The impact of education on the transition from university students to entrepreneurs: a theory of planned behaviour perspective

Navneet Gera
Department of Management, Jagannath International Management School, New Delhi, India
Walter Vesperi
Department of Cultures and Societies, University of Palermo, Palermo, Italy, and
Swati Rohatgi and Neetu Jain
Department of Management, Institute of Management and Research, Bharati Vidyapeeth (Deemed to be University), New Delhi, India

Abstract

Purpose – Entrepreneurship represents a complex decision-making process capable of influencing the conditions of a socio-economic system. For this reason, stimulating entrepreneurship is a topic that has always fascinated scholars and attracted the attention of public policy makers. This study, from the perspective of the theory of planned behaviour (TPB), aims to contribute to the analysis of entrepreneurial intention (EI) in university students. Factors such as entrepreneurship education (EE), mediation of personal attitude (PA), perceived behavioural control (PBC), EI, regulatory support (RS) and opportunity recognition (OR) for university students.

Design/methodology/approach – Research data was collected using a questionnaire, and a cross-sectional sample was selected from senior business and engineering students who are most likely to participate in entrepreneurial activities. The survey was conducted in the Delhi NCR region. 240 students were interviewed. Partial least square structural equation modelling using SmartPLS-4 was used to test the explanatory and predictive power of the proposed model.

Findings – The results of this study offer interesting contributions to the academic debate. First, EE has a significant impact on PA, PBC and entrepreneurial intentionality. Second, PBC, recognition of opportunities and EI have a significant impact on entrepreneurial education. Finally, PA and PBC significantly mediate the “entrepreneurial education – entrepreneurial intention” relationship.

Originality/value – Interesting elements of originality are offered by this study. First, entrepreneurship is studied as a decision-making process influenced by intentions and not behaviours. Second, the authors limited the efforts to unraveling the effect of the five variables on the formation of EI. Finally, the large size of the sample allows the authors to obtain significant results, directing future studies to other territorial contexts. Additionally, incorporating some control variables, such as gender and family background, would explore the relationship between the model variables more meaningfully.

Keywords Entrepreneurship education, Higher education, Theory of planned behaviour, SmartPLS, Strategic decisions, Complex organisation

1. Introduction

Entrepreneurship is associated with innovation, increased productivity and improved life quality of a local socio-economic system (Esfandiar et al., 2017; Joensuu-Salo et al., 2015). From this point of view, entrepreneurs are the stewards that promote innovation through ideation

Funding: No financial/research assistance ship was provided.

Disclosure statement: The authors report there are no competing interests to declare.
and culmination into new business ventures, thereby increasing employment, bringing cutting-edge innovation and becoming efficient across economic sectors (Burnette et al., 2020; Hassan et al., 2020). As consequence, a vast research area has developed on how to stimulate entrepreneurship, attracting the attention of scholars and public decision makers. Indeed, while the literature has extensively focused on entrepreneurial propensity among adults (Anwar and Saleem, 2019b), but only few studies have examined students’ entrepreneurial intention (EI) (Jena, 2020). A central question in entrepreneurship studies is why certain people tend to start their own businesses while others do not. The reason can be in terms of, for instance, why more men than women, and vice versa, choose to become entrepreneurs (Anwar et al., 2020). It can also include whether those who have received entrepreneurship education (EE) have more EI than those who have not (Asghar et al., 2019). Another reason, could be the role of the regulatory system in supporting or curtailing entrepreneurial intension (Yan et al., 2023; Schillo et al., 2016). The ability to recognise opportunities in the environment might also reflect the risk taking behaviour of an individual (Liu et al., 2023; Krueger et al., 2000). Additionally, the question can address whether exposure to entrepreneurial activity, such as through family businesses, influences people’s decisions to pursue a career in business (Pittino et al., 2020). Several social cognitive frameworks, such as Ajzen’s (1991) theory of planned behaviour (TPB), have been empirically explored through elements of personal attitude (PA), social norms and perceived behavioural control (PBC) to explain EI (Krueger, 2017). For these reasons, it becomes important to stimulate and support the decision-making process to start a new business activity. EE is one of the less explored forces that determine the EI of university students. The TPB has emerged as a widely applied psychological theory for describing and forecasting entrepreneurship (Hueso et al., 2021; Agolla et al., 2019; Mamun et al., 2017; Entrialgo and Iglesias, 2016).

Although India represents a very interesting socio-economic system for entrepreneurial scholars, to date there are few studies in this regard. Indeed, India is the second most populated country and has experienced substantial job loss in recent years due to the Covid-19 pandemic (Bergenholtz et al., 2023; Abraham et al., 2022), thereby increasing the focus on encouraging entrepreneurship (Hassan et al., 2020). At the same time, with an average age of the population of just 29 years in 2020, Indian policymakers are very optimistic about the productive impact of India’s demographic dividend on the road to becoming a developed nation (Singh and Kumar, 2021).

The Indian government, on the premise that university education can serve as a motivating factor that can support individual decision-making and transform students’ aspirations and attitudes into self-employment (Esfandiar et al., 2017) has launched a series of programs, such as Stand-up India and Start-up India, to provide know-how and human capital to start a new business. Unfortunately, despite a conducive entrepreneurial environment through joint efforts between the government, academia and industry, research on the entrepreneurial intent of students in India is very limited. However, despite substantial government efforts, Indians still favour salaried options over entrepreneurial careers (Anwar and Saleem, 2019b; Shukla et al., 2019). Thus, for the government to formulate effective policies, it is vital to develop entrepreneurship models to identify and investigate the factors affecting EI. Previous studies indicate that teaching entrepreneurship should be based on more active learning-by-doing pedagogies rather than passive books and lecture-dependent pedagogies in order to develop learners’ abilities and trust (Dana, 1987; Henry and Treanor, 2012; Varamäki et al., 2015).

Our study aims to bridge this gap in the literature, extending Nabi’s et al. (2016), study who state that further empirical research is needed to analyse EI due to differences in culture, gender and entrepreneurial education (Ferreras-Garcia et al., 2021; Gera et al., 2021; Vesperi and Gagnidze, 2021). Unarguably, EI remains crucial for venture creation as it identifies the linkage between the initial idea and the consequent action (Bouhalleb, 2020; Krueger, 2017).
Overall, this study examines the interface between EE, TPB elements (PAs, subjective norms (SN) and PBC), opportunity recognition, regulatory support (RS) and EI among higher education students. The precise objectives are as follows:

1. To examine the effects of PA, PBC, social norms, opportunity recognition and RS on EI;
2. To examine the effect of EE on PAs, PBC and EI.

In addition to the intended objectives, the proposed research advances the knowledge of entrepreneurial outcomes through EE.

The remainder of this paper is organised as follows. A literature review and theoretical framework are presented in Section 2. The research methodology is described in Section 3. The data analysis and results are presented in Section 4. Section 5 presents the discussion and conclusions. Finally, Section 6 presents the implications and limitations of the study and future research directions.

2. Theoretical framework and hypothesis development

2.1 Theory of planned behaviour and entrepreneurial behaviour

Intention models are an important outcome of social learning theory (Bandura, 1982) and help explain entrepreneurial behaviour. Intentions reflect the driving forces behind behaviour, outlining the effort people intend to invest in carrying out that behaviour. The likelihood that behaviour will be performed increases with the degree of intention to do so. Although various models, such as those of Shapero and Sokol (1982) and Bird (1988), have been used to describe EI, none have had as much of an impact as Ajzen’s TPB (Ajzen, 1991; Liñán and Chen, 2009). This theory offers a comprehensive framework that makes it possible to comprehend intentions while considering both societal and personal elements.

According to the TPB, an individual’s EIs are chiefly influenced by PAs towards entrepreneurship, SN and PBC. First, PA refers to how positively or negatively a person evaluates entrepreneurial behaviour. Second, SN measures how strongly a person perceives social pressure to perform or refrain from performing start-up behaviour, while PBC measures how easy or difficult it is to perform entrepreneurial actions. However, entrepreneurial behaviour is determined by EI. In addition, the three antecedents mentioned are adequate to explain intention, but their relative significance may vary from context to context (Ajzen and Fishbein, 2004). In our study, the behavioural dimension was conceptualised through the EI of the students. Entrepreneurship starts with the generation of EI (Kong et al., 2020). Bird (1988) conceptualised EI, the basis of which is the desire or tendency of a person to consciously direct actions or behaviours towards entrepreneurial outcomes, such as launching a new business. Along these lines, EIs are the first step in the evolving and lengthy process of venture creation (Kautonen et al., 2013; Lee and Wong, 2004). Previous researchers have highlighted the importance of EI as a strong predictor of entrepreneurship behaviour (Ajzen, 1991, 2001; Martin et al., 2013; McNally et al., 2016) where the predictive ability to fulfil those intentions is different among individuals in actually doing so (Hamidi et al., 2008). Several studies have explored EI through factors as personal traits, self-efficacy, perceived risk, system design and other such factors (Kong et al., 2020).

2.1.1 Personal attitude (PA). PA has been identified as the primary factor influencing EI (Wu and Tian, 2022). Attitude is defined as “a disposition to respond favourably or unfavourably to an object, person, institution, or event” (Ajzen, 1988). Attitude has an element of psychological expression towards an entity, either favourably or unfavourably (Eagly and Chaiken, 1993). Jena (2020) mentioned that attitude is a predisposition to evaluate an entity,
object or situation that could be positive, negative, neutral or dormant. Attitude reflects the 
appreciation of entrepreneurial activities and related outcomes, with a positive attitude that 
enables the individual’s perception of fulfilment and accrued desire to discover new 
opportunities (Asghar et al., 2019; Bouhalleb, 2020). PA in the context of entrepreneurship is 
positively associated with intention to start a new business venture (Acuna-Duran et al., 2021; 
Su et al., 2021; Tehseen and Haider, 2021). An individual’s attitude towards entrepreneurship 
reflects a belief in the overall outcome (Esfandiar et al., 2017). Therefore, it can be 
hypothesised that:

\[ H1. \] PA has a significantly positive association with EI.

2.1.2 Subjective norms (SN). SN refers to the favourable or unfavourable opinions of an 
individual’s friends, family and colleagues regarding their intention to engage in a particular 
behaviour, i.e. entrepreneurial activity (Vesperi and Gagnidze, 2021; Joensuu-Salo et al., 2015). 
It is considered a predominant predictor of EI. Therefore, as the SN for a specific set of 
behaviours improves, a person’s behavioural intention becomes stronger. A positive opinion 
encourages an individual to launch their own venture, whereas an unfavourable opinion 
discourages or dampens the individual’s spirit (Ajzen, 1991; Anwar and Saleem, 2019a). As 
entrepreneurship comes with certain risks and challenges, SN influences the act of 
performing or avoiding entrepreneurial activities (Hussain, 2018). Although most studies 
based on TPB broadly acknowledge SN as significantly impacting intention, a few 
exceptional studies dissociate any significant relationship between SN and EI (Doanh and 
Bernat, 2019; Krueger et al., 2000). Therefore, we acknowledge SN as a vital factor in EI and 
hypothesise the following:

\[ H2. \] SN have a significantly positive association with EI.

2.1.3 Perceived behavioural control (PBC) and entrepreneurial decision-making process. PBC in 
entrepreneurship is defined as the perception of the ease or difficulty of becoming an 
entrepreneur (Lińan and Chen, 2009), and entrepreneurial behaviour (Joensuu-Salo et al., 2015; 
Varamäki et al., 2015), which favours EI (Ajzen, 2002). General observations have shown that 
people thinking about starting their own venture believe that they can control the 
environment through their capabilities and the resultant decisions will depend on the 
person’s abilities (Farrukh et al., 2018). By contrast, if an individual perceives no control over 
the circumstances, the intention to perform a particular behaviour is either lacking or missing 
(Nguyen, 2017). According to Krueger (1993), the degree to which a person believes that they 
are capable of effectively starting a new business is a crucial antecedent of the development of 
EI. Numerous studies have demonstrated a strong relationship between PBC and EI 
(Tegtmeier, 2012; Yang, 2013; Zhang et al., 2015). In separate studies, Kadir et al. (2012) and 
Souitaris et al. (2007) found that PBC has a positive relationship with EI, where the former 
study mentions external control as situational, such as securing financial support for a new 
venture, and the latter study mentions entrepreneurship intention in students of elite 
universities with high self-confidence, which is representative of PBC. Thus, it can be 
hypothesised that:

\[ H3. \] PBC has a significantly positive association with EI.

2.1.4 Regulatory support (RS). A supportive regulatory framework for promoting 
entrepreneurial activities is a key element in an effective entrepreneurial ecosystem (Hueso 
et al., 2021; Vesperi and Gagnidze, 2021). RS is defined as the overall direction of a 
government’s programs and policies regarding a particular issue. The regulatory framework 
influencing entrepreneurship can facilitate or inhibit the different dimensions of a business 
related to starting a business, trade barriers, financing and investment options (Schillo et al., 
2016). One important and common structural barrier to EI has been identified as government
legislation (Gera et al., 2021). However, government assistance policies and programs such as relaxed trade laws and tax incentives can enhance entrepreneurship (Mamun et al., 2017). Studies conducted in Europe, Asia and Africa have established the critical role of RS in enhancing self-employment intention among students (Sivarajah and Achchuthan, 2013). Studies conducted in Sweden, Japan and China reflect the growing trend of providing structural support for innovation and start-up businesses of college students (Huang et al., 2021; Hoppe, 2016). Potential entrepreneurs feel more confident about their ventures if the external environment, comprising government resources and policies, is more liberal and encouraging (Mamun et al., 2017). Through various government ministries and agencies, these schemes provide support to entrepreneurs in terms of tax incentives, training, funding schemes, advisory services and others. Thus, countries globally have placed upmost importance on introducing policies aimed at promoting entrepreneurship. In India, the government has launched various schemes, such as the Innovation Mission, Pradhan Mantri Mudra Yojana and Startup India Scheme, to tackle the problem of unemployment and boost young start-ups (Startup India, 2022). Hence, the following hypothesis is proposed:

H4. Lack of RS has a significantly negative association with EI.

2.1.5 Opportunity recognition (OR). Starting a business involves identifying and acting on new opportunities. Business OR is the process by which early start-ups detect, discover and evaluate patterns in the environment, which can result in lucrative ideas (Foss and Klein, 2020). It has been recognised as a cognitive process involving not only discovering but also exploiting business opportunities (Foss and Klein, 2020; Kirzner, 1983; Krueger et al., 2000). The vital factors determining the effectiveness of opportunity recognition are active engagement in searching for opportunities, alertness to emerging opportunities and previous knowledge of customers, the market and the industry (Baron, 2006). According to Krueger (2007), numerous informational sources assist new business owners in spotting opportunities, but access to the right information and its effective implementation are crucial for spotting opportunities (Shane, 2003). Apart from the individual, social network sources such as family, friends and business associates, help identify business opportunities. Choudhary et al. (2020) conducted a study to empirically examine the role of opportunity recognition on venture creation by women entrepreneurs in India and opined that the sourcing, evaluation and exploitation of opportunities is critical to the success of the new business. Thus, we can posit that those with better abilities to recognise business opportunities will display a higher probability towards EI and the following hypothesis is hence developed:

H5. Opportunity recognition has a significantly positive association with EI.

2.1.6 Entrepreneurship education (EE). EE is a tool used to inculcate and develop entrepreneurial competencies and innovative thinking in students through entrepreneurial courses, training and competition (Bouhalleb, 2020; Huang et al., 2021). According to Becker (1994), EE increases an individual’s knowledge and cognitive ability, thereby enhancing productivity and efficiency. This is based on the premise that entrepreneurial skills can be acquired, affect intentions and facilitate new ventures (Fietze and Boyd, 2017; Gorman et al., 1997; Nabi et al., 2016). The principal role of EE is to highlight and enhance awareness of entrepreneurship as a viable and lucrative career option (Fayolle and Gailly, 2015). EE has been embraced by UK universities for a variety of reasons, primarily to encourage and drive students towards business creation, to inculcate enterprising behaviour and to bring in place non-traditional learning methods. Although there has been a significant increase in EE across postgraduate courses globally, its effect on EI is debatable (Vesperi and Gagnidze, 2021; Freischner and Weber, 2013). Some studies corroborate the positive relationship between EE and EI in terms of knowledge and skills (Anwar et al., 2020; Asghar et al., 2019; Mueller, 2011).
whereas others establish an insignificant or negative impact of EE on EI (Block et al., 2013; Oosterbeek et al., 2010). Recently, research has established a conjoint relationship between EE and EI in several ways (Liao et al., 2022; Martin et al., 2013). Rather than simply considering EE as a determinant of EI, studies have found that EE mediates and moderates the relationship between TPB and EI (Anwar et al., 2020). Jena (2020) examined and validated the impact of Indian students’ attitudes towards EE on EI. Typically, EE strengthens the positive attitude of students towards entrepreneurship by positively framing the gains from this career option (Maresch et al., 2016; Palalic et al., 2017). EE can also influence PAs in various ways. It can develop a positive attitude towards entrepreneurship by stressing the gains associated with it and downplaying the risks and failures associated with it. Furthermore, awareness of risk-mitigation strategies can develop and enhance attitudes towards entrepreneurship.

Entrepreneurship courses can change people’s beliefs about the feasibility and infeasibility of starting their own ventures (Maresch et al., 2016). Furthermore, EE can provide information, knowledge and sources of support that influence perceptions of entrepreneurship. PBC is greatly affected by the availability of resources and institutional support. EE boosts confidence and enhances self-belief by providing a simulated environment for testing entrepreneurial skills. We thus propose the following hypotheses:

- **H6.** EE has a significantly positive association with EI.
- **H7.** EE has a significantly positive association with PA.
- **H8.** EE has a significantly positive association with PBC.

Figure 1 show the conceptual model and summarises the variables and relationships.

### 3. Methodology

#### 3.1 Sampling and instrument

The research data were collected using a questionnaire, and cross-sectional quota samples were selected from final-year students of business studies and engineering who were more likely to participate in entrepreneurial activities. The survey was conducted from December 2022 to May 2023 in the Delhi NCR region, India’s start-up capital (Mathur, 2022). The data collection instrument had the following three parts:

1. A statement outlining the survey’s goals and instructions followed by a screening question;
Demographic profiles comprising of age, gender, education and self-employment experiences, family income and background, educational stream; and Evaluation of the seven latent variables.

Table 1 summarises the sample characteristics of the respondents. Of the total 240 student respondents, 54.6% belonged to the business studies stream, while the remaining 45.4% were pursuing engineering studies. A sizeable proportion of students (65.4%) were aged between 20 and 25 years. Gender distribution was equal among males and females. Most of the sample was made up of students from households with more than Rs 90,001 per month (31.7%). As per the survey, 52.9% of the students belong to families having business activities. Finally, only 9.2% of the students had any prior business experience in entrepreneurial activities.

3.2 Measures and procedures

The construct measurements were based on established instruments. All 32 survey items to measure the seven constructs came from earlier literature but were adapted to suit the context of the study. Each measure was rated on a Likert scale ranging from 1 (strongly disagree) to 5 (strongly agree). The content validity of each item was examined to ensure that it was comprehensible to respondents. Before gathering data, a pilot study was conducted to ensure the validity of the instrument. Several digital media channels, including WhatsApp and email, were used to distribute the survey tools. In total, 240 students responded to the survey. There were no missing values since the “required” field was enabled during data collection and thus all responses were deemed appropriate for further analysis.

<table>
<thead>
<tr>
<th>Items</th>
<th>Sample composition</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>N</td>
</tr>
<tr>
<td><strong>Age (years)</strong></td>
<td></td>
</tr>
<tr>
<td>Below 20</td>
<td>75</td>
</tr>
<tr>
<td>20–25</td>
<td>157</td>
</tr>
<tr>
<td>25–30</td>
<td>7</td>
</tr>
<tr>
<td>Above 30</td>
<td>1</td>
</tr>
<tr>
<td><strong>Gender</strong></td>
<td></td>
</tr>
<tr>
<td>Male</td>
<td>120</td>
</tr>
<tr>
<td>Female</td>
<td>120</td>
</tr>
<tr>
<td><strong>Household income (Rupees per month)</strong></td>
<td></td>
</tr>
<tr>
<td>Less than 30,000</td>
<td>54</td>
</tr>
<tr>
<td>30,001–60,000</td>
<td>65</td>
</tr>
<tr>
<td>60,001–90,000</td>
<td>45</td>
</tr>
<tr>
<td>90,001 and above</td>
<td>76</td>
</tr>
<tr>
<td><strong>Educational stream</strong></td>
<td></td>
</tr>
<tr>
<td>Business studies</td>
<td>131</td>
</tr>
<tr>
<td>Engineering</td>
<td>109</td>
</tr>
<tr>
<td><strong>Family background</strong></td>
<td></td>
</tr>
<tr>
<td>Business family</td>
<td>127</td>
</tr>
<tr>
<td>Non-business family</td>
<td>113</td>
</tr>
<tr>
<td><strong>Self-employment experience</strong></td>
<td></td>
</tr>
<tr>
<td>Yes</td>
<td>22</td>
</tr>
<tr>
<td>No</td>
<td>218</td>
</tr>
</tbody>
</table>

Source(s): Our elaboration

Table 1. Sample characteristics
4. Results

A preliminary investigation of data quality was performed using the mean and standard deviation. The data were analysed using SmartPLS (v. 4.0.8.9). The results also showed that the data were normally distributed with skewness and kurtosis values of ±1.0 (Hair et al., 2017a, b). To check for common method bias (CMB), a phenomenon that frequently occurs in cross-sectional surveys, the data were further examined using Harman’s single factor technique (Streukens et al., 2017). The study was free of CMB because the first extracted component explained only 40.224% of the variance, falling short of the required 50%.

4.1 Measurement model

The psychometric properties of the measurement model were assessed using factor loadings, Cronbach’s Alpha (CA), composite reliability (CR) and average variance extracted (AVE) (Hair et al., 2017a, b; Sarstedt et al., 2017). All items had acceptable factor loadings, and all constructs had CR and AVE greater than 0.70 and 0.50 respectively. With all values greater than 0.7, CA was used to establish the internal consistency reliability of the study constructs (Hair et al., 2019). Reliability and convergent validity of the measures were thus established. Figure 2 depicts the evaluation of the measurement model, which includes outer loadings and path coefficients (β).

Fornell-Larcker and Heterotrait-Monotrait (HTMT) criteria were used to check the discriminant validity of the constructs. Table 2 shows that the square root of each construct’s AVEs is greater than its correlation with any other construct, justifying discriminant validity (Fornell and Larcker, 1981).

Discriminant validity was further corroborated by the HTMT ratio. Table 2 depicts all constructs’ HTMT ratios below 0.90, indicating a lack of multi-collinearity, thereby establishing discriminant validity (Hair et al., 2019).

4.2 Structural model and hypothesis testing

Once the study model was checked for reliability and validity measures, we assessed the reflective constructs of the structural model using the methodology proposed by Hair et al. (2017a, b). The model was checked for multi-collinearity using the variance inflation factor (VIF) index. As all latent variable VIF scores were within the threshold value of 5.0, no collinearity issues were detected. Thereafter, the model was examined for goodness-of-fit

Figure 2. Measurement model

Source(s): Our elaboration
indicators using the standardised root-mean-square residual (SRMR) and normed fit index (NFI) values of 0.053 (<0.08) and 0.835 (>0.8), respectively. Finally, the PLS algorithm option was used to investigate the significance of the relationships in the structural model. This was performed with the help of a bootstrapping procedure using 5,000 subsamples. The coefficients of determination ($R^2$) for the dependent variables EI, personal attraction and PBC were found to be 70.2%, 32.9 and 33.2%, respectively, indicating a good model fit. The results for the $\beta$-coefficient, $t$-value, $p$-value and $f^2$ are shown in Table 3. Hypothesis testing was performed using calculated path coefficients. All results showed positive $\beta$ values, except for H4, indicating a direct relationship. A negative $\beta$ for H4 indicates that a lack of RS decreases EI. The threshold value of $t$-statistics is taken as 1.96 to accept or reject the hypothesis. Additionally, an $f^2$ effect size value between 0.02 and 0.15 is interpreted as weak, between 0.15 and 0.35 as moderate and greater than 0.35 as strong. The hypotheses testing results are summarised in Table 4. The results revealed a significant relationship of PA ($\beta = 0.341$, $t = 5.715$), SN ($\beta = 0.108$, $t = 2.353$), PBC ($\beta = 0.201$, $t = 3.808$), RS ($\beta = -0.127$, $t = 3.006$), OR ($\beta = 0.119$, $t = 2.361$) and EE ($\beta = 0.372$, $t = 6.040$) with EI. Additionally, there was a significant and positive association between EE ($\beta = 0.574$, $t = 9.875$) and PA and EE.

<table>
<thead>
<tr>
<th>Construct</th>
<th>EI</th>
<th>EE</th>
<th>OR</th>
<th>PBC</th>
<th>PA</th>
<th>RS</th>
<th>SN</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Fornell-Larcker criterion</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>EI</td>
<td>0.829</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>EE</td>
<td>0.715</td>
<td>0.895</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>OR</td>
<td>0.566</td>
<td>0.507</td>
<td>0.840</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>PBC</td>
<td>0.635</td>
<td>0.576</td>
<td>0.514</td>
<td>0.774</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>PA</td>
<td>0.701</td>
<td>0.574</td>
<td>0.505</td>
<td>0.468</td>
<td>0.850</td>
<td></td>
<td></td>
</tr>
<tr>
<td>RS</td>
<td>0.349</td>
<td>0.500</td>
<td>0.435</td>
<td>0.350</td>
<td>0.382</td>
<td>0.903</td>
<td></td>
</tr>
<tr>
<td>SN</td>
<td>0.442</td>
<td>0.326</td>
<td>0.371</td>
<td>0.406</td>
<td>0.392</td>
<td>0.357</td>
<td>0.878</td>
</tr>
</tbody>
</table>

| **Heterotrait-Monotrait ratio** | | | | | | | |
| EI        |    |    |    |     |    |    | 0.779 |
| EE        |    |    |    |     |    | 0.560 | 0.627 |
| OR        |    |    |    |     |    | 0.587 | 0.717 |
| PBC       |    |    |    |     |    | 0.528 | 0.769 |
| PA        |    |    |    |     |    | 0.418 | 0.379 |
| RS        |    |    |    |     |    | 0.402 | 0.501 |
| SN        |    |    |    |     |    | 0.436 | 0.366 |

**Source(s):** Our elaboration

Table 2. Discriminant validity

<table>
<thead>
<tr>
<th>Hypotheses</th>
<th>$B$</th>
<th>$t$ value</th>
<th>$p$ value</th>
<th>$f^2$</th>
<th>Interpretation</th>
<th>Conclusion</th>
</tr>
</thead>
<tbody>
<tr>
<td>H1 PA → EI</td>
<td>0.341</td>
<td>5.715</td>
<td>0.000</td>
<td>0.357</td>
<td>Large effect size</td>
<td>Supported</td>
</tr>
<tr>
<td>H2 SN → EI</td>
<td>0.108</td>
<td>2.353</td>
<td>0.019</td>
<td>0.043</td>
<td>Small effect size</td>
<td>Supported</td>
</tr>
<tr>
<td>H3 PBC → EI</td>
<td>0.201</td>
<td>3.808</td>
<td>0.000</td>
<td>0.117</td>
<td>Small effect size</td>
<td>Supported</td>
</tr>
<tr>
<td>H4 RS → EI</td>
<td>-0.127</td>
<td>3.006</td>
<td>0.003</td>
<td>0.095</td>
<td>Small effect size</td>
<td>Supported</td>
</tr>
<tr>
<td>H5 OR → EI</td>
<td>0.119</td>
<td>2.361</td>
<td>0.018</td>
<td>0.028</td>
<td>Small effect size</td>
<td>Supported</td>
</tr>
<tr>
<td>H6 EE → PA</td>
<td>0.574</td>
<td>9.875</td>
<td>0.000</td>
<td>0.649</td>
<td>Large effect size</td>
<td>Supported</td>
</tr>
<tr>
<td>H7 EE → EI</td>
<td>0.372</td>
<td>6.040</td>
<td>0.000</td>
<td>0.343</td>
<td>Medium effect size</td>
<td>Supported</td>
</tr>
<tr>
<td>H8 EE → PBC</td>
<td>0.577</td>
<td>10.895</td>
<td>0.000</td>
<td>0.747</td>
<td>Large effect size</td>
<td>Supported</td>
</tr>
</tbody>
</table>

**Source(s):** Our elaboration

Table 3. Hypotheses testing and effect size
The results support the directional hypotheses for $H1$ to $H8$ for $p$-values of less than 0.05.

The mediation effects of PA and PBC on EE and EI are presented in Table 4. As the total effect, specific indirect effects and direct effect are all significant, PA and PBC act as significant partial parallel mediators, with PA (Variance Accounted For [VAF] = 28.75%) exhibiting a stronger mediation effect than PBC (VAF = 16.93%).

The detailed structural model consisting of $R^2$, $\beta$ and $p$ values is depicted in Figure 3. Moreover, the model was assessed for its predictive power by first examining the $Q^2_{predict}$ values for all items of the endogenous constructs. Because all values were found to be greater than zero, their histograms for the prediction errors were checked for a symmetrical distribution. Thereafter, we verified whether the proposed model accurately depicted the data based on the observed model by comparing the root-mean-squared error (RMSE) of prediction values of Partial least squares structural equation modeling (PLS-SEM) with those of the linear model (LM). The research model had a medium level of predictive power because only five of the 16 indicators had PLS-SEM values that were greater than the LM values.

5. Discussion and conclusion
The results of this study confirm that it is possible to educate young university students to be entrepreneurs. To achieve this result, the role of factors affecting EI were considered. More precisely, under the TPB perspective, this study examined the impact of entrepreneurial education (EE) on EI, using PA and perceived behavioural control (PBC) as mediators.
These results suggest that the conceptual framework proposed in this study is relevant in explaining the EI of higher education students. The validity and reliability of the research model was demonstrated using the metrics. The results of the structural model support all eight hypotheses proposed.

The factors used in this study help explain EI. The study results confirmed that the TPB components of PA and PBC had a significant, direct and positive association with EI. This is consistent with the findings of Jena (2020), which confirm that Indian university students with a good attitude towards starting and running a business have a higher EI. This supports the findings of Hassan et al. (2020) that students from Indian colleges are more likely to have higher EI when they have confidence in their skills to meet goals set in challenging conditions. The constructs SN, OR and RS had a significant but weak impact on EI. Based on our results and the conclusions drawn by Doanh and Bernat (2019) and Asghar et al. (2019), we examined the role of SN in the TPB model in explaining EI. Most Indian students have demonstrated a personality less vulnerable to the influence of family and friends. Furthermore, recognising a potential business opportunity is not sufficient to justify strong EI. Recognised opportunities must be exploited to influence EI. Finally, our results indicate that a lack of RS negatively affects EI. Potential entrepreneurs would feel more confident about their risky ventures if the government element in the business environment is more supportive and reformist.

Another objective of this study was to investigate the role of EE in the development of PA and PBC regarding EI. Our results indicate a strong influence of EE on both PA and PBC, corroborating previous studies by Asghar et al. (2019) and Varamäki et al. (2015). EE boosts self-confidence by providing knowledge and skills about setting up a business and creates a positive image of self-employment. EE is essential for the development of entrepreneurial competencies, leading to enhanced EI. This may explain the increasing interest in EE courses in the higher education sector in India. PA and PBC were significantly found to partially mediate the relationship between EE and EI, indicating the importance of TPB constructs in influencing EI. This reiterates the importance of an entrepreneurial knowledge base in developing positive vibes and competencies towards entrepreneurship activities.

6. Implications, limitations and further developments
6.1 Theoretical implications
Our research attempts to consolidate and empirically examine the previously examined variables that impact EI among higher-education students. This new integrated model offers insights into the relationships between EI and its antecedents, namely, the TPB constructs of PA, PBC and SN, along with RS and OR. The model had substantially high (70.2%) explanatory power for EI, with the emotional constructs of PA and PBC as the strongest determinants. Furthermore, although OR and RS had weak individual effects on EI when combined with TPB factors, they were able to justify their existence in the hypothesised model. This relationship also validates the role of EE in EI. In addition, the model established the role of PA and PBC as parallel partial mediators of EE’s influence on EI.

6.2 Practical and managerial implications
The findings revealed that entrepreneurial education (EE) has uplifting effects on university students’ inclination to start their own businesses. Therefore, it is crucial that all higher education institutions include entrepreneurial courses in their curricula. Furthermore, policy makers and university professors and managers can use this model to gauge the extent to which determinants can stimulate EI. This model can also provide diagnostic support for formulating a pragmatic and effective curriculum, pedagogy and environment to enrich EE experience. The systematic acquisition of skills, knowledge and experience will not only
inspire passion, confidence and competencies in students but also instil positive PA and PBC towards EI. In addition, the results show that for governments is crucial to provide access to resources such as funding, educational support and advice to youth entrepreneurs.

6.3 Limitations and further developments
This study offers several contributions, we acknowledge that it is not entirely beyond reproach and leave some unaddressed questions. First, as intention and not behaviour has been studied to predict entrepreneurship, we have ignored the time lag between them. Consequently, long-term perspectives on time should be considered when designing future studies. Second, we limited our efforts to unravel the effects of the five variables on the formation of EI. Future studies could explore more antecedents of EI in addition to existing ones. Third, we limited our exploration of EI chiefly through Ajzen’s TPB. The same phenomenon can be re-explored through other theoretical underpinnings, such as the theory of entrepreneurial events. Fourth, although a sample size of 240 was sufficient to obtain significant results, a more representative and larger sample size would help generalise the results. Future studies could focus on other study courses and regions in India to increase the versatility of the sample. Lastly, the incorporation of control variables, such as gender and family background would explore the relationship between the model variables in a more meaningful way.

References


Hussain, S. and Imran Malik, M. (2018), “Towards nurturing the entrepreneurial intentions of neglected female business students of Pakistan through proactive personality, self-efficacy and


Further reading


Corresponding author
Walter Vesperi can be contacted at: walter.vesperi@unipa.it