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Article

The key determinants affecting entrepreneurial intention of student: Integrating theory of planned behaviour and perceived university support

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Abstract: The study's purpose is to evaluate the influence of some factors of the model of planned behavior (TPB) and the perceived academic support of the university on the attitude toward entrepreneurship and entrepreneurial intention of students. The results of Structural Equation Modeling (SEM) linear structural model analysis with primary data collected from 1162 students indicated that entrepreneurial intention is influenced by attitude toward entrepreneurship, subjective norm, perceived educational support, and perceived concept development support. In addition, this study also found the positive influence of perceived educational support, concept development support, and business development support on attitude towards entrepreneurship. Interestingly, the influence of perceived business development support on entrepreneurial intention was rejected, and personal innovativeness is demonstrated to promote an attitude toward entrepreneurship. Notably, this study also highlights the moderating role of personal innovativeness on the relationship between attitude toward entrepreneurship and entrepreneurial intention. Based on these findings, several implications were suggested to researchers, universities, and policymakers.

Keywords: entrepreneurship; entrepreneurial intention; attitude toward entrepreneurship; perceived university support; personal innovativeness; Vietnam

1. Introduction

Entrepreneurship is one of the most critical resources in a country's economic development. Entrepreneurs act as initiators to spark economic activities with their business decisions (Dhaliwal, 2016; Djordjevic et al., 2021). In particular, entrepreneurship promotes the growth of private sector in an economy through encouraging individuals to set up their own businesses and to create new values for the community (Zahra and Wright, 2016). In addition to the benefits it brings to the community, the entrepreneurial process also contributes significantly to the personal development of entrepreneurs (Crayford et al., 2012). Entrepreneurial spirit and startup ecosystem have gradually drawn much attention, and many governments have tried to build a startup environment. In addition to advancing science and technology, there are several segments of business for startup to set up their business, such as digital business, social business, learning economics-based business (Brito, 2018). However, the growth of startups also faces many challenges, especially sustainability (Haldar, 2019).

The Vietnamese Government has tried to develop the startup ecosystem by promulgating and implementing policies. Thanks to this, Vietnam has had a clear advancement in the rankings of the innovation index and entrepreneurship ecosystem development. Vietnam ranks 44th on the global innovation index, and its startup

ecosystem ranks 59th out of 100 countries. It is considered one of the typical countries in terms of creative dynamism in Southeast Asian innovation (StartupBlink, 2023). In particular, the Vietnamese Government released Decision 844/QD-TTg on approving the project to support the national innovation startup ecosystem until 2025. In particular, it emphasizes the role of relevant parties, including businesses, the Government, and especially educational organizations (Prime Minister of Vietnam, 2016). In particular, many educational institutions have included modules on entrepreneurship and innovation in their teaching content. These efforts significantly improve students' awareness of entrepreneurship and partly encourage individuals' entrepreneurial behavior.

Understanding the motivation behind individuals' entrepreneurial intentions helps suggest policies to promote entrepreneurial ecosystems (Pérez-Macías et al., 2022). Therefore, expanding theories and verifying theoretical models of business startup behavior is a topic that receives the attention of both researchers and policymakers. Some studies have applied individual behavioral theoretical frameworks to explain business startup behavior (Kapusuz et al., 2018; Shi et al., 2020). Among the theories, the TPB model is a suitable theory that can explain effective entrepreneurial behavior (Al-Jubari, 2019; Al-Jubari et al., 2019; Moriano et al., 2012). However, research results on the relationships between constructs in the TPB model are still inconsistent because of differences in environment, research context, and cultural characteristics of regions and countries (Kadir et al., 2012). For example, several studies found a gap between attitude toward entrepreneurship and entrepreneurial intention (Calza et al., 2020; Gieure et al., 2020). Thus, many researchers suggest to continue research of entrepreneurial behavior (Duran-Sanchez et al., 2019; O'Gorman, 2019).

Universities are considered to be the best place to nurture and incubate entrepreneurial thinking and spirit; students are also the leading force to develop the future entrepreneurial ecosystem (Davey et al., 2016). Therefore, higher education plays a vital role in promoting students' entrepreneurial spirit through knowledge support, incubation support, and support for developing business activities (Su et al., 2021). Several studies illustrate the mechanism of perceived university support for the entrepreneurial intention of students (Kadir et al., 2012; Valencia-Arias et al., 2022; Zhang et al., 2014). Wagner et al. (2020) proposed to measure universal support through three aspects, namely, educational support, business development support, and concept development support. Su et al. (2021) extended the TPB model to examine the influence of the three mentioned dimensions on entrepreneurial attitude and perceived behavioral control. However, this study applies a second-order factor approach, so it is inconceivable to evaluate the direct impact of dimensions on attitude. Besides, the relationship between perceived university support and entrepreneurial intention was not tested in the study by Su et al. (2021). Lestari et al. (2022) conducted a study in Indonesia and proved that, among the three factors, only perceived educational support could promote students' entrepreneurial intention.

Entrepreneurial intention and personal innovativeness are considered potential factors promoting the entrepreneurial behavior of individuals (Abubakre et al., 2022; Nasip et al., 2017; Schlaegel et al., 2021; Stauffer et al., 2016). Although some empirical studies have shown the role of personal innovativeness in decision-making

entrepreneurship (Law and Breznik, 2017; Shahzad et al., 2021). Current studies mainly focus on the direct relationship between personal innovativeness and attitude and entrepreneurial intention; whereas, a limited number of studies examine moderating this component on the relationship between attitude toward entrepreneurship and entrepreneurial intention (Stauffer, 2016).

Based on the arguments, this study evaluated the influence of some factors of the TPB model, such as perceived university support and personal innovativeness, on the attitude toward entrepreneurship and entrepreneurial intention of students in Vietnam. The main goals include:

1) Establishing a measurement scale and research model to explain students' entrepreneurial intentions;
2) Assessing the impact of some factors of the TPB model and perceived university support on attitude and intention to start a business;
3) Examining personal innovativeness's direct and moderating effects on the entrepreneurial decision-making process;
4) Proposing some implications for universities and policymakers based on the research results.

2. Theoretical framework and hypotheses development

2.1. Theory of planned behavior

The Theory of Planned Behavior (TPB) was introduced by Ajzen (1991) to explain individuals' decision-making processes. This process involves several critical factors, including attitudes, behavioral intentions, behavior, subjective norms, and perceived behavioral control. The TPB model is widely recognized as a suitable theoretical framework and effectively explains individual behavior in many aspects, such as consumption behavior, environmentally friendly behavior, job choice behavior, and entrepreneurial behavior (Al-Mamary et al., 2020; Maes et al., 2014; Moriano et al., 2012; Park et al., 2017; Tonglet et al., 2004; Vu et al., 2023). In entrepreneurial behavior studies, TPB theory has many advantages when considering attitudes, feelings about individual abilities, and the influence of the surrounding environment on entrepreneurial behavior (Van Gelderen et al., 2008). In particular, perceived behavioral control has been widely examined and developed to support a more specific explanation for the motivations and barriers to entrepreneurial decisions (Pérez-Macías et al., 2022). Some commonly considered factors include perceived social support (Abebe et al., 2014; Kapusuz et al., 2018), perceived support from the university (Kadir et al., 2012; Shi et al., 2020); perceived the Government's supportive policies (Jang et al., 2019).

2.2. Hypotheses development

2.2.1. Attitude toward entrepreneurship, subjective norm and entrepreneurial intention

Attitudes, subjective norms, and behavioral intentions are three critical variables of the TPB model. In particular, attitude reflects the individual's view on the appropriateness/ inappropriateness of the behavior; the behavioral intention is

considered an intermediary factor and is closely related to the decision to perform the behavior reflecting interest and readiness to perform the behavior (Ajzen, 1991). Subjective norms reflect the role of people's opinions, which can influence individual decisions (Vu et al., 2023).

There have been a number of studies testing relationship between these factors in the field of entrepreneurship. Some indicate that individuals with good attitudes toward entrepreneurship will be more inclined to engage in entrepreneurial behavior. For example, Law and Breznik (2017) found a positive relationship between entrepreneurial attitudes and behavioral intentions when conducting empirical research with students in Hong Kong. Similarly, Kusmintarti et al. (2017) emphasized the crucial role of attitude in young people's entrepreneurial behavioral intentions in Indonesia. In particular, Díaz-García and Jiménez-Moreno (2010) and Amofah and Saladrigues (2022) indicated that attitude toward entrepreneurship is the most critical dimensions of the TPB model influences entrepreneurial intention in Spain. From the arguments, the study proposes research hypothesis H_1:

H_1: Attitude toward entrepreneurship positively relates to entrepreneurial intention.

According to Amofah and Saladrigues (2022), who inherited the content of subjective norm from Ajzen (1991), when this factor is measured in entrepreneurship context, it includes how the subject's family, friends and important people think he or she should become an entrepreneur. Entrepreneurship is a process that requires high mental tenacity, good use of personal abilities and requires timely direction and support. Therefore, subjective norm is considered an essential factor for entrepreneurial behavior because entrepreneurial individuals need to accumulate knowledge and learn from the experiences of people around them (Staniewski, 2016). Some empirical evidence has described that subjective norm can be essential in predicting individuals' entrepreneurial intentions (Walker et al., 2013; Wijayati et al., 2021). For instance, Wijayati et al. (2021) also confirmed the ability of subjective norms to promote entrepreneurial intentions when conducting research in Indonesia. From the above analysis, research hypothesis H_2 is proposed:

H_2: Subjective norm positively relates to entrepreneurial intention.

2.2.2. Perceived university support

Universities are places to incubate and actively support entrepreneurship (Davey et al., 2016). Nowadays, many universities are highly appreciated for the great values they bring to the economy, such as patents, licenses, and even startup companies (Tijssen, 2006). Many universities have given scholarships and financial support to help students build and operate startup projects; thus, developing startup activities in a higher education environment attracts the attention of many policymakers (Saeed et al., 2018). In this study, three selected dimensions reflect perceived university support, including perceived educational support, perceived concept development support, and perceived business development support. These dimensions were validated by several studies and be recognized as an effective approach to measuring students' perception in various countries (Kraaijenbrink et al., 2010; Su et al., 2021; Saeed et al., 2018; Wagner et al., 2020).

Perceived educational support

Universities are recognized as a critical contributor to human development and helping the world achieve sustainable development goals (SDGs) (Nguyen et al., 2024). Currently, at universities, courses that supplement knowledge about entrepreneurship are gradually becoming more popular (Baxter et al., 2014; Hasan et al., 2017; Zulfiqar et al., 2021). Through training activities, students can be prepared with knowledge and skills to improve their awareness of entrepreneurship, encourage their dream of becoming entrepreneurs, and enhance their entrepreneurial spirit (Ambad and Damit, 2016; Baluku et al., 2018; Shi et al., 2020; Turker and Selcuk, 2009). Based on the knowledge values that students acquire during their studies at university, Su et al. (2021) prove that support activities through training are a typical factor of university support. This factor helps students significantly improve their attitude toward entrepreneurship (Kadir et al., 2012; Valencia-Arias et al., 2022). In particular, some empirical evidence demonstrates the role of educational support that can positively impact students' entrepreneurial intentions (Yousaf et al., 2021; Zhang et al., 2014). Two hypotheses about the role of perceived educational support of universities are proposed:

H_3: Perceived educational support positively relates to attitude toward entrepreneurship.

H_4: Perceived educational support positively relates to entrepreneurial intention.

Perceived concept development support

Universities are places that provide knowledge and help students raise awareness about entrepreneurship (Davey et al., 2016). Thus, several studies reported that concept development support is essential to perceived university support (Su et al., 2021; Wagner et al., 2020). Perceived concept development support helps improve awareness, motivation, and business thinking in the early stages of entrepreneurship (Wagner et al., 2020). Saeed et al. (2018) indicate that development support includes activities that provide knowledge, support students in forming awareness about entrepreneurship as a career, and motivate them to start a new business activity. Some empirical evidence has shown the potential influence of the development support concept on the entrepreneurial behavior of students. Saeed et al. (2018) demonstrated that perceived concept development support significantly improves the entrepreneurial self-efficacy of students in Pakistan. Su et al. (2021) and Shi et al. (2020) reported that concept development support is an essential component of perceived university support, which can enhance attitudes toward entrepreneurship and entrepreneurial self-efficacy. However, no studies examine this factor's direct effect on entrepreneurial intention. From arguments, two hypotheses are proposed as follows:

H_5: Perceived concept development support positively relates to attitude toward entrepreneurship.

H_6: Perceived concept development support positively relates to entrepreneurial intention.

Perceived business development support

Business development support is typically given to the startup firm rather than individual students in the later stages of the entrepreneurial process (Saeed et al., 2018). With this support, the universities can provide financial support, endorse startups, or

participate as leading customers of the projects (Wagner et al., 2020). These supports can be the foundation for projects to operate effectively and gain stable revenue in the early stages, overcome barriers initially. Hence, the benefits of university support for business development can help increase students' perceived benefits towards entrepreneurship, thereby enhancing attitudes towards entrepreneurship and entrepreneurial intention. Furthermore, perceived business development support can be facilitated by the opportunity for students to run prototype companies on campus to build their interest in assertive entrepreneurial behavior (Nasiru et al., 2015). Based on arguments, this study proposes two following hypotheses:

H_7: Perceived business development support positively relates to attitude toward entrepreneurship.

H_8: Perceived business development support positively relates to entrepreneurial intention.

2.2.3. Personal innovativeness

Personal innovativeness reflects an individual's willingness to change to apply new methods to activities (Roger and Shoemaker, 1983). Individuals with an innovative spirit are identified through actively searching for information, being willing to experience new products/services, and thinking to evaluate multi-faceted problems (Abubakre et al., 2022; Vu et al., 2023). Personal innovativeness is often considered an important characteristic that contributes to moving individuals toward innovative actions, including entrepreneurial behavior (Stauffer, 2016). In addition to the goals of leading an independent and successful business career, many startup activities carry the spirit of serving social benefits and promoting the spirit of innovation (Kusmintarti et al., 2017). From there, it is possible to form a basis for establishing a positive relationship between personal innovativeness and attitude toward entrepreneurship. Thus, the study proposes hypothesis H_9:

H_9: Personal innovativeness positively relates to attitude toward entrepreneurship.

Personal innovativeness is positively related to the technology adoption behavior of individuals; people with high personal innovativeness can overcome technical barriers and effectively use innovative products/services (Yuan et al., 2016). Some studies have shown that personal innovativeness moderates individuals' attitudes and behavior in the context of consumption; individuals with high levels of innovativeness have an attitude-behavior relationship have more robust dispositions (Fang et al., 2009; Lee et al., 2007; Vu et al., 2023). In particular, Abubakre et al. (2022) emphasize that personal innovativeness positively moderates the relationship between information technology culture and digital entrepreneurship success. However, no studies examine moderating the role of personal innovativeness between attitude toward entrepreneurship and entrepreneurial intention. In entrepreneurship, individuals must actively use knowledge, skills, and experience to operate a new business model (Pérez-Macías et al., 2022), so they need innovative thinking and different perspectives compared to other individuals (Stauffer, 2016). Therefore, individuals with high personal innovativeness may be more suitable for entrepreneurial behavior than others because they actively develop new ideas and are willing to take risks to innovate (Abubakre et al., 2022). Hence, this study proposes hypothesis H_{10} to investigate the moderating role of personal innovativeness concerning the relationship between

attitude toward entrepreneurship and entrepreneurial intention.

H_{10}: Personal innovativeness positively moderates the relationship between attitude toward entrepreneurship and entrepreneurial intention.

2.3. Research model

Based on the recommended effectiveness of the TPB model in explaining individual entrepreneurial behavior and the hypotheses development section, the study establishes the research model with essential elements, including attitude toward entrepreneurship and entrepreneurial intention. These are two crucial and commonly considered variables in studies of entrepreneurship behavior (Vamvaka et al., 2020). Next, subjective norm represents the influence of society and the surrounding environment on the individual's entrepreneurial decision-making process (Heuer and Liñán, 2013).

Several researchers suggested that perceived behavioral control is a difficult-to-measure and controversial construct of the TPB model (Yap et al., 2013). This factor depends heavily on individuals' knowledge and skills, enabling them to evaluate the ease or difficulty of performing the behavior and the ability to control possible situations when performing that behavior (Vamvaka et al., 2020). However, in the context of this study, the perception of how easy or difficult it is to start a business is relatively complicated because most of the respondents are university students. In addition, most of them have never experienced the start-up process. Thus, perceptions of perceived behavioral control can make it difficult for respondents to provide information. Therefore, this study does not include perceived behavioral control in the research model.

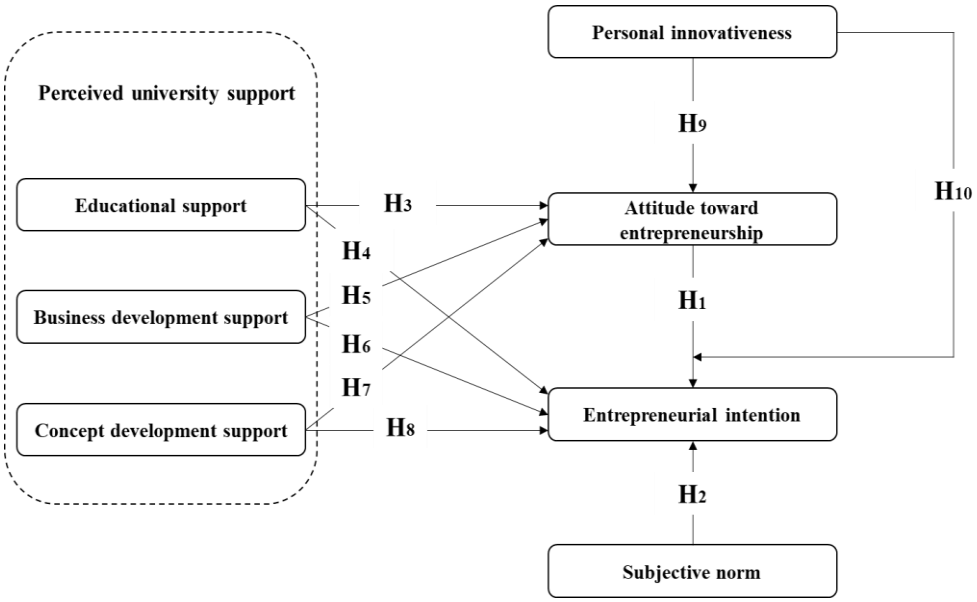

Figure 1. Research model.

In addition, the research model also adds perceived university support with three dimensions–these factors reflect the supporting role of universities for students (Davey et al., 2016; Wagner et al., 2020). Finally, among the personal characteristics that can influence attitude, personal innovativeness - a fundamental characteristic of the

willingness to accept new things and the desire to build an independent business career is added to the research model (Shahzad et al., 2021). The model is illustrated in **Figure 1**.

3. Methodology

3.1. Research design and data analysis approach

After synthesizing theoretical background from related literature, the authors conducted interviews with experts to establish a research model and develop the scale. Based on the results of literature synthetization and interviews, a survey was created and distributed to university students in Hanoi, the capital city of Vietnam. Quantitative analyses such as Cronbach Alpha's reliability coefficient, confirmatory factor analysis (CFA), and Structural Equation Modeling (SEM) analysis were used with two supporting software to test the scale and hypotheses. Two software were employed to perform data analysis: SPSS 26 and AMOS 26.

Structural equation modeling (SEM) was employed to test the hypotheses in this study. Generally, SEM has two main methods: CB SEM (Covariance-based SEM) and PLS SEM (Partial Least Square SEM). The CB SEM method has advantages in theoretical validation studies, is suitable for large sample sizes, pays attention to normal distribution, and evaluates good model fit index, so it was used to test the structural model in this study. Recommended thresholds for the GFI (Goodness of Fit Index), CFI (Comparative Fit Index), TLI (Tucker–Lewis Index), and RMSEA (Root Mean Square Error of Approximation) values were referenced from Hair et al. (2009).

3.2. Measures

The measurement scale is inherited from Abubakre et al. (2022), Wegner et al. (2020), Al-Jubari (2019), Luthje and Franke (2003), Kolvereid and Isaksen (2006), Law and Breznik (2017) with details listed in **Table 1**. Two language experts were invited to participate in the translation and cross-checking process to ensure that the meaning of the observed variables did not change after translation. Next, the scale and theoretical model were calibrated through recommendations from in-depth interviews (1 Professor majoring in Business Administration, 1 Ph.D. majoring in Entrepreneurship and Innovation, and 1 Businessman with extensive knowledge about entrepreneurship). To ensure suitability before distributing the questionnaire on a large scale, interviews with 15 students interested in entrepreneurship was conducted. After the interviews, a pre-test via Cronbach alpha was performed with a sample size of 150 to remove unsuitable items in a research context.

In the pre-test stage, 27 variables from the proposed measurement scale were checked for reliability through the Cronbach alpha test with 120 participants. The results indicated that item "My university provides students with ideas to start a new business," of perceived concept development support dimension was removed due to Cronbach's alpha if the deleted item coefficient was more significant than Cronbach's alpha of dimension. Hence, the official measurement scale includes 26 items before distribution.

The research scale was proposed and included in the questionnaire from the

content obtained during this process. The questionnaire has three parts; part 1 includes an introduction and instructions before providing information. Part 2 includes questions from the scale in a 7-point Likert scale format (1 – Strongly disagree to 7 – Strongly agree). The final section includes demographic questions and acknowledgments. Details of the research scale are described in **Table 1**.

Table 1. Proposed measurement scale.

Items	Statement
Personal innovativeness – Adapted from Abubakre et al. (2022)	
PI1	I'm a person who likes to support new ideas
PI2	I like to participate in discussions about different perspectives of the problem
PI3	I enjoy taking risks in order to innovate
PI4	I appreciate flexibility in the working process
Perceived educational support - Adapted from Wegner et al. (2020)	
PE1	My university offers elective courses on entrepreneurship
PE2	My university offers project work focused on entrepreneurship
PE3	My university offers internship focused on entrepreneurship
PE4	My university offers a bachelor or master study on entrepreneurship
PE5	My university arranges conferences/workshops on entrepreneurship
PE6	My university brings entrepreneurial students in contact with each other
Perceived concept development support – Adapted from Wegner et al. (2020)	
PC1	My university creates awareness of entrepreneurship as a possible career choice
PC2	My university motivates students to start a new business.
PC3	My university provides students with ideas to start a new business*
PC4	My university provides students with the knowledge needed to start a new business
Perceived business development support – Adapted from Wegner et al. (2020)	
PB1	My university provide students with the financial means to start a new business
PB2	My university use its reputation to support students that start a new business
PB3	My university serve as a lead customer of students that start a new business
Subjective norm – Adapted from Al-Jubari (2019)	
SN1	My family would approve of my decision to start a business
SN2	My close friends would approve of my decision to start a business
SN3	My classmates would approve of my decision to start a business
Attitude toward entrepreneurship - Adapted from Luthje & Franke (2003), Kolvereid & Isaksen (2006)	
ATT1	I'd rather be my own boss than have a secure job
ATT2	I can make big money only if I am self-employed
ATT3	I'd rather found a new company than be the manager of an existing one
Entrepreneurial intention – Adapted from Law & Breznik (2017)	
EI1	I will join on-campus entrepreneurial programs if available
EI2	I will start my own business after graduation in the future
EI3	I will work together with partners to start a new business in the future
EI4	I will start my own business if financial support is secured

Note: *item was removed after pre-test.

3.3. Data collection and sample

The study collected data from economic-business universities in Hanoi that support student startups or provide specialized training and courses related to startups for students through interviews, direct consultation, and ballot distribution. Collaborators were assigned to universities and screened respondents suitable to the research topic. Before conducting the interview, respondents must answer a few questions to test their knowledge and show interest in entrepreneurship. To ensure that respondents clearly perceive university support, the subjects mainly focused on 3rd and 4th-year students. With the convenient sampling method, after more than two months of collection, 1,240 responses were collected. After eliminating 78 surveys due to a lack of information and outlier data issues, the final research sample was set at 1162. This sample size is appropriate for the study in which the difficult-to-identify sample framework was proposed, according to Krejcie and Morgan (1970). The sample was collected in Hanoi, which is the capital of Vietnam as well as the center of politics, economics and culture. Therefore, most of top ranked universities are located in this city. In addition, most of surveyed respondents were 3rd year (36.66%) and 4th year (35.37%) students, whose perceived university support experiences are comparatively clear. At the junior and senior level, these students have accumulated substantial knowledge, skills and encouragement to commence entrepreneurship. The gender proportion with more than 54% of female students followed precisely the gender ratio of students in Vietnam (Ministry of Education, 2022). Characteristics of the study sample are described in **Table 2**.

Table 2. Demographic characteristics of respondents.

Characteristics	N	Percentage (%)
Gender		
Male	533	45.87
Female	629	54.13
Age		
18–20	310	26.68
21–23	682	58.69
24–26	170	14.63
School year		
2nd year	325	27.97
3rd year	426	36.66
4th year	411	35.37
Major		
Business Administration	192	16.52
Marketing	175	15.06
Economics	152	13.08
Finance	124	10.67
International business	132	11.37
Accounting	144	12.39
E-commerce	140	12.05
Tourism	103	8.86
Expected monthly income after 5 years after		
<15,000,000 VND	165	14.20
15,000,000–30,000,000 VND	240	20.65
>30,000,000–40,000,000 VND	373	32.10
>40,000,000–50,000,000 VND	219	18.85
Above 50,000,000 VND	165	14.20

Note: USD 1 was approximately VND 24,000 during survey period.

4. Research result

4.1. Common method bias

This study applies some Podsakoff et al. (2003) recommendations to avoid common method bias issues. It conducts a Harman single-factor test to test the possibility of common method bias appearance of method bias before data analysis. First, during the data collection process, the respondents' personal information is guaranteed, and the questionnaire's question structure is changed to minimize the possibility of awareness of the model structure. Finally, the Harman single-factor test results only explain 26.763% of the total explained variance (<50%). Therefore, common method bias issues did not appear in this study (Malhotra et al., 2006).

4.2. Confirmatory factor analysis

The results of CFA analysis showed that the measurement model has $\chi 2/df$ = 4.024 (<5), GFI = 0.936; TLI = 0.933; CFI = 0.944 and NFI = 0.928 (>0.9) and RMSEA = 0.051 (<0.08). As shown in **Tables 3** and **4**, the factor loading coefficients are all greater than 0.5, the composite reliability values are more significant than 0.7, and the Cronbach alpha reliability coefficient value exceeds the threshold of 0.7. In particular, the average variance extracted (AVE) values are more significant than 0.5 and more prominent than the maximum shared variance (MSV). AVE's square root value is more significant than its dimension's correlation coefficient. Therefore, the scale's reliability, convergent validity, and discriminant validity are guaranteed (Hair et al., 2009; Fornell and Larcker, 1981).

Table 3. Confirmatory factor analysis, Cronbach alpha and descriptive results.

Items	Mean	SD	Fls	α	CR	AVE	MSV
Personal innovativeness (PI)							
PI1	3.554	0.995	0.810	0.853	0.853	0.592	0.086
PI2	3.738	0.919	0.736				
PI3	3.877	0.946	0.758				
PI4	3.731	0.953	0.773				
Perceived educational support (PE)							
PE1	4.194	0.842	0.689	0.880	0.881	0.553	0.237
PE2	4.326	0.847	0.721				
PE3	4.286	0.851	0.749				
PE4	4.199	0.788	0.823				
PE5	4.270	0.954	0.678				
PE6	4.127	0.918	0.790				
Perceived concept development support (PC)							
PC1	4.518	0.922	0.871	0.821	0.827	0.617	0.166
PC2	4.497	0.990	0.719				
PC4	4.491	1.024	0.758				

Table 3. (*Continued*).

Items	Mean	SD	Fls	α	CR	AVE	MSV
Perceived business development support (PB)							
PB1	3.328	1.042	0.828				
PB2	3.398	1.008	0.716	0.792	0.793	0.562	0.271
PB3	3.236	1.033	0.698				
Subjective norm (SN)							
SN1	4.377	0.962	0.681				
SN2	4.516	0.877	0.780	0.774	0.776	0.536	0.410
SN3	4.520	0.910	0.732				
Attitude toward entrepreneurship (ATT)							
ATT1	4.677	0.761	0.804				
ATT2	4.608	0.795	0.812	0.814	0.820	0.604	0.410
ATT3	4.617	0.911	0.712				
Entrepreneurial intention (EI)							
EI1	4.968	1.433	0.726				
EI2	5.027	1.286	0.833	0.873	0.876	0.639	0.162
EI3	5.211	1.244	0.849				
EI4	5.271	1.225	0.784				

Note: SD – Standard deviation; Fls – Factor loadings; CR – Composite reliability; AVE – Average variance extracted; MSV – Maximum shared variance.

Table 4. Correlation and discriminant validity.

Dimension	(1)	(2)	(3)	(4)	(5)	(6)	(7)
(1) Subjective norm	**0.732**						
(2) Educational support	0.368	**0.743**					
(3) Entrepreneurial intention	0.386	0.354	**0.799**				
(4) Personal innovativeness	0.005	0.261	0.169	**0.770**			
(5) Concept development support	0.377	0.259	0.354	0.133	**0.785**		
(6) Business development support	0.504	0.243	0.237	0.026	0.336	**0.750**	
(7) Attitude toward entrepreneurship	0.640	0.487	0.402	0.294	0.407	0.521	**0.777**

Note: Bolded value – Square root value of AVE.

4.3. Structural equation modeling

The results of SEM linear structural model analysis showed that the model includes $\chi 2/df = 4.428$ (<5), GFI = 0.931; TLI = 0.924; CFI = 0.936; NFI = 0.920 (>0.9) and RMSEA = 0.054 (<0.08). These values met the threshold suggested by Hair et al. (2009). As results illustrated in **Table 5**, both attitude toward entrepreneurship (β = 0.169; p-value < 0.001) and subjective norm (β = 0.174; p-value < 0.001) had positive impact on entrepreneurial intention. Among the three dimensions of perceived university support, perceived educational supported significantly promoted both attitude toward entrepreneurship (β = 0.304; p-value < 0.001) and entrepreneurial intention (β = 0.170; p-value < 0.001). Similarly, perceived concept development support also enhanced attitude toward entrepreneurship (β = 0.175; p-value < 0.001)

and entrepreneurial intention (β = 0.192; p-value < 0.001). Notably, even though perceived business development support was recognized as a key determinant affecting attitude toward entrepreneurship (β = 0.415; p-value < 0.001), the relationship between this factor and entrepreneurial intention was rejected due to p-value = 0.315 (> 0.05). Finally, this study also indicated that personal innovativeness could improve attitude toward entrepreneurship (β = 0.179; p-value < 0.001). Based on the R2 value, the factors of the conceptual model could explain 50.6% of the variation in attitude toward entrepreneurship and 24.5% of entrepreneurial intention.

To test the moderating role of personal innovativeness, this study employed PROCESS model V4.1 with 95% bias-corrected confidence intervals and 5000 bootstrap samples (Hayes, 2017). The results in **Table 5 also** indicated that personal innovativeness positively moderated the relationship between attitude toward entrepreneurship and entrepreneurial intention (β = 0.395; p-value < 0.001). Hence, hypothesis H_{10} is supported.

Table 5. Hypotheses testing and path analysis results.

Hypotheses	**β**	**t**	**Results**
Attitude → Entrepreneurial intention	0.169***	3.522	Accepted
Subjective norm → Entrepreneurial intention	0.174***	3.838	Accepted
Educational support → Attitude	0.304***	9.448	Accepted
Educational support → Entrepreneurial intention	0.170***	4.392	Accepted
Business development support → Attitude	0.415***	11.783	Accepted
Business development support → Entrepreneurial intention	-0.048^{NS}	-1.004	Rejected
Concept development support → Attitude	0.175***	5.537	Accepted
Concept development support → Entrepreneurial intention	0.192***	5.244	Accepted
Personal innovativeness → Attitude	0.179***	6.007	Accepted
Personal innovativeness as moderator			
Personal innovativeness x Attitude → Entrepreneurial intention	0.395***	8.006	Accepted

Note: β – Standardized estimate; t – t-statistic value; ***p-value < 0.001; NS – non-significant.

5. Discussion

This study has proposed and validated a model and scale that reflects the role of several factors in students' attitudes and intentions to start a business in Hanoi. Similar to some previous studies, the SEM model analysis results of this study show the effectiveness of TPB theory in explaining the entrepreneurial behavior of individuals (Heuer and Kolvereid, 2014; Al-Mamary et al., 2020; Maes et al., 2014). In particular, integrating perceived university support and innovativeness into the research model significantly enhances the attitude toward entrepreneurship and entrepreneurial intention.

This study indicated that three factors from TPB theory: entrepreneurial intention, attitude toward entrepreneurship, and subjective norm are strongly linked. The impact of attitude towards entrepreneurship and entrepreneurial intention reaffirms past findings in other markets such as Hong Kong, Spain and Indonesia (Kusmintarti et al., 2017; Law and Breznik, 2017; Amofah and Saladrigues, 2022). Similarly, subjective norms are also proven to enhance entrepreneurial intention significantly, similar to

some studies by Wijayati et al. (2021) and Walker et al. (2013). These findings imply that students in Vietnam with good attitudes about entrepreneurship will be interested in entrepreneurial behavior. In addition, students' entrepreneurship decisions are influenced by the support of people around them, such as family members, classmates, and close friends.

This study also re-confirmed the role of perceived university support for the entrepreneurial behavior of students (Kraaijenbrink et al., 2010; Su et al., 2021; Saeed et al., 2018; Wagner et al., 2020). However, the study pointed out differences when evaluating the direct impact of the three dimensions of perceived university support. Both perceived educational support, concept development support, and business development support positively impact attitude toward entrepreneurship; among these factors, perceived business development and perceived educational support were recognized as the key determinants of improving attitude toward entrepreneurship.

Similarly, although it is exhibited to be the most critical factor in promoting an attitude toward entrepreneurship, perceived business development support has no relationship with entrepreneurial intention. These findings contrast with some observations of previous studies (Su et al., 2021; Saeed et al., 2018). This result can be partly explained by the fact that universities in Vietnam still focus more on entrepreneurship competitions instead of consistently supporting student entrepreneurial projects. In particular, limitations on financial resources and policies regulating the rights of universities and students participating in startup projects still need to be clarified. Therefore, perceived business development support must show the ability to promote students' entrepreneurial intention as expected.

The positive relationship between personal innovativeness and attitude toward entrepreneurship is demonstrated in this study. This finding supports the assertion that some personality traits and personal values can change their perception of entrepreneurship (Stauffer, 2016). This result also implies that individuals with high personal innovativeness will have the potential to perform entrepreneurial behaviors by having good attitudes toward entrepreneurship. In particular, this study is the first attempt to investigate the moderating role of personal innovativeness in the relationship between attitude toward entrepreneurship and entrepreneurial intention. This result is considered a significant theoretical contribution that can suggest a solution to closing the gap between attitude and intention in entrepreneurship research topics.

6. Implication

This study makes a theoretical contribution by establishing a model and research scale on the entrepreneurial behavior of students in Vietnam. The detailed evaluation through the structural model helps reaffirm some views about the suitability of the theory of planned behavior for explaining individual entrepreneurial behavior. Besides, perceived university support and personal innovativeness were discovered as additional factors that effectively explain students' entrepreneurial attitudes and intentions. These results imply that future research can expand the TPB model with additional potential factors to explain students' entrepreneurial intentions appropriately. Finally, the research results can serve as a basis to help future

entrepreneurship studies establish research models and evaluation scales.

Besides several theoretical implications, the research results suggest some practical implications. Universities must promote their role in supporting students' knowledge through training activities and interactions with the business community to help students raise their awareness of attitude toward entrepreneurship and promote their entrepreneurial intentions. In addition, universities must provide knowledge about entrepreneurship models and support students in building business ideas to help students create projects with good ideas, ensuring practicality and serving the market's needs well. This study indicated that perceived development support can enhance entrepreneurship but does not affect entrepreneurial intention. Therefore, universities and the Government need to have strategies to improve this factor. The Government must issue detailed policies to help universities improve their financial resources and clarify stakeholders' roles when supporting student entrepreneurship projects. For universities, strategies that focus on providing helpful support in the early stage, allowing students to exploit the university's reputation to develop business projects and increase utility, should be considered to improve support efficiency.

This study implied that the role of culture and or startup community is also significant because this is a way to strengthen subjective norms. To achieve this purpose, entrepreneurship development projects and policymakers should promote support packages for startup activities to create successful entrepreneurship projects, promoting entrepreneurial inspiration. Finally, communication solutions must be strengthened to help the community have accurate and positive views about entrepreneurship activities.

This study emphasized the critical role of personal innovativeness in attitude and entrepreneurial intention. Hence, improving personal innovativeness can improve attitude toward entrepreneurship and strengthen the relationship between attitude and entrepreneurial intention. Universities can introduce critical thinking and innovation courses and encourage lecturers to apply innovative teaching methods. In addition, universities can build a culture and climate that emphasizes innovative capability for students. In addition, universities should consider organizing competitions and projects to raise awareness of the role of personal innovativeness in entrepreneurship.

7. Conclusion

Developing the private economy is an essential goal for growing national economies in a constantly changing business environment (Li et al., 2021). Therefore, promoting entrepreneurial behavior is essential for many stakeholders, such as governments, businesses, and educational organizations. Through validating the research model, this study provides empirical evidence about entrepreneurial behavior in Vietnam – a typical South East Asian emerging economy. These findings highlight the role of several constructs of the TPB model, perceived university support, and personal innovativeness. Based on the results, several implications were suggested to stakeholders to develop startup activities in Vietnam. This study still has some limitations, including the scope of data collection, which focuses on only one large city in Vietnam. Additionally, multi-group tests by gender, major, family characteristics, and school year have not yet been conducted. Finally, the explanatory

level of the factor – entrepreneurial intention is still not high, so there may be a need for future studies to add and validate new factors which better explain entrepreneurial intention.

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References

Abebe, M. A., Gangadharan, A., & Sutanonpaiboon, J. (2014). Perceived social support and social status as drivers of entrepreneurial career intentions between Caucasian and Mexican-American young adults. Journal of Entrepreneurship Education, 17(1), 63.

Abubakre, M., Zhou, Y., & Zhou, Z. (2020). The impact of information technology culture and personal innovativeness in information technology on digital entrepreneurship success. Information Technology & People, 35(1), 204–231. https://doi.org/10.1108/itp-01-2020-0002

Al-Jubari, I. (2019). College Students' Entrepreneurial Intention: Testing an Integrated Model of SDT and TPB. SAGE Open, 9(2), 215824401985346. https://doi.org/10.1177/2158244019853467

Al-Mamary, Y. H. S., Abdulrab, M., Alwaheeb, M. A., et al. (2020). Factors impacting entrepreneurial intentions among university students in Saudi Arabia: testing an integrated model of TPB and EO. Education + Training, 62(7/8), 779–803. https://doi.org/10.1108/et-04-2020-0096

Ambad, S. N. A., & Damit, D. H. D. A. (2016). Determinants of entrepreneurial intention among undergraduate students in Malaysia. Procedia economics and finance, 37, 108-114. https://doi.org/10.1016/S2212-5671(16)30100-9

Amofah, K., & Saladrigues, R. (2022). Impact of attitude towards entrepreneurship education and role models on entrepreneurial intention. Journal of Innovation and Entrepreneurship, 11(1). https://doi.org/10.1186/s13731-022-00197-5

Baluku, M. M., Leonsio, M., Bantu, E., et al. (2019). The impact of autonomy on the relationship between mentoring and entrepreneurial intentions among youth in Germany, Kenya, and Uganda. International Journal of Entrepreneurial Behavior & Research, 25(2), 170–192. https://doi.org/10.1108/ijebr-10-2017-0373

Baxter, A., Chapman, D. W., DeJaeghere, J., et al. (2014). Youth entrepreneurship education and training for poverty alleviation: A review of international literature and local experiences. International educational innovation and public sector entrepreneurship, 33-58. https://doi.org/10.1108/S1479-3679(2013)0000023010

Brito, S. M. (editor). (2018). Entrepreneurship - Trends and Challenges. InTech. https://doi.org/10.5772/intechopen.69977

Calza, F., Cannavale, C., & Zohoorian Nadali, I. (2020). How do cultural values influence entrepreneurial behavior of nations? A behavioral reasoning approach. International Business Review, 29(5), 101725. https://doi.org/10.1016/j.ibusrev.2020.101725

Crayford, J., Fearon, C., McLaughlin, H., et al. (2012). Affirming entrepreneurial education: learning, employability and personal development. Industrial and Commercial Training, 44(4), 187–193. https://doi.org/10.1108/00197851211231450

Davey, T., Hannon, P., & Penaluna, A. (2016). Entrepreneurship education and the role of universities in entrepreneurship. Industry and Higher Education, 30(3), 171–182. https://doi.org/10.1177/0950422216656699

Dhaliwal, A. (2016). Role Of Entrepreneurship in Economic Development. International Journal of Scientific Research and Management. https://doi.org/10.18535/ijsrm/v4i6.08

Díaz-García, M. C., & Jiménez-Moreno, J. (2009). Entrepreneurial intention: the role of gender. International Entrepreneurship and Management Journal, 6(3), 261–283. https://doi.org/10.1007/s11365-008-0103-2

Djordjevic, D., Cockalo, D., Bogetic, S., et al. (2021). Modelling youth entrepreneurship intentions: A ten-year research. Journal of East European Management Studies, 26(4), 617–638. https://doi.org/10.5771/0949-6181-2021-4-617

Duran-Sanchez, A., Alvarez García, J., Del Río-Rama, M. de la C., et al. (2019). Trends and changes in the International Journal of Entrepreneurial Behaviour & Research. International Journal of Entrepreneurial Behavior & Research, 25(7), 1494–1514. https://doi.org/10.1108/ijebr-04-2019-0249

Dwi Lestari, E., Rizkalla, N., & Purnamaningsih, P. (2022). The Effect of Perceived University Support, Entrepreneurial Self-Efficacy And Proactive Personality In Promoting Student Entrepreneurial Intention In Indonesia. Journal of Management and Business Education, 5(2), 169–197. Internet Archive. https://doi.org/10.35564/jmbe.2022.0011

Fang, J., Shao, P., & Lan, G. (2009). Effects of innovativeness and trust on web survey participation. Computers in Human Behavior, 25(1), 144–152. https://doi.org/10.1016/j.chb.2008.08.002

Fornell, C., & Larcker, D. F. (1981). Evaluating Structural Equation Models with Unobservable Variables and Measurement Error. Journal of Marketing Research, 18(1), 39–50. https://doi.org/10.1177/002224378101800104

Gieure, C., Benavides-Espinosa, M. del M., & Roig-Dobón, S. (2020). The entrepreneurial process: The link between intentions and behavior. Journal of Business Research, 112, 541–548. https://doi.org/10.1016/j.jbusres.2019.11.088

Hair Jr., J.F., Black, W.C., Babin, B.J. and Anderson, R.E. (2009). Multivariate Data Analysis. 7th Edition, Prentice Hall

Haldar, S. (2019). Towards a conceptual understanding of sustainability-driven entrepreneurship. Corporate Social Responsibility and Environmental Management, 26(6), 1157–1170. Portico. https://doi.org/10.1002/csr.1763

Hasan, Sk. M., Khan, E. A., & Nabi, Md. N. U. (2017). Entrepreneurial education at university level and entrepreneurship development. Education + Training, 59(7/8), 888–906. https://doi.org/10.1108/et-01-2016-0020

Heuer, A., & Kolvereid, L. (2014). Education in entrepreneurship and the Theory of Planned Behaviour. European Journal of Training and Development, 38(6), 506–523. https://doi.org/10.1108/ejtd-02-2013-0019

Heuer, A., & Liñán, F. (2013). Testing alternative measures of subjective norms in entrepreneurial intention models. International Journal of Entrepreneurship and Small Business, 19(1), 35. https://doi.org/10.1504/ijesb.2013.054310

Jang, Y. H., Jang, I. S., & Kim, P. (2019). The Effect of Entrepreneurship, Perception of Entrepreneurial Environment and Participation in Government Start-up Support Project on Business Performance. Asia-Pacific Journal of Business Venturing and Entrepreneurship, 14(5), 115-125. https://doi.org/10.16972/apjbve.14.5.201910.115

Kadir, M. B. A., Salim, M., & Kamarudin, H. (2012). The Relationship Between Educational Support and Entrepreneurial Intentions in Malaysian Higher Learning Institution. Procedia - Social and Behavioral Sciences, 69, 2164–2173. https://doi.org/10.1016/j.sbspro.2012.12.182

Kraaijenbrink, J., Bos, G., & Groen, A. (2010). What do students think of the entrepreneurial support given by their universities? International Journal of Entrepreneurship and Small Business, 9(1), 110. https://doi.org/10.1504/ijesb.2010.029512

Krejcie, R. V., & Morgan, D. W. (1970). Determining Sample Size for Research Activities. Educational and Psychological Measurement, 30(3), 607–610. https://doi.org/10.1177/001316447003000308

Kusmintarti, A., Asdani, A., & Riwajanti, N. I. (2017). The relationship between creativity, entrepreneurial attitude and entrepreneurial intention (case study on the students of State Polytechnic Malang). International Journal of Trade and Global Markets, 10(1), 28. https://doi.org/10.1504/ijtgm.2017.082379

Law, K. M. Y., & Breznik, K. (2016). Impacts of innovativeness and attitude on entrepreneurial intention: among engineering and non-engineering students. International Journal of Technology and Design Education, 27(4), 683–700. https://doi.org/10.1007/s10798-016-9373-0

Lee, H. Y., Qu, H., & Kim, Y. S. (2007). A study of the impact of personal innovativeness on online travel shopping behavior—A case study of Korean travelers. Tourism Management, 28(3), 886–897. https://doi.org/10.1016/j.tourman.2006.04.013

Li, H., Yang, Z., Yao, X., et al. (2012). Entrepreneurship, private economy and growth: Evidence from China. China Economic Review, 23(4), 948–961. https://doi.org/10.1016/j.chieco.2012.04.015

Maes, J., Leroy, H., & Sels, L. (2014). Gender differences in entrepreneurial intentions: A TPB multi-group analysis at factor and indicator level. European Management Journal, 32(5), 784–794. https://doi.org/10.1016/j.emj.2014.01.001

Malhotra, N. K., Kim, S. S., & Patil, A. (2006). Common Method Variance in IS Research: A Comparison of Alternative Approaches and a Reanalysis of Past Research. Management Science, 52(12), 1865–1883. https://doi.org/10.1287/mnsc.1060.0597

McAdam, M., & Cunningham, J. A. (editors). (2019). Entrepreneurial Behaviour. Springer International Publishing. https://doi.org/10.1007/978-3-030-04402-2

Minister of Education. (2022). Higher education statistics for the 2021–2022 school year. Available online: https://moet.gov.vn/thong-ke/Pages/thong-ko-giao-duc-dai-hoc.aspx?ItemID=8831 (accessed on 5 January 2024).

Moriano, J. A., Gorgievski, M., Laguna, M., et al. (2011). A Cross-Cultural Approach to Understanding Entrepreneurial Intention. Journal of Career Development, 39(2), 162–185. https://doi.org/10.1177/0894845310384481

Nasip, S., Amirul, S. R., Sondoh Jr, S. L., et al. (2017). Psychological characteristics and entrepreneurial intention. Education + Training, 59(7/8), 825–840. https://doi.org/10.1108/et-10-2015-0092

Nasiru, A., Keat, O. Y., & Bhatti, M. A. (2015). Influence of Perceived University Support, Perceived Effective Entrepreneurship Education, Perceived Creativity Disposition, Entrepreneurial Passion for Inventing and Founding on Entrepreneurial Intention. Mediterranean Journal of Social Sciences. https://doi.org/10.5901/mjss.2015.v6n3p88

Nguyen, H. V., Vu, T. D., Saleem, M., et al. (2024). The influence of service quality on student satisfaction and student loyalty in Vietnam: the moderating role of the university image. Journal of Trade Science, 12(1), 37–59. https://doi.org/10.1108/jts-12-2023-0032

Park, S. A., Kim, H., & Lee, K.-W. (2017). Perceptions of determinants of job selection in the hospitality and tourism industry: The case of Korean university students. Journal of Human Resources in Hospitality & Tourism, 16(4), 422–444. https://doi.org/10.1080/15332845.2017.1266874

Pérez-Macías, N., Fernández-Fernández, J.-L., & Vieites, A. R. (2021). Analyzing the past to prepare for the future: a review of literature on factors with influence on entrepreneurial intentions. Journal of International Entrepreneurship, 20(1), 52–114. https://doi.org/10.1007/s10843-021-00289-5

Podsakoff, P. M., MacKenzie, S. B., Lee, J.-Y., et al. (2003). Common method biases in behavioral research: A critical review of the literature and recommended remedies. Journal of Applied Psychology, 88(5), 879–903. https://doi.org/10.1037/0021-9010.88.5.879

Prime minister of Vietnam. (2016). Decision No. 844/QD-TTg dated May 18th, 2016, approval for "assistance policies on national innovative startup ecosystem to 2025". Available online: https://thuvienphapluat.vn/van-ban/EN/Van-hoa-Xa-hoi/Decision-844-QD-TTg-approval-assistance-policies-national-innovative-startup-ecosystem-2025/314464/tieng-anh.aspx (accessed on 5 January 2024).

Ratten, V., Braga, V., & Marques, C. S. (editors). (2018). Knowledge, Learning and Innovation. In: Contributions to Management Science. Springer International Publishing. https://doi.org/10.1007/978-3-319-59282-4

Rogers, E. M., & Shoemaker, F. (1983). Diffusion of innovation: A cross-cultural approach. New York, NY: Free Press

Saeed, S., Yousafzai, S., Yani-de-Soriano, M., et al. (2018). The role of perceived university support in the formation of students' entrepreneurial intention. Sustainable Entrepreneurship, 3–23. https://doi.org/10.4324/9781315611495-1

Schlaegel, C., Engle, R. L., Richter, N. F., et al. (2021). Personal factors, entrepreneurial intention, and entrepreneurial status: A multinational study in three institutional environments. Journal of International Entrepreneurship, 19(3), 357–398. https://doi.org/10.1007/s10843-021-00287-7

Shahzad, M. F., Khan, K. I., Saleem, S., et al. (2021). What Factors Affect the Entrepreneurial Intention to Start-Ups? The Role of Entrepreneurial Skills, Propensity to Take Risks, and Innovativeness in Open Business Models. Journal of Open Innovation: Technology, Market, and Complexity, 7(3), 173. https://doi.org/10.3390/joitmc7030173

Shi, L., Yao, X., & Wu, W. (2019). Perceived university support, entrepreneurial self-efficacy, heterogeneous entrepreneurial intentions in entrepreneurship education. Journal of Entrepreneurship in Emerging Economies, 12(2), 205–230. https://doi.org/10.1108/jeee-04-2019-0040

Singh Sandhu, M., Fahmi Sidique, S., & Riaz, S. (2011). Entrepreneurship barriers and entrepreneurial inclination among Malaysian postgraduate students. International Journal of Entrepreneurial Behavior & Research, 17(4), 428–449. https://doi.org/10.1108/13552551111139656

Staniewski, M. W. (2016). The contribution of business experience and knowledge to successful entrepreneurship. Journal of Business Research, 69(11), 5147–5152. https://doi.org/10.1016/j.jbusres.2016.04.095

StartupBlink. (2023). Discover the World's Best Startup Ecosystems. Available online: https://www.startupblink.com/?leaderboards&utm_source=landingpage&utm_medium=report&utm_campaign=index2023 (accessed on 5 January 2024).

Stauffer, D. (2016). Personal innovativeness as a predictor of entrepreneurial value creation. International Journal of Innovation Science, 8(1), 4–26. https://doi.org/10.1108/ijis-03-2016-001

Su, Y., Zhu, Z., Chen, J., et al. (2021). Factors Influencing Entrepreneurial Intention of University Students in China: Integrating the Perceived University Support and Theory of Planned Behavior. Sustainability, 13(8), 4519. https://doi.org/10.3390/su13084519

Tijssen, R. J. W. (2006). Universities and industrially relevant science: Towards measurement models and indicators of entrepreneurial orientation. Research Policy, 35(10), 1569–1585. https://doi.org/10.1016/j.respol.2006.09.025

Tonglet, M., Phillips, P. S., & Read, A. D. (2004). Using the Theory of Planned Behaviour to investigate the determinants of recycling behaviour: a case study from Brixworth, UK. Resources, Conservation and Recycling, 41(3), 191–214. https://doi.org/10.1016/j.resconrec.2003.11.001

Turker, D., & Sonmez Selcuk, S. (2009). Which factors affect entrepreneurial intention of university students? Journal of European Industrial Training, 33(2), 142–159. https://doi.org/10.1108/03090590910939049

Valencia-Arias, A., Arango-Botero, D., & Sánchez-Torres, J. A. (2021). Promoting entrepreneurship based on university students' perceptions of entrepreneurial attitude, university environment, entrepreneurial culture and entrepreneurial training. Higher Education, Skills and Work-Based Learning, 12(2), 328–345. https://doi.org/10.1108/heswbl-07-2020-0169

Vamvaka, V., Stoforos, C., Palaskas, T., et al. (2020). Attitude toward entrepreneurship, perceived behavioral control, and entrepreneurial intention: dimensionality, structural relationships, and gender differences. Journal of Innovation and Entrepreneurship, 9(1). https://doi.org/10.1186/s13731-020-0112-0

van Gelderen, M., Brand, M., van Praag, M., et al. (2008). Explaining entrepreneurial intentions by means of the theory of planned behaviour. Career Development International, 13(6), 538–559. https://doi.org/10.1108/13620430810901688

Vu, T. D., Nguyen, H. V., & Nguyen, T. M. N. (2023). Extend theory of planned behaviour model to explain rooftop solar energy adoption in emerging market. Moderating mechanism of personal innovativeness. Journal of Open Innovation: Technology, Market, and Complexity, 9(2), 100078. https://doi.org/10.1016/j.joitmc.2023.100078

Walker, J. K., Jeger, M., & Kopecki, D. (2013). The Role of Perceived Abilities, Subjective Norm and Intentions in Entrepreneurial Activity. The Journal of Entrepreneurship, 22(2), 181–202. https://doi.org/10.1177/0971355713490621

Wegner, D., Thomas, E., Teixeira, E. K., et al. (2019). University entrepreneurial push strategy and students' entrepreneurial intention. International Journal of Entrepreneurial Behavior & Research, 26(2), 307–325. https://doi.org/10.1108/ijebr-10-2018-0648

Wijayati, D. T., Fazlurrahman, H., Hadi, H. K., et al. (2021). The effect of entrepreneurship education on entrepreneurial intention through planned behavioural control, subjective norm, and entrepreneurial attitude. Journal of Global Entrepreneurship Research, 11(1), 505–518. https://doi.org/10.1007/s40497-021-00298-7

Yap, S. F., Othman, M. N., & Wee, Y. G. (2013). The fallacy of one-dimensional theory of planned behaviour structure in predicting health behaviour. International Journal of Behavioural and Healthcare Research, 4(1), 26. https://doi.org/10.1504/ijbhr.2013.054516

Yousaf, U., Ali, S. A., Ahmed, M., et al. (2021). From entrepreneurial education to entrepreneurial intention: a sequential mediation of self-efficacy and entrepreneurial attitude. International Journal of Innovation Science, 13(3), 364–380. https://doi.org/10.1108/ijis-09-2020-0133

Yuan, D., Lin, Z., & Zhuo, R. (2016). What drives consumer knowledge sharing in online travel communities?: Personal attributes or e-service factors? Computers in Human Behavior, 63, 68–74. https://doi.org/10.1016/j.chb.2016.05.019

Zahra, S. A., & Wright, M. (2015). Understanding the Social Role of Entrepreneurship. Journal of Management Studies, 53(4), 610–629. Portico. https://doi.org/10.1111/joms.12149

Zhang, Y., Duysters, G., & Cloodt, M. (2013). The role of entrepreneurship education as a predictor of university students' entrepreneurial intention. International Entrepreneurship and Management Journal, 10(3), 623–641. https://doi.org/10.1007/s11365-012-0246-z

Zulfiqar, S., Nadeem, M. A., Khan, M. K., et al. (2019). Opportunity Recognition Behavior and Readiness of Youth for Social Entrepreneurship. Entrepreneurship Research Journal, 11(4). https://doi.org/10.1515/erj-2018-0201