EE ( \rightarrow ) PELs</td>
<td>0.279</td>
<td>0.0562</td>
<td>5.008</td>
</tr>
<tr>
<td>PELs ( \rightarrow ) EIs</td>
<td>0.502</td>
<td>0.0560</td>
<td>8.946</td>
</tr>
<tr>
<td>EE ( \rightarrow ) EIs(^b)</td>
<td>0.107</td>
<td>0.0616</td>
<td>1.730</td>
</tr>
</tbody>
</table>

Notes: \(^a\)Without mediator variable and \(^b\)with mediator variable.
conditions are met: one, the link between the independent variable and the dependent variable should be significant in the absence of the mediator variable; two, the link between the independent variable and the mediator variable should be significant; three, the link between the mediator variable and the dependent variable should be significant; and four, when the independent variable and the mediator variable are controlled, a previously significant relationship between the independent variable and the dependent variable should become non-significant or reduce significantly. In Model I, the direct path between EE and students’ EI was tested and the results showed a significantly positive relationship between the two variables ($\beta = 0.269, t = 5.293$). Next, the mediator variable (PELs) was added to Model I to create a mediation model (Model II).

As expected, an assessment of the mediation model revealed a significantly positive relationship between EE and PELs, $\beta = 0.279, t = 5.008$ and between PELs and students’ EI, $\beta = 0.502, t = 8.946$. These results provide some evidence of the presence of a mediating effect (Wu and Zumbo, 2008). When the paths between EE and PELs and between PELs and students’ EI were controlled (Baron and Kenny, 1986), the previously significantly positive relationship between EE and students’ EI according to Model I changed significantly. In other words, the erstwhile statistically significant relationship between EE and students’ EI became nonsignificant with the inclusion of PELs in the model, $\beta = 0.107, t = 1.730$. This was a case of full or complete mediation effect (Hair et al., 2014; Baron and Kenny, 1986). It means that the indirect effect was significant and absorbed the direct effect of EE on students’ EI (Hair et al., 2014). From the findings, $H2$ is supported.

To determine the size of the indirect effect in relation to the total effect, the variance accounted for (VAF) was assessed. VAF is calculated by dividing the indirect effect by the total effect (Hair et al., 2014). The indirect effect was calculated by multiplying the coefficients for the path between EE and PELs, $\beta = 0.279$, and the path between PELs and students’ EI, $\beta = 0.502$. That is, the indirect effect is $0.279 \times 0.502 = 0.140$. On the other hand, the total effect was calculated by adding the direct and the indirect effects (i.e. $0.107 + 0.140 = 0.247$). Thus, $VAF = 0.140/0.247 = 0.57$. It means that 57 per cent of the variance in students’ EI is explained by EE through PELs. Note that a VAF that is more than 20 per cent but less than 80 per cent indicates partial mediation (Hair et al., 2014).

Furthermore, a formal significance test of the indirect effect was assessed following Hayes’ (2013) PROCESS procedure in SPSS (Kane and Ashbaugh, 2017; Hayes, 2013; Zhao et al., 2010; Preacher and Hayes, 2004). Thus, using a bias-corrected bootstrapping with 10,000 resamples, the indirect effect was statistically significant, $\beta = 0.140, SE = 0.032$, with a 95% confidence interval excluding zero (0.08 to 0.20). Additionally, the PROCESS output confirmed a statistically nonsignificant direct effect of EE on students’ EI, $\beta = 0.046, p = 0.646$, suggesting a full mediation effect.

From the results of the mediation test, it can be deduced that EE has an indirect effect on students’ EI via PELs. What it means is that students’ EI can be greatly influenced if they perceive their EE lecturers to be entrepreneurially inclined. That is, the more positive the students perceive their EE lecturers to be entrepreneurially minded, the greater the impact of EE on the students’ EI. The results suggest that EE would have greater impact on students’ EI if it is taught by lecturers who are entrepreneurially inclined.

Conclusions and implications

This study empirically explores the role of entrepreneurial lecturers in the relationship between EE and students’ EI. Specifically, this study aims to determine whether EE has a significantly positive relationship with students’ EI and to empirically establish whether entrepreneurial lecturers mediate the relationship between EE and students’ EI. As expected, the results of Model I showed that EE had a significantly positive relationship with students’ EI. Also, analysis of Model II revealed that entrepreneurial lecturers...
mediated the relationship between EE and students' EIs. Based on the findings, it can be concluded that, even though EE has been confirmed to have a strong positive impact on students' EIs, the impact would be greater if EE is taught by entrepreneurial lecturers, who are perceived to be entrepreneurially inclined by the students. This means that entrepreneurial lecturers enhance the effectiveness of EE in influencing students' EIs and behaviours. As a matter of fact, there is the likelihood that the lecturers' entrepreneurial attitudes and behaviours would rub off on students' EIs and behaviours. This is possible because many students see their lecturers as role models and even desire to be like them.

As stated in the introduction, EE lecturers do not need to become business entrepreneurs before they can teach EE. Nonetheless, the influence of business entrepreneurs on students' EIs should not be undermined. In this regard, to further enhance the impact of EE on students' EIs, schools should organise seminars where successful business entrepreneurs would be invited to have an interaction with the students. The seminar provides the platform for successful business entrepreneurs to share their personal experiences and success stories with the students. This would help to motivate students to think entrepreneurially and develop a strong predisposition towards starting a business venture after graduation. Certainly, there is the possibility that many students would like to be like the business entrepreneurs. Moreover, the existing literature confirms the moderating effect of role models such as successful business entrepreneurs on the relationship between EE and students' EIs (Saraf, 2015).

The findings of this study provide some insightful implications for the teaching of EE. By implication, this study has provided an answer to the question: who should teach EE? To achieve greater impact of EE on students' EIs and behaviours, entrepreneurial lecturers are required. The study has demonstrated that EE should be taught by lecturers whose entrepreneurial attitudes, intentions and behaviours are supportive of the main purpose and the intended outcome of EE, which is to create fully fledged entrepreneurs. It implies that EE lecturers should be entrepreneurially inclined. EE lecturers should demonstrate sufficient entrepreneurial attitudes and behaviours and be seen by the students as entrepreneurial role models. It should be noted that it goes beyond acquisition of entrepreneurial knowledge for EE lecturers to be entrepreneurial. As a matter of fact, EE lecturers should imbibe and develop a strong entrepreneurship culture. More specifically, they should be creative, innovative, self-confident, passionate, energetic, visionary, show initiative and risk-taking abilities, open to new ideas, have a positive attitude and be able to inspire others. More importantly, they should bring all these qualities to bear in the teaching of EE. The tertiary education institutions' administrators have an important role to play in making sure that EE lecturers are entrepreneurially minded. In that regard, the EE lecturers should be trained and retrained. Mandatory entrepreneurship training programmes or seminars should be organised for them at intervals. These programmes would equip them with sufficient entrepreneurial knowledge and skills that they need to teach EE effectively. The programmes would also enable them to develop an entrepreneurial mindset.

Furthermore, the results of this study have implications for the development of EE curriculum. EE curriculum should be enriched with both theoretical and practical content. More importantly, it should be developed in such a way that it spells out clearly what is to be taught and who is to teach it. It would help resolve the issue of who should teach EE. According to Johannisson (1991), an enriched EE curriculum should have four components (Tung, 2011; Fayolle et al., 2006). The first component is the “know-what”. It should focus on entrepreneurship concepts and theories. Students should be educated about entrepreneurship. It has been argued that EE curriculum should encompass the following areas of business management: accounting and finance, marketing, human resource, production, research and development, operations, risk management, team building, new product development, strategy development and implementation, legal issues, new venture creation and
organisational management, among others. The second component is the “know-why”. It should cover the benefits of acquiring entrepreneurial knowledge and skills. Students should be taught why they should engage in entrepreneurial activities. The third component is the “know-how”. It should focus on how to take entrepreneurial actions. Students should be taught the entrepreneurial process (i.e. how to identify and translate viable business ideas and opportunities into real entrepreneurial ventures). Specifically, they should be taught how to conduct a feasibility study and write a realistic and comprehensive business plan. The “know-how” should link entrepreneurial knowledge with practice. The fourth component is the “know-who”. Students should be exposed to different entrepreneurial role models and professionals. The EE curriculum should make it mandatory for students to interact with practicing and successful entrepreneurs. Overall, EE curriculum should emphasise more on skills acquisition. For instance, undergraduate students should be made to choose trades that interest them and acquire relevant skills.

As noted earlier, Nigeria’s graduate unemployment rate is high and it has been argued that many Nigerian graduates do not possess the requisite skills and knowledge needed by employers. The above suggestions, if applied, would help resolve the problem of graduate unemployment in Nigeria. First, the Nigerian undergraduate students’ entrepreneurial inclination would increase significantly as a result of their exposure to EE and the fact that they are taught by entrepreneurial lecturers, and consequently, the tendency for them to engage in entrepreneurial activities after graduation would be high. Second, the enrichment of EE curriculum, as suggested earlier, would help to equip undergraduates with entrepreneurial skills and knowledge, and accordingly, their employability or marketability in the labour market after graduation would be enhanced significantly.

Limitations and suggestions for future studies
Despite the significant contributions of this study, it has some notable limitations. First, this study was a single institutional study. Thus, the generalisability of its findings to other institutions is limited. Extending the research to other institutions and countries might be required to corroborate the findings presented.

Second, there are no universally accepted instruments for measuring EE. Most of the previous studies on the impact of EE on students’ EIs only explored the indirect impact of EE through factors such as attitudes towards behaviour, subjective norms, perceived behavioural control, among others (Bae et al., 2014; Tung, 2011). This may be partly due to paucity of universally accepted instruments for measuring EE. Thus, future researchers could develop a universally acceptable instrument for measuring EE.

Third, this study recommends that potential EE lecturers must be entrepreneurially inclined. However, the question is: how do we measure the entrepreneurial orientation (EO) of the potential EE lecturers? Originally, EO defines organisational-level entrepreneurship, that is, the extent to which an organisation undertakes entrepreneurial activities (Covin and Wales, 2012). It defines the entrepreneurial behaviour or posture of an organisation. The existing EO instruments are specifically designed to measure firm-level entrepreneurship and not individual-level entrepreneurship. While the existing EO instruments can be modified to measure individual-level entrepreneurship, future researchers should design a specific instrument that can be used to determine the EO of prospective EE lecturers.

Finally, another limitation that is worth mentioning is the fact that this study adopted a cross-sectional approach to explore the impact of EE on students’ EIs. Specifically, the students were studied after they were exposed to EE with a view to determining the impact of EE on their EIs. Note that this approach is highly criticised on the grounds that it is difficult to establish cause-and-effect relationships (Sekaran and Bougie, 2013). It has been said that a longitudinal approach is more appropriate in determining the effect of
EE on students’ EIIs than a cross-sectional approach (Byabashaija and Katono, 2011). Thus, it is recommended that future researchers should adopt a longitudinal approach in examining the impact of EE on students’ EIIs.

References


**Corresponding author**
Innocent Otache can be contacted at: otache2@gmail.com

For instructions on how to order reprints of this article, please visit our website: www.emeraldgrouppublishing.com/licensing/reprints.htm
Or contact us for further details: permissions@emeraldinsight.com
Examining the business education curricula in South Africa
Towards integrating social entrepreneurship

Zayd Waghid
Cape Peninsula University of Technology, Cape Town, South Africa

Abstract
Purpose – The purpose of this paper is to examine the business education curricula in South Africa in relation to social entrepreneurship and to ascertain pre-service teachers’ perspectives of the reasons for social entrepreneurship not being included in these curricula as observed in classroom teaching practices.
Design/methodology/approach – Through interpretivist inquiry, third-year pre-service teachers’ (n = 92) comments on online group blogs were analysed to clarify a range of meanings and understandings of their responses.
Findings – Social entrepreneurship as a concept and as an ideal as well as certain fundamental concepts are not adequately integrated in the business education curricula in secondary schools in South Africa. Furthermore, the schools where the pre-service teachers conducted their teaching practice were failing to integrate activities associated with social entrepreneurship in their business education curricula.
Research limitations/implications – The study was limited to a single tertiary institution. Similar studies in both developing and developed contexts in schools could be initiated as a means of teaching social entrepreneurship for social justice as a subject efficaciously.
Practical implications – The study recommends that social entrepreneurship should be implemented earlier in the secondary education system as a means of enhancing the social entrepreneurial capacities of school learners.
Originality/value – This is the first study examining the secondary education curricula in a developing economy, such as South Africa, in relation to the absence of the emerging concept of social entrepreneurship.

Keywords Teaching, Curriculum, Learning, Social entrepreneurship, Business education, Critical awareness

Paper type Research paper

Introduction
According to the South African secondary school curriculum, the focus of business education within the Further Education and Training (FET) stream is on cultivating in learners the knowledge, skills, attitudes and values necessary to make informed, productive, ethical and responsible decisions and to enhance participation in the formal and informal economic sectors in the South African and global economy (DBE, 2011, p. 8). The concept of entrepreneurship is within the broad field of business education in the DBE Curriculum and Assessment Policy Statement (CAPS) for Business Studies (Grades 10–12) (DBE, 2011) and for Economic and Management Sciences (EMS) (Grades 7–9) (DBE, 2010).

At a macroeconomic level, a strong argument prevails for entrepreneurship remaining an integral component of the South African economy, as it is necessary for social and economic transformation with an emphasis on youth participation (Waghid and Oliver, 2017, p. 77). This claim, or intent, is corroborated by the National Development Plan (NDP) of 2011 – South Africa’s most recent economic policy – which emphasises the need to strengthen youth service programmes and to initiate community-based programmes, by offering the young adult population entrepreneurship training opportunities to participate directly in community development programmes (NPC, 2011, p. 30).

Despite efforts by the state to transform the South African economy through an emphasis on entrepreneurship, as suggested by the NDP, socio-economic problems continue to plague the majority of youth in some South African communities (Waghid and Oliver, 2017, p. 77). While the democratically elected South African Government, under the auspices of the
African National Congress, is committed to social, economic and political transformation in South Africa, to date, progress in this promised transformation is considered, at best, to be ambivalent (Littlewood and Holt, 2018). South Africa, as an emerging economy, is categorised globally as the most unequal country in the world (Slater, 2013, p. 1). The Gini coefficient, which measures the degree of income inequality across countries, scores South Africa with an alarmingly high Gini index of 0.65 (World Bank, 2018). Unemployment in South Africa was further recorded at 27.7 per cent for the first quarter of 2017 (Stats SA, 2017), with 30.4m people living in abject poverty between 2006 and 2015, according to the Poverty Trends Report (Stats SA, 2017).

Within the broad field of entrepreneurship, there are improvement-driven opportunity entrepreneurs as espoused by the Global Entrepreneurship Monitor (2017, p. 9). These entrepreneurs are driven by opportunity motives through which they seek to improve their economic situation, through either increased income or increased independence (GEM, 2017, p. 9). In stark contrast to improvement-driven opportunity entrepreneurs, social entrepreneurship, as a category of entrepreneurship, is emerging as a new phenomenon in South African discourse outside the secondary education. This trend is reflected in the establishment of academic centres for knowledge interchange within the field of higher education, such as the Bertha Centre for Social Innovation and Entrepreneurship at the Graduate School of Business at the University of Cape Town, the Network of Social Entrepreneurs at the Gordon Institute of Business Science at the University of Pretoria, and the Centre for Social Entrepreneurship and Social Economy at the University of Johannesburg.

It has further been reported that students who participate in social entrepreneurial programmes would harness the concept of social entrepreneurship in developing innovative projects that will advance the standard of living and improve the quality of life (Othman and Ab Wahid, 2014). This is further vindicated by the achievements of social entrepreneurship in South Africa through higher education. The Bertha Centre for Social Innovation and Entrepreneurship recorded, to date, that over 300 innovative models and solutions have been initiated, R7m in scholarships awarded to African students and over 7,000 people convened in support of the institute’s holistic mission of achieving human rights and justice in South Africa (Bertha Centre for Social Innovation and Entrepreneurship, 2018).

The concept of social entrepreneurship is important to the South African economy, particularly for its integral role in the elimination of hunger and extreme poverty, affording communities access to universal quality basic education (Alvord et al., 2004; Mair and Marti, 2006; Bornstein, 2007; Othman and Ab Wahid, 2014), and the prevention of the HIV/AIDS pandemic (Bornstein, 2007; Mair and Marti, 2006; Othman and Ab Wahid, 2014). Certainly, the impetus behind social entrepreneurship in higher education is linked to the influence of the phenomenon on societal transformation in South Africa, particularly as a mechanism in addressing complex sustainable development issues (Littlewood and Holt, 2018) as a critical “phenomenon in social life” (Urban, 2008, p. 347).

Despite the growing popularity of social entrepreneurship programmes in higher education globally, these programmes are only offered at the aforementioned business schools. Outside of South Africa, social entrepreneurship is accepted favourably in the humanities, social and behavioural sciences, and public policy areas (Schlee et al., 2009, p. 5). This is certainly not the case in South Africa, more specifically in the field of secondary and teacher education. In this regard, though there is a growing academic interest in social entrepreneurship in South Africa (Kerlin, 2008; Littlewood and Holt, 2018), at present, there is a dearth of research regarding social entrepreneurship in secondary education. It is for these reasons that this research was considered apposite at this point. Thus, the present study is built on the theoretical statement by Kirby and Ibrahim (2011) that if young individuals are cognisant of the concept of social entrepreneurship, they appreciate its function and significance to social justice in society and believe that if they have the capacity to establish a new social venture, they will do so.
The aims of this study were twofold: first, to contribute to the discourse of social entrepreneurship in secondary education by examining the EMS (Grades 7–9) and Business Studies (Grades 10–12) curricula in relation to social entrepreneurship; and, second, to ascertain pre-service teachers’ perspectives of the reasons for social entrepreneurship not being included in these curricula as observed in classroom teaching practices. Based on the aims of the study, the following research questions were proposed:

RQ1. How is it that social entrepreneurship is not effectively integrated in the business education curricula in the Senior and FET phases?

RQ2. From the perspective of pre-service teachers, why is it that social entrepreneurship is not being included in the business education curricula?

The paper is structured into five sections, which include this section as the introduction to the study. Second, the existing literature on social entrepreneurship in relation to education is reviewed, whereas, in the third section, the research design, comprising of the conceptual research framework and methodology used, is described. The fourth section reports on and discusses the results, and the final section presents the conclusions, main implications of this study, limitations and suggestions for further research.

Literature review: social entrepreneurship, definitions and other concepts

Globally, the concept of social entrepreneurship continues to be widely used among academics, policy makers, public sector leaders and social change agents (Mars and Garrison, 2009, p. 291). Drawing on the seminal thoughts of Dees (1998) on the definition of a social entrepreneur and corroborating by the available literature, social entrepreneurs serve as change agents in the social sectors in several ways. Through a sense of altruism, they accept a task to cultivate and sustain not primarily private value but social value as well (Brouard and Larivet, 2010; Leadbeater, 2006; Schwab Foundation, 2005, cited in Fontan et al., 2007; Sharir and Lerner, 2005; Sullivan Mort et al., 2003). This sense of altruism is vindicated by their desire to promote the growth of equitable civil societies (Skoll Foundation, n.d., cited in Fontan et al., 2007).

As visionaries, social entrepreneurs recognise and unyieldingly pursue new opportunities to serve the (social) mission (Barendsen and Gardner, 2004; Baron, 2007; Brinckerhoff, 2000). As creative thinkers, they engage in a process of continuous innovation, adaptation and learning (Martin and Osberg, 2007; Roberts and Woods, 2005; Skoll Foundation, n.d., cited in Fontan et al., 2007). As risk-oriented individuals, they act boldly without being constrained by resources (Brinckerhoff, 2001; Leadbeater, 1997; Thompson et al., 2000). And through social conscientisation, they exhibit heightened accountability to the constituencies served and for the outcomes created, thus exemplifying these characteristics of social sector leaders in what Dees (1998) postulates as an idealised definition of a social entrepreneur. In other words, the closer an individual is to possessing these characteristics in distinct ways and in varying degrees, the closer he or she fits the model of a social entrepreneur (Dees, 1998, p. 4).

Dees (1998, p. 5) expounds on this “idealised” definition of a highly pro-active and creative social entrepreneur:

Social entrepreneurs create social enterprises. They are the reformers and revolutionaries of our society today. They make fundamental changes in the way that things are done in the social sector. Their visions are bold. They seek out opportunities to improve society, and they take action. They attack the underlying causes of problems rather than simply treating symptoms. And, although they may act locally, their actions have the very potential to stimulate global improvements in their chosen arena, whether that is education, healthcare, job training and development, the environment, the arts, or any other social endeavour.
Building on from the idealised definition for Martin and Osberg (2007, p. 35), social entrepreneurship has three components. The first component is concerned with “identifying a stable and inherently unjust equilibrium that causes the exclusion, marginalisation, or suffering of a segment of humanity that lacks the financial means or political clout to achieve any transformative benefit on its own” (Martin and Osberg, 2007, p. 35). This is further corroborated by Fayolle and Matlay (2010, p. 1) who questioned the purely financial intentions of the commercial and capitalistic economy. Social entrepreneurship, in stark contrast to commercial entrepreneurship, promotes a logic of solidarity favouring social cohesion, social welfare and the needs of the community that have not yet been addressed by the state or the commercial sector (Fayolle and Matlay, 2010, p. 1). In addition, social entrepreneurship represents a blended approach to bridging both social consciousness and business principles as a means of adding value to society in an “efficacious, efficient, sustainable, and equitable manner” (Kickul and Lyons, 2012, p. 21).

The second component is related to identifying an opportunity in this unjust equilibrium, developing a social value proposition and bringing to bear inspiration, creativity, direct action, courage and fortitude, thereby challenging the hegemony of the stable state (Martin and Osberg, 2007, p. 35). By implication, the social entrepreneur and opportunity identified are intrinsically connected to the social context within which they are embedded (Fayolle and Matlay, 2010, p. 1). Hence, social entrepreneurs, as agents of change resonating with the thoughts of Bourdieu (1977), change over time. This change itself is based on the condition of the agent engaging in social entrepreneurial activities through creative reasoning in initiating societal change in particular contexts (Waghid and Oliver, 2017).

The final component describes the interest and intent of social entrepreneurship in forging a new, stable equilibrium that releases trapped potential or alleviates the suffering of the targeted group and, through imitation and the creation of a stable ecosystem around the new equilibrium, ensuring a better future for the targeted group and even society at large (Martin and Osberg, 2007, p. 35).

In addition to the intentions of individuals, drawing on Ajzen’s (1991) theory of planned behaviour commensurate with research by Krueger and Carsrud (1993), Kirby and Ibrahim (2011) postulated that intentions are dependent on attitudes towards behaviour, subjective norms and perceived behavioural control and that an individual’s intention to perform the behaviour will increase with his or her perceived behaviour control.

Considering that social intentions are dependent on whether social entrepreneurs, as Kirby and Ibrahim (2011) aver, have the capacity to initiate social ventures, in addition, one would need to take into account the economic facilities which, as Sen (1999, p. 39) submitted, include access to finance, which is inextricably connected to the economic entitlements that economic agents are practically able to secure. Economic facilities, for Sen (1999), are considered an instrumental freedom or capability to (economic) development and one that is integral in driving social entrepreneurs, if we take into account Kirby and Ibrahim’s (2011) link between social intentions and capacities. By implication, through pursuing social intentions, particularly in developed contexts through what Littlewood and Holt (2018) inferred as linked to higher order needs associated with self-actualisation, which, in stark contrast to social entrepreneurs in developing contexts, are focussed on the provision of the most basic needs, it is possible to explore the implications of economic facilities on such social intentions further.

Dees (1998) offered a valid account of his idealised definition of a social entrepreneur, particularly regarding the social entrepreneur’s valiant act of pursuing a social intention without being currently constrained by resources that may be linked to both developed and developing contexts (Brinckerhoff, 2001; Leadbeater, 1997; Thompson et al., 2000). However, if we are to take into account Kirby and Ibrahim’s (2011) thoughts in
relation to Sen’s (1999) work, then it is logical that, if we are referring to social intentions corroborated by the capacities of social entrepreneurs to pursue the social missions, we need to take into account the economic freedoms that social entrepreneurs ought to enjoy.

The researcher posits that the definition of a social entrepreneur, in terms of social intentions, corroborated by access to economic capabilities in developing and developed contexts, is, in reality, linked to Littlewood and Holt’s (2018) findings that higher order needs are linked to self-actualisation and the need to address the most basic needs of communities. Access to finances, as an instrumental freedom in developing contexts, is further linked to the benefit, through the institutional environment, that large businesses may experience under the guise of corporate social responsibility (CSR) initiatives as a result of procurement and investment and in supporting social enterprises (Fury, 2010; Littlewood and Holt, 2018; Steinman and Van Rooij, 2012).

Of course, economic facilities are not considered the primary reason for social entrepreneurs in developing contexts pursuing social missions. Littlewood and Holt (2018) further corroborated the significance of social capital in developing contexts, which is inextricably connected to financial capital and ultimately venture creation through shared knowledge, skills, values and experiences. Despite the fact that Dees (1998) does not expound on social capital in developed contexts in the "idealised" definition, social entrepreneurs, through support systems, certainly have an important role to play in influencing society positively for transformative change through business principles and strategies. This is confirmed by Kerlin (2009) who suggested that social capital becomes as important as financial capital in any particular context.

In the researcher’s view, the aforementioned – albeit “idealised” – definitions of social entrepreneurship and social entrepreneurs clearly promote the idea of an interconnected relationship between society and the economy. This interconnected relationship between society and the economy, as put forward by Kickul and Lyons (2012, p. 14), includes, but is not limited to, a range of approaches and attitudes to social entrepreneurship from stakeholders such as policy makers, economists, researchers, organisations and private individuals.

The approaches espoused by Kickul and Lyons (2012), corroborated with the available literature, may include the following objectives:

- the increasing interest on the part of promoters of social entrepreneurship in areas of CSR and sustainable business practices that are increasingly perceived by policy makers, economists and environmentalists as the means to address environmental sustainability (Gawell, 2006; Kickul and Lyons, 2012, p. 14; Rispal and Boncler, 2010; Thompson and Doherty, 2006);
- increasing philanthropic efforts through social and moral leadership, which are used to support the work of social entrepreneurs (Kickul and Lyons, 2012, p. 14; Mair, 2010; Rispal and Boncler, 2010); and
- the role of private actors in providing financing to community development efforts (Wei-Skillern et al., 2007).

Since the 1990s, and on a global scale, there has been a rapid increase in the establishment of public–private partnerships and public–private–non-profit partnerships (Hamlin and Lyons, 1996). Certainly, Kickul and Lyons’ (2012, p. 14) notion regarding society and the economy as inextricably connected is based on the idea that the “economy is an invention of society” and, in this regard, “should be reinvented” as a means of ensuring harmony between society and the economy. Based on these ideas and on changing attitudes, the emerging phenomenon of social entrepreneurship can be seen as an apposite approach to
harmonising both the economy (through business principles) and society and the vital role of education in achieving this.

**Social entrepreneurship education framework**

Social entrepreneurship education has an important role to play in cultivating social entrepreneurial competencies among teachers and learners in schools as a prerequisite to social entrepreneurship leaders playing a transformative social role. Quality education is certainly important; however, Kirby and Ibrahim (2011) extended quality education to include its purpose and the process needed for such education. This means that students need not learn primarily about the concept of social entrepreneurship but that they are also equipped with skills, abilities and attitudes to create social ventures (Kirby and Ibrahim, 2011). Fayolle (2013, p. 699) further explored the need to integrate softer entrepreneurial topics in educational practices, such as the entrepreneurial mind-set, opportunity construction, work-life balance, managing emotions and learning from failure.

Although "softer" entrepreneurial topics are certainly necessary for a social entrepreneurship curriculum, using Brock and Steiner’s (2009) works and detailed conceptual framework in relation to education practices, the researcher explored the seven most common elements found within the concept of social entrepreneurship and which – ideally – every social entrepreneurship curriculum ought to include in order to equip students to participate in social entrepreneurship in the real world. It should be noted that, at the majority of universities outside of South Africa where social entrepreneurship is integrated as part of the curriculum, the business education curriculum is typically designed to provide an overview of this phenomenon instead of focussing on one or two elements (Brock and Steiner, 2009, p. 5).

Due to the nature and scope of this study, the researcher only examined the secondary education curricula for EMS and Business Studies in relation to Brock and Steiner’s (2009) study and definition of social entrepreneurship. The seven most important elements highlighted by Brock and Steiner (2009, p. 5) as essential for a social entrepreneurship curriculum to include are mentioned as follows:

1. addressing social needs or problems in ways that make a positive contribution to the community;
2. opportunity recognition;
3. innovation;
4. scaling a social venture;
5. resource acquisition to accomplish the mission of the organisation;
6. creating a sustainable business model; and
7. measuring outcomes.

**Social problems or needs**

Brock and Steiner (2009, p. 6), drawing on the seminal thoughts of Dees (1998), believed that the mission (or social problem or need) is the cornerstone of social entrepreneurship education and one which is necessary for cultivating socially responsible entrepreneurs committed to a mission-related outcome. For Dees (1998, p. 4), social entrepreneurs are not simply driven by the perception of a social need or by their compassion but instead are motivated by a vision of how to achieve improvement in society through persistence and a willingness to adapt to the environment. According to Kickul and Lyons (2012), for social problems or needs to be considered as providing viable social opportunities, they must
have the inherent potential to create a social value for all parties involved (Kickul and Lyons, 2012, p. 55).

Opportunity recognition

“Opportunity recognition” is accepted as a critical component of social entrepreneurial activity (Brock and Steiner, 2009; Dees, 1998) where others see problems, social entrepreneurs see opportunities (Dees 1998, p. 4). Brock and Steiner (2009, pp. 6-7), therefore, argued that teaching students social entrepreneurship as part of the curriculum would require of them the capacities to recognise, assess and exploit opportunities and, through this, transform a meaningful idea into a purposeful organisation – in other words, into a concrete social entrepreneurial venture.

Innovation

For Brock and Steiner (2009, p. 7), innovation highlights a key differentiator between frequently confused or equated concepts: social entrepreneurship and non-profit management. According to these authors, innovations are not limited to a single form through the addition of new products and services but include the ways in which organisations operate and actively add a value to their constituencies (Brock and Steiner, 2009, p. 7).

Bower and Christensen (1995) expounded on two distinct categories of innovation, namely, sustaining innovations and disruptive innovations. They noted that sustaining innovations comprise nearly all product and service innovations whether incremental or breakthrough, whereas disruptive innovations do not fulfil existing consumers’ needs as effectively as sustaining innovations. Disruptive innovations tend to be less complex, more accessible and convenient, and less costly than sustaining innovations, therefore, attracting new or distinct consumer groups (Bower and Christensen, 1995). Christensen et al’s (2006) concept of catalytic innovations, which is a subset of disruptive innovations, is further aimed at providing effective solutions to societal problems that are not successfully addressed by present organisations using traditional approaches.

The concept of innovation is further corroborated by Dees (1998) who argued that innovations within the field of social entrepreneurship, by implication, refer to how social entrepreneurs creatively structure their core programmes, or the ways in which they assemble resources and fund their social ventures. Dees (1998, p. 5) considered innovation to be the modus operandi of entrepreneurs and emphasised the strong link between innovation and education. He saw innovation as a “continuous process of exploring, learning and improving” (Dees, 1998, p. 5). He emphasised that teaching students and finding ways of inspiring them to come up with innovative ways to develop sustainable social ventures are vital parts of any social entrepreneurship curriculum.

Scaling a social venture

Scalability of – or scaling – a social venture is also an important component of a social entrepreneurship curriculum (Brock and Steiner, 2009, p. 7). One of the aims of social entrepreneurship is disrupting societal problems through transformative societal change (Waghid and Oliver, 2017). Social entrepreneurs are, therefore, concerned with developing social ventures that are capable of being scaled up and replicated in distinct contexts through instances of affiliation, branching and dissemination (Alvord et al., 2004; Bornstein, 2004; Brock and Steiner, 2009; Dees et al., 2004). This is further corroborated by Christensen et al. (2006) who submitted that organisations addressing societal problems may use catalytic innovation in developing innovative approaches that are scalable and replicable as a means of cultivating transformative change. Building on this understanding of scalability, Brock and Steiner (2009, p. 7) claimed that
one of the aims of teaching students to scale is to try to ensure that they understand the differences in terms of societal impact between a social entrepreneurial organisation and a community enterprise.

Resource acquisition to accomplish the organisation’s mission
Brock and Steiner (2009, p. 8) saw teaching students to make them understand, encouraging them to apply methods of creating strategic partnerships, acquiring financial resources, and securing human and physical capital as being integral to building social organisations with limited resources. Resourcefulness is, therefore, strongly linked to resource efficiency, a capability that enables social entrepreneurs to explore resource options, from pure philanthropy to commercial methods used by the business sector, intelligently and discriminately (Dees, 1998, p. 5). In this regard, social entrepreneurs are not limited by sector norms and/or traditions (Dees, 1998, p. 5). Resourcefulness and the development thereof in students is thus an important component of a social entrepreneurship curriculum (Brock and Steiner, 2009, p. 8).

Creating a sustainable business model
Of importance to social entrepreneurs, and for any social entrepreneurial organisation, is the development of a business model that can be sustained over time, especially if the aim of the organisation is that of the creation of economic and social values (Brock and Steiner, 2009, p. 8). This is corroborated by Kickul and Lyons (2012, p. 81) who emphasised that careful attention should be paid to the ways in which a social entrepreneurial organisation can generate revenue to support the various cost implications of the organisation in pursuing its social mission(s) and strategies. An essential part of the social entrepreneurial business model is what Gundry and Kickul (2007) described as the go-to-market strategy that encompasses the channels a social entrepreneurial organisation uses to connect with its targeted audience, together with the organisational processes involved in this. Teaching and developing this particular kind of business model with students as part of a social entrepreneurship curriculum provides them with a tool for communicating the long-term value of the social entrepreneurial organisation (Brock and Steiner, 2009, p. 8).

Measuring outcomes
Brock and Steiner (2009, pp. 8-9) suggested that measuring performance is integral to social entrepreneurs achieving sustainable, scalable results. This is due to the fact that, for social entrepreneurial organisations to attract financial, physical and human resources from donors, they are required to come up with ways to demonstrate these organisation’s positive impact on the environment, and the extent of this impact (Brock and Steiner, 2009, p. 8). A social entrepreneurship curriculum, therefore, needs to include a variety of measurement approaches such as a double or triple bottom line, social return on investment, social impact analysis and a balanced scorecard for social ventures (Brock and Steiner, 2009, p. 9; Kramer, 2005). In addition, Zahra et al. (2006) further introduced the construct of social wealth as a measurement of social value created after taking into account the financial and social costs. By implication, the measurement and impact of social wealth may further complement efforts regarding the financial value and choice in entrepreneurship. It may further be considered as more consistent with the underlying existence of the concept of entrepreneurship (Kickul et al., 2010). Hence, when exploring the aim of measuring outcomes, drawing on Kickul et al’s (2010) thoughts, social entrepreneurs assess their impact and influence through social impact, innovations and outcomes, not solely in terms of size, growth and processes.
Business education in South Africa

In South Africa, business education in the senior phase, termed EMS (Grades 7–9), serves as an introduction to Business Studies in the FET phase (Grades 10–12). The topics and sub-topics for EMS and Business Studies are indicated in Tables I and II, respectively.

Methodology

For this study, the researcher first examined business education in the senior and FET phases in relation to Brock and Steiner’s (2009) thoughts on what a social entrepreneurship curriculum should include. The researcher then ascertained pre-service teachers’ perspectives of the absence – or not – of social entrepreneurship from the Business Studies and EMS curricula.

Informed by an interpretivist paradigm, this study followed a qualitative approach for the purpose of acquiring a deep and nuanced understanding of the pre-service teachers’ perspectives. This is vindicated by the notion that interpretivism allows researchers to gain an understanding of the worldview of research participants as subjects and not as objects (Cohen and Manion, 1994) through gaining insight into their beliefs, background and experiences (Creswell, 2003; Thanh and Thanh, 2015; Yanow and Schwartz-Shea, 2011). The methodology, interpretivist inquiry, with online group blogs on the university’s e-learning platform system, blackboard and subsequent interpretation of the students’ comments on the online group blogs – a form of asynchronous online communication – aimed to clarify, for the researcher, a range of meanings and understandings of the students’ responses on the blogs. The rationale for the use of online group blogs in the study was linked to the collaborative pedagogical affordances (Davi et al., 2007; Flatley, 2005; Oravec, 2002; Williams and Jacobs, 2004) or spaces it offered the pre-service teachers in the study to interact with one another, “where discussions are continued and where every student gets an equal voice” (Flatley, 2005, p. 77).

Data collection, procedure and limitations

The sample population of this study was generated from a cohort of two groups of third-year FET students for 2016 and 2017 (n = 92) in the field of business education at a teacher education institution in South Africa. There were eight groups for 2016 and nine groups for 2017. Each group comprised between five and seven students, and the research was limited to the third-year business education students because they had more than two years of teaching experience at distinct schools in the Western Cape.

<table>
<thead>
<tr>
<th>Economic and management sciences (Grades 7–9): topics and sub-topics</th>
<th>The economy (30%)</th>
<th>Financial literacy (40%)</th>
<th>Entrepreneurship (30%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. History of money</td>
<td>1. Savings</td>
<td>1. Entrepreneurship skills and knowledge</td>
<td></td>
</tr>
<tr>
<td>4. Inequality and poverty</td>
<td>4. Accounting concepts</td>
<td>4. Forms of ownership</td>
<td></td>
</tr>
<tr>
<td>5. The production process</td>
<td>5. Accounting cycle</td>
<td>5. Sectors of the economy</td>
<td></td>
</tr>
<tr>
<td>9. Markets</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>10. Economic systems</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>11. The circular flow</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>12. Price theory</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>13. Trade unions</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Table I: Business education topics for the senior phase

Source: DBE (2010)
Online group blogs were used to communicate and to understand the nature and extent of the integration or exclusion of social entrepreneurship in schools from the EMS (Grade 7–9) curriculum from the sample students' perspectives and to ascertain how and why they reached their opinions. Several studies confirm the comparability of findings gained from traditional focus groups in relation to online focus groups, which suggest that the quantity and quality of data obtained from the online focus groups are broadly comparable to traditional focus groups (Campbell et al., 2001; Franklin and Lowry, 2001; Reid and Reid, 2005; Schneider et al., 2002; Tates et al., 2009; Underhill and Olmsted, 2003). In addition, the absence of time constraints in asynchronous forms of online discussion allows considered responses to be lengthier and more detailed than those in synchronous discussions or traditional focus groups (Kam and Chismar, 2005; Tidwell and Walther, 2002; Stewart and Williams, 2005; Tates et al., 2009).

The students’ blogging activities were analysed and categories were developed using the Computer-Assisted Qualitative Data Analysis Software (CAQDAS), ATLAS.ti. The use of the CAQDAS (ATLAS.ti) offered the researcher the means to manage the large amounts of text from screenshots taken of the online group blogs efficiently and with the ease of access to the coded material as corroborated by García-Horta and Guerra-Ramos (2009). There are certain limitations in using CAQDAS for data analysis. García-Horta and Guerra-Ramos (2009) highlighted internal consistency and inconsistency as some of these limitations and call for double-blind coding or peer reviewing of data.

To address the limitation of internal consistency and inconsistency highlighted by García-Horta and Guerra-Ramos (2009), Maxwell’s (1992) elucidation of descriptive validity was adopted in the study to enhance the accuracy of the data. As corroborated by Seymour (2012), through descriptive validity, the accuracy of the researcher’s account occurred through an enhanced analysis of the primary data. Thus, all comments were coded multiple times by both the researcher and an anonymous coder using CAQDAS. To increase objectivity and consistency, inter-rater reliability is considerably important in coding online discussions (Rourke et al., 1999). Following the establishment of inter-rater reliability prior to coding all the discussions on the blogs, the data were coded and verified separately between the researcher and the anonymous coder. In instances of disagreement, discussions were held between the researcher and the anonymous coder until they agreed on the particular codes according to Brock and Steiner’s (2009) social entrepreneurship education framework.
Considering the small size of the sample study, this research was exploratory in nature. In this regard, as a case study, its purpose was not to generalise the results, but instead it was aimed at in-depth understanding and insight of the students’ comments on the blogs. Following a case study, the assumption is that a researcher, exploring the subject from varied angles, is able to expound more deeply on the “why” and the “how” of the subject (Thomas, 2015). In other words, when one examines a case study, one aims at exploring “how and why something might have happened or why it might be the case” (Thomas, 2015, p. 4).

In this study, data were collected exclusively from participants who signed and submitted informed consent forms. The participants were informed in class that their participation was voluntary, anonymous and confidential. Ethical clearance was obtained from the faculty’s ethics research committee, and ethical considerations were adhered to at all stages in the study. Students’ names on the screenshots analysed (Figures 1–5) were subsequently replaced with abbreviations to ensure anonymity. In the online group blogs, students were asked whether social entrepreneurship was integrated in the schools where they had conducted their teaching practice and what their understandings were of the reasons for why it was not included in the EMS (Grade 7–9) curriculum.

Figure 1. Sample screen shot for Group 1 (2016)

Figure 2. Sample screen shot for Group 1 (2017)
Figure 3. Sample screen shot for Group 5 (2016)

Figure 4. Sample screen shot for Group 12 (2016)

Figure 5. Sample screen shot for Group 2 (2017)
Certain limitations of using online blogs as a form of data collection in this study exist. As a result of the researcher’s inability to facilitate the online discussions for a 24-h period throughout the eight weeks during which the discussions lasted for both online groups in 2016 and 2017, respectively, it became apparent that certain participants became less likely to respond to each other’s comments in their respective online group blogs. This is corroborated by Stewart and Williams (2005) in that low response rates may eventually materialise with online discussions when compared with face-to-face groups. Due to the nature of online discussions, further criticisms have been aimed at the platform’s inability to record non-verbal data such as facial expressions (Bryman, 2012), which the current researcher acknowledged.

**Results**

The results are shown in Tables III–V and in Figures 1–5, respectively. In Table III, columns 2 and 3 indicate whether Brock and Steiner’s (2009) concepts of social entrepreneurship were being included in and/or informing the EMS and Business Studies curricula at the schools where students had done their teaching practice.

In Table III, Brock and Steiner’s (2009) seven concepts in relation to the EMS (Grades 7–9) and Business Studies (Grades 10–12) curricula are shown.

The results indicate that, according to the researcher’s analysis, three of Brock and Steiner’s (2009) concepts for a social entrepreneurship curriculum are integrated within the EMS curriculum, namely, social needs/problems, opportunity recognition and innovation. In addition to the aforementioned concepts, integrated within the EMS curriculum, two of Brock and Steiner’s (2009) concepts are integrated within the Business Studies curriculum.
namely, resource acquisition to accomplish the organisation’s mission and creating a sustainable business model. Although learners at secondary schools are being taught some of the concepts in relation to a social entrepreneurship curriculum in the EMS and Business Studies curricula, the concepts are not structured under a single topic. Instead, the concepts are scantily included in the EMS topics, namely, the economy and entrepreneurship, and in the Business Studies curriculum, specifically under business environments, business roles, business ventures and business operations. Brock and Steiner’s (2009) concepts, scaling a social venture and measuring outcomes, are also not included in the EMS and Business Studies curricula. The results, therefore, indicate that learners in secondary schools are not being adequately prepared in the field of business education to initiate their own social entrepreneurial ventures and that social entrepreneurship could, at present, be a relatively unknown concept within secondary education.

The results from Table IV indicate that certain students (n = 11) who responded via the online group blogs to the question whether they regarded social entrepreneurship a familiar term amongst university students indicated that they understood the term “social entrepreneurship”. The majority of the students (n = 68) indicated they did not understand, or did no fully understand, the concept of social entrepreneurship. The results from Table IV further indicate that the majority of the students (n = 54) perceived that social entrepreneurship was not integrated at the schools where they had taught. The responses of the remaining students (n = 23) indicate that social entrepreneurship was being integrated into the Business Studies/EMS curricula at the schools where these students had taught. Possible reasons for the absence of social entrepreneurship in some of the schools may be due to:

- the nature or category of the school (mathematics- and science-focussed schools in relation to commercial schools, for instance);
- the geographic location (rural in relation to urban schools);
- the desire or lack thereof of teachers at some schools to inculcate a social consciousness amongst learners at the school; and
- the influence of the private sector and other stakeholders in driving CSR at the school.

With reference to the question why social entrepreneurship was not being included in the EMS curriculum of a school, the results from Table V indicate the following categories of reasons:

- CAPS: EMS curriculum content overloaded;
- CAPS: EMS as business oriented;
- CAPS: EMS serves as a foundation for FET Business Studies;
- learners’ limited literacy level; and
- political agenda.

The majority of the students’ comments (\(\bar{x} = 46\)) were coded as learners’ limited literacy level. The students included comments in their blogs that learners in the Grades 7–9 stream would not be able to understand the concept of social entrepreneurship as a result of their limited literacy (Students ZMG, XL, NM and SN in Figure 1, Student AM in Figure 2 and Students CVD, CMB and AB in Figure 4). This might have been the result because the sample students perceived social entrepreneurship as a broad concept that is associated with distinct concepts. However, only two concepts were included in the Business Studies curriculum, namely, CSR and non-profit companies, and these are not included in the EMS curriculum. Despite the broad nature of social entrepreneurship, there were certain students, such as Student CMB in Figure 4, who indicated the importance of integrating social entrepreneurship in the EMS curriculum. Furthermore, bearing in mind that Brock and
Steiner’s (2009) concepts are aimed specifically at advancing both social and economic value, much of the (narrow) focus across the EMS and Business Studies curricula is on advancing businesses’ economic profits and competitive advantages within the market place through the concept of CSR rather than on adding social value to economic activities.

The comments coded as CAPS: EMS serves as a foundation for FET Business Studies had the second highest mean (\( \bar{x} = 32 \)) across the online blog comments. The students indicated in their comments that they saw the aim of the EMS curriculum as preparing learners as individuals, rather than as part of a community or organisation, to develop their social entrepreneurial competencies prior to learning about concepts associated with developing the learners’ level of social responsibility towards the environment (Students SN in Figure 1, Students KLS, AM and BDGA in Figure 2 and Student CBD in Figure 3). Thus, according to the precepts and intentions of CAPS, in both the EMS and Business Studies curricula, learners are equipped to develop their entrepreneurial competencies and knowledge to start their own business ventures instead of establishing social ventures, which Brock and Steiner (2009) argued, is a necessary part of a social entrepreneurship curriculum.

In the coded category CAPS, EMS curriculum content overloaded had the third highest mean (\( \bar{x} = 16 \)). The students claimed that, due to CAPS containing and specifying the content to be covered, numerous topics across the EMS curriculum, including social entrepreneurship, were excluded by teachers due to what students perceived to be the limited teaching time available to teachers (Students GS, CBD and WDM in Figure 3 and Student RSA in Figure 4). This may also be the result of a higher weighting for the topic financial literacy in the EMS curriculum than for the topics entrepreneurship and the economy, as shown in Table I. Furthermore, there are 13 topics in the economy compared with eight topics for entrepreneurship in EMS, as shown in Table I. The unequal weighting across the three main topics in EMS, accompanied with a discrepancy in the number of sub-topics between the economy and entrepreneurship, may have resulted in the exclusion of social entrepreneurship from the EMS curriculum.

In the coded categories CAPS, EMS as business oriented (\( \bar{x} = 14 \)) and political agenda (\( \bar{x} = 12 \)) were fourth and fifth, respectively. The students indicated that, in the schools where they had taught, EMS appeared to be driven primarily by the idea of inculcating in learners the single notion of becoming aspirant entrepreneurs with the aim of creating self-employment and increasing macroeconomic employment by establishing their own business ventures as individuals rather than as part of an organisation (Student ZMQ in Figure 1 and Students CVD, CMB and AB in Figure 4) to the exclusion of social value. Table I shows this being corroborated by the topics to which students saw learners being exposed. Students indicated under political agenda that EMS appeared to be driven by the state’s desire to increase the level of entrepreneurship in the economy as signified by Students’ MT and RSA in Figure 4. It is possible to link the coded category, political agenda, to the state’s economic policy, and to the NDP, whose focus and discourse are on South Africa’s need to increase the level of entrepreneurship through developing improvement-driven, rather than socially or altruistically motivated entrepreneurs in the economy.

Discussion

The study on which this paper is based examined the EMS (Grades 7–9) and Business Studies (Grades 10–12) curricula in South Africa in relation to the inclusion and integration of social entrepreneurship in these curricula based on the concepts that Brock and Steiner (2009) saw as essential to a social entrepreneurship curriculum. The framework served as a useful barometer in measuring the effectiveness of the integration of social entrepreneurship in the curricula, or the lack of it. Furthermore, the study ascertained pre-service teachers’ perspectives of the various reasons for the non-inclusion of social entrepreneurship in these curricula in schools where they had taught.
The researcher’s analyses of the data with reference to the first research question suggest that social entrepreneurship, as a concept and as an ideal, and certain fundamental concepts – scaling a social venture and measuring outcomes – espoused by Brock and Steiner (2009) for a social entrepreneurship curriculum are not adequately integrated in the business education curricula in secondary schools in South Africa. The absence of scaling a social venture, which Christensen et al. (2006) regarded as one of the primary aims of catalytic innovation, further signifies the deficiency of the concept of innovation explored in the curricula for both EMS and Business Studies. The EMS and Business Studies curricula fail to explicate a broad understanding of innovation that is necessary for scaling and replication. This finding further vindicates the researcher’s analyses of the results that school learners are not taught innovative approaches to advancing societal impact.

In addition, from the findings, the absence of measuring outcomes, from both the EMS and Business Studies curricula, further validates the point that the curricula fails to conscientise secondary school learners of the construct of social wealth as a measurement of social value (Zahra et al., 2006). Instead, the findings corroborate the fact that the curricula are primarily aimed at measuring the impact of size, growth and processes, which, in line with the thoughts of Kickul et al. (2010), does not connect with the underlying reason for the existence of entrepreneurship.

According to the second research question, the findings suggest that the schools where the pre-service teachers conducted their teaching practice failed to integrate activities associated with social entrepreneurship in their business education curricula. This lends credence to a perception that much of the emphasis of secondary business education curricula is on cultivating improvement-driven entrepreneurs to the exclusion of the development of social entrepreneurs, and that, at the time of the study, teachers at these schools were failing to integrate activities associated with social entrepreneurship into their teaching. By implication, learners were not being exposed to the concept of social entrepreneurship, which, in relation to Kirby and Ibrahim’s (2011) thoughts regarding social intentions and the capacity to establish social ventures, are unlikely to materialise.

The findings further confirm the pre-conceived judgements that the pre-service teachers had of the learners’ capacities, namely, limited in understanding the concept of social entrepreneurship. Such a narrow view of learning resonates with Naylor’s (2015) seminal thoughts regarding such pre-service teachers’ pre-conceived judgements about teaching and learners, which is linked to their own observations and experience of being taught in schools. By implication, and in relation to Naylor (2015), such pre-conceived judgements by the pre-service teachers in this study may further have been linked to their beliefs that the inability of the learners to learn a new concept, such as social entrepreneurship, may have been construed by the pre-service teachers as a result of their inherent misconception of the concept itself in relation to commercial entrepreneurship and CSR.

The findings of this research further confirm the heightened awareness of social entrepreneurship amongst the students in which they were afforded the opportunity to share and discuss their knowledge, experiences and thoughts through the online discussions on blackboard. This conforms to calls regarding the need to move away from teacher-centred to student-centred approaches in entrepreneurship education (Nabi et al., 2017; Robinson et al., 2016).

Theoretically, the findings further seem to suggest that in a developing context and in the field of social entrepreneurship education, the lack of integration of the concept of social entrepreneurship in the curricula needs to take into account:

- the design or structure of the curricula;
- the nature of the curricula (as improvement-driven or socially driven);
the foundation of the curricula as a basis for further development of commercial
entrepreneurship;
pre-service teachers’ pre-conceived judgements; and
the influence of government through economic policy on the curricula.

The researcher now offers insights on the implications of this research for policy and
practices in both teacher and secondary education. First, from an analysis of the data, the
researcher advocates for business education curricula in developing contexts to be more
attuned to Brock and Steiner’s (2009) concepts of what a social entrepreneurship curriculum
should ideally include, namely, the measuring outcomes and scaling a social venture
concepts. If learners are taught or encouraged to develop, through the curricula for EMS and
Business Studies, approaches to measure the impact of social ventures on the environment,
they would be better prepared for developing social ventures attuned to enhancing the
economic and social well-being of our citizens (Brock and Steiner, 2009, p. 9; Kirby and
Ibrahim, 2011; Kramer, 2005).

Encouraging learners to develop social ventures capable of being scaled up and
replicated in distinct contexts has the potential to inculcate in learners the capabilities to
enhance long-term economic and environmental sustainability (Alvord et al., 2004;
Bornstein, 2004; Brock and Steiner, 2009; Dees et al., 2004). Therefore, it is hoped that
developing in EMS and Business Studies learners the ability to establish sustainable
social ventures would assist them in being more aware of and willing to attend to the
kinds of social inequalities, exclusion and oppression that continue to militate against
social justice in our society (Fayolle and Matlay, 2010; Mair, 2010; Waghid and Oliver,
2017). Thus, it is also hoped that business education curricula and teaching strategies
explicitly underpinned by social entrepreneurship would assist learners towards being
inspired to bring about real societal change (Waghid and Oliver, 2017). By implication,
encouraging risk-oriented action, moral consciousness and the desire for innovation in
learners would hopefully assist them to become change agents (Mars and Garrison, 2009),
thus helping them to create a “stable equilibrium” (Martin and Osberg, 2007) premised on
societal justice, as set out by the advocates for social entrepreneurship mentioned earlier
in this paper.

Second, teaching pre-service teachers to think more entrepreneurially in the sense of
fostering in them capacities to create a climate of entrepreneurship in the schools where they
will teach as professionals is a start in their journey towards being social entrepreneurs and
teaching social entrepreneurship. This view echoes the ideas of Isaacs et al. (2007) who wrote
about the South African business education curriculum and saying that curriculum
development, together with entrepreneurship education, creates the possibility of improving
the quality of teaching entrepreneurship in the FET phase. The study therefore supports
Fulgence’s (2015) recommendation that (social) entrepreneurship education should be
implemented earlier in the (secondary) education system instead of continuously receiving a
strong emphasis at tertiary level (Kroon and Meyer, 2001).

The researcher contends that, if pre-service teachers were to be equipped with realistic,
appropriate and flexible pedagogical techniques for school practice in both rural and urban
areas, they would be more adept at preparing learners living in a variety of
socio-economic environments for their active roles as aspirant social entrepreneurs in these
contexts. This is line with the literature (Brookfield, 1995; Huq and Gilbert, 2013; Weimer,
2002) as pedagogical practices should integrate more democratic and egalitarian views of
education as a means of enabling distinct types of learning which, in turn, would enable vivid
improvements in learner motivation and engagement. Teaching social entrepreneurship
integrated in the curricula firmly linked or integrated with social justice therefore has the
potential to develop in learners capacities to become autonomous, critical and deliberating
which, in turn, can orientate them towards contributing to equitable and just pedagogical relations both inside and outside the school environment (Waghid, 2014, 2016).

Third, in line with the thoughts of Rinke et al. (2014) and Naylor (2015), the researcher advocates for encouraging the disruption of pre-service teachers’ pre-conceived ideas and judgements about learners and about teaching, through developing in pre-service teachers a critical self-awareness and a sensitivity to the needs of learners in a range of socio-economic and school environments. This would include:

- a sensitivity regarding learners’ cognitive capacities and literacy levels, often linked to having to learn in a language which is not their mother tongue; and
- to be more attuned in their professional lives to developing dynamic curricula focusing on developing learners’ cognitive capacities and raising their literacy and reading levels to be able to cope with problems facing them both inside and outside the confines of the rigid, “one-size-fits-all” South African curriculum.

Teaching pre-service teachers to (re)examine curricula critically has the potential to assist them to reflect on some of the reasons why a globally emerging phenomenon, such as social entrepreneurship, is not included and/or firmly integrated in EMS and Business Studies in the South African curriculum. Thus, it is trusted that this study, and other similar studies, can suggest opportunities for pre-service teachers to derive possible understandings of the reasons for the absence of social entrepreneurship from the curricula through knowledge sharing and debate and, in doing so, to introduce pre-service teachers’ voices into the school environments during their teaching practices and in students’ professional lives.

Conclusion

Given the scant literature and studies available, this study aimed to add a value to the current standing of the need to integrate social entrepreneurship in secondary and teacher education. Doing this would inculcate in learners, through their teachers, the capacity to initiate social ventures attuned to enhancing economic and social well-being of the most destitute in all facets of society. This paper furthermore makes a meaningful contribution to the limited literature available on social entrepreneurship in a developing context, as it is the first study examining the secondary education curricula in a developing economy, such as South Africa, in relation to the absence of the emerging concept of social entrepreneurship using Brock and Steiner’s (2009) social entrepreneurship education framework.

Considering the study was conducted in South Africa among pre-service teachers, the study is relevant to an international context given the impetus of the phenomenon of social entrepreneurship through aspiring teachers as agents of change in transforming socially unjust spheres of a global society. Thus, similar studies in both developing and developed contexts in schools can be initiated as a means of teaching social entrepreneurship for social justice efficaciously.

Based on the findings of this present study, it seems that two crucial concepts as part of a best-practice approach to social entrepreneurship education espoused by Brock and Steiner (2009) are not integrated in the EMS and Business Studies curricula in South Africa. The secondary business education curricula in this regard are directed at cultivating improvement-driven entrepreneurs to the exclusion of the development of social entrepreneurs. This is further confirmed in the findings from an analysis of the pre-service teachers’ accounts of their experiences during their teaching practice sessions in that, at the time, the teachers at those schools were failing to integrate activities associated with social entrepreneurship in their teaching.

The limitation of this present study was that it was primarily carried out among pre-service teachers at the University of Technology where the researcher is based, and the results cannot
be generalised to all pre-service teachers in business education in South Africa. The researcher, therefore, sees a need for a comparative study to investigate the nature of the forces behind activities associated with social entrepreneurship at some – or possibly many – schools in the Western Cape and in South Africa that fail to include and integrate some form of social entrepreneurial activity into their business education curricula. Furthermore, comparable studies through survey research on the phenomenon of social entrepreneurship in schools and teacher education institutions in other developing contexts are warranted. Such an approach may engender further research on current practical pedagogies in these developing contexts towards developing effective social entrepreneurship curricula in the profession of teacher education as well as other disciplines.

In addition, this study, in line with Fayolle’s (2013) seminal thoughts, recommends the need to explore “softer” entrepreneurial topics commensurate with Sen’s (1999) account of capabilities or freedoms of development further. This approach would also respond to Hjorth’s (2010) call to include the political and ethical sides of social entrepreneurship by uncovering the capabilities necessary to inculcate in students the need to address the most pressing concerns of the most destitute of societies. This study, therefore, serves as the basis for further discourse in that it acts as a link to further research on the introduction of social entrepreneurship education in the field of teacher education for social justice.

References


Further reading


About the author

Zayd Waghid is Senior Lecturer in the Faculty of Education at the Cape Peninsula University of Technology in Mowbray, Cape Town. He has published numerous articles in the field of teacher education and social justice and has co-authored two books entitled Educational Technology and Pedagogic Encounters: Democratic Education in Potentiality (Sense, 2016) and Rupturing African Philosophy on Teaching and Learning: Ubuntu Justice and Education (Palgrave-MacMillan, 2018). Zayd Waghid can be contacted at: waghidz@cput.ac.za

For instructions on how to order reprints of this article, please visit our website: www.emeraldgrouppublishing.com/licensing/reprints.htm
Or contact us for further details: permissions@emeraldinsight.com
Perceived social norms, psychological capital and entrepreneurial intention among undergraduate students in Bukavu

Akilimali Ndatabaye Ephrem
Université Officielle de Bukavu, Bukavu, The Democratic Republic of the Congo, and
Rebecca Namatovu and Edith Mwebaza Basalirwa
Makerere University Business School, Kampala, Uganda

Abstract

Purpose – Entrepreneurship is important for economic growth, through its role in the provision of employment. In the recent past, a number of African universities have developed entrepreneurship education courses to facilitate the growing demand for entrepreneurs in the market. An immediate outcome anticipated from entrepreneurship education is to increase entrepreneurial intention (EI) among the participants. Unfortunately, most of the entrepreneurship education in developing economies has not been linked to an increase in the EI of students. This paper thus proposes that it is when students possess high levels of psychological capital and perceive positive social norms that entrepreneurship education will lead to positive EI. The purpose of this paper is to establish the relationship between perceived social norms (PSN), psychological capital and EI of university students.

Design/methodology/approach – Quantitative data were collected through a self-administered questionnaire on a random sample of 196 final year entrepreneurship and business management students, from three universities in Bukavu (East of DRC). Structural equation modeling was used to test the research hypotheses.

Findings – The paper provides four main findings. First, PSN and psychological capital have a positive significant effect on EI. Second, PSN contribute more to this effect than psychological capital. Third, PSN make a positive and significant effect on psychological capital. Lastly, psychological capital positively mediates the relationship between PSN and EI.

Research limitations/implications – This study could have benefited from a qualitative approach to have a more in-depth explanation of these relationships. The study is conducted amongst students who operate in a controlled environment. This may not reflect the actual behavior of entrepreneurs.

Practical implications – This work provides cues of what entrepreneurship educators should consider as they recruit and train students. Specifically, the study highlights the importance of students’ psychological capital and positive social norms in transforming entrepreneurial education into intention.

Keywords Entrepreneurship education, Entrepreneurial intention, Undergraduate students, Psychological capital, Perceived social norms

Paper type Research paper

1. Introduction

Over the past decades, scholars have been largely interested in exploring the construct of entrepreneurial intention (EI) (Fayolle and Liñán, 2014). The importance of EI was recognized after a shift in understanding that entrepreneurship is a process instead of an event (Shane, 2012). The entrepreneurship process starts with the EI (Robledo et al., 2015), then opportunity identification (Mccann and Vroom, 2015). EI is the individual’s spirit and...
readiness or willingness to pursue a self-employed career (Zhang et al., 2014). Research on EI is important because it is the main predictor of new firm formation (Barba and Atienza, 2017; Sebora, 2017). The theory of planned behavior (TPB) stipulates that human behaviors are planned in anticipation of the likely consequences (Fayolle and Liñán, 2014; Westhead and Solesvik, 2016). Therefore, the decision to become an entrepreneur is voluntary (Cheng and Liao, 2017). Moreover, the more one intends to be an entrepreneur, the more likely, he or she will be (Contreras et al., 2017). Previous studies have extensively used the TPB, in illuminating EI and new venture formation process. To this end, perceived social (subjective) norms, attitude and perceived behavioral control have been described as antecedents of EI (Ajzen, 2002; Byabashaija and Katono, 2011; Conner and Armitage, 1998; Liñán, 2016; Naktiyok et al., 2010). This paper is inspired by such previous studies but takes its point of departure by using a broader approach. It hypothesizes that EI is driven by perceived social norms (PSN) and psychological capital.

The integration of PSN as a driver of EI is based on the recognition that entrepreneurship is socially embedded (Shinnar et al., 2012) and that entrepreneurs cannot be separated from the environment in which they operate (Sultan, 2017). PSN dimensions include normative beliefs (Robledo et al., 2015), normative beliefs compliance (Díaz-garcia and Jiménez-moreno, 2010) and social valuation of entrepreneurial career (Byabashaija and Katono, 2011). Normative belief is the perception that significant other people and organizations would support or not the decision to become an entrepreneur (Santos et al., 2016). They set the norms that specify how the subject should behave. Normative belief can to some extent capture the perceived socio-environment barriers (or facilities) to engage in entrepreneurial activities (Branch and Rahimian, 2011; Sandhu et al., 2011). Based on the dimension of normative belief compliance, research indicates that entrepreneurs are independently oriented (Barba and Atienza, 2017). This suggests that the lower the individual’s willingness to comply with social norms, the higher the intention to start-up business (Iakovleva et al., 2011). Santos et al. (2016) further indicate that EI increases with the perception that an entrepreneurial career is valued in society as a consequence of macro-social values and beliefs. It can then be argued that the EI will increase with the perception that such an endeavor is socially valued (desired). This goes to say that, EI might be higher when students perceive that those already involved enjoy respect and high social status (Valliere and Gedeon, 2015). The effect of PSN on EI is still inconclusive (Henley et al., 2017) and hence a justification for further inquiry.

PSN alone is not sufficient to predict EI. Indeed, we go beyond the socio-cultural context to argue that, intention to start-up a business, depends upon the individual’s psychological capital (Sebora, 2017). Essential psychological capital ingredients, for those who would be entrepreneurs, include self-efficacy, optimism, hope and resilience (Wernsing, 2014). The positive effect of self-efficacy (perceived behavioral control) on EI is well documented (Bae et al., 2014; Dissanayake, 2013; Solesvik, 2017). Previous studies have also reported a strong positive correlation between attitude and intention (Byabashaija and Katono, 2011; Schwarz et al., 2009). These studies seem to imply that EI is positively driven by optimism which is an expectation that a career in entrepreneurship will lead to a good outcome. Additionally, resilience- the capacity to bounce back from negative experience – can drive EI (Johnmark et al., 2016). However, the construct of hope seen as a state of individuals who look into the future by setting high goals and finding strategies to achieve them (Luthans, 2011), has received minimal attention so far. Moreover, there is still limited knowledge about the combined effect of hope, optimism, resilience and self- efficacy on EI. It is also unclear to what extent psychological capital mediates the relationship between PSN and EI.

This study addresses these research gaps by focusing on final year undergraduate students in African universities pursuing an entrepreneurship and business management degree. This is an ideal context because university students are faced with an immediate career choice (Byabashaija and Katono, 2011; Shinnar et al., 2012) and are likely to be at the
EI phase (Kailer and Hora, 2017). Therefore, it is assumed that their declared EIs are not influenced by their previous work experience but are largely influenced by their perceptions and attitudes (Olufunso, 2010). Moreover, this cohort faces unemployment (IOM, 2015). In the Democratic Republic of the Congo (DRC), youth represent up to 50 percent of the active population (ILO, 2017). They are generally three and a half times more likely than adults to be unemployed (World Bank, 2014). In Bukavu, the main town of the South-Kivu province in the eastern part of the country, only 100 graduates are annually employed compared to 9,000 students who complete their undergraduate studies each year (African Development Bank’s report, 2012). Between 2013 and 2016, 16,546 graduates were competing for 2,966 jobs (NLO, 2017).

In many developing countries, entrepreneurship is being fronted as a solution to unemployment (Dissanayake, 2013). A number of universities now offer entrepreneurial education courses (Byabashaija and Katono, 2011) to equip students with the skills to recognize business opportunities and to act where others would ordinarily hesitate (Kailer and Hora, 2017; Westhead and Solesvik, 2016). One of the immediate outcomes expected from entrepreneurship education is a positive entrepreneurial attitude and intention (Liñán and Fayolle, 2015). In Bukavu, eastern DRC, some universities have introduced entrepreneurship course with the expectation of enhancing EI among undergraduate students. However, anecdotal evidence suggests that only a few of these students become entrepreneurs. This seems to indicate that, however much entrepreneurship education is offered, students are not willing to pursue an entrepreneurial career.

In order to understand what drives such inconsistencies, this study examines the role of PSN and psychological capital in predicting EI. The contribution of these two variables in explaining EI levels is evident because previous research in entrepreneurship indicates that entrepreneurs differ from no entrepreneurs by their psychology (Alonso-galicia et al., 2015; Shaver et al., 1992) and the environment (Santos et al., 2016; Schwarz et al., 2009) in which they operate. The study conceptual framework (Figure 1) is guided by the following research questions or more specifically, the objectives of this study are: to examine the relationship between PSN and EI; to examine the relationship between psychological capital and EI; to establish the relationship between PSN and psychological capital; and to test the mediating role of psychological capital in the relationship between PSN and EI.

Examining these relationships is important because they offer a fresh perspective on understanding the role of both psychological capital and social norms in entrepreneurship education.

The paper makes three major contributions. First, it highlights the mediation role of psychological capital in the relationship between PSN and EI. Our argument is based on the literature that shows that PSN drives EI through its influence on attitude and self-efficacy level (Buttar, 2015; Díaz-garcía and Jiménez-moreno, 2010; Kailer and Hora, 2017; Liñán, 2016). We take a point of departure from this argument and posit that perceived

![Figure 1. Conceptual model and hypothesized relationships](image)

**Sources:** Adapted from literature (Ajzen, 2002; Byabashaija and Katono, 2011; Esfandiar et al., 2017; Robledo et al., 2015; Santos et al., 2016; Sebora, 2017)
social norm influences EI level through psychological capital. Second, it extends the
measurements' scope of PSN by adding the dimension of social valuation of an
entrepreneurial career. Third, it provides cues of what entrepreneurship educators should
consider as they recruit and train students. Specifically, the study highlights the importance
of students' psychological capital and positive social norms in transforming entrepreneurial
education into intention.

The paper is arranged into seven sections as follows. The next section reviews literature
on how PSN and psychological capital predict EI. This is followed by the methodology
section, which is followed by the findings and results section. This is followed by the
discussion section and the conclusion and policy implication section. The final section
presents the study limitations and areas for future research.

2. Literature review
2.1 Entrepreneurial intention
Ajzen (2002) provides a generic definition of intention as a person's readiness to perform a
given behavior. EI is the individual's willingness (Shinnar et al., 2012) or desire (Bae et al.,
2014) to pursue a self-employed career. EI is based on opportunity recognition (Boyd and
Vozikis, 1994; Krueger and Carsrud, 1993) that directs and guides the actions of an
individual toward the development and implementation of the business concept (Lingfei and
Li, 2011; Santos et al., 2016). It reflects one's entrepreneurial spirit (Byrne and Fayolle, 2016)
or commitment to start-up a business (Zhang et al., 2014). It might be viewed as the first
step in an evolving, long-term entrepreneurship process (Buttar, 2015; Saeid et al., 2011).
Empirical evidence shows that EI to a large extent predicts entrepreneurial behavior
(Ajzen, 2002; Conner and Armitage, 1998; Kautonen et al., 2015).

The proponents of EI research, assume that entrepreneurial behavior is planned,
reasoned and controlled in anticipation of the likely consequences (Buttar, 2015). Therefore,
the higher the intention, the more likely that the behavior will occur. Many scholars have
criticized research on EI by arguing that intention does not necessarily translate into actual
business start-up behavior (Fayolle and Liñán, 2014; Fisher, 2012). The argument has been
supported by the emergence of the enactment theories, such as effectuation, bricolage and
improvisation (Baker and Nelson, 2005; Fisher, 2012; Sarasvathy, 2001; Smith and Blundel,
2014). The enactment theories posit that since entrepreneurs operate in dynamic, uncertain
and unpredictable environments, then planning is often done in futility. It is therefore
suggested that entrepreneurs should not plan, rather they should take actions. This view,
however, does not nullify the importance of having an EI; rather it complements it by
showing that when individuals have the EI, then they can easily take action because they
might be committed. Interestingly, EI is the immediate measurable outcome of
entrepreneurial education (Liñán and Fayolle, 2015; Nabi et al., 2017). Indeed, among
other things, entrepreneurship education is expected to shape participants' attitude toward
a career in entrepreneurship (Bae et al., 2014; Botha et al., 2007).

The TPB has been used extensively to explain intention to start a business (Barba and
Atienza, 2017; Bayon et al., 2015; Kautonen et al., 2015; Kuada, 2009) because of its
inclusiveness and comprehensiveness (Buttar, 2015; Liñán and Fayolle, 2015). It proposes
that EI is driven by three factors: a positive evaluation of the behavior (attitude), the
perception of the easiness of performing the behavior (perceived behavioral control) and the
perceived social pressure to perform the behavior (social or subjective norms). Barba and
Atienza (2017); Liñán (2016) and Robledo et al. (2015) confirmed the reliability of TPB when
they showed that its constructs predicted 72 percent of the variance in EI. But there is a
variance in the predictive power of TPB on EI across studies (Barba and Atienza, 2017;
Iakovleva et al., 2011). This study will thus test the TPB in a setting that is less resourceful
and dire need of entrepreneurs. Based on the TPB, this research argues that students'
EI is driven by five factors that are related to their ability to influence a future action: self-efficacy, hope, optimism, resilience and PSN. The synergy of the first four factors defines psychological capital.

2.2 Psychological capital
Psychological capital is a construct that was first adopted in the workplace to symbolize positive psychology (Wang et al., 2014). It consists of psychological capabilities that can be measured, developed and managed for performance improvement (Kangarlouei et al., 2012; Luthans, 2011; Wernsing, 2014). Psychological capital goes beyond economic (what you have), human or intellectual (what you know), social (who you know) capital, to include a specific focus on the psychological state of mind (Sebora, 2017) and on what can go right for people (Luthans, 2011). The positive psychological constructs that have been determined to best define and meet the inclusion criteria of positive psychology include self-efficacy, optimism, hope and resilience (Baron et al., 2016; Luthans, 2011).

Self-efficacy refers to beliefs in one’s capabilities (Bandura, 2000) or the degree to which a person feels capable to mobilize the motivation, cognitive resources and courses of action needed to successfully perform a specific task (Dissanayake, 2013). It is different from perceived behavioral control, although both concepts are quite similar (Akmali and Pihie, 2009). Perceived behavioral control is the overall belief in one’s power over the outcomes of actions (Abah et al., 2013). To avoid any misunderstanding, Ajzen (2002) suggests that the concept of perceived behavioral control should be read as “subjective degree of control over the performance of a behavior.” Perceived behavioral control and self-efficacy overlap with the Shapero’s entrepreneurial feasibility concept (Robledo et al., 2015). In this study, the focus is put on entrepreneurial self-efficacy, rather than general self-efficacy. Hope dimensions include willpower (agency) and way power (pathways) (Wernsing, 2014). Willpower is an individual’s ability to set goals and motivation to achieve goals (Sebora, 2017). Way power signifies one’s perceived capabilities to devise doable paths to attain desired goals (Hsu et al., 2014; Kangarlouei et al., 2012). Optimism is a generalized expectancy that one will experience a good outcome in life (Sebora, 2017). It is the level of like or dislike for a given career or task (Peprah and Abandoh-sam, 2017). Optimism might be equal to the entrepreneurial attitude in the TPB (Robledo et al., 2015), which, in turn, is similar to the Shapero’s entrepreneurial desirability concept (Barba and Atienza, 2017). Resilience is the extent to which individuals are able to bounce or rebound back from negative experiences, failure and adapt to changing and stressful life events (Luthans, 2011). For achieving this, critical skills have to be learned and these include creativity, flexibility and adaptability among others (Hmieleski and Carr, 2008).

2.3 Perceived social norms
PSN incorporates social embeddedness (Song, 2010) and refers to the perceived social pressures (influences) to undertake a behavior (Nabi et al., 2010). Social pressures are exerted by family, friends or significant others (Robledo et al., 2015; Sebora, 2017; Shinnar et al., 2012). PSN in the TBP literature is often called “subjective norms” (Iakovleva et al., 2011; Robledo et al., 2015). The two constructs can then be used interchangeably. PSN dimensions include normative beliefs, normative beliefs compliance (Iakovleva et al., 2011; Robledo et al., 2015) and social valuation (Santos et al., 2016).

Normative belief is the perception that “reference people” would approve or not the decision to become an entrepreneur; they set the norm that specifies how the subject should behave (Robledo et al., 2015). Normative beliefs compliance reflects a person’s willingness and motivation to conform to social norms (Colette et al., 2016), to behave according to the expectation of significant others (Iakovleva et al., 2011). Perceived social valuation refers to the way individuals perceive entrepreneurial activity to be valued in society,
as a consequence of macro social values and beliefs (Santos et al., 2016; Stephan and Uhlaner, 2010). It reflects the stereotypical perception of the “successful business owner” in a given society (Barba and Atienza, 2017; Mccann and Vroom, 2015). This serves to legitimate or not entrepreneurial career (Byabashaija and Katono, 2011).

2.4 Perceived social norms and EI

It is still unclear as to whether PSN directly influence EI. Existing empirical findings (Bayon et al., 2015; Esfandiar et al., 2017; Robledo et al., 2015; Santos et al., 2016; Zhang et al., 2014) have suggested that psychological factors play the most important role in predicting EI compared to PSN.

However, empirical evidence of a direct and significant effect of perceived social norm on EI is found in several studies (Codrina et al., 2012; Diaz-garcía and Jiménez-moreno, 2010; Iakovleva et al., 2011; Ilesanmigbenga, 2017; Shirokova et al., 2018; Solesvik, 2017). These studies seem to indicate that EI increases with a favorable perception of social norms. Favorable perception of social norms means three things. First, seen in the dimension of normative beliefs, it means the belief that peers and people of importance to the student think he or she should engage in the behavior (Ilesanmigbenga, 2017) and consequently they are ready to provide the necessary support (Iakovleva et al., 2011). Second, based on the dimension of normative belief compliance, it implies a self-oriented attitude (Krueger and Carsrud, 1993). That is, a person’s lower willingness to conform to or behave according to, the expectation of significant others (Colette et al., 2016; Iakovleva et al., 2011). This characteristic is most found in individualistic cultures (Hofstede, 1983) and among internal individuals who believe that success and failure reside within themselves (Abaho et al., 2013). They do not care about what others think of their projects. Third, seen in the dimension of social valuation, it means the perception that successful entrepreneurs enjoy a high level of respect in society (Shirokova et al., 2018) and this depends on culture (Solesvik, 2017).

In this study, PSN dimensions are aggregated. By doing so, the study favorably responds to Iakovleva et al. (2011) who argued that the weak contribution of PSN often reported in some empirical studies (Byabashaija and Katono, 2011), accounts for using its dimensions individually. It is expected therefore that:

\[ H1. \text{ Favorable perception of social norms is associated with higher EI.} \]

2.5 Psychological capital and EI

Most of previous studies have focused mainly on the positive relationship between psychological capital and employee performance (Luthans, 2011), organizational performance (Hmileski and Carr, 2008), business excellence (Hsu et al., 2014), competitive advantage (Youssef and Luthans, 2010) and academic performance (Siu et al., 2013).

Empirical studies on EI have focused on the individual effect of self-efficacy and optimism. To this end, it has been found out that EI is positively driven by optimism (Lingfei and Li, 2011; Robledo et al., 2015) and self-efficacy belief (Akmialah and Pihie, 2009; Boyd and Vozikis, 1994; Mcgee et al., 2009; Naktiyok et al., 2010; Saeid et al., 2011). Although the positive effect of self-efficacy, optimism and to some extent resilience on EI is well established, research on the relationship between psychological capital and EI, is just emerging. However, the results are promising. Indeed, research by Sebora (2017) supports a positive relationship between psychological capital and EI. This study further indicates that psychological capital alone accounts for 31.4 percent of the variance in EI. Luthans et al. (2006) and Sebora (2017) argue that the synergy effect of psychological capital attributes may be greater than the sum of the parts. Each construct has a unique character and when combined together, they support each other (Wernsing, 2014).
A positive relationship between psychological capital and EI can be justified by the following reasons. First, self-efficacious students will believe in their abilities to succeed in performing entrepreneurial behavior (Solesvik, 2017). Second, optimistic students can recognize business opportunities where others see chaos, contradiction and confusion (Wernsing, 2014). Third, hope dimension helps them to capitalize on those opportunities by setting the goals high which they believe they can accomplish since they can see a path to achievement (Kangarlouei et al., 2012). Fourth, resilient students can take risks, bounce-back from failures and adversity (Sebora, 2017). All put together, high psychological capital students may exhibit high EI because they are futuristic (McCann and Vroom, 2015); hence the following hypothesis:

H2. Higher levels of psychological capital are associated with higher levels of EI.

2.6 Perceived social norms and psychological capital
Research that relied on the TPB indicates that PSN drive self-efficacy and attitude (Kailer and Hora, 2017; Robledo et al., 2015). Drawing from this point, this study argues that psychological capital can be influenced by social norms. Luthans (2011) and Ute and Uhlaner (2010) indicate that people’s self-efficacy belief can be strengthened by respected, significant others persuading them that they have what it takes and providing positive feedback on progress being made on a particular task. Research indicates that perceived social support by individuals in adverse times is important for sustaining resilience (Hsu et al., 2014). It seems that the literature has not yet implicitly proven the effect of PSN on psychological capital. However, it can be hypothesized that:

H3. Favorable perception of social norms positively drives the psychological capital level.

2.7 The mediating role of psychological capital in the relationship between perceived social norms and EI
There is, quite a number of studies suggesting that “perceived social norms” does exert its influence on EI, but only through the mediating role of psychological factors. To this end, research by Liñán (2016) revealed no relationship between PSN and EI but pointed out a strong relationship between PSN and optimism. Díaz-García and Jiménez-Moreno (2010) and Kailer and Hora (2017) conclude that perceived social norm has a relevant effect on EI, but this is indirect, modifying personal attraction (optimism) and self-efficacy levels. Buttar (2015) found that perceived easiness of accessing social capital significantly shapes the EI of young people through cognitive factors.

These studies agree on the role of self-efficacy and optimism in mediating the relationship between PSN and EI. However, there is still a void in the literature on the mediating role of psychological capital comprising self-efficacy, hope, optimism and resilience. Johnmark et al. (2016) indicate that resilience positively moderates the relationship between intention and entrepreneurial actions of disabled students in Nigeria, but did not examine the extent to which resilience mediates the relationship between PSN and intention. In this study, it is expected that PSN might indirectly shape EI through its influence on the psychological capital level:

H4. Psychological capital positively mediates the relationship between PSN and EI.

3. Methodology
3.1 Population, sampling and data collection
The target population consisted of 400 last year students pursuing a bachelor’s degree in entrepreneurship and business management at three universities in Bukavu.
academic year 2017/2018. These universities include Université Officielle de Bukavu (UOB), Université Catholique de Bukavu (UCB) and Université Evangélique en Afrique (UEA). A sample size of 196 students was randomly selected. Using probability proportional to size (Saunders et al., 2003), a number of respondents were selected from each of the universities (73 for UEA, 64 and 59 for UOB and UCB, respectively). Data were collected through a self-administered questionnaire (Saunders et al., 2003) at one point in time. Thus, the study followed a cross-sectional survey research design (Chua and Bedford, 2015). The response rate was 100 percent. However, four questionnaires were eliminated because they were incomplete and they could not be used for analysis. So, the final sample consisted of 192 students.

3.2 Measurement of variables
The variables were measured using multi-item scales that were adapted from other studies (Table AI). Multi-item scales have the advantage of allowing the measurement errors to cancel out against each other and thus reliability and validity of the scale are increased (Johnmark et al., 2016). For all the constructs of the study, a five-point Likert scale (Babin and Svensson, 2012) ranging from “1: totally disagree” to “5: totally agree,” was used to capture the opinions of the respondents with regard of the different statements.

EI was measured as the student’s entrepreneurial spirit (willingness) or readiness to pursue a self-employed career after graduation (Iakovleva et al., 2011). A ten-item scale adapted from Iakovleva et al. (2011) was used and subdivided into two dimensions: entrepreneurial spirit (goal intention) and entrepreneurial readiness (entrepreneurial implementation intention). The intention to launch a business is a goal intention, while the intention to launch a business in the near future is an implementation intention (Esfandiar et al., 2017). The goal intention captures the motivational factors influencing people’s behavior and reflects the effort people are willing to invest (Gielnik et al., 2014). Unlike goal intention, implementation intention is characteristic of people who know when to pursue a goal. This results in the subject’s decisiveness to pursue and implement the goal (Esfandiar et al., 2017). Besides its inclusiveness of goal and implementation intention, the instrument does not aim at evaluating the kind of business which will be launched by the student, and so, it favors clarity and simplicity over richness and complexity.

PSN instrument was adapted from Byabashaija and Katono (2011). It included 25 items subdivided into three dimensions: normative beliefs, normative beliefs compliance and perceived social valuation. The study of Byabashaija and Katono (2011) was still an exception in EI literature that extends the concept of PSN to social valuation.

Hope, self-efficacy, optimism and resilience are the measurements of psychological capital (PSYCH) that best meet the inclusion criteria of being positive, unique, theory and research-based, measurable, changeable and manageable for performance improvement (Luthans, 2011). A 31-item scale adapted from Sebora (2017) was used to measure psychological capital. This instrument was most suitable because it links psychological capital to EI in the context of university students.

3.3 Reliability and validity of the measurements
The empirical research instruments used in this study were slightly modified to fit the context. To this end, the reliability and validity of the measurements were performed. Information in Table I reveals that the three constructs exhibit large Cronbach’s $\alpha$ coefficients and are higher than the standard threshold of 0.7 (Esfandiar et al., 2017). Such results show that the instruments are internally consistent, therefore, they are reliable.

The information in Table I also indicates that the values attached to the average variance extracted (AVE) were higher or equal to the recommended cut-off of 0.5 (Saeid et al., 2011). The joint information from construct reliability and the AVE values show that all used
measures exhibit convergent validity. Discriminant validity has been proven resorting to the correlation matrix between the three latent variables (Saeid et al., 2011). All the values of the squared coefficient of correlation between variables are below the attached average variance extracted. Such results prove that each construct is totally different from the others, implying discriminant validity is satisfied (Babin and Svensson, 2012).

3.4 Data processing and analysis

Structural equation modeling (SEM) was used for analysis. To reduce the structural model’s complexity, the items related to each dimension were averaged to get an index (Robledo et al., 2015). The advantage of SEM is that it takes into account the relationship among simultaneous separate but interdependent equations of the model (Babin and Svensson, 2012; Saeid et al., 2011). To this end, SEM makes it possible to examine different direct and indirect (e.g. mediation) effects and provides information on how well the conceptual model fits the data (Obschonka et al., 2010). It minimizes the residual error in the endogenous latent variables (Hair et al., 2011) and reduces the bias in the estimators (Iakovleva et al., 2011) regardless of the normality of the variables (Robledo et al., 2015). Maximum likelihood method was used to estimate the parameters (Chumney, 2013) with the help of LISREL 9.3 software (Quan and Huy, 2014). The inferential statistic was performed to assess the significance of the parameters.

4. Results

4.1 Sample characteristics and descriptive statistics of the study variables

The findings in Table II show that the total sample size included a number of 192 respondents equally distributed between female and male students. The average age was 24 years. Majority of students had never started up any business before, indicating that they lacked entrepreneurial experience. A large number of students (67.2 percent) reported having at least one parent who is an entrepreneur. This could mean that they have a family role model.

Descriptive statistics included the mean, the standard deviation and the coefficient of variation. The findings are presented in Table III. The results in Table III show that

<table>
<thead>
<tr>
<th>Variables</th>
<th>EI</th>
<th>PSN</th>
<th>PSYCH</th>
<th>Extracted variance (AVE)</th>
<th>Cronbach’s α</th>
</tr>
</thead>
<tbody>
<tr>
<td>EI</td>
<td>1</td>
<td></td>
<td></td>
<td>0.548</td>
<td>0.81</td>
</tr>
<tr>
<td>PSN</td>
<td>0.183 (0.033)*</td>
<td>1</td>
<td>0.500</td>
<td>0.895</td>
<td></td>
</tr>
<tr>
<td>PSYCH</td>
<td>0.461 (0.212)**</td>
<td>0.258 (0.066)**</td>
<td>1</td>
<td>0.500</td>
<td>0.925</td>
</tr>
</tbody>
</table>

Notes: *p ≤ 0.05; **p ≤ 0.01

Source: Compilation from correlation results using SPSS.20

<table>
<thead>
<tr>
<th>Background information</th>
<th>Frequency in universities</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>UOB</td>
<td>UEA</td>
<td>UCB</td>
</tr>
<tr>
<td>Male</td>
<td>37</td>
<td>35</td>
</tr>
<tr>
<td>Female</td>
<td>26</td>
<td>36</td>
</tr>
<tr>
<td>Total</td>
<td>63</td>
<td>71</td>
</tr>
<tr>
<td>Average age</td>
<td>24</td>
<td>24.4</td>
</tr>
<tr>
<td>At least one parent is an entrepreneur</td>
<td>38</td>
<td>50</td>
</tr>
<tr>
<td>Had ever started up business before</td>
<td>6</td>
<td>11</td>
</tr>
</tbody>
</table>

Source: Primary data
Students on average did not have the EI since the mean score was significantly below the middle point of the five Likert scale. PSN mean score was significantly equal to 3 indicating that students neither agreed nor disagreed that social values and beliefs are favorable to would-be entrepreneurs. Psychological capital scale presented significant mean score and higher than 3, showing that students reported higher psychological capital level. The coefficients of variation attached to the variables are low, implying that the answers provided by the respondents were homogeneous to a great extent.

### 4.2 Results of structural equation modeling

The structural model included the hypothesized relationship between latent constructs in the research conceptual framework. The findings from SEM are synthesized in Table IV. Z-values associated with each path are displayed on the path diagram (Figure 2).

Table IV indicates that all the path parameters are positive. The null hypothesis for each path coefficient was tested based on corresponding $z$-value (shown in Figure 2) and probability presented in Table IV. The positive effect of PSN on EI is supported.

#### Table III.

<table>
<thead>
<tr>
<th>Variables</th>
<th>Score</th>
<th>$p$-value</th>
<th>SD</th>
<th>CV</th>
</tr>
</thead>
<tbody>
<tr>
<td>Entrepreneurial intention</td>
<td>2.85</td>
<td>0.04</td>
<td>0.47</td>
<td>0.16</td>
</tr>
<tr>
<td>Perceived social norms</td>
<td>3.06</td>
<td>0.08</td>
<td>0.29</td>
<td>0.09</td>
</tr>
<tr>
<td>Psychological capital</td>
<td>3.79</td>
<td>0.00</td>
<td>0.53</td>
<td>0.14</td>
</tr>
</tbody>
</table>

**Note:** $p$-value tests whether the mean scores are equal to or different from 3 (neither agree nor disagree).

**Source:** Results from SPSS 20 based on primary data.

#### Table IV.

<table>
<thead>
<tr>
<th>Relationships between variables</th>
<th>Estimators</th>
<th>Prob. values</th>
<th>$R^2$</th>
</tr>
</thead>
<tbody>
<tr>
<td>Perceived social norms → psychological capital</td>
<td>0.691</td>
<td>0.000</td>
<td>0.486</td>
</tr>
<tr>
<td>Perceived social norms → entrepreneurial intention</td>
<td>0.489</td>
<td>0.006</td>
<td>0.641</td>
</tr>
<tr>
<td>Psychological capital → entrepreneurial intention</td>
<td>0.450</td>
<td>0.007</td>
<td>0.102</td>
</tr>
</tbody>
</table>

**Source:** Compilation from LISREL 9.30

#### Figure 2.

**Empirical model**

*Notes:* $\chi^2 = 55.33; \text{df} = 24; p\text{-value} = 0.00028; \text{RMSEA} = 0.082
(z = 2.772 > 1.96, p = 0.006 < 0.05), which corresponds to H1. H2 is also supported, that is psychological capital has a positive effect on EI (z = 2.677 > 1.96, p = 0.007 < 0.05). The findings also support H3 that stated that the favorable perception of social norms has a positive effect on psychological capital (z = 8.142 > 1.96, p = 0.000 < 0.05).

To test for mediation and following the suggestion of Byabashaija and Katono (2011) and Solesvik (2017), psychological capital variable was regressed on the independent variable-PSN. The dependent variable – EI was regressed on the independent variable-PSN. Finally, the EI was regressed on both PSN and psychological capital. The findings of these three regressions are presented in Table V.

H4 that stated that psychological capital positively mediates the relationship between PSN and EI is supported because PSN is significant in both regressions one (z = 8.163 > 1.96) and two (z = 4.929 > 1.96), psychological capital is significant in regression three (z = 2.677 > 1.96), and the effect of PSN on EI is less (z = 2.772) in regression three than in regression two (z = 4.929).

The model explained 74.3 percent of the variance in EI. PSN alone accounted for 64.1 percent while psychological capital explained 10.2 percent of the variation in EI. Moreover, PSN account for 48.6 percent of the variance in students’ psychological capital. The most important fit indicators for assessing the structural model quality are presented in Table VI.

The acceptable limits are provided by Schumacker and Lomax (2010) and Contreras et al. (2017). The structural model fit indicators show that the model fits the data. Such results prove that the distance between the hypothesized theoretical model and data is shorter.

5. Discussion

5.1 Perceived social norms and EI

Fayolle and Liñán (2014) highlighted major areas of EI research and called for future research to explore the influence of context on intentions. Based on this call, this study examined the relationship between PSN and EI. The findings support the hypothesis that stated that favorable perception of social norms is positively associated with EI. PSN variable was found to explain 64.1 percent of the variation in EI. It was also found to be a stronger predictor of EI over psychological capital.

<table>
<thead>
<tr>
<th>Regression (3)</th>
<th>Regression (1)</th>
<th>Regression (2)</th>
<th>Psychological capital effect</th>
<th>Perceived social norms effect</th>
</tr>
</thead>
<tbody>
<tr>
<td>Estimators</td>
<td>0.697</td>
<td>0.801</td>
<td>0.447</td>
<td>0.489</td>
</tr>
<tr>
<td>z-values</td>
<td>8.163</td>
<td>4.929</td>
<td>2.677</td>
<td>2.772</td>
</tr>
<tr>
<td>p-values</td>
<td>0.000</td>
<td>0.000</td>
<td>0.007</td>
<td>0.006</td>
</tr>
<tr>
<td>$R^2$</td>
<td>0.486</td>
<td>0.641</td>
<td>0.743</td>
<td></td>
</tr>
</tbody>
</table>

**Source:** Compilation from LISREL 9.30

<table>
<thead>
<tr>
<th>Indicators</th>
<th>Values</th>
<th>Acceptable limits</th>
</tr>
</thead>
<tbody>
<tr>
<td>$\chi^2$/Degree of freedom</td>
<td>2.30</td>
<td>Below 5</td>
</tr>
<tr>
<td>Root mean square error of approximation (RMSEA)</td>
<td>0.0825</td>
<td>Value close to 0.05 or 0.08</td>
</tr>
<tr>
<td>Incremental fit index (IFI)</td>
<td>0.956</td>
<td>Greater than 0.95</td>
</tr>
<tr>
<td>Goodness of fit index (GFI)</td>
<td>0.942</td>
<td>Value close to 0.90 or 0.95</td>
</tr>
<tr>
<td>Standardised root mean square residual (SRMR)</td>
<td>0.052</td>
<td>Less than 0.05</td>
</tr>
<tr>
<td>Adjusted goodness of fit index (AGFI)</td>
<td>0.889</td>
<td>Value close to 0.90 or 0.95</td>
</tr>
</tbody>
</table>

**Source:** Compilation from LISREL 9.30

**Table V.** Mediation effect of psychological capital

**Table VI.** Fit indicators for SEM quality
The findings are consistent with earlier studies which have supported the influence of subjective norms on EI among students (Codrina et al., 2012; Davis, 2017; Haque et al., 2017; Iakovleva et al., 2011; Ilesanmigbenga, 2017; Kautonen et al., 2015; Lo et al., 2012; Shirokova et al., 2018; Solesvik, 2017). However, the findings contradict previous research (Ali et al., 2014; Bayon et al., 2015; Esfandiar et al., 2017; Juan et al., 2005; Robledo et al., 2015; Santos et al., 2016; Zhang et al., 2014) which showed that PSN was a weak predictor of EI.

It is worth noting that unlike this research, most of past studies that failed to find a significant relationship between PSN and EI used non-aggregated measures of PSN (Iakovleva et al., 2011). This suggests that the aggregation of social norm dimensions is a significant methodological consideration. Thus, future studies ought to consider this when they adopt the TPB.

The study findings make an interesting revelation because anecdotal evidence shows that many Congolese from Bukavu, expect their children to earn an academic qualification to suit the formal employment market. There is also a cultural tendency among graduates to be “job seekers.” In addition, there is a general view that the DRC is not a safe place for entrepreneurs. Moreover, the doing business index scores DRC at 37.65 percent on the ease of doing business and ranks it 182 out of 190 countries (World Bank, 2018). Policy makers and educators should focus on changing the beliefs and values held by students about an entrepreneurial career. There is, however, a tall order because social norms are culturally embedded.

5.2 Psychological capital and EI

Most of earlier studies (Anabela et al., 2013; Esfandiar et al., 2017; Nabi et al., 2017) that applied the TPB did not refer to psychological capital as an EI antecedent. This study, with inspiration from Contreras et al. (2017) and Sebora (2017), highlights the importance of psychological capital in explaining why some students, are more willing to start-up business than others. Indeed, the higher the student’s psychological capital, the higher the intention to start-up a business. Psychological capital alone predicted 10.2 percent of the variation in EI. Interestingly, psychological capital can be developed (Wang et al., 2014). It can, therefore, be argued that it is possible to nurture entrepreneurs by focusing on increasing their self-confidence, optimism, hope and resilience. This will help the students to overcome the fear and doubt of embracing entrepreneurship as a career option.

5.3 Perceived social norms and psychological capital

The findings indicated that a favorable perception of social norms positively explains 48.6 percent of the variation in student’s psychological capital. The finding is consistent with previous research that had shown that psychological capital, was opened to development and could be influenced (Hsu et al., 2014; Jensen, 2012; Luthans, 2011; Shen et al., 2017; Siu et al., 2013; Wang et al., 2014; Wernsing, 2014).

5.4 Mediation role of psychological capital

The findings also support the argument that psychological capital positively mediates the relationship between PSN and EI. This means that a great influence of PSN on EI channels through psychological capital. This research concurs with Liñán and Fayolle (2015) who suggested that research on EI should shift from traditional models (which assume explanatory variables to directly and independently explain EI) to an approach of indirect influences. The findings are consistent with previous studies on the TPB (Ajzen, 2002; Cheng and Liao, 2017; Krueger and Carsrud, 1993; Krueger and Brazeal, 1994; Santos et al., 2016), which supported the mediating role of psychological factors in the relationship between PSN and EI. However, unlike previous studies which focused on perceived
feasibility and desirability of an entrepreneurial career, this study highlights the mediating role of psychological capital. This study argues, therefore, that PSN should be an important target of educators and policymakers. Not only because it affects the EI of students but also because it drives their psychological capital.

6. Conclusion: theoretical, methodological and policy implications

The findings indicated that PSN and psychological capital explain the lower EI level among undergraduate students in Bukavu. PSN and psychological capital jointly explain 74.3 percent of the variation in intention, which is more than the 30–45 percent typical in previous studies that used the TPB (Kautonen et al., 2015).

While the findings support the generalizability of the TPB across contexts, they contribute to the existing EI literature in different ways. First, this study shows that the mediating role of psychological capital in the relationship between PSN and EI is a contribution to the TPB. Second, this research implies that, beyond perceived behavioral control and attitude implicitly used in the TPB, there is a need to include a broader set of psychological variables, such as psychological capital. Third, for a better understanding of the embeddedness of intention, perceived social norm dimensions need to be extended beyond normative beliefs and normative beliefs compliance to include a specific focus on perceived social valuation of an entrepreneurial career. Fourth, it is worth to aggregate PSN dimensions rather than using them individually.

This research recommends that skill building in the dimensions of psychological capital – self-efficacy, hope, optimism and resilience – might be a significant addition to the content of entrepreneurship education. This may be achieved by offering a feasible preview of small business ownership that vaccinates against negative expectations and enhance psychological capital among students. This will induce a positive change in the perception of entrepreneurship as a career option and increase the propensity to act upon business opportunities. Such philosophy is a departure from the current teaching method of entrepreneurship in Bukavu, which seems to be more theoretical; something that tends to present entrepreneurship as a less feasible career. Similarly, the use of local case studies in the teaching of entrepreneurship would be instructive about enhancing students’ psychological capital that enables their intention and later their actions.

The study shows that PSN influence psychological capital and explain a great part of the variance in EI. As Byabashaja and Katono (2011) pointed out, students’ perceptions about the social valuation of entrepreneurship as a career option can be influenced. Deliberate steps to highlight entrepreneurial success stories in news media would have a positive impact on students’ beliefs. Equally, the interaction between students and successful entrepreneurs might have a positive change in the way they perceive entrepreneurship as a career choice. Formal approaches to entrepreneurship education may be complemented by tacit learning with peers (Gielnik et al., 2015; OECD, 2014). This will induce positive emotions and build the participants’ psychological capital to pursue an entrepreneurial career.

While financial support is important in promoting youth entrepreneurship in Bukavu, the study findings show that there is a need to design awareness programmes that educate people on the important role that entrepreneurs play in creating prosperity. This will serve to increase the social acceptance of entrepreneurship as a career option. Such programmes like the National Small and Medium Size Enterprises’ Development Strategy, the ENABLE Youth program of the International Institute of Tropical Agriculture (IITA, 2016) would also raise the societal awareness of the important economic role youths can play and would mark a departure from the traditional ideologies that perceive youths as job seekers.
7. Limitations and opportunities for future research

Although the values for the root mean square error of approximation (RMSEA) and the standardised root mean square residual (SRMR) were found to be close enough, and all the other fit indicators for SEM quality, were good enough, the authors do acknowledge that the RMSEA (0.082) and SRMR(0.052) values are a bit borderline. They should be below 0.08 and 0.05, respectively, for the sample size in question (Schumacker and Lomax, 2010).

The study used a cross-sectional design, which means that perceptions or views were recorded at a specific point in time. This may not reflect the actual entrepreneurial behavior since, EI level changes over time (Byabashaija and Katono, 2011; Mccann and Vroom, 2015). Indeed, while the intention may be the best predictor of behavior, it is not the behavior itself (Nabi et al., 2010), because the road from intentions to actions and new venture creation can sometimes be long (Gielenk et al., 2014). Similarly, psychological capital used to predict EI is dynamic (Youssouf and Luthans, 2010). Future studies would use longitudinal data to track the intention–behavior process across the student’s life course. Such studies could look closer to the volitional issues (Solesvik, 2017), namely, which factors influence the transformation of intention into actions. This is still a knowledge gap in EI literature and there is increasing call to fill it (Fayolle and Liñán, 2014; Nabi et al., 2017). Entrepreneurship education research is indeed shifting from short-term (attitudes and intention) to long-term outcomes (venture creation and business performance). Future studies can also measure EI, PSN and psychological capital at least at two points of time: one at the beginning of any type of intervention (can be entrepreneurial training) and one at the end. This may offer much policy implications.

The conclusions of this research are limited to the students from the universities selected. A comparison of entrepreneurship students to students from other courses and the inclusion of other universities is an avenue of research that would provide generalizable findings. This makes sense since entrepreneurship is not an exclusive activity of business students. This future direction is an opportunity to consider entrepreneurship education as an independent variable, something from which the effectiveness of entrepreneurship education can be tested.

This study followed a quantitative research design to assess the extent to which PSN and psychological capital drive business start-up intention. However, the “why” aspect of the study’s relationships was not explained. This could be delved if the study included a qualitative aspect to it. It is therefore recommended to future researchers, to use mixed methods. Another area of study would be to compare the psychological capital of entrepreneurs to that one of the would-be entrepreneurs and investigate the factors behind possible differences. More research is also needed to clarify what specific actions and measures are likely to foster psychological capital. This is still a knowledge gap in positive behavior literature and there is an increasing call to fill it (Jensen, 2012; Luthans, 2011; Sehora, 2017). And finally, it is interesting to examine, in future studies, whether different pedagogical methods used and course educator differences, such as skills or academic background, would influence entrepreneurship education outcomes (intentions and actions). Current studies on EI have so far failed to address these issues yet they are critical in enhancing entrepreneurship education effectiveness (Fayolle and Liñán, 2014; Johnmark et al., 2016; Nabi et al., 2017).

References


Sebora, T.C. (201), “Psychological Capital and the Entrepreneurial Intention of College Students”, ResearchGate, The University of Nebraska at Lincoln.


Appendix

<table>
<thead>
<tr>
<th>Dimensions</th>
<th>Items</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Construct (1) entrepreneurial intention</strong></td>
<td></td>
</tr>
<tr>
<td>Entrepreneurial goal intention</td>
<td>1. I have very seriously thought about starting a firm in the future</td>
</tr>
<tr>
<td></td>
<td>2. Among my various career options, I would rather be an entrepreneur</td>
</tr>
<tr>
<td></td>
<td>3. My professional goal is to become an entrepreneur</td>
</tr>
<tr>
<td>Goal implementation intention</td>
<td>1. I intend to start a firm within 3 years of graduation</td>
</tr>
<tr>
<td></td>
<td>2. I am willing to own a firm in the 3 years</td>
</tr>
<tr>
<td></td>
<td>3. I am planning to start a firm in the 3 years</td>
</tr>
<tr>
<td></td>
<td>4. I will likely be running my own small business within 3 years</td>
</tr>
<tr>
<td></td>
<td>5. I am ready to do anything to be an entrepreneur</td>
</tr>
<tr>
<td></td>
<td>6. I will make every effort to start and run my business</td>
</tr>
<tr>
<td></td>
<td>7. I am determined to create a firm in the future</td>
</tr>
<tr>
<td><strong>Construct (2) perceive social norms</strong></td>
<td></td>
</tr>
<tr>
<td>Normative beliefs</td>
<td>1. My closest family members think that I should pursue a career as an entrepreneur</td>
</tr>
<tr>
<td></td>
<td>2. My closest friends think that I should pursue a career as an entrepreneur</td>
</tr>
<tr>
<td></td>
<td>3. People who are important to me think that I should be an entrepreneur</td>
</tr>
<tr>
<td></td>
<td>4. My colleagues think that I should pursue a career as an entrepreneur</td>
</tr>
<tr>
<td></td>
<td>5. My closest family members would approve my decision to become an entrepreneur</td>
</tr>
<tr>
<td></td>
<td>6. My closest friends would approve my decision to become an entrepreneur</td>
</tr>
<tr>
<td></td>
<td>7. People who are important to me would approve my decision to become an entrepreneur</td>
</tr>
<tr>
<td></td>
<td>8. Financial institutions would support my decision to become an entrepreneur</td>
</tr>
<tr>
<td></td>
<td>9. The Government would approve and support my decision to become an entrepreneur</td>
</tr>
<tr>
<td></td>
<td>10. The local community would support my decision to become an entrepreneur</td>
</tr>
<tr>
<td>Normative beliefs compliance (reverse coded)</td>
<td>1. I care about what my closest family members think about my entrepreneurial career</td>
</tr>
<tr>
<td></td>
<td>2. I care about what my closest friends think about my entrepreneurial career</td>
</tr>
<tr>
<td></td>
<td>3. I care about what people who are important to me think about my entrepreneurial career</td>
</tr>
<tr>
<td></td>
<td>4. I care about what my colleagues think about my entrepreneurial career</td>
</tr>
<tr>
<td></td>
<td>5. I care about the approval of my entrepreneurial choice by my closest family members</td>
</tr>
<tr>
<td></td>
<td>6. I care about the approval of my entrepreneurial choice by my closest friends</td>
</tr>
<tr>
<td></td>
<td>7. I care about the approval of my entrepreneurial choice by people who are important to me</td>
</tr>
<tr>
<td></td>
<td>8. I care about the approval of my entrepreneurial choice by financial institutions</td>
</tr>
<tr>
<td></td>
<td>9. I care about the approval of my entrepreneurial choice by the Government</td>
</tr>
<tr>
<td></td>
<td>10. I care about the approval of my entrepreneurial choice by the local community</td>
</tr>
<tr>
<td>Perceive social valuation</td>
<td>1. In our community, most people consider starting a new business as desirable</td>
</tr>
<tr>
<td></td>
<td>2. I often see stories in the public media about successful new businesses</td>
</tr>
<tr>
<td></td>
<td>3. People successful at starting a new business have a high level of status and respect in Bukavu</td>
</tr>
<tr>
<td></td>
<td>4. In Bukavu, the creation of a new venture is considered an appropriate way to become rich</td>
</tr>
<tr>
<td></td>
<td>5. Most people in Bukavu think of entrepreneurs as competent, resourceful individuals</td>
</tr>
<tr>
<td><strong>Construct (3) psychological capital</strong></td>
<td></td>
</tr>
<tr>
<td>Self-Efficacy</td>
<td>1. I feel confident developing new business ideas</td>
</tr>
<tr>
<td></td>
<td>2. I feel confident presenting my ideas for a new business to others</td>
</tr>
<tr>
<td></td>
<td>3. I can be “on my own,” so to speak, in preparing for my new business if I have to</td>
</tr>
<tr>
<td></td>
<td>4. I feel I can handle many things at a time as I prepare to start a business</td>
</tr>
<tr>
<td></td>
<td>5. I feel confident in making decisions involving uncertainty and risk</td>
</tr>
<tr>
<td></td>
<td>6. I feel confident convincing others join in the pursuit of my vision for a new business</td>
</tr>
<tr>
<td></td>
<td>7. I feel confident assembling a well-rounded team of individuals to help me start a new business</td>
</tr>
<tr>
<td></td>
<td>8. I feel confident acting on a new idea for a business when others do not</td>
</tr>
</tbody>
</table>

Table AI. Research instrument (continued)
<table>
<thead>
<tr>
<th>Dimensions</th>
<th>Items</th>
</tr>
</thead>
</table>
| Optimism   | 1. I always look on the bright side of things regarding my starting a business  
2. Right now I see myself as being pretty successful at new business preparation  
3. I approach my preparation for a new business as if “every cloud has a silver lining”  
4. In my life, things always work out the way I want them to  
5. When things are uncertain for me, I usually expect the best  
6. I’m optimistic about what will happen to me in the future as it pertains to a new business  
7. Being an entrepreneur would give me great satisfaction  
8. Being an entrepreneur would imply more advantages than disadvantages to me  
9. If I tried to start a business, I would have a high chance of being successful. |
| Hope       | 1. Right now, I can list the most important goals for my life in just a few minutes  
2. I am motivated to achieve my goals for life  
3. I can think of many ways to reach my current business goals  
4. If I should find myself in a jam in achieving my goals, I could think of many ways to get out of it  
5. At this time, I am meeting the goals that I have set for myself  
6. There are lots of ways around any problem. |
| Resilience | 1. I can manage the difficulties I encounter in my life one way or the other  
2. I can get through difficult times during my new business preparation  
3. When I have had a setback in my life, I did quickly recover from it  
4. If something can go wrong for me, it will not affect me so much  
5. I usually adapt to stressful life demands  
6. I can persist in the face of adversity  
7. I can react quickly to unexpected environmental change  
8. I can quickly recover from failure |

Table AI.

For instructions on how to order reprints of this article, please visit our website:  
www.emeraldgrouppublishing.com/licensing/reprints.htm
Or contact us for further details: permissions@emeraldinsight.com
Entrepreneurial intentions
The role of individualism and collectivism in perspective of theory of planned behaviour

Muhammad Farrukh
Faculty of Business and Management,
Cyberjaya University College of Medical Sciences, Cyberjaya, Malaysia

Jason Wai Chow Lee
Faculty of Business and Information Science,
UCSI University, Kuala Lumpur, Malaysia

Muhammad Sajid
School of Management,
Royal Holloway University of London, Egham, UK and
Government College University, Faisalabad, Pakistan, and

Abdul Waheed
School of Economics and Management,
University of Science and Technology Beijing, Beijing, China

Abstract
Purpose – Culture plays a vital role in shaping individuals’ intentions and behaviour. Influence of cultural values on entrepreneurship has been acknowledged widely by academics and practitioners. However, little in terms of empirical results is known. Thus, the purpose of this paper is to investigate the effect of cultural values on entrepreneurial intentions (EI) of Pakistani students.

Design/methodology/approach – Cultural values of individualism and collectivism were incorporated into the theory of planned behaviour (TPB). Smart-PLS software was used to run a structural equation modelling (SEM) technique to analyse the data.

Findings – SEM results showed that attitudes towards entrepreneurship and perceived behavioural controls (PBC) mediated the relationship between individualism and EI while subjective norms (SN) mediated the relationship between collectivism and EI.

Originality/value – The study confirms the applicability of the TPB for understanding the EI in a collectivist culture. Additionally, findings of this study displayed that external factors, such as cultural values, can impact EI through SN, attitude and PBC. Incorporation of cultural values in TPB contributed to the understating of antecedents of EI.

Keywords Collectivism, Structural equation modelling, Theory of planned behaviour, Individualism, Entrepreneurial intentions

Paper type Research paper

Introduction
This study has been conducted in the context of Pakistan, a developing country that shares 2.64 per cent of the world’s population. It is pertinent to mention that 64 per cent of Pakistan’s population is under the age of 30 (Ahmad, 2018). Unfortunately, a substantial part of the population is beneath the murky hazes of unemployment and poverty. Pakistan is currently facing seasonal, cyclic, technical and structural unemployment. The horrifying part is that this phenomenon is intensifying every year which in the long run will prove to be menacing for the economy of Pakistan (Gul et al., 2012). To cope up this issue, the core focus should be to stabilize the economic settings. Promotion of entrepreneurship could be one of the factors to stabilize economic setting. Literature suggest that entrepreneurship is a vital source of job creation and economic development (Arshad et al., 2016; Bell, 2019; González-Serrano et al., 2018; Mwiya et al., 2018; Nyadu-Addo and Mensah, 2018) and
Entrepreneurial intentions play a significant role in starting a new venture (Devonish et al., 2010; Drnovšek et al., 2010; Shahid et al., 2018). However, less is known about the attitude and motivational antecedents of the entrepreneurial intentions (EI), and this is the case in non-Western developing countries like Pakistan. The research on EI is, most of the time, inclined to Western economies, all of which are more individualistic countries. As a result, there is less empirical evidence currently on EI and its antecedents from countries and cultures which are somewhat more collectivistic than individualistic. One of the collectivistic countries is Pakistan, where there is a possibility that the various cultural principles and values may help to advance EI. Pakistan has an ancient and rich cultural heritage. It also has economic and strategic importance within the Asian sub-continent. Thus, there is a need to investigate the antecedents of EI in Pakistan. For this reason, theory of planned behaviour (TPB) is espoused to examine if the EI antecedents acknowledged in a TPB-based model affect students’ EI when it comes to a developing, non-Western collectivist country.

Just as very little is known about the antecedents of EI in non-Western and/or developing countries, little is also known about what cultural values at the individual level have contributed to the non-Western contexts, in particular, and the antecedents of EI, in general. Generally, attitudes and behaviour are shaped by cultural values (Kirkley, 2016), and intentions are also affected by cultural values. Nevertheless, at the individual level, very little is known about the effects of cultural values. Particularly, only a limited amount of cultural values tested empirically in the EI models are available, and, perhaps, there is none in the Pakistani context. The exact mechanisms through which EI is effected by culture are not clear. Therefore, scholars want more studies to be conducted on the effect of cultural values on EI.

Leaning on the TPB and the cultural orientations literature, this research constructed an EI model and examined the effects of motivational factors and individual-level cultural values on EI within the Pakistani context. More specifically, the current study endeavoured to check the mediation role of motivational factors on the relationship between cultural values and EI. Little attention has been given to this extended model of EI in the previous research. This model will provide a deeper understanding and insights into EI, TPB and cultural values. The study will contribute to developing interventions to foster EI among students.

In the next section, the hypotheses to be tested and the theoretical framework are presented. This is followed by the methods by which the research was carried out and the results in which the study outcomes and characteristics are presented. These results are dealt with in the discussion section. Lastly, the implications for policymakers and educators, potential limitations of the paper and the directions for future research are discussed.

Theoretical framework and hypothesis development

The theory of planned behaviour

Research conducted in the past to get an understanding of the factors that affect the decision to begin a new venture, and consequently, become an entrepreneur, paid more attention to psychological physiognomies, such as personality traits, need for achievement and risk-taking propensity. The role of demographic traits, such as gender, religious background, age, level of education, association with ethnic groups, and experience in employment, was highlighted in later studies (Ghouse et al., 2017; Tandrayen-Ragoobur and Kasseeah, 2017). The early trait and subsequent demographic methods to entrepreneurship study were both judged because they had limited predictive value, and, in turn, explanatory capacity. As a result, they also had major conceptual and methodological weaknesses.

Later, the research on psychological and cognitive determinants of EI came forth. This focussed on the motivation, attitudes and perceptions of starting a new venture. In these models, the intention was the main focus as the intention is considered an immediate antecedent of
behaviour (Ajzen, 1991). According to Bird (1988), intentions are effected by numerous aspects such as beliefs and values. Numerous academics have also stated that paying attention to EI and cognition structures is essential in understanding entrepreneurship (Busenitz and Barney, 1997; Krueger, 2007; Mitchell et al., 2002).

As was originally put forth by Ajzen (1991), TPB is one of the most broadly researched cognitive models (Shah and Soomro, 2017). Ajzen (1991) assumed that in this model human behaviour is reasoned, planned and controlled such that it takes the potential results of a behaviour that is being considered. Thus, the intention is the major factor in the TPB as to whether an individual will perform a given behaviour.

Ajzen (1991) asserted that an individual’s attitude towards the behaviour, SN and perceived behavioural controls (PBC) affect the intentions which subsequently form behaviour. Attitude towards behaviour refers to the extent to which an individual has favourable or unfavourable appraisal or assessment of the issue or behaviour in question. According to the TPB, attitudes are determined by the total set of accessible behavioural beliefs linking the behaviour to various outcomes and other attributes. They include not only affective (I like it, it is attractive) but also evaluative (it has advantages) considerations (Liñán and Chen, 2009). Another important component of TPB is SN, it refers to the pressure exerted by the significant others (such as family, friends, relatives, etc.) to perform or not to perform a certain behaviour. Usually, literature divides SN into two component: normative beliefs and motivation to comply. Normative beliefs are the perception of support or rejection of behaviour by the significant others, while the motivation to comply is an individual’s willingness to comply with these norms. The third component of TPB is PBC. It refers to the perception of ease of difficulty in performing the behaviour in question. PBC is similar to the self-efficacy concept coined by Bandura (1977).

In the past, a plethora of research has incorporated and empirically tested the TPB to determine the EI of university students, and TPB was confirmed as a valid predictor of EI when motivating factors are taken into account (Aragon-Sanchez et al., 2017; Lourenço and Jayawarna, 2011). However, the results of these studies vary across different countries and situations based on the antecedents’ importance and the extent of their effects. Remarkable and clear effects of PBC and attitudes towards entrepreneurship (ATE) on students’ EI have been recorded. In terms of SN, an important element in TPB, the results of research are inconsistent and unclear. In addition, most of the past studies showed a week power of prediction of the said factor. There is a significant connection between SN and EI in just two out of six countries in the research conducted by Moriano et al. (2012).

In line with these research findings, Santos-Cumplido and Liñán (2007) recommended that subjective norm (SN) is a particular type of social capital, and hence, might influence other intention antecedents, namely PBC and ATE. In fact, Ajzen (1991) is of the opinion that the three antecedents of TPB may not always affect the prediction of intentions. In a few recent entrepreneurship studies from a social-capital viewpoint, SN really impacted PBC and ATE in a positive manner, and thus, EI indirectly. Consequently, based on the above discussion, we postulate the following hypotheses:

\[ H1. \] EI is positively associated with PBC, SN and ATE.

\[ H2. \] There is a positive impact of SN on EI through ATE.

\[ H3. \] There is a positive impact of SN on EI through PBC.

Entrepreneurial intentions and culture
Cultural values play a very vital role in the way individuals act in a given social context (Solesvik et al., 2014). According to Stedham and Wieland (2017), culture is the inherent system
of values common to a particular society or group. Hence, culture can propel members of a
society to engage in behaviour that might not be that common in some other cultures.

The importance of cultural values in predicting an individual’s cognitive and decision-making
process of starting a new venture is established (Zeffane, 2014). However, very less empirical
work has been conducted regarding measuring the impact of norms and cultural values. Besides,
the results have been inconsistent or ambiguous in the few researches that analysed EI with
respect to culture. While some studies found that entrepreneurship has a positive relation to
cultural values (Krueger et al., 2013; Mueller and Thomas, 2001), other studies have concluded
that the idea cannot uphold that higher level of collectivism will mean a higher level of EI
(Pinillos and Reyes, 2011). The mechanisms that affect how culture impacts entrepreneurship are
not well understood (Bowen and De Clercq, 2008; Hayton et al., 2002).

Correspondingly, past research acknowledges the importance of cultural values in
determining EI (Kirkley, 2016; Pruett et al., 2009). However, the conclusion has not been very
firm as most of the studies were based on Hofstede’s national cultural dimensions. The country
is considered an entire unit in most of these studies, and any person, within-group differences
in cultural values, is not considered. The society members can vary to the extent to which they
adhere to, relate to and act, as per particular cultural norms and values (Cleveland and Laroche,
2007; Cross and Madson, 1997; McCoy et al., 2005). Sometimes members of a collectivist society
appear to work better as individualists than as collectivists, but in contrast, members of an
individualist culture might occasionally perform better as collectivists than as individualists
(Triandis, 1995). Thus, it is not logical to utilize national cultural dimensions at an individual
level (McCoy et al., 2005; Straub et al., 2002).

Dynamic political, social and economic circumstances may change the cultural values over a
period. This is why, researchers have argued that the measurement of cultural values should be
done at the individual level and incorporated into the investigations of perceptions, attitudes
and behaviour in the entrepreneurship domain (Payolle and Luñán, 2014; Payolle et al., 2014).

To summarize, very few studies, up until this point, have examined the effect of cultural
values on EI at the individual level, especially using the TPB framework. Thus, to bridge
this literature gap, the present work engrossed on two important aspects of culture, namely,
collectivism and individualism.

Collectivism and individualism have been used a lot in entrepreneurship research.
Without a doubt, they are part of the most crucial aspects of culture. Thus, they are a part of
the main dimensions along which different cultures vary. The addition of these values in
this research contributes to researchers’ understanding of entrepreneurship and also the
TPB (Franke et al., 1991; Schimmack et al., 2005; Vandello and Cohen, 1999).

Collectivism and individualism were conceptualized as two opposing dimensions of the
culture. However, some researches have shown that these concepts are better understood
and seen as different dimensions along which one culture varies from others, and therefore,
as co-existing dimensions of culture (Oyserman, Coon and Kemmelmeier, 2002; Triandis,
1994; Triandis and Gelfand, 1998).

Empirical studies equally suggest that collectivism and individualism constitute
different attributes at the individual level (Ho and Chiu, 1994; Van Hooft and De Jong, 2009).
This implies that an individual can have both collectivist and individualist tendencies and
traits (Triandis, 1989). More collectivist or individualist manifestations of the self may be
provoked by different situations (Trafimow et al., 1991; Ybarra and Trafimow, 1998). An
individual may have a strong belief in personal independence and initiative, for instance, but
also greatly cherish group sharing and harmony (Trafimow et al., 1991). Hence, collectivism
and individualism should not be evaluated as opposites along a single continuum but as
unrelated characteristics of the person.

The TPB posits that exogenous variables, such as culture, can affect behaviour and
intentions (Prabhu et al., 2012) in two ways. First, external or exogenous variables can affect

the behaviour and intentions of individuals indirectly through their effects on individuals’ attitudes (such as SN, attitude and PBC). What this means is that exogenous or external factors can have mediation impacts. Second, external or exogenous factors can affect how individuals see attitudes as to what determines their intentions. In this study, it has been examined, how cultural values indirectly affect EI through TPB factors.

Mediation effect of ATE, PBC and SN
Inglehart (1997) stated that culture is the set of shared fundamental values that help to shape the behaviour of the members of society. Therefore, one important aspect of culture is values. Values are also crucial when forming attitudes and in the occurrence of behaviour (Dumas and Ter Hofstede, 2001; Homer and Kahle, 1988). They are used as criteria for choices of behaviour, judgements and preferences because they are profoundly established in the person and culture. Values play a very crucial role in the decision-making of humans.

The relationship between behaviour and values has been explained using several developed theoretical approaches. The Cognitive Hierarchy Theory is the foundation for one well-established model (Homer and Kahle, 1988). This theory explains that values affect behaviour, and behavioural intention, affect indirectly attitudes. This means that values are distally related to behaviour, and behavioural intentions, and proximally related to attitudes. The model simply shows that there is a cognitions hierarchy in which, theoretically, the influence moves from more abstract (i.e. values) to a middle range (i.e. attitudes) to less abstract (i.e. specific intentions and behaviour).

Models derived from the Cognitive Hierarchy Theory have been tested in many areas, for example, social psychology (Milfont et al., 2010), consumer behaviour and management research (Shim and Drake, 1990), and environmental studies. Values are widely believed to indirectly affect behaviour and intentions via attitudes (Defever et al., 2011).

According to Soininen et al. (2013), within the field of entrepreneurship, it is shown that the values-attitudes-behaviour framework is also functional. Nonetheless, no comprehensive model in which behavioural intentions, cultural values and attitudes are incorporated to link EI has been formulated and tested, especially in the Pakistani context. This research tries to fill this gap by developing an integrated model of EI. Based on both the Cognitive Hierarchy Theory and TPB, it is hypothesized that attitudes could predict EI, or cultural values could predict the most proximal determinants of attitudes and EI or the more distal determinants of EI.

With respect to the cultural values as a determinant of attitudes, and hence, EI, more attention is paid to the two essential cultural aspects of collectivism and individualism or the association between the collectivity within a given society and the individual. Individualism generally focusses more on the independent self, achievement, uniqueness, personal control and attitudes. The social ties between people in an individualist society are sometimes loose. What motivates individualists includes their own interests, achieving the personal goals they set for themselves and the feeling of pride once the personal goals have been achieved. Collectivism is more interested in group goals, cooperation within the group, social norms and connectedness. Maintaining harmony within the group and meeting the expectations of others are what the collectivist cares about.

Therefore, it could be postulated that individuals who score high on the measuring scale of individualism will be inclined towards their own benefits and personal interests as compared to the ones who score high on collectivism. Since the individuals who score high on collectivism would be more inclined to meeting others’ expectations to maintain harmony, this might lead them to have higher SN than individualists.

According to Park and Levine (1999), attitude towards any behaviour is positively associated with a self-construal score, which is an individual level factor of individualism,
while SN were significantly and positively associated with interdependent scores, that is an essential construct at an individual level in collectivism. Thus, based on the above discussion following hypotheses are formulated:

H4. Individualisms will have a positive effect on EI through ATE.

H5. Collectivism will have a positive effect on EI through SN.

According to Geletkanycz (1997), on the one hand, individualism has the ability to effect PBC or an individual’s confidence to get involved in particular action or behaviour. On the other hand, collectivism can impede the confidence of the individual. Based on the above discussion, it is plausible to expect that individuals who are more inclined towards individualism will display a higher level of behavioural control as compared to those who follow collectivism. Thus, we postulate the following hypothesis:

H6. There is a positive impact of individualism on EI through PBC.

Figure 1 shows the hypothesized relationship among the study variables.

**Research methods**

*Sample and data collection*

The data were collected from 1,100 undergraduates who were enrolled in elective courses on entrepreneurship available at the six public Pakistani higher education institutes. The students were targeted for two reasons. First, it has been shown that students taking such courses are more likely to start a business (Wu and Wu, 2008). Second, final year college students are faced with major career decisions and are known to have a clear understanding of their futures (Krueger and Kickul, 2006; Krueger et al., 2000). The six higher education institutes were traditional universities; they offer graduate and undergraduate degrees in different disciplines; their educational focus is broad, and they were located in the capital of Pakistan. The universities are all subject to the same national rules and regulations.

After getting the cooperation and approval of the lecturers, questionnaires were shared with the students at the start of a class session so that they can voluntarily complete them. The original questionnaire was typed in English. A pilot study was conducted before starting the actual data collection. The total number of questionnaires completed was 979, which represents

![Figure 1. Theoretical model of the study](image-url)
an 89 per cent response rate. The sample was made up of humanities students (47.2 per cent), computer engineering students (20.8 per cent) and agriculture engineering students (32 per cent). The total number of female respondents was 372 (38 per cent).

Measures

The Entrepreneurial Intention Scale was adopted from Leong (2008). This scale was recently validated by Farrukh et al. (2017) in the Pakistani context, the Cronbach’s α value in their study was 0.798. The scale consists of five items. Sample items for this measure are: “I intend to set up a company in the future”, “I will choose a career as an entrepreneur” and “I prefer to be an entrepreneur rather than to be an employee in a company or organization”.

To gather information regarding “ATE” and “PBC”, we adopted a scale developed by Liñán and Chen (2009); while a SN Scale was borrowed from Krueger et al. (2000). The questionnaire items for individualism were taken from Triandis and Gelfand (1998) and for collectivism were taken from Oyserman, Coon and Kemmelmeier (2002), Oyserman, Kemmelmeier and Coon (2002). Items of the measures are given in the Appendix.

Hypothesis testing

Partial least squares (PLS) structural equation modelling (SEM) was used to analyse the data. For running PLS-SEM, we used the SmartPLS software version 3.2.7. PLS-SEM is a powerful technique which has become popular among the social scientists since the last one decade and is widely used in prior studies (Daneshjoovash and Hosseini, 2019; Farooq et al., 2018; Haddoud et al., 2017; Zacca et al., 2017).

In terms of analysis, PLS-SEM is a two-step process involving the assessment of the measurement and structural model (Anderson and Gerbing, 1988). First, the measurement model should be assessed by examining the internal consistency reliability (ICR), convergent validity (CV) and discriminant validity (DV) (Chin, 1998; Hair et al., 2017). ICR measures the degree to which the items measure the latent construct (Hair et al., 2017). This assessment was done through composite reliability (CR) scores. The results indicate that the CR scores of all constructs exceeded the threshold criterion of 0.7 (Hair et al., 2017), demonstrating high internal consistency of the scales used in this study.

Next, factor loadings and average variance extracted (AVE) were assessed to determine the CV of the constructs. The CV is the “extent to which a measure correlates positively with alternative measures of the same construct” (Hair et al., 2017). A factor loading should be 0.708 or higher, and 0.70 is considered close enough to be acceptable (Hair et al., 2017). However, indicators with weaker factor loadings (i.e. 0.40 to 0.70) can be retained if other indicators possess high loadings, and the overall construct should explain at least 50 per cent variance (AVE = 0.50) (Hair et al., 2017). The AVE scores of all constructs also exceeded the threshold value of 0.5, indicating adequate CV. Table I presents the factor loadings, CR and AVE scores.

Another criterion for checking the validity of the construct is DV. DV is “the extent to which a construct is truly distinct from other constructs by empirical standards” (Hair et al., 2017). In this study, DV is checked with the help of Fornell and Larcker (1981) criteria, which states that the square root of AVE value should be higher than the squared correlation with other constructs (Fornell and Larcker, 1981). Results in Table II show that the DV was achieved.

As presented in Table II, the correlations among the latent constructs were compared with the square roots of the average variances extracted (Fornell and Larcker, 1981). Table II further indicates that each of the square root of the average variances extracted has exceeded the correlations among latent constructs. Hence, this suggests that adequate DV has been achieved.
<table>
<thead>
<tr>
<th>LV</th>
<th>Factor loading</th>
<th>Cronbach’s $\alpha$</th>
<th>CR</th>
<th>AVE</th>
</tr>
</thead>
<tbody>
<tr>
<td><em>Attitudes towards entrepreneurship</em></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>ATE1</td>
<td>0.739</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>ATE2</td>
<td>0.772</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>ATE3</td>
<td>0.864</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>ATE4</td>
<td>0.759</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>ATE5</td>
<td>0.845</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><em>Entrepreneurial intentions</em></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>EI1</td>
<td>0.878</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>EI2</td>
<td>0.755</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>EI3</td>
<td>0.769</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>EI4</td>
<td>0.703</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>EI5</td>
<td>0.712</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><em>Perceived behavioural controls</em></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>PBC1</td>
<td>0.732</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>PBC2</td>
<td>0.879</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>PBC3</td>
<td>0.848</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>PBC4</td>
<td>0.785</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>PBC5</td>
<td>0.815</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>PBC6</td>
<td>0.888</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><em>Subjective norms</em></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>SN1</td>
<td>0.771</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>SN2</td>
<td>0.725</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>SN3</td>
<td>0.893</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>SN4</td>
<td>0.878</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>SN5</td>
<td>0.752</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><em>Collectivist</em></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Collectivist1</td>
<td>0.716</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Collectivist2</td>
<td>0.816</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Collectivist3</td>
<td>0.746</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Collectivist4</td>
<td>0.893</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Collectivist5</td>
<td>0.717</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Collectivist6</td>
<td>0.850</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Collectivist7</td>
<td>0.752</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><em>Individualist</em></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Indi1</td>
<td>0.868</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Indi2</td>
<td>0.734</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Indi3</td>
<td>0.777</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Indi4</td>
<td>0.790</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Indi5</td>
<td>0.721</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Indi6</td>
<td>0.755</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Indi7</td>
<td>0.857</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Table I.
Measurement model quality criteria
Assessment of significance of the structural model

After establishing the validity and reliability of the measurement model, the results of the structural model are then presented. In the current research, a bootstrap resampling method has been applied based on 5,000 replicates, and 300 cases, to assess the significance of the path coefficients (Hair et al., 2017; Henseler et al., 2009). $R^2$ measures the predictive accuracy of the model (Ang et al., 2015) and represents the percentage of variance in the dependent variable(s) as explained by the independent variables in a model (Hair et al., 2017). Whereas, path coefficients indicate the degree of change in the dependent variable for each independent variable (Hair et al., 2017; Pallant, 2010).

After assessing the measurement model, the significance of the path coefficient was analysed with the help of a bootstrapping function of SmartPLS to test the hypothesis. Table III shows the results. $H1$ was fully supported, this suggests that the TPB can predict EI. $H2$ and $H3$ were also supported, suggesting that there is a significant effect of SN on EI through PBC and ATE.

Mediation analysis

Next, the bootstrapping technique, as suggested by Hair et al. (2017), was used to test the significance of the indirect effect. Bootstrapping does not make any assumption about the sampling distribution of the statistics or the distribution shape of variables; moreover, it can also be used for a small sample size with confidence. Thus, a bootstrapping approach for testing indirect effect is perfectly suitable for the PLS-SEM method (Hair et al., 2017).

Results in Table IV show that PBC and ATE mediated the association among individualist cultural values and EI, and SN mediated the relationship between collectivist cultural values and EI. According to Hair et al. (2017), if both the direct and indirect effects are significant and point in the same direction, the type of mediation would be complementary mediation. Hence, in the present study, mediation would be counted as complementary mediation.

Discussion

The main goal of the study was to incorporate two cultural values, namely individualism and collectivism, in TPB to investigate the EI of students in Pakistan. The findings of $H1$ showed that motivational factors of TPB, such as ATE, PBC and SN, have a significant and positive impact on EI. Out of the three factors of TPB, SN were the strongest predictor of EI. The reason for this could be the effect of collectivist values of the Pakistani culture. Pakistan, with a very low score of 14, is considered a collectivistic society (Insights, 2018). The decision to start a new venture is an important decision, which is most likely to be influenced by parents and peers. $H2$ and $H3$ were also supported as the SN showed a significant and positive impact on EI.
on EI through ATE and PBC. The reason for this association lies in the values of Pakistani culture. When some individuals feel that those closest to them are in favour of starting a new venture, their attitude and self-confidence (PBC) increase. Results of SmartPLS bootstrapping showed that ATE, PBC and SN mediated the association between cultural values and EI. Individualist values influenced EI via PBC and ATE while collectivist influenced via SN. From these findings, it can be concluded that individualist values enhance students’ self-confidence and attitude while collectivists are more prone to social context.

Study contributions

Theoretical contributions

The findings of this paper endorsed the TPB and its implications in knowing the antecedents of EI in a collectivist culture. Moreover, the study also showed that the antecedents of behavioural intention play a significant role in forming EI. Additionally, the findings revealed that the extent of the contributions of these variables could vary across different cultural backgrounds and situations. The investigation of cultural values at the individual level, and integrating these values in TPB, contributed to researchers’ understanding of antecedents of EI. The results of the present work also endorsed the Cognitive Hierarchy Theory by showing the flow of influence from abstract and stable values to domain-specific and concert attitude towards EI. Lastly, our findings also supported Self-Construal Theory and Bontempo and Rivero’s (1992) cultural variation in cognition by endorsing that TPB produces different results depending on the cultural orientations.

Managerial contributions

The findings from this study confirm the importance of the individual’s ATE, SN and PBC in nurturing EI. Thus, it is recommended that entrepreneurial education programs should focus on finding ways to enhance these motivational factors. Past researchers claimed that PBC or self-efficacy can be learned and it can be developed over time (Erikson, 2003; Wakkee et al., 2010).

Our findings also suggest that practitioners and educators should espouse action-learning approaches to enhance entrepreneurial skills and intentions of the students. Moreover, some role models may also be incorporated into entrepreneurial courses. According to Karimi et al. (2013), these role models can enhance the confidence of the students to become entrepreneurs.

The results of this study revealed a positive assertion between SN and EI. Thus, it is suggested that policymakers should come up with such policies, which might enhance the awareness and importance of entrepreneurship. As SN significantly influenced the ATE and PBC, it is plausible to expect that the behaviour of students is affected by their closest social circles, such as family, friends and peers. Therefore, increasing awareness about the significance and importance of entrepreneurship is very vital.

As this study was conducted in Pakistan, Islam is the main religion of the people of Pakistan, and the teachings of Islam as postulated by Solaiman and Hillaly (1997) such as faithfulness, perseverance, hard work, focus, foresight, etc., are the attributes of entrepreneurs. There are similarities between the teachings of Islam and entrepreneurship; guides towards striving to survive through hard work, perseverance, foresight and independence (self-employment) in order to earn a living (create wealth) rather than lean on others (salary, jobs). The latter labels the aforementioned qualities as to what makes up an entrepreneur (Azim, 2008; Isa and Shitu, 2015). As a matter of fact, doing business or entrepreneurship is part of Islamic culture (Gursoy et al., 2017; Hoque et al., 2014; Muhammad et al., 2017; Riaz et al., 2016). Policymakers should consult Islamic scholars and religious leaders to consolidate an entrepreneurial curriculum to increase awareness; this could help in promoting entrepreneurship, which will ultimately help in poverty alleviation.
Moreover, government officials and policymakers should encourage business startups by providing some sort of subsidies. This could also increase awareness of entrepreneurship. As a result, more positive SN will be developed. Ultimately, these positive SN will lead towards having a positive ATE and higher PBC. Furthermore, students should be given exposure to entrepreneurial practices, such as teamwork and building a network, with likeminded and entrepreneurial-minded peers in results SN could be improved.

Since cultural values are acknowledged as an antecedent of EI, regardless of whether individualism or collectivism is in question, educational institutes should take this into concern while developing entrepreneurial programs. Both collectivism and individualism affect the antecedents of behaviour differently, and individualism plays a very vital role in the motivational antecedents of entrepreneurship. Universities should consider this knowledge, and hence, encourage the development of individualist values that play an important role in entrepreneurship, such as an adjustment towards autonomous thinking, independence and achievement.

Limitations and directions for future research
Like many other studies, this research is also subject to a few limitations. The first limitation is related to the sample selection. The sample for this study consisted of students who were already taking entrepreneurial programs at public universities. Therefore, it is suggested that future studies should incorporate students from private universities as well as from different educational backgrounds.

Second, the current research only focussed on two cultural values, namely collectivism and individualism, and ignored other values, such as power, distance and uncertainty. Avoidance at the individual level should be incorporated in the TPB and other EI models. Furthermore, the cultural values proposed by Schwartz (1999) can also impact the EI of individuals. Thus, we suggest integrating these values in an EI model. Furthermore, this study did not test the relationship of collectivist with entrepreneurship through PBC and ATE, future research should be conducted to validate these associations.

The third limitation is in regard to the timeframe, as this study was cross-sectional. Therefore, it may not provide a precise cause and effect relationship between cultural values and EI. To have a better understanding of the impact of culture on EI, a longitudinal study is, therefore, suggested.

Finally, we only investigated the effect of cultural values in one country/culture; therefore, a multi-country study can be conducted to have more generalizable results. Moreover, religious affiliation could also change an individual’s way of behaving. Therefore, it is also suggested to integrate religious differences or religiosity in intentional models. Additionally, a study in a multi-cultural country, such as Malaysia, is also recommended.

References


**Appendix. Questionnaire items**

1. **Entrepreneurial intentions**
   - I prefer to be an entrepreneur rather than to be an employee in a company or organization.
   - I will choose a career as an entrepreneur.
   - I intend to set up a company in the future.
   - I have a very serious thought in starting my own firm.
   - I will make every effort to manage my own firm.

2. **Attitudes towards entrepreneurship**
   - Being an entrepreneur would entail great satisfactions for me.
   - I believe that if I were to start my business, I will certainly be successful.
   - I'd rather be my own boss than have a secure job.
   - A career as entrepreneur is attractive for me.
   - Being an entrepreneur implies more advantages than disadvantages to me.

3. **Perceived behavioral controls**
   - To start a firm would be easy for me.
   - To keep a firm working well is easy for me.
   - I know how to develop an entrepreneurial project.
   - If I tried to start a firm, I would have a high probability of succeeding.
   - If I want, I could become self-employed after my studies.
   - To start my own firm would probably be the best way for me to take advantage of my education.
(4) Subjective norms:
- My parents are positively oriented towards my future career as an entrepreneur.
- My friends see entrepreneurship as a logical choice for me.
- I believe that people, who are important to me, think that I should pursue a career as an entrepreneur.
- In my University, students are actively encouraged to pursue their own ideas.
- There is a well-functioning support infrastructure in my University to support the start-up of new firms.

(5) Individualism:
- I’d rather depend on myself than others.
- I rely on myself most of the time; I rarely rely on others.
- I often do “my own thing.”
- My personal identity, independent of others, is very important to me.
- It is important that I do my job better than others.
- Winning is everything.
- When another person does better than I do, I get tense and aroused.

(6) Collectivism:
- I would help, within my means, if a relative were in financial difficulty.
- I would rather do a task in a group than do one alone.
- It is my duty to take care of my family, even when I have to sacrifice what I want.
- Before making a decision, I always consult with others.
- To me, pleasure is spending time with others.
- It is important to me that I respect the decisions made by my groups.
- I feel good when I cooperate with others.

Corresponding author
Muhammad Farrukh can be contacted at: mfarrukhiqbal@cybermed.edu.my

For instructions on how to order reprints of this article, please visit our website:
www.emeraldgrouppublishing.com/licensing/reprints.htm
Or contact us for further details: permissions@emeraldinsight.com
Identification of entrepreneurial education contents using nominal group technique

Sumita Srivastava and Kanika Satsangi
Department of Management, Dayalbagh Educational Institute, Faculty of Social Sciences, Agra, India, and
Nandita Satsangee
Department of Foundations of Education, Dayalbagh Educational Institute, Faculty of Education, Agra, India

Abstract

Purpose – The purpose of this paper is to identify the elements of education and training intervention that facilitate occupational transition intentions of undergraduates and encourage them to opt for entrepreneurial pursuit.

Design/methodology/approach – The study, conducted in India, employed the nominal group technique (NGT) – a systems science technique – which considers that users are experts and they must participate in the decision-making process. The application of NGT involved a workshop format; 15 domain experts participated in the workshop. Throughout the process, a democratic process was followed to avoid individual dominance and premature focusing on a single idea.

Findings – The study obtained 63 responses from experts for effective entrepreneurship education in India. The responses were reduced to seven elements after a few thematic iterations. These elements were then segregated into content (knowledge, skills and attitude) and learning interaction on the basis of experts’ responses. An initial draft of the course based upon the elements identified through NGT is presented in this paper.

Originality/value – This study is unique and different from previous research on entrepreneurship education in several ways: It takes cognizance of multiple stakeholders; It provides a theoretical framework along with empirical groundwork; It suggests curriculum contents that have contextual as well as universal relevance. This paper contributes to the emerging dimensions of entrepreneurship literature, which implies a shift from understanding a well-established Western context of entrepreneurship research to transitional societies from the East.

Keywords Entrepreneurial intention, Systems science, Curriculum development for entrepreneurship, Elements of entrepreneurship course, Entrepreneurship in India

Paper type Research paper

Background of the present study: the project

Prior to the present curriculum development exercise, the authors conducted extensive empirical research (henceforth mentioned as the project). The broad objective of the project was to design globally relevant curriculum contents for educational and training interventions suitable for potential entrepreneurs among undergraduate students in India. The project involved three sequentially interconnected stages: need analysis; content identification; and content development and validation. This paper is an outcome of the second stage of the project.

The research reported in this paper is unique in its methodological approach and contribution to the development of entrepreneurship educational program for undergraduate students in India.
The need analysis stage in the project involved data collection from various stakeholders of entrepreneurship education that included undergraduate students (n = 500), entrepreneurs (n = 20) and field experts (n = 10).

Undergraduate students completed Linan and Chen’s (2009) Entrepreneurial Intention Questionnaire Version No. 2 (EIQv2). Linan and Chen’s (2009) extensive work on the application of the theory of planned behavior (Ajzen, 1991) to entrepreneurship led them to develop an entrepreneurial intention model described under the theoretical background below. They hypothesized that human capital and other demographic variables affect three constructs, namely, personal attitude, subjective norm and perceived behavioral control. Based upon the entrepreneurial intention model, the 31-item EIQv2 is divided into ten subsets. Subsets 3–6 of EIQv2 correspond with the model while Subsets 1, 2, 8, 9 and 10 require data on education and experience, entrepreneurial knowledge, entrepreneurship education, personal details and contact information of respondents, respectively.

Entrepreneurs and field experts provided responses to structured interview questions designed by the authors of the project. The next section presents a short summary of the findings from the need analysis stage of the project.

Summary of findings of the project
About 80 percent of undergraduates responded that they never seriously thought about entrepreneurship as their career choice. Their professional attraction toward entrepreneurship seemed to be quite low. They reported a mixed social valuation of entrepreneurship. According to them, entrepreneurs were well recognized in society, yet they were not sure about getting the approval of their family and friends if they decided to pursue entrepreneurship. They perceived a high probability of risk in setting up their enterprise. Regarding the status of entrepreneurship knowledge, undergraduates were least aware of business associations and support bodies, and had never heard about business development centers and consulting services.

Interaction with entrepreneurs also revealed a need for building professional attraction toward entrepreneurship. Entrepreneurs also identified the need for specific training for opportunity recognition and setting up an enterprise. Interaction with field experts also revealed similar findings.

To summarize, the authors of the project identified the following thrust areas around which course content of entrepreneurship education should be generated in a stage-wise manner: the entrepreneurial intention building stage and the enterprise setting stage.

The findings of the project, partially reported by Srivastava and Nigam (2017), are consistent with earlier work (Wilson et al., 2007; Zhao et al., 2005) and have significant implications for entrepreneurship education in India.

This paper elaborates and reports the findings of the content identification phase of curriculum design, the second stage of the project as indicated earlier. The stated objective of the second stage was to generate elements (content and skill areas) of entrepreneurship education based upon the findings of the need identification stage.

Curriculum design encompasses three elements – content, learning interactions (LI) and assessment (Biggs, 1999). Content, which refers to knowledge, values, skills and attitudes that learners should develop, answers the question – “What to learn?” LI involves the pedagogy of learning and answers the question – “How to learn?” The assessment provides feedback to gauge learning. The present research focused primarily on the first element of curriculum development, i.e. content. LI and assessment constitute the future scope of the study. It may be noted that this paper uses the terms “elements” and “contents” of entrepreneurship education interchangeably.

The paper is organized as below: in the next two sections, we present the review of the literature and theoretical background of the present research. The section on methodology
provides the design of the study, data collection procedure and analysis, and analysis of results. A discussion of results and conclusion of the study follow the section on methodology in the stated order. The final section indicates directions for application and future research along with the limitations of the present study.

**Review of literature**

The review of literature presented here focuses on three aspects related to entrepreneurial education: entrepreneurial intention, content and pedagogy and cultural adaptation of entrepreneurial education.

The literature identifies that the objective of entrepreneurship education is to trigger, inspire and arouse emotions in, and change the attitude of, people toward entrepreneurship (Al-Laham et al., 2007; Luthje and Franke, 2003). Extant management literature is full of evidence that discusses the role of entrepreneurship education in shaping the mindset and thought process of youth (Ede et al., 1998; Hansemark, 1998; Hatten and Ruhland, 1995; Omolayo, 2006) with special reference to economies where social valuation of entrepreneurship is perceived to be low (Kourilsky and Walstad, 1998; Shukla and Awasthi, 2001; Walstad and Kourilsky, 1999).

A recently unified framework of entrepreneurship education indicates that research on entrepreneurship education now focuses more on the attitude changing perspective of students than on the simple start-up view (Mwasalwiba, 2010). The identification of the moderators of entrepreneurship education and business start-ups (Frese et al., 2012) and adoption of a contingent approach to examine the benefits of entrepreneurship education for the society and nation building (Martin et al., 2013) provide significant developments in entrepreneurial studies.

Investigation of the connection between entrepreneurship education and entrepreneurial intention building has been the focus of some recent studies. Literature indicates mixed findings on the relationship between entrepreneurship education and entrepreneurial intention. The relationship, based on a meta-analytic study, was found to be weak though significant (Martin et al., 2013). Some other studies indicate a significant relationship (Bae et al., 2014; Hattab, 2014). In a quasi-experimental design, Sanchez (2011) offered an entrepreneurship program to an experimental group to validate the impact of entrepreneurship program on entrepreneurial intention. The study reflected that the program had a high impact on participants’ competencies and entrepreneurial intention. Sanchez’s findings made a significant contribution to the theory of planned behavior and to the literature on entrepreneurship education. Fayolle and Gailly (2013) discovered that entrepreneurship education positively affects the entrepreneurial intentions of students with negligible previous entrepreneurial exposure.

A large number of studies in the recent past have focused on the content and pedagogy (LI) of entrepreneurship education and offered a plethora of suggestions. A balanced entrepreneurship education program should include lectures on business concepts, business planning practices, interaction with practitioners for networking opportunities and university support. University support comprises provisions such as market-research resources, meeting space, seed funding, patenting advice *inter alia* (Al-Laham et al., 2007). Entrepreneurship education should focus on opportunity recognition (Rae, 2003). It comprises skill-building courses in creative thinking, negotiation, leadership, new product development and exposure to technological innovation (McMullan and Long, 1987; Vesper and McMullan, 1988). Some other areas that contribute to entrepreneurial education are awareness of entrepreneurial career options (Donckels and Frohlich, 1991; Hills, 1988), sources of venture capital (Vesper and McMullan, 1988) and ambiguity tolerance (Ronsonstadt, 1987). Sirelkhatim and Gangi (2015) discussed three generic themes of entrepreneurship education: theoretical orientation, practical orientation and new venture creation. On the one hand, theory courses are designed
to create awareness (Piperopoulos and Dimov, 2014) that aim to present entrepreneurship as a potential career choice. On the other hand, practical courses encourage entrepreneurship intentions of aspirants (Fayolle and Gailly, 2013). New venture creation provides support to develop entrepreneurial competencies (Bridge et al., 2010; Lundqvist and Williams, 2013). Business plans and conventional business management courses such as marketing and financial management are the most frequently discussed topics for the theoretical foundation of entrepreneurship (Honig, 2004; Kuratko, 2005; Solomon, 2007). Skill-based approaches are used in practical courses (Bennett, 2006). Such courses use simulation, learning by doing and role plays (Honig, 2004; Fayolle and Gailly, 2013; Piperopoulos and Dimov, 2014; Vincett and Farlow, 2008). Incubation and internships are the other experiential learning methods (Chang and Rieple, 2013; Klapper and Tegtmeier, 2010; Vincett and Farlow, 2008; Wang and Verzat, 2011).

A few recent studies have explored another set of relevant aspects of entrepreneurship education. These studies cover significant issues like the cultural adaptation of entrepreneurship education, the role of facilitator, learning methods, processes and approaches and emerging interventions of entrepreneurship education among other aspects. The paragraph below presents a review of some of those studies.

Ojala and Heikkila (2011) observed that training programs were originally designed for the USA and were not fully adopted for Finnish entrepreneurs who preferred to groom their business in a more controlled and profitable manner. They suggest that training programs should be culturally adapted. Therefore, although knowledge-intensive new ventures operate in global environments, the training provided to them should accommodate cultural differences and the local ways of doing business. Pretorius et al. (2005) presented an integrated model for entrepreneurial education. They suggested that research should focus on three major aspects: facilitation of skills, entrepreneurial and business experience of existing facilitators and business advisers who act as potential mentors. Dodescu and Badulescu (2010) investigated some aspects of entrepreneurship education and training in Romania with a focus on women who were trained in two learning modules – business start-up and business development. They based their modules on action learning method, which refers to creating learning situations with and from the others. Proposing a dynamic linear model of entrepreneurial performance in South Africa, Vuuren and Nieman (2014) discuss possible curriculum of a degree in entrepreneurship. They present three sets of skills required in entrepreneurship education, namely, performance motivation, entrepreneurial skills and financial skills.

Presenting a bibliographic survey of entrepreneurship education, Kakouris and Georgiadis (2016) inferred that quantitative data-based findings verify the customary picture of entrepreneurship education. Their study also revealed that life-long learning methodologies, vocational training and career counseling were not evident in the literature. Overall, their report highlights the absence of advanced learning processes in entrepreneurship education. In order to understand the effect of mass media on entrepreneurial aspirations, Zampetakis et al. (2015) explored the design features of short films for the effective promotion of entrepreneurship among Greek students. The results are particularly useful in designing entertainment-education programs for entrepreneurship orientation among youth. Qureshi et al. (2016) describe how interventions during a business plan competition workshop influence the relationship between personality, intellectual capital, entrepreneurial skills and entrepreneur identity aspiration of the participants. They found that the business plan exploration had a positive impact on both psychological characteristics and the intellectual capital of a person. Katz et al. (2014) proposed a model curriculum that should be implemented in consonance with emerging standards in business schools in the USA. Haase and Lautenschlager (2011) present conceptual research on the teachability of entrepreneurship. Their study highlights the significance of the experiential
learning approach for entrepreneurship education. They emphasize the role of entrepreneurship educator who should act like a promoter, facilitator and manager than being a teacher.

It is evident from the brief yet contextual review of literature presented above that research on entrepreneurship education is currently multidimensional. It is at an exploratory stage and far from being conclusive. Specifically, research on contents of entrepreneurship education reflects an overlap of pedagogy (LI) with contents. Presently, entrepreneurial researchers are engaged in research that focuses on the methodology of entrepreneurship education in different cultural contexts. In the above backdrop, the identification of contents of entrepreneurship education for emerging economies is called for. With its present developmental scenario, India is definitely a potential venue for entrepreneurial research.

**Theoretical background of the study**

This research draws from two theoretical models that are connected with entrepreneurship education. These models are the entrepreneurial process model (EPM; Linan, 2007) and the model of entrepreneurial intentions (EIM; Linan and Chen, 2009) based upon the theory of planned behavior (Ajzen, 2001). These theoretical models form the basis of the project summarized toward the beginning of this paper. A brief description of the models follows.

Figure 1 presents the EPM (Linan, 2007) as adapted from Singh et al. (1999). Linan (2007) used EPM to elaborate on the role of entrepreneurship education in the entrepreneurial process.

EPM encompasses three stages of the entrepreneurial process (see Figure 1). These stages are the opportunity recognition stage, the new venture creation stage and the dynamic firm stage. Linan (2007) suggested that meaningful interaction with the environment was essential for an individual to actually recognize an opportunity and create a new venture. An individual’s interaction with the environment leads to intention building, which in combination with opportunity recognition skills and specific local knowledge of the individual leads to the second stage of the new venture creation. Entrepreneurs prepare to start their own venture and continue to develop local knowledge. The new venture, local knowledge and business planning skills then overlap to move the venture into the third stage, the stage of a dynamic firm. In the most matured stage of the entrepreneurial process, dynamic firm entails the development of dynamic behavior once the firm is in operation. The entrepreneur can now focus on areas such as international business management and structuring business organization.

![Figure 1. The entrepreneurial process model (EPM)](image)
The research reported in this paper focuses on the identification of elements of entrepreneurship education and is restricted to the initial two stages of EPM (Figure 1). This focus corresponds to the current thrust areas of entrepreneurship in India (Srivastava and Nigam, 2017).

The model of entrepreneurial intention (EIM; Figure 2) focuses on an individual’s internal processes and interaction with the environment that build entrepreneurial intention (Linan and Chen, 2009). EIM has roots in the theory of planned behavior (Ajzen, 1991) which suggests that three elements (antecedents) – attitude toward behavior, subjective norms and perceived behavioral control – affect intentions. There is a wide support in the literature for the connection between the theory of planned behavior and entrepreneurial intentions (Kautonen et al., 2011, 2015; Krueger and Carsrud, 1993; Van Galderen et al., 2008).

Personal attitude refers to the positive or negative feelings that an individual may hold for entrepreneurship (Ajzen, 2001; Autio et al., 2001; Kolvereid, 1996). Social norms measure the perceived social pressure for entrepreneurship. Perceived behavioral control reflects an individual’s perception of the ease or difficulty in becoming an entrepreneur. Perceived behavioral control is similar to the concept of self-efficacy (Bandura, 1997) and perceived feasibility (Shapero and Sokol, 1982). Personal attitude, social norms and perceived behavioral control contribute toward the sense of capacity to become an entrepreneur and hence affect the entrepreneurial intentions of an individual.

To get a perspective, a sojourn to the background of the curriculum development process will be useful. This research is based on a survey of varied theoretical perspectives on curriculum development. Two predominant approaches that emerge in curriculum development are the product approach (Bobbitt, 1928; Taba, 1962; Tyler, 1949) and the process approach (Stenhouse, 1975). The product approach focuses on plans and intentions whereas the process approach focuses on activities and learning as the fundamental concern. This research follows an eclectic approach combining these two approaches of curriculum development (Nunan, 1988).

**Research methodology**

The study adopted the nominal group technique (NGT) to identify the elements of entrepreneurship education. NGT is a systems science technique that studies interdisciplinary systems in general. Systems scientists believe that the problems of the
real world (that include socio-economic problems too) can be solved through integrative and holistic thinking (Satsangi, 2009). Several researchers innovatively apply systems approach in fields like literary systems, social sciences, spiritual systems (Dayal and Satsangi, 2008; Dayal and Srivastava, 2008; Satsangi, 2008; Satsangi and Sahni, 2008), supply chain management (Faisal et al., 2007) and security management (Srivastava, 2014).

NGT employs a process similar to structured brainstorming that takes the advantage of experience, competence and feelings of participants. It is based on the second-generation system design paradigm, which considers users as experts who must participate in the decision-making process. In perspective, NGT takes the advantage of domain experts in a structured manner to obtain solutions to very complex issues with least possible inputs or efforts. This process enables a small group to reach consensus in a structured way. NGT avoids premature focusing on a single idea and allows members to discuss and disagree without argumentation.

A nominal group is a group in which the participants work independently but in the presence of each other. It differs from an interacting group where there is a discussion between the participants. A moderator is also present in NGT. The moderator’s role is very important throughout the process of NGT in facilitating group consensus in a democratic way by controlling individual dominance. NGT task involves the ranking of items by the group. Ranking is the process of weighing one item against others and then ordering the items by weight on a scale such as importance or priority.

The general procedure of NGT involves following sequence of activities: first, participants individually identify objectives of the collaborative task and generate elements in writing. Second, the moderator reads out those elements and records them on a flip chart. Third, the group discusses for further clarity by identifying, merging, deleting and adding elements generated through the earlier steps. Fourth, the group assigns importance to each idea (rank) through preliminary voting by individuals. Fifth, participants receive the results of rank ordering of each element. Sixth, the group works toward final agreement and consensus on the elements. The outcome of this process is the mathematical aggregation of each member’s preferences so that elements with the higher total ranking are selected.

A discussion of the appropriateness of NGT for the identification of curriculum contents is in order at this stage. Perry and Linsley (2006) describe NGT as an evaluative method, which combines quantitative and qualitative approaches. NGT is identified as a useful approach when potentially complex qualitative issues are discussed. Carney et al. (1996) highlight NGT as a constructive methodology for exploring education, policy and research. NGT’s grand advantage is its engaging nature by involving a non-hierarchical group that ensures equal voice and equal validity of individual participants. It is a time-efficient method for data collection (Potter et al., 2004) with a possible group size up to as large as 200. Most studies suggest small group size as optimal: 5–9 participants (optimal: Van de Ven and Delbecq, 1971); 9–12 (good enough to yield desired outcome: Allen et al., 2004); 6–12 (ideal group size: Harvey and Holmes, 2012). Small group size is manageable, yet allows generation of a multitude of data.

In NGT, members of the nominal group are considered as domain experts who are the stakeholders of the issue under consideration. In the light of the above exposition, this study employed 15 stakeholders of entrepreneurship education with the following distribution and related consideration to constitute the nominal group: first, first-generation entrepreneurs (8), they got the highest preference for inclusion as they are engaged with, and understand the ground reality of, socio-economic aspects of the issue. Second, experts from industry (2), they have their own, unique perspective of the market. Third, members from academia (3), with teaching and research experience in entrepreneurship and business management, they can be considered as experts in curriculum development exercise. Fourth, undergraduate students (2), students in the final
year class of business administration who are exposed to business management and entrepreneurship subjects who added user’s perspective to the group.

Data gathering proceeded in a workshop mode. The workshop mode offered an opportunity to interactively collect and analyze data in a continuous manner. Following subsections summarize findings of the six steps the workshop followed to generate essential elements of entrepreneurship education and classification of elements into contents.

1008

Generation of essential elements

**Step 1**
One of the authors of this research played the role of moderator. The moderator called the group to order, made a presentation to introduce the theme of the workshop, provided a brief background of the study and distributed a prewritten concept note to the experts. The moderator also described the task that the experts had to carry out. The statement of task was in the form of an objective: “to identify the elements of a course for encouraging undergraduates for entrepreneurial pursuits.”

**Step 2**
After communicating the objective of the workshop, the moderator asked the experts to individually think and identify the elements of entrepreneurial education encompassing previously discussed thrust areas. The total time allotted for this exercise was 10 min. Experts wrote down on a note pad the elements that came to their mind.

**Step 3**
As the next step, the moderator started the process of recording the elements identified by each expert on a flip chart. The pooled list of elements contained 63 elements. Column number 2 in Table AI presents the 63 elements that the experts identified through individual exercise.

**Step 4**
The moderator transferred the data from the flip chart to an excel sheet and distributed print out of the excel sheet (Table AI) to the participants who worked individually to see if they could add new elements to, or merge or delete some elements from, Table AI (columns 1 and 2 only). With a common consensus, the group deleted two elements (Nos 33 and 42, Table AI) and finally identified 16 elements/themes after merging various elements. The group changed the name of element Nos 50 from “problem solving” (Table AI) to “problem solving and business exercises” after merging elements Nos 47, 48 and 49 (Table AI) with the same. All other mergers retained the original name that was appropriate to the combination of the themes. Table AII presents the 16 elements finally produced by the group.

**Step 5**
Domain experts individually ranked the 16 elements obtained after merger and deletion (Table AII) from 1 (most important for entrepreneurial education) to 16 (least important for entrepreneurial education). The group finally ranked the elements in a pool comprising top-3 ranked elements selected from individual rankings. The final list contained 12 elements that found entry into the pool; 4 elements did not enter the pool. Each element was then assigned a weight based on its rank. The moderator used a scale of 1–5 to conduct this exercise. The highest weight of 5 was assigned to an element if a participant gave it Nos 1 rank. Aggregate score of each element was calculated after assigning corresponding weights. Table I presents the 12 elements finally identified with their respective ranks. Table AI identifies the four items that the experts dropped and do not contribute to the further discussion of results.
Step 6
Domain experts scrutinized the elements in Table II with the option to change ranks of the selected elements. The group unanimously agreed to consider the elements without a change in rank order and retain only top-ranking seven items (identified with an asterisk (*) in Table I) as essential to entrepreneurship education.

Classification of essential elements into content categories
Based upon the final outcome of the NGT workshop, the further analysis focused on understanding the nature of identified the elements of entrepreneurship education. As per the above discussion, each of the final seven elements included several sub-elements. As previously discussed in the introductory section of this paper, there are three elements of curriculum designing – content, LI and assessment. The focus of this study is on the identification of contents of entrepreneurship education. Therefore, the terms “element” and “content” have been interchangeably used in this paper.

Further analysis of the data revealed that the nominal group participants could not restrict themselves to generate only contents of the curriculum; they also suggested a few elements, which were indicative of LIs (pedagogy). Learning-interaction elements entail “how to learn” rather than the content that answers “what to learn.” In order to understand this further, domain experts of curriculum development (n = 05) segregated the identified elements further into content (C) and/or LI. The domain experts not only divided the elements into content and LI but also further classified contents into knowledge (C(K)), skill (C(S)) and attitude (C(A)). To develop a comprehensive understanding of the elements and control the bias of experts, domain experts classified all 63 elements into these categories. All except three elements (categorized as “O”) got neat classification into the above categories. Column 3 in Table AI indicates the suggested category of each element.

Challenges faced during the NGT exercise
As pointed out under the description of NGT above, the role of the moderator is very crucial throughout the process of NGT. NGT is one of its kinds of an exercise in which individual opinions are taken but the output is achieved through group consensus. The moderator faced the real challenge in convincing the domain experts to go through the

<table>
<thead>
<tr>
<th>S.No.</th>
<th>Original element number (before rank ordering)</th>
<th>Element</th>
<th>Rank ordering by the experts</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>9</td>
<td>Idea generation*</td>
<td>1</td>
</tr>
<tr>
<td>2</td>
<td>10</td>
<td>Leadership activity*</td>
<td>2</td>
</tr>
<tr>
<td>3</td>
<td>4</td>
<td>Attitude*</td>
<td>3</td>
</tr>
<tr>
<td>4</td>
<td>6</td>
<td>Practical exposure*</td>
<td>4</td>
</tr>
<tr>
<td>5</td>
<td>7</td>
<td>Start-up success stories*</td>
<td>5</td>
</tr>
<tr>
<td>6</td>
<td>50</td>
<td>Problem solving and business exercises*</td>
<td>5</td>
</tr>
<tr>
<td>7</td>
<td>12</td>
<td>Observation and learning skills*</td>
<td>7</td>
</tr>
<tr>
<td>8</td>
<td>1</td>
<td>Social support system (loss-bearing capacity)</td>
<td>8</td>
</tr>
<tr>
<td>9</td>
<td>3</td>
<td>Networking skills</td>
<td>9</td>
</tr>
<tr>
<td>10</td>
<td>13</td>
<td>Basics of self-employment and entrepreneurship</td>
<td>9</td>
</tr>
<tr>
<td>11</td>
<td>16</td>
<td>Feasibility</td>
<td>9</td>
</tr>
<tr>
<td>12</td>
<td>11</td>
<td>Ethics</td>
<td>12</td>
</tr>
</tbody>
</table>

Note: *Indicates the final elements that the domain experts unanimously retained as essential to entrepreneurship education

Source: Self-constructed by the authors

Table I. Final list of elements with their ranks (Step 5)
pre-defined structure/stages of the NGT. Domain experts wanted to reach the final stage with the pre-conceived notion of being an expert on the subject and wanted a desirable outcome during the initial stage only. In particular, Step 4 was quite challenging for the moderator. Step 4 required classifying individually identified elements into appropriate common elements connoting a dimension of the individual elements. The moderator faced resistance from domain experts when their ideas were merged with ideas of other experts. The moderator employed cognitive-participative interaction with the participants to overcome the resistance.

Results and discussion
In the workshop, participants individually identified 63 elements of entrepreneurship education in India, the group dropped some elements, merged the remaining elements into 12 broad themes and finally retained seven elements after a few iterations. The group unanimously decided that the seven elements need not necessarily be considered in any hierarchical sequence while designing the course contents. The group’s main consideration

<table>
<thead>
<tr>
<th>S.No.</th>
<th>Theme</th>
<th>Attitude</th>
<th>Knowledge</th>
<th>Skill</th>
<th>Learning interaction</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Idea generation</td>
<td>Creativity</td>
<td>Blue ocean strategy</td>
<td>Out of the box thinking</td>
<td>Innovative ideas</td>
</tr>
<tr>
<td></td>
<td></td>
<td>freedom of thought</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Open-mindedness</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>flexibility</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2</td>
<td>Leadership activity</td>
<td>Initiative</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>3</td>
<td>Attitude</td>
<td>Achievement</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>motivation</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Ambiguity resolution</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Passion and pride for work</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>4</td>
<td>Practical exposure</td>
<td>Hands-on skills</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>development</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>5</td>
<td>Start-up success stories</td>
<td>Attraction</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Table II.
Themes of entrepreneurship education and their inherent characteristics (contents) (self-constructed by authors)

<table>
<thead>
<tr>
<th>S.No.</th>
<th>Theme</th>
<th>Attitude</th>
<th>Knowledge</th>
<th>Skill</th>
<th>Learning interaction</th>
</tr>
</thead>
<tbody>
<tr>
<td>6</td>
<td>Problem solving and business exercises</td>
<td>Lateral thinking</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>7</td>
<td>Observation and learning skills</td>
<td>Identifying traits of entrepreneurship</td>
<td>The identification of gaps in services/products/ Business environment</td>
<td>Environment scanning Communication and listening skills Continuous learning</td>
<td>Management by walking around</td>
</tr>
</tbody>
</table>
was that the ranks of the elements only identified, assessed and prioritized their preferential suitability over other elements; ranks do not indicate their preferential sequencing in the course. Therefore, the sequence of the elements was irrelevant for designing the curriculum on entrepreneurship education. As discussed below, the entire NGT process helps in designing the course on entrepreneurship education.

Table II presents a comprehensive overview of the generated themes and their inherent characteristics (contents) derived from Table AI to facilitate the discussion of the present results and work toward a proposal for a course on entrepreneurial development.

To be brief, we discuss two themes to indicate how the themes are to be interpreted. Idea generation got the highest rank among the 12 elements (at Step 5). The original element “idea generation” has six other elements merged with it (Step 4 of the NGT process above). These elements are creativity, out of the box thinking, freedom of thought, innovative ideas, open-mindedness and flexibility, and blue ocean strategy (Table II). These merged elements indicate the dimensions of the module on idea generation. Similarly, six other elements (organizing activity, decision making, initiative, team building/people management, end-to-end thinking and pressure handling) merged with the element “leadership activity.” Following this reasoning, the sub-elements of each of the identified seven themes can be considered for detailing and preparing a course. Table II thus provides the guiding principles for designing individual modules around the identified themes.

As Table II shows, all themes except the theme “attitude” contain a combination of knowledge, skill and attitude components of content and also LIs as their characteristics. These findings are consistent with Biggs’ (1999) suggestion that any course curriculum must be a combination of content, LI and assessment. The present results also indicate the efficiency of NGT workshop, which not only identified specific contents but also LI as an essential characteristic of entrepreneurship education. Classification and coding of the elements portrays a much more meaningful picture of the relevant themes of entrepreneurship education and paves the way for a more logical designing of curriculum based on the identified elements.

Subsequent to the identification of themes, the NGT workshop advanced to designing the course curriculum around identified seven elements of entrepreneurship education. Five domain experts (of entrepreneurship education) who contributed to the development of the themes participated in the curriculum design exercise. Table III portrays the first draft of the proposed course titled “Entrepreneurial acumen development course” which is designed in a modular format. The draft course contains six modules (by combining Element 6 and 7 together) including topics to be covered. The draft proposal also showcases two broad classifications of pedagogy for each module, i.e. experiential learning and theoretical inputs. These pedagogies indicate proposed LIs in the curriculum. Experiential learning is useful to the development of skills and attitudes whereas theoretical inputs focus on attitude and knowledge components.

It is important to mention here that Table III does not present a final version of the course. This is the first draft of the course which emerged from the need analysis phase of curriculum design. The draft has to adequately undergo further development and evaluative phase of curriculum design. The development and evaluative phase would consist of a pilot study, experimental testing and program evaluation (by concerned stakeholders) through appropriate data collection and analysis techniques. This paper does not include the curriculum design phase as its research objective.

Implications of the study and concluding remarks
This research makes a significant contribution on two fronts: first, it contributes to the literature on curriculum development in general and entrepreneurship education in particular. Second, it makes a methodological contribution by using NGT. The study
progressed through a logical sequence commencing with the need analysis phase of curriculum design. Therefore, the final outcome of the study (the elements of entrepreneurship education in India) is valid and holistic. The use of NGT for curriculum development on entrepreneurship is unique and novel. NGT not only generates a relevant solution to the problem at hand but also is a time- and cost-effective approach as the methodology section above indicates. Present researchers did experience efficiency while conducting the study.

Etzioni (1987), in his social legitimation theory, emphasizes that appropriate education and training can play a significant role in enhancing the legitimacy of entrepreneurship in society. To achieve this, education and training interventions must be suitable to the

<table>
<thead>
<tr>
<th>Course title</th>
<th>Entrepreneurial acumen development course</th>
</tr>
</thead>
<tbody>
<tr>
<td>Learning hours</td>
<td>62 h + internship</td>
</tr>
<tr>
<td>Course type</td>
<td>For undergraduate students across various disciplines</td>
</tr>
<tr>
<td>Course description</td>
<td>This course is designed for developing entrepreneurial orientation of undergraduates studying across various disciplines. This orientation will supplement and add value to the current curriculum offered to them. More specifically, this course aims to encourage the young generation to opt for entrepreneurial pursuit as a career choice</td>
</tr>
<tr>
<td>Course objectives</td>
<td>After attending the course, participants shall be able to:</td>
</tr>
<tr>
<td></td>
<td>1. Appreciate self-employment and entrepreneurship as an attractive career choice</td>
</tr>
<tr>
<td></td>
<td>2. Develop idea generation and opportunity recognition skills</td>
</tr>
<tr>
<td></td>
<td>3. Develop entrepreneurial skills for start-up</td>
</tr>
</tbody>
</table>

Course objectives

1. Appreciate self-employment and entrepreneurship as an attractive career choice
2. Develop idea generation and opportunity recognition skills
3. Develop entrepreneurial skills for start-up

<table>
<thead>
<tr>
<th>Course contents</th>
<th>Module</th>
<th>Topics</th>
<th>Experiential learning (for skills and attitudes)</th>
<th>Theoretical inputs (for knowledge and attitudes)</th>
<th>Total contact hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>Module 1: entrepreneurial attitude</td>
<td>Passion and pride for self-employment, achievement motivation training (AMT), Initiative abilities</td>
<td>8 h&lt;sup&gt;a&lt;/sup&gt;</td>
<td>04 h&lt;sup&gt;b&lt;/sup&gt;</td>
<td>12</td>
<td></td>
</tr>
<tr>
<td>Module 2: idea generation</td>
<td>Free thinking, open-mindedness and flexibility, creativity and out of the box thinking, generating innovative ideas, blue ocean strategy</td>
<td>10 h</td>
<td>04 h</td>
<td>14</td>
<td></td>
</tr>
<tr>
<td>Module 3: problem solving and learning skills</td>
<td>Understanding business environment, environment scanning techniques, listening and communication skills, management by walking around</td>
<td>08 h</td>
<td>04 h</td>
<td>12</td>
<td></td>
</tr>
<tr>
<td>Module 4: leadership skills</td>
<td>Organizing skills, comprehensive planning skills (end-to-end thinking), team building and pressure handling skills, decision making in uncertain environment</td>
<td>08 h</td>
<td>04 h</td>
<td>12</td>
<td></td>
</tr>
<tr>
<td>Module 5: entrepreneurship lab</td>
<td>Case studies: business success, business failures and start-up success, turnaround case studies, best business practices</td>
<td>08 h&lt;sup&gt;c&lt;/sup&gt;</td>
<td>04 h</td>
<td>12</td>
<td></td>
</tr>
<tr>
<td>Module 6: internship</td>
<td>Internship with start-up firms, co-op training for business planning</td>
<td>4 weeks–12 weeks&lt;sup&gt;d&lt;/sup&gt;</td>
<td>–</td>
<td>–</td>
<td></td>
</tr>
</tbody>
</table>

Notes:<sup>a</sup>Representative exercises for Module 1 are – brainstorming session for self-employment, card game for work-life priorities, blindfolded block building game, story writing (achievement motivation training, self-assessment scale for initiative abilities);<sup>b</sup>representative topics for theoretical inputs are as follows: self-employment vs salaried jobs, lifestyle comparison charts, achievement motivation profile of entrepreneurs;<sup>c</sup>flexibility in the allocation of hours, subject to the number of case studies analyzed;<sup>d</sup>Flexible, subject to availability of slot for the internship.
cultural context of society (Ojala and Heikkila, 2011). The literature on entrepreneurship education suggests a broad list of the elements of entrepreneurship education that create the complexity regarding the problem of selection and prioritization of the content. Therefore, the use of the NGT for identifying the elements of entrepreneurial education generates twofold advantages. First, NGT reduces the complexity of the issue by obtaining ranks of the elements through a common consensus of the domain experts. The illustration in the previous section supports this position; 63 identified elements of entrepreneurial education finally reduced to 7 through structural procedure and group consensus. Second, NGT identifies the most crucial elements of entrepreneurial education relevant to current Indian context through the generation of ideas by domain experts who belong to the user group in India. Thus, NGT provided the desired solution in the cultural context of the problem under consideration.

This study identified the elements of entrepreneurial education around two thrust areas, namely the entrepreneurial intention building stage and the stage of setting up an enterprise. Thus, the curriculum contents generated through NGT have specificity and relevance. The elements with the merged themes and further classification and coding of elements as content (knowledge, skill and attitudes) and LI (pedagogy) present a detailed and composite outcome of the present research. In follow-up studies, the first draft of the proposed course on entrepreneurship education can be mapped onto three domains of learning – cognitive, affective and psychomotor (Anderson and Krathwohl, 2001). This is a future research direction. This study also provides necessary inputs for the evaluative phase of curriculum design, which sets the agenda for future research. The results can be improved further for conversion of contents into a final course through the application of advanced techniques of systems science such as interpretive structure modeling and analytical hierarchy process.

This research contributes to the emerging dimensions of entrepreneurship literature that emphasizes a desirable geographical and societal shift in comprehending entrepreneurship theory. This implies a shift from understanding a well-established Western context of entrepreneurship research toward transitional societies from the East (Chepurenko, 2015). Thus, application of NGT to identify relevant and specific elements of entrepreneurship education for an emerging economy like India not only contributes significantly to the body of literature but also opens multiple dimensions for future research.

References


Bobbitt, F. (1928), *How to Make a Curriculum*, Houghton Mifflin Boston, Boston, MA.


Tyler, R.W. (1949), Basic Principles of Curriculum and Instruction, University of Chicago Press, Chicago, IL.


Further reading


## Appendix

<table>
<thead>
<tr>
<th>Element number (1)</th>
<th>Element (2)</th>
<th>Element classification based on content category (3)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Social support system (loss-bearing capacity)</td>
<td>C (S)</td>
</tr>
<tr>
<td>2</td>
<td>Risk element (absorption capacity, mitigation)</td>
<td>C (S)</td>
</tr>
<tr>
<td>3</td>
<td>Funds availability (debt and Equity)*</td>
<td>C (K)</td>
</tr>
<tr>
<td>4</td>
<td>Networking skills</td>
<td>C (S)</td>
</tr>
<tr>
<td>5</td>
<td>Attitude</td>
<td>C (A)</td>
</tr>
<tr>
<td>6</td>
<td>Pressure handling</td>
<td>C (S)</td>
</tr>
<tr>
<td>7</td>
<td>Legal knowledge</td>
<td>C (K)</td>
</tr>
<tr>
<td>8</td>
<td>Continuous learning</td>
<td>C (S)</td>
</tr>
<tr>
<td>9</td>
<td>Conceptual framework of entrepreneurship and entrepreneur</td>
<td>C (K)</td>
</tr>
<tr>
<td>10</td>
<td>The identification of gaps in services/products</td>
<td>C (K)</td>
</tr>
<tr>
<td>11</td>
<td>Practical exposure</td>
<td>LI</td>
</tr>
<tr>
<td>12</td>
<td>Business environment</td>
<td>C (K)</td>
</tr>
<tr>
<td>13</td>
<td>Awareness program for students and parents</td>
<td>C (K)</td>
</tr>
<tr>
<td>14</td>
<td>Start-up success stories</td>
<td>LI</td>
</tr>
<tr>
<td>15</td>
<td>Mentor support*</td>
<td>LI</td>
</tr>
<tr>
<td>16</td>
<td>Study business education (success story, newspaper, macro-economics)</td>
<td>LI</td>
</tr>
<tr>
<td>17</td>
<td>Study failure (case study, turn around)</td>
<td>LI</td>
</tr>
<tr>
<td>18</td>
<td>Idea generation</td>
<td>C (S)</td>
</tr>
<tr>
<td>19</td>
<td>Absorption capacity</td>
<td>C (S)</td>
</tr>
<tr>
<td>20</td>
<td>Attraction</td>
<td>C (A)</td>
</tr>
<tr>
<td>21</td>
<td>Leadership activity</td>
<td>C (S)</td>
</tr>
<tr>
<td>22</td>
<td>Organizing activity</td>
<td>C (S)</td>
</tr>
<tr>
<td>23</td>
<td>Passion and pride for work</td>
<td>C (A)</td>
</tr>
<tr>
<td>24</td>
<td>Communication and listening skills</td>
<td>C (S)</td>
</tr>
<tr>
<td>25</td>
<td>Actual internships</td>
<td>LI</td>
</tr>
<tr>
<td>26</td>
<td>Negotiation skills</td>
<td>C (S)</td>
</tr>
<tr>
<td>27</td>
<td>Team building (people management)</td>
<td>C (S)</td>
</tr>
<tr>
<td>28</td>
<td>Open-mindedness and flexibility</td>
<td>C (A)</td>
</tr>
<tr>
<td>29</td>
<td>Ethics</td>
<td>C (A)</td>
</tr>
<tr>
<td>30</td>
<td>Identifying traits of entrepreneurship – art or science</td>
<td>C (A)</td>
</tr>
<tr>
<td>31</td>
<td>Family</td>
<td>O</td>
</tr>
<tr>
<td>32</td>
<td>Creativity</td>
<td>C (A)</td>
</tr>
<tr>
<td>33</td>
<td>Needs of individuals</td>
<td>C (A)</td>
</tr>
<tr>
<td>34</td>
<td>Freedom of thought</td>
<td>C (A)</td>
</tr>
<tr>
<td>35</td>
<td>Observation and learning skills</td>
<td>C (S)</td>
</tr>
<tr>
<td>36</td>
<td>Basics of self-employment and entrepreneurship</td>
<td>C (K)</td>
</tr>
<tr>
<td>37</td>
<td>End-to-end thinking</td>
<td>C (S)</td>
</tr>
<tr>
<td>38</td>
<td>Government schemes available</td>
<td>C (K)</td>
</tr>
<tr>
<td>39</td>
<td>Study best businesses</td>
<td>LI</td>
</tr>
<tr>
<td>40</td>
<td>Internships with start-ups</td>
<td>LI</td>
</tr>
<tr>
<td>41</td>
<td>Business planning co-ops</td>
<td>LI</td>
</tr>
<tr>
<td>42</td>
<td>optional course</td>
<td>O</td>
</tr>
<tr>
<td>43</td>
<td>Innovative Ideas – workshops</td>
<td>LI</td>
</tr>
<tr>
<td>44</td>
<td>Social entrepreneurship*</td>
<td>O</td>
</tr>
<tr>
<td>45</td>
<td>Achievement motivation</td>
<td>C (A)</td>
</tr>
<tr>
<td>46</td>
<td>Out of the box thinking</td>
<td>C (S)</td>
</tr>
<tr>
<td>47</td>
<td>Puzzles</td>
<td>LI</td>
</tr>
<tr>
<td>48</td>
<td>Role plays</td>
<td>LI</td>
</tr>
</tbody>
</table>

Table AI.
Domain expert-generated list of elements for entrepreneurship education after the first round (Step 3 under methodology)
<table>
<thead>
<tr>
<th>Element number (1)</th>
<th>Element (2)</th>
<th>Element classification based on content category (3)</th>
</tr>
</thead>
<tbody>
<tr>
<td>49</td>
<td>Lateral thinking</td>
<td>C (S)</td>
</tr>
<tr>
<td>50</td>
<td>Problem solving</td>
<td>C (S)</td>
</tr>
<tr>
<td>51</td>
<td>Blue ocean strategy</td>
<td>C (K)</td>
</tr>
<tr>
<td>52</td>
<td>Environment scanning</td>
<td>C (S)</td>
</tr>
<tr>
<td>53</td>
<td>Feasibility</td>
<td>C (K)</td>
</tr>
<tr>
<td>54</td>
<td>Traveling habits</td>
<td>C (A)</td>
</tr>
<tr>
<td>55</td>
<td>Management by walking around</td>
<td>LI</td>
</tr>
<tr>
<td>56</td>
<td>Management by alternatives</td>
<td>LI</td>
</tr>
<tr>
<td>57</td>
<td>Hands-on skills development</td>
<td>C (S)</td>
</tr>
<tr>
<td>58</td>
<td>Decision making</td>
<td>C (S)</td>
</tr>
<tr>
<td>59</td>
<td>Self-assessment</td>
<td>C (S)</td>
</tr>
<tr>
<td>60</td>
<td>Courage to withdraw</td>
<td>C (A)</td>
</tr>
<tr>
<td>61</td>
<td>Initiative</td>
<td>C (A)</td>
</tr>
<tr>
<td>62</td>
<td>Ambiguity resolution</td>
<td>C (S)</td>
</tr>
<tr>
<td>63</td>
<td>Project planning skills</td>
<td>C (S)</td>
</tr>
</tbody>
</table>

**Notes:** C(A), attitude content; C(K), knowledge content; C(S), skill content; LI, learning interaction; O, void (does not belong to any of the content categories). "Item dropped by the expert group.

**Source:** Self-constructed by the authors

### Table AII.

List of elements after merger and deletion of elements (Step 4 under methodology).

<table>
<thead>
<tr>
<th>S.No.</th>
<th>Element number (Table I)</th>
<th>Element</th>
<th>Merged element(s) (number as in Table AI)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>1</td>
<td>Social support system (loss-bearing capacity)</td>
<td>2, 19, 60, 31, 59, 13</td>
</tr>
<tr>
<td>2</td>
<td>3</td>
<td>Funds availability (debt and equity)</td>
<td>38</td>
</tr>
<tr>
<td>3</td>
<td>4</td>
<td>Networking skills</td>
<td>54, 26</td>
</tr>
<tr>
<td>4</td>
<td>5</td>
<td>Attitude</td>
<td>45, 62, 23</td>
</tr>
<tr>
<td>5</td>
<td>7</td>
<td>Legal knowledge</td>
<td></td>
</tr>
<tr>
<td>6</td>
<td>11</td>
<td>Practical exposure</td>
<td>40, 41, 57</td>
</tr>
<tr>
<td>7</td>
<td>14</td>
<td>Start-up success stories</td>
<td>16, 17, 39, 20</td>
</tr>
<tr>
<td>8</td>
<td>15</td>
<td>Mentor support</td>
<td>25</td>
</tr>
<tr>
<td>9</td>
<td>18</td>
<td>Idea generation</td>
<td>32, 46, 34, 43, 28, 51</td>
</tr>
<tr>
<td>10</td>
<td>21</td>
<td>Leadership activity</td>
<td>22, 58, 61, 27, 37, 36</td>
</tr>
<tr>
<td>11</td>
<td>29</td>
<td>Ethics</td>
<td></td>
</tr>
<tr>
<td>12</td>
<td>35</td>
<td>Observation and learning skills</td>
<td>52, 55, 24, 8, 10, 12, 10, 50</td>
</tr>
<tr>
<td>13</td>
<td>36</td>
<td>Basics of self-employment and entrepreneurship</td>
<td>9</td>
</tr>
<tr>
<td>14</td>
<td>44</td>
<td>Social entrepreneurship</td>
<td></td>
</tr>
<tr>
<td>15</td>
<td>50</td>
<td>Problem solving and business exercises</td>
<td>47, 48, 49</td>
</tr>
<tr>
<td>16</td>
<td>53</td>
<td>Feasibility</td>
<td>63, 56</td>
</tr>
</tbody>
</table>

**Source:** Self-constructed by the authors

---

**Corresponding author**

Sumita Srivastava can be contacted at: sumita.srivastav@gmail.com
The effects of students’ entrepreneurial characteristics on their propensity to become entrepreneurs in Malaysia

Nor Azizan Che Embi
Department of Finance, Kulliyyah of Economics and Management Sciences, International Islamic University Malaysia, Kuala Lumpur, Malaysia

Haruna Babatunde Jaiyeoba
International Institute for Halal Research and Training (INHART), International Islamic University Malaysia, Kuala Lumpur, Malaysia, and

Sheila Ainon Yussof
Department of Finance, Kulliyyah of Economics and Management Sciences, International Islamic University Malaysia, Kuala Lumpur, Malaysia

Abstract
Purpose – The purpose of this paper is to reflect on the data collected from Malaysian students to investigate the effects of students’ entrepreneurial characteristics (need for achievement, locus of control, propensity to take risk, self-confidence, tolerance of ambiguity and uncertainty, and leadership) on their propensity to become entrepreneurs in Malaysia.
Design/methodology/approach – As a quantitative study, various analyses, such as exploratory factor analysis, confirmatory factor analysis and structural equation modelling, were conducted to analyze the data collected from 257 students known to have participated in entrepreneurship course and programmes.
Findings – The results show that leadership skill, need for achievement, tolerance of ambiguity, and risk-taking propensity are positively and significantly associated with students’ intention to initiate entrepreneurial activities in Malaysia.
Originality/value – The researchers have used data from the perspective of Malaysian students to increase the readers’ understanding on students’ entrepreneurial characteristics that could enhance their likelihood to become entrepreneurs in Malaysia.
Keywords Innovativeness, Risk-taking, Entrepreneurial characteristics, Leadership skill, Need for achievement, Tolerance of ambiguity
Paper type Research paper

Introduction
With the views that entrepreneurship education could nurture unconventional talents and skills, directly influence students’ personality, and increase students’ intention to start viable and sustainable business enterprises; entrepreneurship has found its way to the Malaysian universities since the mid-1990s. In Malaysia, government has made entrepreneurship course compulsory for all students in public universities to foster entrepreneur skills in youths, since graduates cannot be entirely absorbed in formal salary wage employment. Also, the economic value of supporting the development of entrepreneurship by the Malaysian Government is to create real and sustainable investment in the country (Ahmad and Buchanan, 2015; Yusoff et al., 2015). While the views of fostering entrepreneur skills in the Malaysian university students are well conceived by the Ministry of Entrepreneurship and Cooperative Development and the Ministry of Higher Education (MoHE), it is imperative to know whether entrepreneurial knowledge has impacted students’ likelihood to become entrepreneurs.

Entrepreneurship, which is the process of doing something new or something different for the purpose of creating wealth for the individual and adding value to society (Kao, 1993),
is a dominant force in the contemporary Malaysia and has remained an integral part of Malaysia’s economic policies that play crucial role in the country’s attainment of a middle income status. In addition, it has also helped to reduce poverty in Peninsular Malaysia from 49.3 per cent in 1970 to 16.5 per cent in 1990 (Yusoff et al., 2015). Through entrepreneurship, the country has generated several ongoing innovations and improve its goods, services and institutions; enhance the quality of live; as well as changing the way works are carried out, how we communicate and collective way of life (Zahra and Wright, 2015). Even on the global landscape, entrepreneurship has been recognized as a critical economic development strategy for job and wealth creation; and several empirical studies have confirmed the role of entrepreneurship with respect to widespread innovations, employment and wealth creation (Decker et al., 2014; Nyadu-Addo and Mensah, 2018).

Given the above and other related importance, entrepreneurship education and training has been embraced by local development organizations, such as Ministry of Entrepreneurship and Cooperative Development and the MoHE, as well as major global development organizations, including the United Nations, the International Labour Organization, the World Bank and World Economic Forum (Mundy and Verger, 2015; Nyadu-Addo and Mensah, 2018). This catalyst for change has been embraced by the above development organizations on the assumptions that its skills can be learned and translated to viable and sustainable business enterprises over time (Jaafar and AbdulAzziz, 2008).

As such, Malaysian Government has not only encouraged entrepreneurship education in its public universities; it also has a forward looking entrepreneur-friendly national policy as well as other support programmes, such as technical and training assistance, financial and credit assistance, infrastructure supports, extension and advisory services, marketing and market research, land/building facilities, management expertise, and information about the market and tax deduction (Khan et al., 2016; Oshikoya and Hussain, 1998; Skuras et al., 2003). To complement government efforts on various entrepreneurship support programmes, universities have also been working tirelessly to inculcate entrepreneurship knowledge and spirit in students through class discussions and seminars. Given their efforts in developing relevant curriculum, exposing students to the entrepreneurial eco-system, and acquiring the necessary infrastructure to create the right learning environments; it is assumed that students who have participated in the entrepreneurial course and programmes are equipped with the required skills, together with characteristics that would motivate them to become entrepreneurs even while in their various campuses.

As crucial as this area of study, few scholars in Asia are, however, found to have made significant contributions to this area of study (Wu and Wu, 2017). While there are few similar studies from the perspective of Malaysia, their approaches are generally different from the present study. For example, Ooi et al. (2011) use demographic characteristics and family business background to predict students’ inclination towards entrepreneurship; Othman et al. (2012) mainly employ descriptive statistics to investigate students’ readiness towards the implementation of entrepreneurship education; vicarious experience, general attitude, image of entrepreneurship, work experience and other demographic variables are used by Md-Rasli et al. (2013) to investigate students’ entrepreneurial intentions; Sandhu et al. (2011) use multiple regression to investigate entrepreneurship barriers and entrepreneurial inclination among Malaysian students; Cheng et al. (2009) use descriptive statistic to examine the effectiveness of entrepreneurship education in Malaysia. In fact, a more pertinent study of Karimi et al. (2015) investigates the effect of only three entrepreneurial characteristics on students’ intentions to become entrepreneurs – these three are need for achievement, risk-taking and locus of control.

Without prejudice to the above studies, the present study is different and expected to make several significant contributions to this area of study. The study has incorporated more entrepreneurial characteristics, such as need for achievement, locus of control, propensity to
take risk, self-confidence, tolerance of ambiguity and uncertainty, and leadership, to reveal the students’ intentions to become entrepreneurs in Malaysia. Also since literature has emphasized on the importance of innovation as a strategy in the entrepreneurial process as well as a behaviour that characterizes entrepreneurship (Utsch and Rauch, 2002), this study has uniquely used innovativeness as a mediator between entrepreneurial characteristics and students’ intentions to become entrepreneurs. Furthermore, this study would also fine-tune the way students are being exposed to this area of study, and to start emphasizing on the personality characteristics found to have significantly contributed to the students’ intentions to initiate entrepreneurial activities.

For a credible study, the researchers have structured this study into five main sections with the first section focussing on the background and the main reasons for conducting this study. The second section discusses existing literature on entrepreneurship education and entrepreneurial characteristics. The third section concentrates on the methodology adopted for this study, how data used for this study were collected, and the method of analyses used in analyzing the data collected. The next section – fourth section – presents and interprets the analyses performed on the data collected. The final section – fifth section – concludes this study; this section also offers the implication for the study and discusses major findings of this study.

Literature review

Entrepreneurship education

Arguably, entrepreneurship has emerged as one of the most potential economic force the world has ever experienced (Gerba, 2012). In fact, it has been promoted as a mechanism for developing, educating and equipping students with the necessary skills that would enable them to take up entrepreneurial career after their graduation. Similar to the USA, Europe and other Asian countries, encouraging graduates to become entrepreneurs or taking career in self/small business employment for national economic growth sits comfortably with the Malaysian government aspirations (Nabi and Holden, 2008). As such, it has remained an integral part of Malaysia’s economic policies. On a brief note, entrepreneurship has been defined by several authors, but some common aspects of these definitions which define the nature of entrepreneurship are: creativity, risk taking, independence and rewards (Hisrich et al., 2016). For example, Gerba (2012) defines entrepreneurship as educational programme that provides students with the skills, knowledge, inspiration, competencies and motivation that would enable them to become a successful entrepreneurs.

Though there was earlier contention as to whether entrepreneurship skills and competencies can be learned; there is a consensus nowadays, at least in theory, that entrepreneurship can be taught and learned. However, the focus has now shifted to what and how entrepreneurship should be taught, and to continuously improve its content and delivery to meet the needs of students (Jones and Lourenço, 2006; Katz, 2003). Owing to its importance, entrepreneurship education has gained considerable attention of policymakers and higher education institutions in Malaysia and other countries. In fact, entrepreneurship education has now nudged itself to the top of political and socio-economic agendas, and currently represents a high priority among government policies. Given its support to national agenda, Malaysian universities have incorporated entrepreneurship to their academic curricula and even established entrepreneurship development centre to assist students to nurture their ambitions.

On this basis, Jaafar and AbdulAziz (2008) conclude that the high number of small and medium enterprises in the construction industry in Malaysia indicates the significant role of entrepreneurship education in some courses, such as construction management. Othman et al. (2012) document that students in the Malaysian public universities demonstrate strong readiness in entrepreneurial willingness and capabilities. Ahmad (2013) argues that
entrepreneurship education should not be left to any specific institutions, but throughout all phases of education systems. Milian and Gurrisi (2017) find that entrepreneurship education is framed to offer students collaborative learning experience, useful hands-on skills with real world applications, and an entrepreneurial mind-set.

Jones and Colwill (2013) conclude that entrepreneurship education has improved entrepreneurial competencies and the future potential for business start-up in the UK. Li and Liu (2011) study shows that entrepreneurship education has positive effect on the employment performance. Wu and Wu (2017) show that entrepreneurship education is currently experiencing a steady growth; though few scholars in the Asia Pacific are found to have made significant contributions to this body of knowledge. Ismail et al. (2018) document that both teacher-centred and student-centred approaches positively influence the development of entrepreneurship learning outcomes. While the researchers have discussed entrepreneurship education and why this area is worth studying, we therefore proceed to another important aspect of this study – entrepreneurship intention.

Entrepreneurial characteristics and entrepreneurial intentions
Since the focus of this study is to examine students’ entrepreneurial mindset, or in other words, to ascertain whether the entrepreneurial knowledge and skills received by the Malaysian students would shape their intention to become entrepreneurs; it remains incumbent upon the researchers to incorporate this section, where the entrepreneurial characteristics are discussed from the perspective of existing literature. In Malaysia, graduates are basically encouraged to pursue career in self/small business employment, and this has led to the offering of entrepreneurship programmes and courses in public universities, establishment of various agencies, such as Ministry of Entrepreneurship and Cooperative Development, Malaysian Global Innovation and Creativity Centre, etc. as well as the establishment of entrepreneurship unit in various public universities in the country.

Meanwhile, entrepreneurial intention represents a major theme in this field and it is related to factors, such as attitudes towards entrepreneurship with respect to perceived desirability of entrepreneurship as a career option, perceived feasibility in starting up, and willingness to become entrepreneur. More often than not, studies in this area are based around intention models, like Ajzen’s (1987, 1991, 2011) theory of planned behaviour, Shapero’s (1982) model of the “entrepreneurial event” (Nabi and Holden, 2008), social, environmental, and individual factors (Koh, 1996). When using social factors model, the focus is usually on family background, personal background, stage of career, early life experiences and growth environment (Alstete, 2002; Gibb, 1993); environmental factors model emphasizes on the contextual factors, such as tax reduction and indirect benefits, value of wealth, social upheaval, supportive social, economic culture, timing of opportunities in the career process, and impact of market conditions. As important as these theories, they are unsuitable for study of this nature since it focusses on entrepreneurial characteristics that is best built on individual factor model.

The individual factor model, widely called traits model, focusses on personality characteristics of entrepreneurs (Gürol and Atsan, 2006; Karabulut, 2016; Koh, 1996; Popescu et al., 2016). According to Koh (1996), This model rests on the assumption that entrepreneurs possess certain unique characteristics, values and attitudes which distinguish them from other individuals. This model has been highly rated in researching entrepreneurship (Gürol and Atsan, 2006). With this model, various studies have examined certain characteristics of entrepreneurs (De Pillis and Reardon, 2007; Gürol and Atsan, 2006; Karabulut, 2016; Karimi et al., 2015; Koh, 1996; Liñán and Rodríguez-Cobhard, 2015; Popescu et al., 2016; Uddin and Bose, 2012). For instance, it is common to the above studies to use locus of control, need for achievement, risk taking propensity, innovation, self-confidence and tolerance of ambiguity as determinants of the intention to become entrepreneurs.
As in the above studies, seven entrepreneurial characteristics are used in this study to determine the entrepreneurial profile and intention of the Malaysian students. These entrepreneurial characteristics are locus of control, need for achievement, risk taking propensity, self-confidence, leadership skill, and tolerance of ambiguity. Unlike the above studies, the researchers have incorporated innovation as a mediator between entrepreneurial characteristics and entrepreneurial intentions since literature has emphasized on the importance of innovation as a strategy in the entrepreneurial process and a behaviour that characterizes entrepreneurship (Utsch and Rauch, 2002). Following the arguments in this section, the researchers now turn to brief discussion on the entrepreneurial characteristics used in this study.

**Locus of control**

Locus of control has long ago been described by Rotter (1966) as individuals’ perception with the respect to their abilities to control certain actions or events that influence their lives. This extensively researched trait assumes that the results of individuals’ actions are influenced by what they do (Popescu et al., 2016). Unlike other individuals, this trait considers that entrepreneurs possess greater control over the results of their actions. In the cause of searching for new opportunities and taking innovative attitude, entrepreneurs are also expected to have locus of inner control, or in other words, have the capability to control the events in their lives (Gürol and Atsan, 2006). To investigate the link between the locus of control and entrepreneurial intention, various specialized literatures have used locus of control, either as independent variable or under the influence of some differentiating variables, to document varying results (De Pillis and Reardon, 2007; Gürol and Atsan, 2006; Karabult, 2016; Karimi et al., 2015; Koh, 1996; Liñán and Rodríguez-Cohard, 2015; Popescu et al., 2016; Rotter, 1966; Uddin and Bose, 2012). In this study, the researchers intend to examine the relationship between locus of control and students’ entrepreneurial intentions while taking other variables, such as need for achievement, risk taking propensity, self-confidence, leadership skill, and tolerance for ambiguity, into account. Unlike the previous studies, innovation is used as a mediator between this variable and entrepreneurial intentions; and as such, the direct and indirect effects of this variable are investigated.

**Need for achievement**

Another important determinant of individual’s entrepreneurial intention and that, which is one of the most applied theories in entrepreneurship, is the need for achievement. The need for achievement of the McClelland’s theory is a strong psychological driving force behind human action and has been long proposed to be a factor influencing entrepreneurial intention. Based on this theory, it is assumed that people with high need for achievement would have strong desire to be successful and as a result, are more likely to become entrepreneurs (Koh, 1996). In other words, individuals with strong need for achievement are among those who have desires to solve problems themselves, demonstrate a higher performance in challenging tasks, set targets and strive for these targets through their own efforts, and are innovative in the sense of looking for new and better ways to improve their performance (Littunen, 2000). Among the psychological characteristics which have been presumed to be associated with entrepreneurship, Koh (1996) notes that need for achievement has the longest history. Using this personality characteristic as a variable, evidences have indicated significant association between need for achievement and entrepreneurial intention (De Pillis and Reardon, 2007; Karimi et al., 2015; Liñán and Rodríguez-Cohard, 2015; Littunen, 2000; Rotter, 1966; Uddin and Bose, 2012). In this study, the researchers intend to investigate the link between need for achievement and students’ entrepreneurial intentions, while considering other variables as mentioned above.
Risk taking propensity
Another characteristic which differentiate an entrepreneur from an employee is the risk taking propensity (Hvide and Panos, 2014). Risk taking propensity has been defined (Gürol and Atsan, 2006) as an individual propensity to exhibit risk taking or avoidance when facing risky situations. Historically, entrepreneurship is associated with risk taking. Since all kind of businesses involve taking so many risks, an entrepreneur must always ready to face these risks and manage them effectively (Brandstätter, 2011). According to Popescu et al. (2016), the risk taking capacity of entrepreneurs might be superior to that of managers who are perceived as risk lovers; though entrepreneurs are said to prefer taking moderate risks in situations, where there are some degree of skill to realize profits (Koh, 1996; Popescu et al., 2016). While this characteristic has been used as determinant of entrepreneurship intention, or as moderator between other determinants of entrepreneurship intention, such as tolerance of ambiguity, locus of control, and need for achievement, and entrepreneurship intention itself (Popescu et al., 2016); the researchers have used risk taking propensity as an independent factor that influence students’ entrepreneurial intentions when innovation is employed as a mediator.

Self-confidence
The fact that entrepreneurs are individuals who, in general notion, prefer to establish own businesses; it should be expected that such individuals have confidence and able to achieve their set goals (Koh, 1996). Entrepreneurs are typically known for their self-confidence. In addition to business ideas and affairs, entrepreneurs are expected to possess self-confidence and self-esteem. Similar to other entrepreneurship characteristics, self-confidence is a necessary attribute that precipitate entrepreneurial intention. Furthermore, several empirical studies in the entrepreneurship literature have repeatedly shown that entrepreneurs possess higher degree of self-confidence in relation to other individuals (Gelaidan and Abdullateef, 2017; Gürol and Atsan, 2006). Based on the above argument, the researchers have taken self-confidence as a major characteristic in defining the Malaysian students’ entrepreneurial intention.

Leadership skill
Leadership has been understood in various ways in the academic literature; for instance, it has been understood as a behavioural practice, or as skill which could be gained and developed through experience and learning (Fayolle, 2005; Kuratko, 2005). Since the present study investigates students’ entrepreneurial intentions following their knowledge in entrepreneurship education, the focus of researchers is on the aspect where leadership is understood as skill that could be acquired and developed through experience and learning. With this stand, we believe that entrepreneurship education (programme) can improve students’ leadership skills through impact on personal and functional competencies (Bagheri and Lope Pihie, 2013). According to Henley et al. (2017), personal competencies are related to cognitive and interpersonal skills; and functional competencies are related to performance. Henley et al. (2017) document further that aspiring entrepreneurs deploy both skills (personal and functional competencies) to marshal resources and bridge relationships with other actors, such as suppliers, customers, entrepreneurial networks, to support their entrepreneurial objectives. While studies, such as the study of Henley et al. (2017), document evidences of significant effect of leadership skill on entrepreneurship intention, the researchers are keened to know whether this variable would contribute to the Malaysian students’ entrepreneurial intentions through direct effect and indirect effect when innovation is used as a mediator.

Tolerance for ambiguity
An ambiguous situation is said to exist when available information is insufficient to structure a situation. Koh (1996) notes that an individual reflects tolerance of ambiguity
when he/she organize and use available information to address an ambiguous situation. Accordingly, an individual is categorized as having high tolerance of ambiguity if he finds ambiguous situations challenging, but strive to overcome unpredictable situations to perform well. As such, entrepreneurs are perceived to tolerate ambiguity better than other individuals since entrepreneurs face a less structured environment, more uncertain set of possibilities and actually bear the ultimate responsibility for decision (Entrialgo et al., 2000). The fact that entrepreneurs are confronted with risk and uncertainty while making decisions on actions that are innovative and original, several studies have suggested that entrepreneurs have capacity to tolerate ambiguity (Gürol and Atsan, 2006). Based on the above arguments, we have incorporated tolerance of ambiguity, together with other contributing variables, into this study to investigate students’ entrepreneurial intentions.

**Innovativeness**

In view of entrepreneurship, innovation is related to the creation of new products, new quality, new method of production, new method to get into new market, new method to create new source of supply, or to create new organization, or structure in business (Gürol and Atsan, 2006). Innovativeness is suggested to characterized entrepreneurship and entrepreneurial orientation (Barba-Sánchez and Atienza-Sahquillo, 2018; Hansemark, 1998; Kuckertz and Prochotta, 2018; Nabi et al., 2016). In essence, entrepreneurs are always in search for new ideas and opportunities; and such behaviour indicates that innovation is a major tool of entrepreneurship and it can separate “entrepreneurs” from “managers” (Nabi et al., 2016; Stewart et al., 1999). To prove its relevance, evidences in the entrepreneurship literature have shown that entrepreneurs are significantly more innovative than other individuals who are considered to be non-entrepreneurs. On this basis, the researchers have taken innovativeness as a mediating variable in defining students’ entrepreneurial intentions. Given the importance of innovativeness, we have incorporated it into this study as a mediator between entrepreneurial characteristics and entrepreneurial intention.

Based on the existing literature, as reviewed and discussed in this section, the researchers propose that the students’ entrepreneurial characteristics would influence their innovative capability, and subsequently improve their propensity to initiate entrepreneurial activities. Thus, below Figure 1 presents the conceptual framework that guides this study. More importantly, the researchers seek to use appropriate approaches to test the following hypotheses:

- **H1.** Students’ entrepreneurial characteristics have positive and significant effect on intentions to become entrepreneurs.
- **H2.** The relationships between entrepreneurial characteristics and entrepreneurial intentions are mediated by innovativeness.

**Research design**

This study adopts quantitative research design in its quest to investigate the effects entrepreneurial characteristics on entrepreneurial intentions of the Malaysian students. Having attended entrepreneurship courses, the researchers assume that certain entrepreneurial characteristics would persuade students to become entrepreneurs, and thus distinguish them from other students who have not participated in entrepreneurship education. This assumption is based on the fact that university graduates constitute significant portion of the pool of entrepreneurs in both developing and developed countries, according to Thomas and Mueller (1998). Here, the independent variables (locus of control, need for achievement, risk taking propensity, self-confidence, leadership skill and tolerance of ambiguity) discussed in previous section will be tested in relation to the dependent variable – entrepreneurial intentions. To achieve this, the study’s sample was drawn from
undergraduate students in the Kulliyyah of Economics and Management Sciences, International Islamic University Malaysia.

After the development of the research instrument – questionnaire, students who have attended entrepreneurship course and other programmes were asked to complete it through online platform using Google form and self-administered questionnaire. Using the developed questionnaire based on the existing measurements, usable 205 responses were collected through online platform; in addition, another 52 usable responses were collected through self-administered questionnaire. In total, 257 usable responses were used by the researchers to investigate the effects of entrepreneurial characteristics on entrepreneurial intentions of the Malaysian students who have participated in entrepreneurship course and programmes.

**Research instrument**

Questionnaire was used as the study’s research instrument and it was structured into two parts. The first part sought students’ demographic profiles and other question on their entrepreneurial intentions (though this part is not reported in this study); the second part covers entrepreneurial characteristics variables (locus of control, need for achievement, risk taking propensity, innovation, self-confidence, leadership skill and tolerance of ambiguity) and the actual variable on their entrepreneurial intention. Hence, the entrepreneurial characteristics in the second part of the research instrument are used to disclose students’ entrepreneurial intentions.

In terms of number of items, the first section of the research instrument contained 14 questions, and the second part contained 48 questions. While respondents were given options in the first part, they were asked to indicate their disagreement or agreement with respect to each given statement on a five-point Likert scale in the second part. The items in the second part were adapted from various studies, such as Popescu et al. (2016), Liñán and Rodriguez-Cohard (2015), Karabult (2016) and Lüthje and Franke (2003). Having developed questionnaire based on the above studies and used it to collect the needed data, data collected were analyzed using exploratory factor analysis, confirmatory factor analysis (CFA), and structural equation modelling (SEM). These analyses are presented in the subsequent section.
Data analysis

Exploratory factor analysis

After satisfying the assumptions and restrictions of parametric statistics, the researchers performed exploratory factor analysis on the data collected to reduce the number of items into manageable sizes. With this analysis, the researchers were able to reduce 48 items in the research instrument to 40 items. To prepare data for this and subsequent analyses, data cleaning, test for normality using skewness and kurtosis, sample adequacy and sphericity using Kaiser-Meyer-Olkin (KMO) and Bartlett’s test were performed on the data collected. Afterwards, principal components analysis, based on Varimax orthogonal rotation, was used while performing exploratory factor analysis by the researchers. Following the Kaiser’s (1960) recommendation, a cut-off point was determined. Additionally, the proper values of anti-image matrix main diagonal are all above the benchmark of 0.500, suggesting that there is no multi-collinearity issue. As shown in Table I, the KMO test which assesses sample fitness is adequate with 0.945; also, the values obtained from Bartlett test of Sphericity ($\chi^2 = 6,925.821$, $p$-value = 0.000) indicate that there are good correlations between the variables. Similarly, the amount of variance each variable share with the other variables, as measured by communalities, are not highly compromised. After ensuring the suitability of data collected, eight factors were extracted and renamed in accordance with variables in the research instrument (questionnaire) and existing literature. These factors explained accumulated variance of 68.01 per cent with eigenvalue greater than 1.0 (11.620, 10.649, 10.345, 9.997, 7.404, 7.378, 7.106 and 3.513 per cent). The results of exploratory factor analysis are therefore presented in Table II.

Confirmatory factor analysis

In addition to exploratory factor analysis discussed earlier, CFA was performed to assess and develop measurement model. This was done to specify how well the measured variables come together to represent latent variables (i.e. constructs). All the eight latent variables generated during the exploratory factor analysis were retained after CFA; however, some of the observed (items) were eliminated during the analysis. While carrying out this analysis, the initial model failed to meet the model fit criteria; as a result, model improvement was embarked upon using modification indices. As such, some of the errors were covariate since it is likely for the measurement variables that are associated with correlated error terms to share something in common, according to Ho (2006); in the process, some items were also deleted. Upon the model improvement, the model indices (comparative fit index (CFI), relative $\chi^2$, root mean square error of approximation (RMSEA) and incremental fit index) suggest that model fit criteria are met. Figure 2 and Table III present the outcome of CFA. Moreover, the reliability results are reported in Table IV, suggesting that the data for this study are reliable. Similarly, a check on the measurement validity indicate that there is no validity issue. The model is also free of common method bias since all VIFs resulting from collinearity test are less than 3.3.

Structural equation modelling (SEM)

SEM is used to determine the relationships between independent variables (locus of control, need for achievement, risk taking propensity, self-confidence, leadership skill and tolerance of ambiguity) and dependent variable (entrepreneurial intentions). As shown in Table V and

<table>
<thead>
<tr>
<th>Table I.</th>
<th>Kaiser-Meyer-Olkin measure of sampling adequacy</th>
<th>0.945</th>
</tr>
</thead>
<tbody>
<tr>
<td>KMO and Bartlett’s test of sphericity</td>
<td>Approx. $\chi^2$</td>
<td>6,925.821</td>
</tr>
<tr>
<td>df</td>
<td>780</td>
<td></td>
</tr>
<tr>
<td>Sig.</td>
<td>0.000</td>
<td></td>
</tr>
</tbody>
</table>
Figure 3, leadership skill ($\beta = 0.463, p < 0.05$), need for achievement ($\beta = 0.482, p < 0.05$), tolerance of ambiguity ($\beta = 0.220, p < 0.05$), and risk-taking ($\beta = 0.665, p < 0.05$) are positively and significantly related to students’ entrepreneurial intentions. To make sense of these findings, these results suggest that entrepreneurially inclined students possess leadership skills, have strong need for achievement, have higher propensity to take risk, and more tolerance of ambiguity. However, self-confidence ($\beta = -0.556, p < 0.05$) and locus of control ($\beta = -0.314, p < 0.05$) are negatively and significantly related to students’ entrepreneurial intention.

**Mediating effect (innovativeness)**

One of the preconditions when testing mediating effect on the relationship between variables is that such relationship be significant. Since all the above independent variables are significantly related to students’ entrepreneurial characteristics, the next step is to test the mediating effect of innovativeness.
Notes: \( \chi^2 = 986.566; \) df = 494; \( p = 0.000. \) Normal \( \chi^2 = 1.997; \) CFI = 0.904; IFI = 0.905; RMSEA = 0.062

Table III.

<table>
<thead>
<tr>
<th>Measure</th>
<th>Estimate</th>
<th>Threshold</th>
<th>Interpretation</th>
</tr>
</thead>
<tbody>
<tr>
<td>CMIN</td>
<td>9860.566</td>
<td></td>
<td></td>
</tr>
<tr>
<td>DF</td>
<td>494</td>
<td></td>
<td></td>
</tr>
<tr>
<td>CMIN/DF</td>
<td>1.997</td>
<td>Between 1 and 3</td>
<td>Excellent</td>
</tr>
<tr>
<td>CFI</td>
<td>0.904</td>
<td>&gt; 0.95</td>
<td>Acceptable</td>
</tr>
<tr>
<td>SRMR</td>
<td>0.055</td>
<td>&lt; 0.08</td>
<td>Excellent</td>
</tr>
<tr>
<td>RMSEA</td>
<td>0.062</td>
<td>&lt; 0.06</td>
<td>Acceptable</td>
</tr>
</tbody>
</table>

Figure 2.
Confirmatory factor analysis.
associated with the dependent variable, they are all included in this analysis. In this case, the researchers investigate the relationships between locus of control and students’ entrepreneurial intentions, need for achievement and students’ entrepreneurial intentions, risk-taking propensity and students’ entrepreneurial intentions, self-confidence and students’ entrepreneurial intentions, leadership skill and students’ entrepreneurial intentions, and tolerance of ambiguity and students’ entrepreneurial intentions when innovation was introduced as mediating variables. Note that we have recently reported that these relationships are significant and as such, the results of mediating effect of innovation show that the relationships between these variables are partially mediated. It was also found that the relationship between innovation and students’ entrepreneurial intentions is negative and significant. Looking at the

<table>
<thead>
<tr>
<th>S. No.</th>
<th>Variable</th>
<th>Number of item</th>
<th>Cronbach's α</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Achievement</td>
<td>5</td>
<td>0.870</td>
</tr>
<tr>
<td>2</td>
<td>Locus of control</td>
<td>5</td>
<td>0.779</td>
</tr>
<tr>
<td>3</td>
<td>Risk-taking</td>
<td>5</td>
<td>0.832</td>
</tr>
<tr>
<td>4</td>
<td>Self-confidence</td>
<td>5</td>
<td>0.865</td>
</tr>
<tr>
<td>5</td>
<td>Innovativeness</td>
<td>5</td>
<td>0.883</td>
</tr>
<tr>
<td>6</td>
<td>Tolerance</td>
<td>5</td>
<td>0.815</td>
</tr>
<tr>
<td>7</td>
<td>Leadership</td>
<td>5</td>
<td>0.888</td>
</tr>
<tr>
<td>8</td>
<td>Intention</td>
<td>5</td>
<td>0.871</td>
</tr>
</tbody>
</table>

Table IV. Reliability statistics

<table>
<thead>
<tr>
<th></th>
<th>Estimate</th>
<th>SE</th>
<th>CR</th>
<th>p</th>
</tr>
</thead>
<tbody>
<tr>
<td>Intention ← Leadership</td>
<td>0.463</td>
<td>0.088</td>
<td>5.261</td>
<td>***</td>
</tr>
<tr>
<td>Intention ← Achievement</td>
<td>0.482</td>
<td>0.122</td>
<td>3.942</td>
<td>***</td>
</tr>
<tr>
<td>Intention ← Tolerance</td>
<td>0.220</td>
<td>0.091</td>
<td>2.411</td>
<td>0.016</td>
</tr>
<tr>
<td>Intention ← Risk-taking</td>
<td>0.665</td>
<td>0.070</td>
<td>9.568</td>
<td>***</td>
</tr>
<tr>
<td>Intention ← Self-confidence</td>
<td>−0.556</td>
<td>0.091</td>
<td>−6.081</td>
<td>***</td>
</tr>
<tr>
<td>Intention ← Locus of control</td>
<td>−0.314</td>
<td>0.127</td>
<td>−2.466</td>
<td>0.014</td>
</tr>
</tbody>
</table>

Table V. Regression weights

Note: ***p < 0.001

Figure 3. Structural model
relationships between entrepreneurial characteristics and innovation, need for achievement, tolerance of ambiguity, and risk-taking are positively and significantly related to entrepreneurial intentions. These results are presented in Figure 4 and Table VI.

Discussion and conclusion
This study investigates the effects of students’ entrepreneurial characteristics on their propensity to become entrepreneurs in Malaysia. In doing so, the relationships between

![Figure 4. Mediated model](image_url)

Table VI. Mediating effect of innovativeness on the relationships between independent variables and dependent variable

<table>
<thead>
<tr>
<th>Effect</th>
<th>Hypothesized path</th>
<th>β</th>
<th>p value</th>
<th>95% CI bootstrap BC LB</th>
<th>UB</th>
<th>Mediation effect</th>
</tr>
</thead>
<tbody>
<tr>
<td>Locus of control on entrepreneurial intention</td>
<td>Direct model LC→ER</td>
<td>-0.734</td>
<td>0.001</td>
<td>0.209</td>
<td>0.557</td>
<td>Partial mediation</td>
</tr>
<tr>
<td>Need for achievement on entrepreneurial intention</td>
<td>Mediated model LC→ER</td>
<td></td>
<td></td>
<td>0.000</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Risk-taking propensity on entrepreneurial intention</td>
<td>Mediated model NA→EI</td>
<td>0.883</td>
<td>0.001</td>
<td>-0.561</td>
<td>-0.229</td>
<td>Partial mediation</td>
</tr>
<tr>
<td>Self-confidence on students’ entrepreneurial intention</td>
<td>Mediated model RTP→EI</td>
<td>0.990</td>
<td>0.000</td>
<td>-0.426</td>
<td>-0.170</td>
<td>Partial mediation</td>
</tr>
<tr>
<td>Leadership skill on entrepreneurial intention</td>
<td>Mediated model SC→EI</td>
<td>-0.877</td>
<td>0.000</td>
<td>0.205</td>
<td>0.467</td>
<td>Partial mediation</td>
</tr>
<tr>
<td>Tolerance of ambiguity on entrepreneurial intention</td>
<td>Mediated model TA→EI</td>
<td>1.031</td>
<td>0.001</td>
<td>-0.094</td>
<td>-0.491</td>
<td>Partial mediation</td>
</tr>
</tbody>
</table>
entrepreneurial characteristics, which comprised of six main dimensions (locus of control, need for achievement, risk taking propensity, self-confidence, leadership skill and tolerance of ambiguity) and entrepreneurial intentions of students who have participated in the entrepreneurship education in Malaysia were examined. In addition, the researchers also investigate the above relationships when innovation was introduced as a mediating variable. To achieve the intended aims, the paper initially discussed extant literature on the main dimensions of the entrepreneurial characteristics considered in this study. Following this, a conceptual framework that guides this study was developed to show the connections between entrepreneurial characteristics and entrepreneurial intentions; the developed model articulates the effects of entrepreneurial characteristics on entrepreneurial intention. Moving further, research hypotheses were developed; research methodology was discussed; and analyses performed on data collected were presented. Based on various results discussed earlier, the major findings and their implications are dealt with here.

Starting with the effects of entrepreneurial characteristics on the students’ propensity to become entrepreneurs; leadership skill, need for achievement, risk-taking propensity and tolerance of ambiguity are found to be positively and significant associated with students’ intentions to initiate entrepreneurial activities. This suggests that entrepreneurially inclined students possess leadership skills, have strong need for achievement, have a higher propensity to take risk, and more tolerance of ambiguity. These results are consistent with the studies of Henley et al. (2017), Koh (1996), Karabulut (2016), Uddin and Bose (2012) and Popescu et al. (2016), where it was found that leadership skill, need for achievement, tolerance of ambiguity, and risk-taking propensity positively and significantly related to students’ intentions to become entrepreneurs in various other countries around the world. However, self-confidence and locus of control negatively and significantly related to students’ entrepreneurial intentions; this results contradict the finding of Karimi et al. (2015), where locus of control was found to be positively and significantly related to entrepreneurial intentions. This could be due to the entrepreneurial exposures of students from different geographical settings. More importantly, such results justify why more studies of this nature are needed.

When mediated by innovativeness, the relationships between entrepreneurial characteristics and entrepreneurial intentions remain unchanged; it was also found that innovativeness partially mediate the relationships between entrepreneurial characteristics and students’ entrepreneurial intentions. Another important aspect of this study is to identify the relative importance of the entrepreneurial characteristics to the Malaysian students’ propensity to become entrepreneurs. The results show that all the entrepreneurial characteristics included in this study are relatively important since their values are all above 80 per cent. These results are consistent with the finding of Gurol and Atsan (2006), where need for achievement, locus of control, risk taking propensity, and innovativeness are found to be higher for entrepreneurial inclined students than other students.

Overall, this study has demonstrated that entrepreneurial characteristics are important determinant of students’ entrepreneurial intentions. Given the importance of this area of study as it contributes to country’s economic development, university’s management and lecturers are therefore required to give close attention to viable discussions, workshops and conference that could encourage students to become entrepreneurs. While there are several supports available for the entrepreneurs, most of the students are yet to know how to explore these opportunities in the country; as such, students should be exposed to these opportunities and how to assess them. With the possibilities of assessing these opportunities, there should be little doubt that Malaysia young population represents an important entrepreneurial potential.

Given the limitation of cross-sectional nature of this study, further longitudinal studies are required to be conducted; we believe that such studies would reveal more accurate
results than those presented in this study. We also observed that collection of more data from other faculties and universities that offer entrepreneurship courses could help to gauge the effects of entrepreneurial characteristics on students' entrepreneurial intention in Malaysia. Similarly, empirical academic studies, which would suggest a more comprehensive fashion of how entrepreneurial education should be carried out, are also encouraged. Even finding out the difference between students in difference faculties as well as between public and private universities in terms of entrepreneurial inclination represent another interesting topic to be researched.

References


Corresponding author
Nor Azizan Che Embi can be contacted at: izanebbm@iium.edu.my

For instructions on how to order reprints of this article, please visit our website:
www.emeraldgrouppublishing.com/licensing/reprints.htm
Or contact us for further details: permissions@emeraldinsight.com
Book reviews

A Research Agenda for Entrepreneurship Education
Edited by Fayolle Alain
Edward Elgar Publishing Ltd
2018
viii + 314pp.,
Hard cover
ISBN-10: 978 1 78643 290 2
Keywords Entrepreneurship education, Rethinking entrepreneurship, Entrepreneurial training

Over the last three decades or so, there has been a steady growth in Entrepreneurship and related Entrepreneurship Education publications, reflecting the growing relevance and popularity of these two interrelated topics of academic research as well as practitioner activity. Amongst the best known and most highly respected contributors to Entrepreneurship Education research and practice in Europe, the edited volumes of Professor Alain Fayolle have become a much anticipated annual publication that reflect the cutting edge knowledge in this topic. As part of the Elgar Research Agendas series, a hardback volume of “A Research Agenda for Entrepreneurship Education” was published on 29 June 2018, followed by a paperback version of this book that was released on 28 April 2019. In addition to the Editor’s Introduction, this edited volume offers 13 chapters organised in 3 parts, followed by a comprehensive Index. In the Introduction, Alain Fayolle sets out the reasons and justifications behind setting an agenda for the rapidly growing topic of entrepreneurship education. He argues that the rapidly expanding entrepreneurship education literature highlights the need for more robust theoretical and methodological foundations. This is particularly important in the context of the worldwide growth and rapid expansion of relevant entrepreneurship education provision such as courses, modules and programmes, that are on offer at all levels of national, regional and international educational systems.

Part I of this volume, “Rethinking Entrepreneurship Education Research”, comprises four seminal chapters that address key issues affecting entrepreneurship education from specific research perspectives. In the first of these chapters, “Towards Rigour and Relevance in Entrepreneurship Education” Bruce Martin, Dirk De Clercq and Benson Honig focus on research that centres upon the impact of entrepreneurship education. The authors acknowledge inherent design, methodological and data analysis weaknesses, most of which affect negatively this aspect of entrepreneurship research. They offer a number of “hands on” practical suggestions that would improve both the quality and the impact of future research in this area of academic study. In the next chapter, “Dealing with the Inconsistency of Studies in Entrepreneurship Education Effectiveness: A Systemic Approach to Drive Future Research”, Michela Loi evaluates the extant literature on entrepreneurial training effectiveness. She recommends a systemic solution and approach to the assessment of entrepreneurship education. Patricia G. Greene, Michael L. Fetters, Richard Bliss and Anne Donnellon are the authors of the next chapter in this section, aptly entitled “The Future of Entrepreneurship Education: Education for Economic and Social Impact”. The authors argue that in universities in general and business schools in particular, too much emphasis is placed upon improving entrepreneurship education for students, whilst nascent and
existing entrepreneurs are generally neglected. To evidence their approach, the authors focus on the highly successful Goldman Sachs “10,000 Small Businesses” programme and its outcomes. In the final chapter of the first section of this book “Does Entrepreneurship Education Develop Wisdom? An Exploration”, Jeffrey J. McNally, Benson Honig and Bruce Martin point out that scant empirical attention has been paid to the development of “wisdom” in entrepreneurship education research. Based on an exploratory investigation of the syllabi of 50 university entrepreneurship courses and the content of relevant entrepreneurship textbooks, the authors offer insights as well as theoretical and practical implication for wisdom development through entrepreneurship education provision.

The second part of this book, “Learning from European Exemplary Contributions”, incorporates four illustrative chapters on commendable and impactful European entrepreneurship education research and dissemination. In the first chapter of this section, “Exemplary Contributions from Europe to Entrepreneurship Education Research and Practice” Jonas Gabrielsson, Hans Lundstrom, Diamanto Politis and Gustav Hagg review the evolution of Entrepreneurship Education in general and the theoretical as well as practical contribution of the European Entrepreneurship Education Award in particular. This is an especially interesting approach to evaluating research impact not only because of who is included in the authors’ review, but also who is excluded from it […] In the next chapter, “Personal Views on the Future of Entrepreneurship Education”, Alain Feyolle outlines his own perspective on what he considers to be relevant and important for the future development of Entrepreneurship Education as a scholarly field. In the following chapter, “Limits to and Prospects of Entrepreneurship Education in the Academic Context”, Bengt Johannisson outlines his highly original and distinctive perspective on entrepreneurship as a processual phenomenon, which he appropriately labels “entrepreneuring”. In the last chapter of this section, “The Conceptual Contribution of Education to Research on Entrepreneurship Education”, Paula Kyro highlights the well-rehearsed and often aired problem of the lack of a shared Entrepreneurship Education framework. This apparent failure she attributes to the general tendency in this field of study to draw ideas from the entrepreneurship topics rather than from what she calls the “science of education”.

The third and final part of this research monograph, “Focusing on Key Outcomes and Innovative Pedagogies”, contains five chapters which focus on important aspects and outcome related to Entrepreneurship Education pedagogies. In the first chapter of this section, “The Reflective Novice Entrepreneur: From Habitual Action to Intelligent Action Using Experience-Based Pedagogy as a Vehicle for Change”, Gustav Hagg argues that entrepreneurship education would benefit considerably from a pedagogy which combines both action-oriented and experiential approaches. In the second chapter, “Towards More Synergy in Entrepreneurial Competence Research in Entrepreneurship Education”, Thomas Lans, Yvette Baggen and Lisa Ploum focus upon conceptual aspects related to entrepreneurial competence. The authors offer a tentative agenda and highlight possible venues for future research. In the next chapter, “Learning Fictions or Facts? Moving from Case Studies to the Impact Based Method”, Sylvain Bureau highlight a growing number of innovative approaches to the theory and practice of Entrepreneurship Education, all of which depart from the “classic” case study based teaching. In the following chapter “The Personal Dimension of an Entrepreneurial Competence: An Approach from the Spanish Basic Education Context”, Antonio Bernal and Francisco Linan investigate the concept of entrepreneurial competence in the context of basic education in Spain. In the final chapter of section three, Ravi S. Ramani, George T. Solomon and Nawaf Alabduljader undertake a qualitative and comparative review of Entrepreneurship Education in North America.

I thoroughly enjoyed reading and reflecting upon this excellent new contribution by Alain Feyolle to the rapidly growing literature on Entrepreneurship Education. I genuinely believe that this research monograph would be of great assistance to all those who have an
interest in this topic. It is a useful volume to have on the bookshelves of all those stakeholders, policy makers, academics and students involved in various aspects of entrepreneurship education, specifically to those who are interested in innovative thinking, critical approaches and cutting edge developments in this important topic of research. I wish to congratulate Professor Fayolle as well as Edward Elgar Publishing Ltd, for their continuing commitment and high quality research contribution to the field of Entrepreneurship in general and Entrepreneurship Education in particular.

Harry Matlay
Global Independent Research, Coventry, UK

Annals of Entrepreneurship Education and Pedagogy – 2018
Edited by Charles H. Matthews and Eric W. Liguori
Edward Elgar Publishing
2018
xxiv + 370pp.,
Hardcover
ISBN-10: 978 1 78811 494 3
ISBN-13: 978 1 78811 495 0
Keywords Education and pedagogy, Education practice
Review DOI 10.1108/ET-08-2019-269

The 2018 edition of the “Annals of Entrepreneurship Education and Pedagogy”, is the third, and much anticipated research monograph that I reviewed in Education + Training. The series was inaugurated by Dr Michael Morris and is published every two years in conjunction with Edward Elgar Publishing Ltd, as part of its celebrated “Annals in Entrepreneurship Education” series. It should be noted that is beyond the scope of this brief book review to outline and comment in detail upon the content of the chapters included in this excellent volume. Suffice to say, however, that it is a well-structured, informative and competently edited collection of chapters that not only inform but also challenge a reader’s views and perspectives on entrepreneurship education. It also amply demonstrates how and why US-based researchers, academics and practitioners continue to lead in the field of Entrepreneurship Education research, both in their own country as well as internationally, in industrially developed and developing nations and nations in transition. In common with previous editions, this volume contains a Preface, a further 28 chapters divided into three parts, and an Index. In the “Preface: Three Key Challenges to Advancing Entrepreneurship Education and Pedagogy”, Charles H. Matthews outlines his own professional perspective of what holds back the development and advancement of Entrepreneurship and Entrepreneurship Education. He convincingly argues that two important aspects of Entrepreneurship, as a field of study, have to be addressed before Entrepreneurship Education can advance further than its current state: definitional issues; and measurement difficulties. The author develops an interesting and challenging approach, which goes a long way towards resolving, at least partially, a number of issues related to Entrepreneurship Education as a complex field of research and practice.

Part I of the book, “Leading Edge Research Perspectives”, includes 12 influential chapters, each one a prospective classic of its own. Some chapters reflect upon the personal learning process and professional outcomes of entrepreneurship educators. In another chapter, we are offered a brief but concise history and developmental journey of the US Association for Small Business and Entrepreneurship. Other chapters outline various
perspectives on entrepreneurship education purpose, curricula, prospects and future developments. A couple of chapters focus on visual settings and cross-cultural aspects involved in this specialised educational offering. The role of university-based education and the influence of the Internet of Things are investigated in the context of new venture creation, in terms of both opportunities and challenges. Entrepreneurship competencies and students’ entrepreneurship self-efficacy are reviewed and consolidated, as is the role of entrepreneurship as a political tool. Interestingly, there is a challenging chapter, in this section of this voluminous volume, which addresses a pertinent and controversial aspect of entrepreneurship education, namely the much praised and equally maligned “Business Plan”, as an educational tool for would-be entrepreneurs.

In Part II, “Model University Entrepreneurship Programs”, we are presented with five cases of innovative and outstanding institutions, all of which champion specific models of entrepreneurship education, at its very best: the American University Center for Innovation, North Carolina State University, Grove City College, Miami University and Aalto University. The American University Center for Innovation is well known for assisting their students and alumni to gain a solid understanding of the world of business and related markets, through the medium of entrepreneurial opportunities. The North Carolina State University employs a unique facility, the “NC State Entrepreneurship Clinical Model of Teaching and Research”, that combines entrepreneurship education with practice. Grove City College supports the experimental entrepreneurship activities of their students by facilitating a comprehensive programme of elevator pitch and business plan competitions, as well as successful entrepreneur speaker series. At Miami University, cross campus entrepreneurial activities are encouraged and supported by four vertical tracks, to include start-up, creative, corporate and social entrepreneurship. In Finland, at Aalto University, the entrepreneurship education model is student- based and led, designed to actively promote entrepreneurial mindset, thinking and attitudes. This section would be of particular use to entrepreneurship educators at all levels of the educational system, as well as to entrepreneurial training professionals looking for best practice case studies and innovative approaches.

Part III, “Best Practice Innovations Inside and Outside the Classroom”, comprises 11 chapters which, individually and collectively, make a significant contribution to Entrepreneurship Education practice, as seen from a wide variety of perspectives and contextual settings. It is well known and widely accepted amongst educators that there are conceptual as well as contextual differences between the theory and practice of Entrepreneurship Education. It is therefore useful and refreshing to gain an insight into the latest and most innovative ways to transfer entrepreneurial knowledge and experience to students, both within and outside the usual or normal classroom settings. Life stories, in particular recounts of entrepreneurial journeys, can play an important role in educating and training would be graduate entrepreneurs. A couple of chapters in this section of the book focus primarily upon the transfer of relevant entrepreneurial knowledge through entrepreneurship related stories and storytelling. This approach usually involves classmates, peers or guest speakers. In order to increase their chances of success, entrepreneurship oriented students need to gather critical feedback from a number of sources and perspectives, both within and outside of their classrooms. Experiential courses and modules, including “real time” or “accelerated” approaches, are considered crucial to the inception and development of “entrepreneurial mindsets” of future graduate entrepreneurs. Similarly, global experimental learning and curriculum innovations are also useful to promote social and corporate entrepreneurship. Increasing numbers of entrepreneurial students tackle global issues by actively engaging in learning about social enterprises and going on to convert their ideas into sustainable humanitarian enterprises all over the world. Furthermore, cross-campus and interdisciplinary collaborations in entrepreneurship education are increasingly viewed as innovative as well as productive and sustainable
ways to provide entrepreneurial student with new ways to convert their ideas into new ventures. All these and many more innovative approaches to entrepreneurship education can be found in the chapters presented in this section of the book.

The 2018 edition of the “Annals of Entrepreneurship Education and Pedagogy”, as its 2014 and 2016 predecessors, make a useful addition to the private and institutional libraries of academics, researchers, policy makers and support agencies that are involved in promoting as well as delivering entrepreneurship education and learning. Undergraduate, postgraduate and doctoral students will also find this volume useful in conceptualising and contextualising the many facets of this complex and fast growing field of study. I highly recommend this volume for its richness, complexity and empirical rigour. I look forward with great interest and anticipation to the publication of the 2020 version of “Annals of Entrepreneurship Education and Pedagogy”. Finally, I wish to congratulate all those involved in compiling and editing this voluminous book and the authors of the 28 chapters, as well as Edward Elgar Publishing Ltd, for facilitating the publication of this excellent series of Annals in Entrepreneurship Education.

Harry Matlay
Global Independent Research, Coventry, UK
Backfiles Collections

Preserving over 100 years of management research online

A lifetime investment for your institution, Emerald Backfiles will significantly enhance your library’s offering by providing access to over 125,000 articles from more than 260 journals dating back to 1898.

Visit emeraldinsight.com

Get Backfiles Collections for your library

Recommend Backfiles to your librarian today.
Find out more: emeraldpublishing.com/backfilescollections
Get eCase Collections for your library
Recommend eCases to your librarian today. Find out more: emeraldpublishing.com/ecasecollections
Education + Training focuses on the relationship between education and training, addresses vocationalism in learning and highlights the changing nature of the partnership between the worlds of work and education. Articles that are based on experience and case material, rather than philosophical speculation, and develop practical implications are of particular interest.

Guidelines for authors can be found at: www.emeraldgrouppublishing.com/et.htm
The future of enterprise and entrepreneurship education

Guest Editor: Harry Matlay

777 Editorial advisory board
778 Guest editorial
781 Evaluating impact of entrepreneurship education programs
Seyedeh Khatereh Daei-Daryoosha and Mitra Hasan Hosseini
797 Gender and university degree: a new analysis of entrepreneurial intention
Pilar López-Delgado, Patricia P. Iglesias-Sánchez and Carmen Jaramillo-Maldonado
815 Predicting entrepreneurial intention across the university
Robin Bell
832 Classroom interdisciplinary diversity and entrepreneurial intentions
Laura Padilla-Angulo, Néstor Díaz-Pichardo, Patricia Sánchez-Medina and Lovanirina Ramboarison-Lalao
850 Entrepreneurial competences in a higher education business plan course
Raquel Ferreras-García, Ana Beatriz Hernández-Lara and Enric Serradell-López
870 The contribution of emotional intelligence and spirituality in understanding creativity and entrepreneurial intention of higher education students
Ana Paula Rodrigues, Filipa Eira Jorge, Carlos André Pires and Patricia António
895 Training effects on subsistence entrepreneurs' hope and goal attainment
Andrez Barrios, Ezequiel Reficco and Rodrigo Tabora
918 Enhancing the effectiveness of entrepreneurship education: the role of entrepreneurial lecturers
Innocent Olache
940 Examining the business education curricula in South Africa: towards integrating social entrepreneurship
Zayd Waghi
963 Perceived social norms, psychological capital and entrepreneurial intention among undergraduate students in Bukavu
Akilimali Ntabahaye Ephrem, Rebecca Namatovu and Edith Mwebaza Basalirwa
984 Entrepreneurial intentions: the role of individualism and collectivism in perspective of theory of planned behaviour
Muhammad Faizal, Jason Wai Chow Lee, Muhammad Sajid and Abdul Wahed
1001 Identification of entrepreneurship education contents using nominal group technique
Sumita Srivastava, Kanika Satanghi and Nandita Satangle
1020 The effects of students' entrepreneurial characteristics on their propensity to become entrepreneurs in Malaysia
Nor Azizan Che Emri, Haruna Babatunde Jayeoba and Sheila Annon Yusuf
1038 Book reviews


www.emeraldinsight.com/loi/et