

Empowering entrepreneurs: bridging the attitude-intention- behaviour gap through dynamic entrepreneurship education

Empowering
entrepreneurs
education

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Abstract

Purpose – By adopting the theory of planned behaviour, this study aims to provide insights into how entrepreneurial education (EE) contributes to the entrepreneurial process, especially entrepreneurial behaviour (EB).

Design/methodology/approach – The research used a sample of 2,566 students from 16 universities in Vietnam. The conceptual framework's coefficient paths underwent testing using structural equation modeling, and the mediation effects were determined using the PROCESS bootstrapping method.

Findings – The study revealed that EE directly influences EB in Vietnam, despite having no direct effect on entrepreneurial intention (EI). In addition, EE indirectly influences EI and EB through enhancing attitude towards entrepreneurship and perceived behavioural control.

Practical implications – These findings suggest that policymakers should consider the value of investing in EE programmes as a means of promoting EB. Offering students opportunities to engage in real-life

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entrepreneurial activities, such as business plan competitions, internships with local start-ups and access to mentorship from established entrepreneurs, can play a pivotal role in their translating knowledge into action. This practical approach can significantly contribute to the development of an entrepreneurial ecosystem in Vietnam.

Originality/value – While many studies have investigated the influence of EE on EIs, there is a lack of research on the behavioural outcomes of such education. Furthermore, the findings regarding the EE–EI relationship are inconsistent. Therefore, this study provides valuable insights into how EE can foster the intention and behaviour to engage in entrepreneurship.

Keywords Entrepreneurial process, Entrepreneurial education, Entrepreneurial behaviour

Paper type Research paper

1. Introduction

Recently, there has been a growing interest among entrepreneurship researchers and practitioners in better understanding the process through which individuals pursue entrepreneurial careers. This interest is driven by the fact that entrepreneurship is not only a driver of domestic and international economic development (Nguyen *et al.*, 2021) but also contributes to social development, the reduction of the unemployment rate (Gieure *et al.*, 2020), and the fostering of innovation and creativity (Cui *et al.*, 2021).

Given the considerable investment by the governments of many countries to encourage entrepreneurship (St-Jean *et al.*, 2018), academic attention has been increasingly focused on the results of entrepreneurial education (EE) and training (Boubker *et al.*, 2021; Otache *et al.*, 2019), as EE is viewed as an effective method to stimulate entrepreneurship activities (Costin *et al.*, 2021). However, Fayolle and Liñán (2014) emphasise that our existing understanding of the consequences of EE on the process of developing business ventures is limited. Therefore, further research is necessary to explain EE's effect on the formation of entrepreneurial intention (EI) and entrepreneurial behaviour (EB) in particular. While many recent studies have investigated the influence of EE on EIs, there is a significant research gap in understanding the effectiveness of such education on EB (Duong *et al.*, 2022b; Cui and Bell, 2022). The question of how EE influences EB is important not only for educators and researchers but also for policymakers, practitioners and entrepreneurs.

Examining this within the specific context of Vietnam's economic transformation from a centrally planned to a market-oriented system, the prevalence of small and medium-sized enterprises has played a pivotal role (Le *et al.*, 2022). Recently, the surge in start-ups within Vietnam has gained momentum, earning the country a reputation for fostering favourable conditions for entrepreneurship. After the Vietnamese government decided to amplify community investment and showcase its dedication to the start-up ecosystem in 2014, the significance of entrepreneurship in Vietnam has become clear. According to the findings of the Global Entrepreneurship Index study for 2017 / 2018, the proportion of individuals intending to pursue entrepreneurship in Vietnam has steadily risen since 2014, reaching 25% in 2017 and securing 19th place out of 54 economies. This implies that one in every four individuals aspires to establish their own business in Vietnam. In addition, Vietnam has been considered the leading country in innovation among lower middle-income economies over the past decade.

Recognising this pivotal role of entrepreneurship, the Vietnamese government has instituted essential policies to encourage start-up activities, with a particular focus on EE. Within Vietnam, the younger generation, notably students, is considered the prospective high-quality workforce of the nation. As a result, the Vietnamese government has implemented significant steps to foster entrepreneurial initiatives among university students. In an effort to equip students with the fundamental knowledge and skills for entrepreneurship, a national program titled "Supporting student Entrepreneurship with a Vision Towards 2025" has been introduced, underscoring its strong commitment to EE. In addition, entrepreneurship has become a main subject in many

economics' programmes in Vietnamese universities. These initiatives have a dual goal: When students are armed with basic skills and knowledge about entrepreneurship, they can better seize opportunities to start a business, and in doing so, they will create jobs for themselves and many others. To provide effective recommendations to policymakers, it is imperative to understand how EE influences the intention to start a business. Therefore, investigating the impact of EE on enhancing EIs in Vietnam holds substantial significance.

Therefore, this study aims to explore how EE contributes to the entrepreneurial process, especially EB, in the context of Vietnam, by adopting the theory of planned behaviour (TPB) model. First, the findings contribute to understanding the relationship between EE and EB and provide valuable insights into how to design effective educational programmes that foster entrepreneurial activity. Second, promoting entrepreneurship is increasingly seen as a key driver of economic growth and development, and identifying the factors that contribute to successful entrepreneurship can have important implications for policymakers seeking to promote economic growth and job creation.

2. Theoretical framework

2.1 *The theory of planned behaviour*

Entrepreneurship is a process which starts when a person has a favourable attitude towards entrepreneurial activities, is guided by the intention to engage in entrepreneurial action, and ends when that person forms and begins running their own business (Gieure *et al.*, 2020). EI is defined as the commitment to creating a new business venture (Krueger and Carsrud, 1993) and is the key predictor of EB (Neneh, 2019; Shirokova *et al.*, 2016). Although EB has been identified as the core of our understanding of entrepreneurship (Gruber and MacMillan, 2017), the entrepreneurship literature lacks a common definition of EB (Gieure *et al.*, 2020). For example, Shane and Venkataraman (2000) define EB as the discovery, evaluation, and exploitation of a business opportunity, whereas Gartner (1992) defines EB as encompassing a wide array of actions and activities undertaken by an individual when establishing a new organisation, in contrast to being employed by others. In this study, the concept of EB has been drawn from the research of Gieure *et al.* (2020), which holds that EB pertains to an individual's capacity and knowledge of the various aspects that comprise an enterprise. It encompasses an individual's practical skills and fundamental understanding, which enable them to undertake entrepreneurial activities. In addition, it reflects the skills and knowledge acquired that empower an aspiring entrepreneur to transition from the initial stages of conceptualising a business idea to taking concrete steps towards establishing a new venture (Shepherd *et al.*, 2015). Gieure *et al.* (2020) argue that realising oneself capable of carrying out entrepreneurial activities or even considering taking entrepreneurial actions relates to one's expressing the ability to act upon intentions and perform entrepreneurial actions. These actions must occur before creating a business venture.

The TPB (Ajzen, 1991) is among the most influential theories that have been broadly used to explain human behaviours (Lortie and Castogiovanni, 2015), including EBs (Fayolle and Liñán, 2014). The TPB is a social cognitive framework that can help explain how a person makes a reasoned decision when considering the advantages and drawbacks of carrying out a particular action (Kautonen *et al.*, 2015). In the TPB framework, the determination of intention can be characterised as a product of three factors:

- (1) a favourable or unfavourable evaluation of specific behaviour (referred to as an attitude towards behaviour);
- (2) the perception of societal influence to execute or abstain from the behaviour [known as subjective norms (SNs)]; and

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- (3) the perception of the degree of effort or ease required to perform the behaviour (known as perceived behaviour control (PBC)).

Behaviour can be regarded as the direct outcome of PBC and intention (Ajzen, 2020). The reliability of the TPB in explaining the intentions and actual actions of different behaviours has been confirmed by meta-analytic reviews (Afshar Jalili and Ghaleh, 2021; Riebl *et al.*, 2015). In the entrepreneurship literature, the TPB is one of the most prominent and widely used psychological theories because it predicts human planned behaviour both theoretically and experimentally (Lortie and Castogiovanni, 2015). In the context of Vietnam, many studies have employed the TPB model to investigate the impact of precursors on the entrepreneurial intentions and behaviour of Vietnamese youth. These factors encompass motivational and cognitive aspects (Duong *et al.*, 2021), personal traits (Maheshwari, 2021), and elements such as work values, opportunities, and barriers (Loan *et al.*, 2021). The outcomes of these investigations have consistently demonstrated the applicability of the TPB within the context of Vietnam's transitional economy.

2.2 Relationships in the theory of planned behaviour model

Although Ajzen (1991) showed that the association between intentions and behaviours in his study ranged from 0.90 to 0.96, several meta-analyses have found that behavioural intention can explain only 27%–28% of the variance in behaviour (Armitage and Conner, 2001). Some studies also argue that, compared to other contexts, the intention–behaviour link in entrepreneurship is likely to be weaker (Gieure *et al.*, 2020; Meoli *et al.*, 2020; Shirokova *et al.*, 2016). Recently, Kautonen *et al.* (2015) used longitudinal data to show that EI can explain 31.0% of the variation in EB. Shirokova *et al.* (2016) also demonstrated that EIs can describe 31.4% of the variance in the scope of the entrepreneurial activities of university students. EB is identified as the outcome of university students' EI, since students' high EI reflects their willingness to carry out entrepreneurial activities (Cui and Bell, 2022). In the context of Vietnam, Loan *et al.* (2021) reported that the EIs of Vietnamese students had a significant positive effect on their EBs. Consequently, based on the theoretical arguments, we propose that EI significantly contributes to shaping EB among university students in Vietnam:

H1a. EI has a positive effect on EB.

According to Ajzen (2020), a person's attitude towards a behaviour can be determined as that person's favourable/unfavourable assessment of the outcome of a specific action. A favourable attitude towards entrepreneurship (ATE), in line with the TPB, can contribute to the formation of EI. In addition, numerous studies have confirmed that ATE is positively and significantly associated with engaging in entrepreneurship (Maresch *et al.*, 2016; Dao *et al.*, 2021); however, few studies have explored the link between ATE and EB. In other words, our understanding of how an individual who thinks entrepreneurially transforms this thinking into entrepreneurial action is limited. While several studies have found entrepreneurial attitude and intention to affect EB, an entrepreneurial attitude–behaviour gap exists in the entrepreneurship literature in terms of examining why many individuals express a favourable ATE and intention to behave in an entrepreneurial way, yet do not engage in actual EB (Neneh, 2019). Some scholars have observed that a person's ATE can be a powerful predictor of EB because ATE is reflective of the expected outcomes when engaging in targeted entrepreneurial actions (Baluku *et al.*, 2021). This means that if individuals perceive the creation of business ventures as valuable outcomes, they are more likely to behave entrepreneurially (Barba-Sánchez *et al.*, 2022). In the Vietnamese context, Duong (2022) reported that the impact of ATE was observed to be more influential on EB than EI. This implies that, within the Vietnamese setting, evaluating an individual's ATE

may offer a more precise prediction of their subsequent EB. Thus, there is a hypothetically positive relationship between ATE and EB among university students in Vietnam:

H1b. ATE has a positive effect on EB.

In the TPB framework (Ajzen, 1991), the other immediate antecedent of EB is PBC (Ajzen, 2020). Thus, the stronger the PBC, the more likely the behaviour will be performed. However, it seems that almost all previous studies have ignored this relationship when applying the TPB (Gieure *et al.*, 2020). Indeed, the current entrepreneurship literature fails to explain the PBC–EB link. PBC is defined as the perception of ease or difficulty relevant to an individual's control over resources and opportunities (Ajzen, 2020), along with the perception that one possesses the necessary motivation to intend to achieve and to actually achieve the outcomes when performing a behaviour (Liñán and Chen, 2009). Thus, when individuals perceive that they have enough ability and capacity to engage in entrepreneurial activities and/or that creating and running their business ventures is easy for them, their EBs tend to be more highly developed. In a study conducted with Vietnamese students, Duong *et al.* (2022a) demonstrated that PBC exhibits a positive and statistically significant correlation with EB. However, Kautonen *et al.* (2015) revealed that although PBC explained 59% of the variation in EI in their study, it only described 31% of the variation in EB. Thus, in this study, PBC was proposed to be positively associated with EB:

H1c. PBC has a positive effect on EB.

Several scholars have statistically estimated the interrelationships among the three fundamental dimensions in the TPB (ATE, SNs and PBC) and the intention to establish a new venture (Boubker *et al.*, 2021; Pham and Le, 2023; Duong, 2021). However, some argue that the influence of the three motivational antecedents on EI can diverge in different research contexts (Otache *et al.*, 2019). This study argues that the three fundamental dimensions in the TPB (ATE, SNs and PBC) positively affect EI among university students in Vietnam:

H2. (a) ATE, (b) SNs and (c) PBC have positive effects on EI.

2.3 Direct role of entrepreneurial education

The acquisition of knowledge is widely recognised as a crucial factor in the success of an enterprise (Gieure *et al.*, 2020). Empirical studies have established that entrepreneurship can be taught through programmes focused on EE (Boubker *et al.*, 2021; Duong, 2021). EE encompasses a range of pedagogical courses, programmes and educational processes aimed at developing and enhancing students' entrepreneurial aptitudes, attitudes, knowledge and skills (Hahn *et al.*, 2017). EE also involves equipping students with expertise, skills, capacity and ethical principles essential necessary to establish and manage a business venture (Adelaja, 2021). In our research, EE is defined as the imparting of knowledge, skills, aptitudes and favourable attitudes regarding undertaking a business venture, which helps students to transform their initial entrepreneurial ideas into intentions and behaviour that lead to entrepreneurial activities.

EE can first influence the key antecedents in the TPB, namely, ATE, SNs and PBC, and then transfer these impacts to EI (Maheshwari and Kha, 2022). However, prior researches have been inconsistent when testing the influence of EE on ATE. For example, while some studies indicated that EE can significantly contribute to a positive ATE in Vietnamese students (Duong *et al.*, 2023; Pham and Le, 2023), others have found that EE is not significantly correlated with entrepreneurship (Duong *et al.*, 2022b) because students are not required to understand what steps are needed to integrate the skills and knowledge acquired from entrepreneurial courses and programmes into their entrepreneurial attitudes (Maheshwari and Kha, 2022). Thus, the

relationship between EE and ATE among Vietnamese students should be investigated to illustrate how receiving entrepreneurial training affects students' attitudes towards becoming entrepreneurs:

H3a. EE has a positive effect on ATE.

The question of whether a student's perception of support and approval from family, friends, and significant others is higher for students who are more entrepreneurially educated has not been answered (Nguyen *et al.*, 2021). In addition, the relationship between EE and EI has been adjusted based on differing research contexts (Maresch *et al.*, 2016). For example, while Otache *et al.* (2019) reported a strong and positive link between EE and SNs, Duong (2021) stated that SNs did not mediate the relationship between EE and EI in Vietnamese students, which means that the EE effect was not based on EI via SNs because it was not directly correlated with SN. In this study, we propose that when individuals receive EE, they perceive the support and approval of family, friends and others as higher:

H3b. EE has a positive effect on SNs.

EE has been shown to increase individuals' knowledge about establishing and running a business, which gives them a better ATE and results in higher entrepreneurial self-efficacy (Ramadani *et al.*, 2022). In other words, taking part in entrepreneurial education can help individuals increase their perceptions of ease in becoming an entrepreneur (Do, 2021); thus, EE can nurture PBC (Kusumojanto *et al.*, 2021). In line with the TPB theory, some studies conducted in Vietnam have affirmed that EE positively affects PBC (e.g. Duong, 2021; Maheshwari, 2021). This means that through participating in EE, students can enhance their PBC in entrepreneurship. Otache *et al.* (2019) also argued that EE cannot be indirectly beneficial for students' EI unless it first affects the three motivational constructs in the TPB model, including PBC. Therefore, we propose that when Vietnamese students are more entrepreneurially educated, their perceived ease of running a business increases:

H3c. EE has a positive effect on PBC.

Several researchers have examined the influences of a range of pedagogical entrepreneurship programmes on EI (Adelaja *et al.*, 2023) at diverse pedagogical institutions, including primary, secondary, high schools (Kirkley, 2017) and universities/institutes (Hassan *et al.*, 2021; Cassol *et al.*, 2022). EE acts as an important antecedent in inspiring students' intentions to become entrepreneurs because it provides them with essential entrepreneurial knowledge and skills that can motivate them to create their businesses. This view has been supported by recent studies in which scholars have reported that entrepreneurship can be taught via pedagogical programmes (Boubker *et al.*, 2021; Maheshwari, 2021), and that, specifically, students who have been entrepreneurially educated and trained have higher intentions to initiate entrepreneurial activities (Duong, 2021). The relationship between EE and EI has been demonstrated in some studies conducted in Vietnam (Pham and Le, 2023; Hoang *et al.*, 2020; Maheshwari and Kha, 2022). Therefore, we propose that EE is positively associated with EI among Vietnamese students:

H3d. EE has a positive effect on EI.

Since our knowledge of actual EB is limited, most prior studies have only used EE as a proxy to aid in predicting EI (Fayolle and Liñán, 2014). Meanwhile, there is a lack of studies considering the influence of EE on the entrepreneurial process in general and EB in particular, which therefore calls for further studies (Duong, 2021; Silva *et al.*, 2021). In recent study, Cui and Bell (2022) showed that EE activities, including participating in start-up clubs and start-up design

competitions, business firm visits, internships, engaging in discussions with real-life entrepreneurs, participating in business games and entrepreneurial incubation projects, as well as participation in business networking, not only significantly enhance EI but also contribute positively to EB. In addition, the link between EE and EB might be elucidated by the human capital theory, which assumes that individuals who have more knowledge are better at thinking, can accomplish more productive work, and can achieve better performance in carrying out their behaviours (Ramadani *et al.*, 2022). This means that when university students are taught knowledge about how to establish and run their own business, this, in turn, prompts them to perform entrepreneurial actions since EE provides them with new skills and knowledge aimed at creating business ventures (Maheshwari and Kha, 2022). An empirical study by Duong *et al.* (2022b) also reported that EE had a positive and direct influence on shaping Vietnamese students' EBs. Thus, based on the above discussion, the following hypothesis is formulated:

H3e. EE has a positive effect on EB.

2.4 Indirect role of entrepreneurial education

From the above arguments, it can be seen that ATE, SNs and PBC have strong correlations with both EE and EI. Therefore, ATE, SNs and PBC may play a mediating role in the relationship between EE and intention. In other words, EE first positively affects ATE, SNs and PBC, and these factors, in turn, develop an individual's intention to engage in entrepreneurship.

Similarly, given the strong correlations between ATE, PBC, EI, and both EE and EB, it can be posited that ATE, PBC and EI mediate the effects of EE and EB. In other words, EE first positively develops an individual's ATE, PBC and EI, and these factors, in turn, enhance EB.

Therefore, the following hypotheses have been formulated:

H4. (a) ATE, (b) SNs and (c) PBC mediate the effect of EE on EI.

H5. (a) ATE, (b) PBC and (c) EI mediate the effect of EE on EB.

The hypothesised framework is shown in Figure 1.

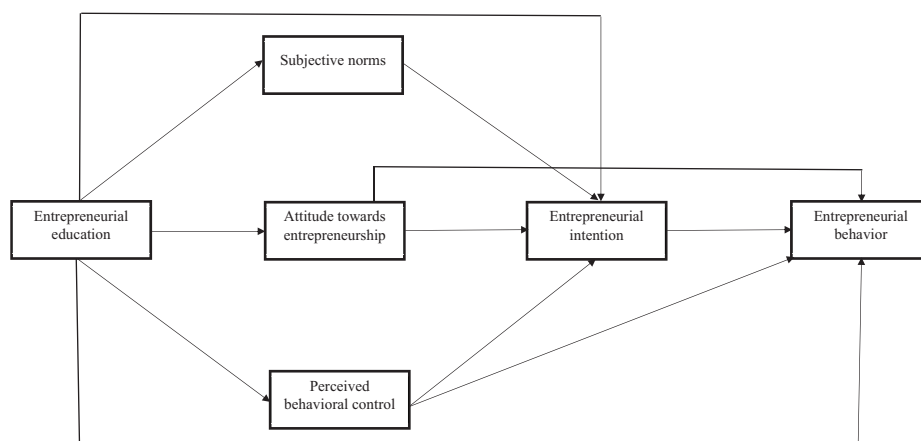


Figure 1.
Proposed conceptual
framework

Source: Figure by authors

3. Research method

3.1 Data collection and sampling

A vast majority of previous research on entrepreneurship has employed university students as the study sample (Gieure *et al.*, 2020), as they are often considered a population with a strong inclination towards entrepreneurship (Duong, 2021; Wu *et al.*, 2021). Moreover, the outcome of EE on the entrepreneurship process can be readily examined using a sample of students (Boubker *et al.*, 2021; Maheshwari, 2021).

The collection of the data set was conducted over the first semester of the 2020–2021 academic year, spanning August 2020 to February 2021. The data collection process involved four distinct phases and used a stratified random sampling approach to ensure a representative sample. First, the researcher chose to collect data from three main regions in Vietnam (Northern Vietnam, Central Vietnam and Southern Vietnam). The data was gathered from a total of three public universities and three private universities located in Northern Vietnam. In addition, two public universities and two private universities in Central Vietnam were included, along with three public universities and three private universities in Southern Vietnam. A total of 16 universities specialising in economics were randomly selected based on their entrance scores. The inclusion of universities from these distinct regions was aimed at capturing a broad representation of the higher education landscape in Vietnam. These regions are known for their unique socio-economic characteristics and varying levels of industrial development. As EE programmes often adapt to local economic conditions and opportunities, differences in regional development might be reflected in the design and implementation of EE initiatives. In addition, the choice of universities was influenced by the need to explore potential similarities and differences among these institutions, such as the presence of dedicated entrepreneurship programmes, the scope and content of entrepreneurship courses, faculty expertise and access to external entrepreneurial networks. By including a diverse set of universities, this study aimed to capture a more comprehensive view of the EE landscape in Vietnam.

Next, lecturers working at these universities were asked to help in collecting the data. We reached out to lecturers directly engaged in teaching undergraduate courses at these universities, seeking their collaboration to distribute questionnaires and offer guidance to students for thorough responses. To mitigate non-response bias, we enlisted lecturers to supervise the students' questionnaire completion, ensuring a dedicated and earnest effort in providing answers. University students took part voluntarily, directly answering the survey questionnaire. Initially, 2,672 questionnaires were completed, with a 66.8% response rate. Out of the initial 2,672 university students who participated in the study, 106 were excluded due to missing values, resulting in a final sample size of 2,566 (64.15%). Table 1 describes the demographic characteristics of the sample.

3.2 Scales and questionnaire development

All scales used in this research were adapted from prior studies. In particular, the five-item scale measuring EE was adjusted from Walter and Block (2016) and Adekiya and Ibrahim (2016). The measures of ATE (five items), SNs (three items), PBC (six items) and EI (six items) were adapted from Liñán and Chen (2009) and Kolvereid (1996). The seven-item scale for EB was adopted from Gieure *et al.* (2020). All detailed items are illustrated in Table 2. Whole observed variables were scored on a five-point Likert-type format, from 1 to 5 (strongly disagree to strongly agree). These scales have previously undergone extensive testing and validation in the context of Vietnam (Hoang *et al.*, 2020; Pham and Le, 2023; Duong *et al.*, 2023), thus demonstrating their reliability and validity.

Variables	Frequency	%
<i>Gender</i>		
Male	1,055	41.1
Female	1,511	58.9
<i>Age</i>		
From 18 to 19 years old	1,023	39.9
From 20 to 24 years old	1,427	55.6
Over 25 years old	116	4.4
<i>Educational fields</i>		
Economics and business management	1,658	64.6
Engineering and others	908	35.4
<i>Years of study</i>		
First year of college	517	20.1
Second year of college	664	25.9
Third year of college	542	21.1
Final year of college	843	32.9
<i>Mother's occupation</i>		
Self-employed	702	27.4
Staff in an organization	345	13.4
Manager in an organization	79	3.1
Other	1,440	56.1
<i>Father's occupation</i>		
Self-employed	662	25.8
Staff in an organization	295	11.5
Manager in an organization	153	6.0
Other	1,456	56.7

Note: $n = 2,566$

Source: Authors' elaborations based on the research data

Table 1.
Demographic
characteristics of
students

Moreover, to ensure that the meaning of the scales did not change, back translation was used. Thirty-two observed variables were first translated into Vietnamese with the help of four independent experts. These experts then discussed and reached a consensus before the Vietnamese version was translated back into English. Any differences between the two versions were resolved, resulting in the final survey questionnaire. To ensure that all respondents had the same understanding of the constructs in the questionnaire, a brief explanation was provided.

3.3 Data analysis

Structural equation modeling (SEM) was conducted in our research to test the direct influences of EE on the three component constructs of the TPB, intention, and behaviour to initiate entrepreneurial activities. Simultaneously, the mediation coefficients were estimated using the PROCESS approach with bootstrap methodology in this study. A bootstrapping sample of 10,000 with a 95% confidence interval was used. Construct validity and reliability were assessed through Cronbach's alpha and confirmatory factor analysis (CFA). The structural model's fit and the formulated hypotheses were examined using SEM, following the guidelines by Hair *et al.* (2010). The analyses were conducted using SPSS 25.0 and AMOS 25.0 software.

Table 2.
Descriptive characteristics, Cronbach's alpha and factor loadings of items

Code	Variables	Cronbach's alpha	Mean	SD	Skewness	Kurtosis	Factor loading
EB	Entrepreneurial behaviour Gieure et al. (2020)	0.837	3.3193	0.64638	-0.287	0.605	
EB1	I have experience in starting new projects or business	0.799	3.2845	0.78094	-0.116	0.293	0.733
EB2	I am capable of developing a business plan	0.794	3.2116	0.87193	-0.070	-0.193	0.745
EB3	I know how to start a new business	0.835	3.5456	0.82035	-0.530	0.373	0.586
EB4	I know how to do market research	0.785	3.4205	0.83801	-0.333	0.014	0.775
EB6	I can save money to invest in a business	0.805	3.1345	0.83971	-0.068	0.060	0.733
EI	Entrepreneurial intention Liñán and Chen (2009)	0.908	3.4427	0.87490	-0.295	-0.185	
EI1	I am ready to do anything to be an entrepreneur	0.883	3.4521	1.00750	-0.267	-0.413	0.812
EI2	My professional goal is to become an entrepreneur	0.882	3.6076	1.01984	-0.460	-0.320	0.850
EI3	I will make every effort to start and run my own firm	0.879	3.4256	1.05618	-0.232	-0.488	0.877
EI5	I have a very seriously through of starting a firm	0.871	3.3769	1.02571	-0.137	-0.453	0.914
EI6	I have the firm intention to start a firm some day	0.921	3.3515	1.00427	-0.171	-0.432	0.631
ATB	Attitude towards entrepreneurship Liñán and Chen (2009)	0.833	3.5474	0.74999	-0.345	0.267	
ATB1	Being an entrepreneur implies more advantages than disadvantages to me	0.786	3.3893	0.90914	-0.173	-0.130	0.746
ATB2	A career as an entrepreneur is attractive for me	0.825	3.9770	0.88647	-0.815	0.584	0.668
ATB3	If I had the opportunity and resources, I would like to start a firm	0.767	3.5027	0.92221	-0.220	-0.108	0.774
ATB5	Among various options, I would rather be an entrepreneur	0.773	3.3207	0.95738	-0.101	-0.285	0.800
SN	Subjective norms (Liñán and Chen (2009); Kolverød (1996))	0.846	3.7340	0.76340	-0.483	0.642	
SN1	If I decided to create a firm, my closest family would approve of that decision	0.825	3.7214	0.92901	-0.544	0.100	0.750
SN2	If I decided to create a firm, my closest friends would approve of that decision	0.754	3.7689	0.83583	-0.599	0.592	0.853
SN3	If I decided to create a firm, people who are important to me would approve of that decision	0.782	3.7116	0.85078	-0.458	0.231	0.821

(continued)

Code	Variables	Cronbach's alpha	Mean	SD	Skewness	Kurtosis	Factor loading
PBC	Perceived behavioural control Liñán and Chen (2009)	0.825	2.6426	0.66260	0.272	0.259	
PBC1	To start a firm and keep it working would be easy for me	0.805	2.4704	0.84356	0.427	0.239	0.614
PBC2	I am prepared to start a viable firm	0.776	2.3956	0.87760	0.582	0.249	0.763
PBC3	I can control the creation process of a new firm	0.771	2.6442	0.88438	0.230	-0.319	0.769
PBC4	I know the necessary practical details to start a firm	0.790	2.6590	0.92793	0.260	-0.353	0.687
PBC5	I know how to develop an entrepreneurial project	0.795	2.5542	0.96083	0.430	-0.222	0.648
PBC6	If I tried to start a firm, I would have a high probability of succeeding	0.827	3.1321	0.95925	-0.091	-0.329	0.508
EE	Entrepreneurship education Walter and Block (2016) ; Adekiya and Ibrahim (2016)	0.808	3.3366	0.67348	-0.289	0.757	
EE1	My school education helped me develop my sense of initiative - a sort of entrepreneurial attitude	0.769	3.4224	0.96772	-0.338	-0.267	0.659
EE2	My school education helped me to better understand the role of entrepreneurs in society	0.773	3.2868	0.95817	-0.245	-0.314	0.630
EE3	My school education made me interested to become an entrepreneur	0.771	3.1520	0.85264	-0.039	0.242	0.699
EE4	My school education gave me skills and know-how that enable me to run a business	0.758	3.2931	0.85375	-0.284	0.108	0.737
EE5	My school education has equipped me with the necessary abilities and expertise to start my own business	0.781	3.5288	0.83803	-0.447	0.297	0.662

Note: $n = 2,566$

Source: Authors' elaborations based on the research data

Table 2.

4. Results

4.1 Normality and reliability of scales

The reliability and validity of the scales were tested using Cronbach’s alpha and CFA simultaneously. Initially, when assessing Cronbach’s alpha, EB5 and EB7 exhibited corrected item-total correlation values below the accepted threshold of 0.3, with values of 0.264 and 0.239, respectively. Consequently, these items were eliminated from the scales. After that, all the remaining items were performed using the CFA test. The initial CFA results showed that the fitness of the model was acceptable [$\chi^2(390) = 4,201.713$; Chi-square/df = 10.774; $p < 0.01$; CFI = 0.902; SRMR = 0.059; and RMSEA = 0.062]. However, the standardised regression weights of EI4: “I am determined to create a firm in the future” (0.455) and ATE4: “Being an entrepreneur would entail great satisfaction for me” (0.368) were lower than 0.5. Thus, these two observed variables were extracted (Anderson and Gerbing, 1988), and the CFA was reperformed. The final result of the confirmatory factor analysis showed a good degree of fit, specifically, $\chi^2(335) = 3,775.829$; Chi-square/df = 11.271; $p < 0.01$; CFI = 0.906 > 0.9; SRMR = 0.059 < 0.08; and RMSEA = 0.063 > 0.06 (Hu and Bentler, 1999). In addition, according to the CFA results, it is evident that every observed variable had standardised regression weights of greater than 0.5; hence, each of the observed variables played a significant role in explaining the latent constructs (Anderson and Gerbing, 1988). The normality of these variables was also confirmed, as their skewness and kurtosis values fell within the anticipated range (Lanchimba et al., 2021).

The reliability and validity of the scales used in this study were assessed through average variance extracted (AVE) and composite reliability (CR) (Hu and Bentler, 1999). Table 3 illustrates the Pearson correlation matrix, CR and AVE of all variables. The AVE values of PBC and EE reached only 0.457 and 0.460, which were noted to be lower than the cut-off value of 0.5. Fornell and Larcker (1981) suggested that if AVE values were lower than 0.5, but CR values were higher than 0.6 (CR values of PBC and EE were 0.832 and 0.810, respectively), the validity of the scales would be satisfactory. In addition, the square roots of AVE of all the variables were higher than their inter-constructed association. Therefore, all constructs demonstrated reliability and validity (Hair et al., 2010).

4.2 Structural model

The analysis results of the SEM revealed that the models reached a high level of fit, specifically $\chi^2(331) = 2,918.784$; Chi-square/df = 8.818; $p < 0.01$; GFI = 0.921 > 0.9; AGFI = 0.904 > 0.9; CFI = 0.931 > 0.9; TLI = 0.921 > 0.9; and RMSEA = 0.055 < 0.8 (Hair et al., 2010; Anderson and Gerbing, 1988). The R^2 (squared multiple correlations) of EB was 0.546, EI was 0.599, ATE was 0.262, PBC was 0.230, and SNs was 0.359. This provided evidence

Table 3. Correlation matrix, the composite reliability and discriminant validity index

Scales	CR	AVE	PBC	EB	EI	ATB	SN	EE
Perceived behavioural control	0.832	0.457	<i>0.676</i>					
Entrepreneurial behaviour	0.840	0.515	0.565**	<i>0.717</i>				
Entrepreneurial intention	0.912	0.677	0.452**	0.493**	<i>0.823</i>			
Attitude towards entrepreneurship	0.835	0.560	0.397**	0.481**	0.696**	<i>0.749</i>		
Subjective norms	0.850	0.655	0.228**	0.374**	0.359**	0.424**	<i>0.809</i>	
Entrepreneurship education	0.810	0.460	0.398**	0.466**	0.340**	0.369**	0.491**	<i>0.678</i>

Notes: $n = 2,566$; **Significant at 0.01 level (two-tailed); AVE = average variance extracted; CR = composite reliability; The diagonal values (in italic): the square root of AVE
Source: Authors’ elaborations based on the research data

that the model showed substantial insights regarding the predictors of EI and EB in the data set collected from Vietnam. Figure 2 shows the unstandardised regression estimates of the research model.

4.2.1 *Results of relationships in the theory of planned behaviour model.* The hypothesis testing results are summarised in Table 4. They show that EB was significantly and positively affected by EI ($\beta = 0.098$; $p < 0.001$), ATE ($\beta = 0.104$; $p < 0.001$) and PBC ($\beta = 0.430$; $p < 0.001$). Therefore, H1a, H1b and H1c were supported by the data. In addition, the results reveal that EI was significantly and positively affected by ATE ($\beta = 0.720$; $p < 0.001$),

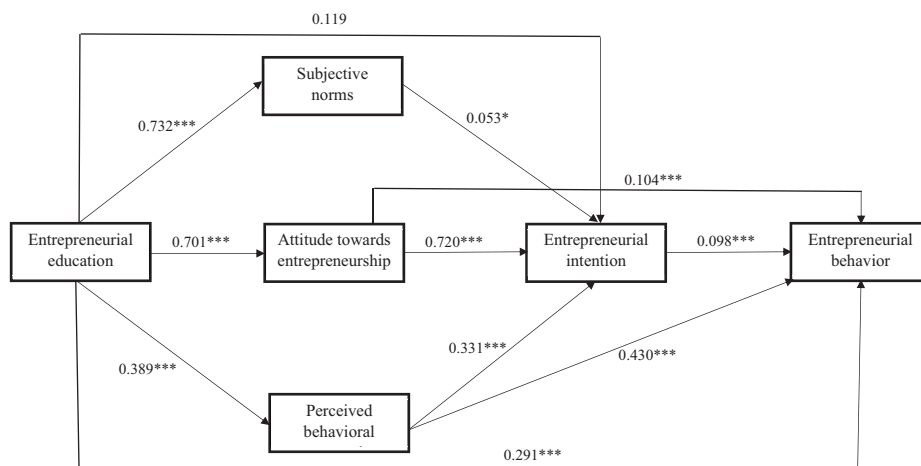


Figure 2.
Unstandardized
regression estimates
of model

Source: Figure by authors

Hypotheses	Estimate	SE	CR	P-value	Results
H1a Entrepreneurial intention → Entrepreneurial behaviour	0.103	0.021	4.845	***	Supported
H1b Attitude towards entrepreneurship → Entrepreneurial behaviour	0.092	0.023	3.949	***	Supported
H1c Perceived behaviour control → Entrepreneurial behaviour	0.432	0.033	12.995	***	Supported
H2a Attitude towards entrepreneurship → Entrepreneurial intention	0.719	0.028	25.886	***	Supported
H2b Subjective norms → Entrepreneurial intention	0.053	0.025	2.095	0.036	Supported
H2c Perceived behavioural control → Entrepreneurial intention	0.397	0.037	10.618	***	Supported
H3a Entrepreneurship education → Attitude towards entrepreneurship	0.701	0.037	18.946	***	Supported
H3b Entrepreneurship education → Subjective norms	0.732	0.035	20.643	***	Supported
H3c Entrepreneurship education → Perceived behavioural control	0.389	0.026	15.011	***	Supported
H3d Entrepreneurship education → Entrepreneurial intention	-0.064	0.041	-1.559	0.119	Not supported
H3e Entrepreneurship education → Entrepreneurial behaviour	0.291	0.027	10.799	***	Supported

Notes: $n = 2,566$; *** $p < 0.001$

Source: Authors' elaborations based on the research data

Table 4.
Hypotheses testing
(unstandardized)

SNs ($\beta = 0.053; p = 0.036 < 0.05$) and PBC ($\beta = 0.331; p < 0.001$), thus lending support to *H2a, H2b* and *H2c*.

4.2.2 Results of the direct effect of entrepreneurial education. The results show that EE had direct and positive effects on ATE ($\beta = 0.701; p < 0.001$), SNs ($\beta = 0.732; p < 0.001$) and PBC ($\beta = 0.389; p < 0.001$). Surprisingly, EE had no impact on EI ($p = 0.119 > 0.05$), while it positively impacted EB ($\beta = 0.291; p < 0.001$). Therefore, *H3a, H3b, H3c* and *H3e* were supported, but *H3d* was not.

4.2.3 Indirect effect of entrepreneurial education. Table 5 presents the results of the indirect effect of EE. First, the results reveal that EE had a significant and indirect effect on EI through ATE ($\beta_{\text{indirect EE-ATE-EI}} = 0.505; p < 0.001$) and PBC ($\beta_{\text{indirect EE-PBC-EI}} = 0.154; p < 0.001$), but not throughout SNs ($p = 0.068 > 0.05$). Therefore, *H4a* and *H4b* were supported, while *H4c* was not. In addition, EE was noted to have an indirect impact on EB via ATE ($\beta_{\text{indirect EE-ATE-EB}} = 0.065; p < 0.001$) and PBC ($\beta_{\text{indirect EE-PBC-EB}} = 0.168; p < 0.001$). However, EE did not influence EB via EI ($p = 0.086 > 0.05$). Thus, *H5a* and *H5b* were supported, but *H5c* was not.

5. Discussion

Our findings illustrate that EI significantly affects EB, although the association was rather weak, an outcome that is consistent with prior studies (Kautonen *et al.*, 2015; Shirokova *et al.*, 2016). In addition, a positive ATE was found to positively impact EB. This result indicates that entrepreneurial career paths are attractive to most university students. In other words, students prefer pursuing an entrepreneurial career to finding a secure job (Maheshwari and Kha, 2022). They also tend to translate their favourable ATE to enter entrepreneurial activities into entrepreneurial action (Neneh, 2019). In addition, PBC was determined to be the most influential factor contributing to the formation of EB. That is, the student’s perception of how easy it was to engage in entrepreneurial activities significantly influenced them to behave entrepreneurially. This finding is congruent with the study of Kautonen *et al.* (2015). Furthermore, our research findings on the impacts of the three motivational antecedents in the TPB model regarding EI demonstrated that EI was strongly influenced

Hypotheses	Indirect effects	P-value	95% confidence interval		Results
			LLCI	ULCI	
<i>H4a</i> Entrepreneurship education → Attitude towards entrepreneurship → Entrepreneurial intention	0.505	***	0.449	0.562	Supported
<i>H4b</i> Entrepreneurship education → Perceived behavioural control → Entrepreneurial intention	0.154	***	0.125	0.187	Supported
<i>H4c</i> Entrepreneurship education → Subjective norms → Entrepreneurial intention	0.039	0.068	0.005	0.073	Not supported
<i>H5a</i> Entrepreneurship education → Attitude towards entrepreneurship → Entrepreneurial behaviour	0.065	***	0.033	0.100	Supported
<i>H5b</i> Entrepreneurship education → Perceived behavioural control → Entrepreneurial behaviour	0.168	***	0.142	0.198	Supported
<i>H5c</i> Entrepreneurship education → Entrepreneurial intention → Entrepreneurial behaviour	-0.007	0.086	-0.016	0.000	Not supported

Table 5.
The mediation paths

Notes: LLCI = lower level of confidence interval; ULCI = upper level of confidence interval; *** $p < 0.001$
Source: Authors’ elaborations based on the research data

by ATE, SNs and PBC. This result is in line with some previous research (Miranda *et al.*, 2017; Otache *et al.*, 2019).

Regarding the role of EE in the entrepreneurial process, our findings show that EE directly contributes to the formation of ATE, SNs and PBC. When students are entrepreneurially educated, they have a more favourable ATE, perceive support from people around them and feel it is easier to engage in entrepreneurial activities. Interestingly, in the Vietnamese context of our study, we observed that EE exhibits a nuanced relationship with EB and EI. Our findings support the notion that EE directly and indirectly influences EB, thus aligning with previous research (Duong *et al.*, 2022b). However, a notable observation was the absence of a direct influence on EI, which is in line with some prior studies (Iwu *et al.*, 2021; Nowiński *et al.*, 2020). The reason for these results could be that EE typically imparts practical skills, knowledge and hands-on experiences that equip individuals with the tools needed to initiate and manage a business (Hoang *et al.*, 2020). These acquired skills are readily applicable to real-world scenarios, thereby leading to observable changes in behaviour (Cui and Bell, 2022). In contrast, EI represents a cognitive state involving the inclination to start a business in the future, and it is shaped by a complex interplay of factors, including personal traits, familial background, societal influences and environmental conditions (Brás *et al.*, 2023; Shahzad *et al.*, 2021). Moreover, there might be a time lag between the acquisition of entrepreneurial knowledge and the concrete formation of an intention to embark on an entrepreneurial venture, as individuals require time to internalise their knowledge and build the confidence to commit to entrepreneurship. Consequently, a more immediate and tangible impact of EE on behaviour is evident, while its influence on intention manifests gradually within a more intricate framework of internal and external factors.

In addition to the direct effect observed on EB and the limited direct effect on EI, our study unveiled the presence of the indirect effects of EE on both EI and EB. Our findings reveal that EE indirectly affects both EI and EB through the mediating factors of ATE and PBC. As individuals engage with EE, they not only acquire the concrete tools necessary for entrepreneurial activities but also develop a more positive attitude towards these behaviours. This shift in attitude reflects the psychological impact of EE and subsequently enhances an individual's intention to engage in entrepreneurial activities and behaviour. Simultaneously, EE also indirectly influences EI and EB by bolstering PBC, which is the perceived ease or difficulty of carrying out entrepreneurial activities. As students gain competence through their educational experiences, their confidence in their ability to perform entrepreneurial tasks increases, facilitating the formation of EI and EB. These indirect effects, through attitude and perceived behaviour control, underscore the interconnectedness of the various dimensions of entrepreneurship, demonstrating that EE catalyses the development of both the cognitive and behavioural aspects of entrepreneurship, thus highlighting the intricate and multifaceted nature of its influence.

6. Conclusion

The present research extends our comprehension of how EE impacts EB formation. The study revealed that in Vietnam, EE has a direct influence on EB, as well as an indirect influence through enhancing ATE and PBC. This study contributes to the literature on entrepreneurship, both in theory and practice.

6.1 Theoretical contributions

Despite the considerable attention scholars have given to the influence of EE on the intention to start a business, the results concerning this association remain inconclusive (Duong, 2021; Walter and Block, 2016). Consequently, recent studies have highlighted the

need for further research on this topic. In addition, there is still a significant research gap in understanding the effectiveness of EE on EB. While many studies have investigated the influence of EE on EIs, there is a lack of research on the behavioural outcomes of EE. Therefore, this study provides valuable insights into how EE can foster students' intention and behaviour to engage in entrepreneurship.

6.2 Practical and managerial implications

Given that our study was conducted in the specific context of Vietnam, the practical implications of our findings hold particular significance for EE in this region. First and foremost, our results emphasise the need to tailor EE curricula to address the unique dynamics of Vietnamese entrepreneurship. This involves not only imparting knowledge and skills but also fostering a positive ATE, recognising the influence of SNs, and enhancing PBC. Therefore, educational institutions and policymakers in Vietnam should consider a curriculum that combines traditional knowledge delivery with activities that enhance students' self-efficacy, attitude and ability to navigate the socio-cultural aspects of entrepreneurship.

Furthermore, the direct impact of EE on EB underscores the importance of practical, hands-on learning experiences. In Vietnam, offering students opportunities to engage in real-life entrepreneurial activities, such as business plan competitions, internships with local start-ups and access to mentorship from established entrepreneurs, can play a pivotal role in translating knowledge into action (Duong *et al.*, 2022b; Yi, 2020). This practical approach can significantly contribute to the development of an entrepreneurial ecosystem in the country.

While EE may not directly influence EI in the Vietnamese context, the indirect effects through ATE and PBC offer opportunities to bridge this gap. To promote EI, education providers should adopt a holistic curriculum design that extends beyond knowledge and skill acquisition. Such an approach should emphasise the cultivation of a positive ATE and the enhancement of PBC among students. This comprehensive curriculum should integrate experiential learning opportunities, allowing students to engage in real-life entrepreneurial activities, internships and business competitions, ultimately fostering in students a more positive outlook on entrepreneurship and an increased belief in their ability to engage in entrepreneurial endeavours. Furthermore, mentorship and role models from the entrepreneurial community can play a pivotal role in influencing students' attitudes and PBC (Sahputri *et al.*, 2023). Offering students the opportunity to interact with successful entrepreneurs can provide them with valuable insights and guidance, helping them to overcome perceived barriers.

Finally, a key practical implication for Vietnam is the continuous adaptation and assessment of EE programmes. Given the dynamic nature of the business environment, regular monitoring and evaluation are essential. This ongoing assessment can help tailor education programmes to better serve the needs and aspirations of aspiring entrepreneurs within the Vietnamese context, ultimately contributing to the growth and innovation of the local business landscape.

6.3 Limitations and avenues for future research

The current study has some limitations and offers possibilities for future research. First, the cross-sectional design of the study only enabled the exploration of the correlation between EE and EI and behaviour in the short run. Therefore, longitudinal survey data should be used in subsequent research to observe in greater detail how EE transforms into EI and EB. Second, it should also be noted that our study focused only on the direct and mediated effect of EE on EI and behaviour. Further studies could identify the factors that moderate the relationship between EE and EI and behaviour to gain a deeper understanding of how EE contributes to the entrepreneurial process.

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