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Article

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Does social media foster students' entrepreneurial intentions?

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ABSTRACT

This study examined the impact of social media usage on students' entrepreneurial intentions, making a novel contribution by extending the Theory of Planned Behavior (TPB). Specifically, two additional variables were introduced into the TPB framework: social media and perceived risk. Employing the Generalized Structural Equation Modeling (GSEM) method, interview data were analysed from 362 students in two Vietnamese provinces, Thai Nguyen and Thanh Hoa. Results revealed that attitudes, subjective norms, and perceived behavioral control all positively influenced students' entrepreneurial intentions. Second, perceived risk acted as a limiting factor on students' entrepreneurial intentions. Third, social media exerted a positive influence on students' entrepreneurial intentions through both direct and indirect channels. Notably, the relationship between social media and perceived behavioral control was influenced by students' levels of experience. Specifically, experience enhanced this relationship most significantly among students with moderate experience, followed by those with high experience. In contrast, students' low experience did not significantly affect the relationship between social media and perception.

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1. Introduction

Vietnam exhibits a robust entrepreneurial spirit, with a keen interest in start-up business (Amway, 2020). Specifically, the report revealed that 89% of Vietnamese respondents expressed confidence in developing a business idea, while 88% were willing to take the risks associated with a start-up. Additionally, 91% were ready to dedicate their time to idea development, percentages that exceeded the world average by 34–41%. The 2020 report by Amway further emphasized that as many as 97% of Vietnamese respondents aspired to develop entrepreneurial ideas. These statistics clearly indicate that entrepreneurship is a significant focal point and a prevailing trend in Vietnam's economic development process.

In recent years, the Vietnamese government has introduced several measures to promote entrepreneurship, especially among students. In 2017, the Prime Minister endorsed the 'Supporting students to start businesses until 2025' project, with the objective of nurturing an entrepreneurial spirit, equipping students with entrepreneurial knowledge and skills, and creating a supportive environment for their entrepreneurial pursuits during their academic journey. Currently, approximately 25% of educational institutions, totaling about 45, have established support centers for student start-ups, with more than ten of them dedicated to incubating student ventures. These initiatives underscore the proactive role of the Vietnamese Ministry of Education and Training in fostering student entrepreneurship.

The encouragement and support from the government have ignited the entrepreneurial spirit among a significant number of students. However, among those who embarked on entrepreneurial endeavors, a staggering 90% of students experienced failure (Lan, 2021). This statistic has raised concerns among policymakers and researchers. While fostering a positive mindset and attitude towards entrepreneurship

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is highly commendable, if this positive mindset and attitude are shaped by misleading information on social media (SM), it can be highly detrimental.

In Vietnam, the burgeoning trend of business start-ups has led to the emergence of inspiring talk shows and seminars on various SM platforms. The primary goal of these programs is to facilitate the exchange of experiences between established entrepreneurs and aspiring students. However, the onset of the COVID-19 pandemic has placed constraints on in-person workshops and live talk shows, making them impractical. As a result, producers have leveraged the potential of SM to organize online talk shows, seminars, and provide digital resources related to entrepreneurship.

However, amidst the positive developments in SM, there has been a proliferation of ‘illusory entrepreneurs’ disseminating ‘self-help’ or ‘get rich quick’ narratives with overly optimistic information about entrepreneurship. These videos paint an overly rosy picture of entrepreneurship, with the aim of attracting people to invest or start their own businesses (Quang, 2018). This situation poses a risk, especially for individuals, such as students, who lack experience and knowledge. They may be susceptible to overestimating their own abilities, a phenomenon commonly referred to as the ‘illusion of control’ (Laguía González et al., 2018).

SM, a global phenomenon, has attracted significant attention in studies related to students’ entrepreneurial aspirations. For instance, Do et al. (2020) demonstrated that the use of SM catalyzes entrepreneurial intentions (EI) among college students in Taiwan. Similarly, Pérez Fernández et al. (2021) suggested that online social capital enhances individuals’ relationships and deepens their understanding of entrepreneurship. Furthermore (Abdelfattah et al., 2022) that leveraging SM facilitates the connection between self-perceived creativity and e-EI. In a study by Barrera-Verdugo and Villarroel-Villarroel (2022) on SM usage frequency, a positive correlation was identified with more favorable entrepreneurial attitudes and perceptions among students. It’s worth noting that the magnitude of this impact varies depending on students’ age and gender.

While numerous studies have explored the impact of SM on business intentions, this study focused on students’ EI, taking into account perceived behavioral control (PBC) and perceived risk (PR). Notably, it addressed a question that previous research has not tackled: whether the use of SM promotes a positive perception of entrepreneurship in the context of unverified content shared on SM and the limited knowledge and experience of students. Furthermore, by categorizing students into different groups based on their experiences, we can analyze the specific effects of SM on students’ EI in each particular situation.

The main objective of this study is to examine the impact of SM usage on students’ EI. It is guided by the following specific objectives:

- To assess both the direct and indirect impacts of SM on students’ EI, with perception acting as a mediating factor.
- To examine the influence of experience on the relationship between SM and perception-related factors.

The remainder of the paper is structured as follows. [Section 2](#) introduces the theoretical framework and hypotheses. [Section 3](#) outlines the methodology, including data collection and estimation methods. [Section 4](#) discusses the empirical results, while [Section 5](#) delves into the primary findings. Finally, [Section 6](#) concludes the paper, summarizing results, acknowledging limitations, and suggesting future research directions.

2. Theoretical framework and hypothesis development

2.1. Theoretical framework

The concept of EI was first introduced in the 1960s, and since then, researchers have expanded the analytical model in various directions. Initially, researchers focused on personality traits that drive an individual’s intention to start a business (Lu et al., 2021). However, using personality traits alone is insufficient to explain EI (Gartner, 1985; Lu et al., 2021). Hence, since the 1980s, cognitive factors have been

included to understand the causes of EI. To date, two commonly used theories in research on EI are the Theory of Planned Behavior (TPB) by Ajzen (1991) and the Entrepreneurial Event Model (EEM) by Shapero and Sokol (1982).

According to TPB, EI is influenced by three key factors: attitudes (ATT), subjective norms (SN), and perceived behavioral control (PBC). ATT is an individual's evaluation of the behavior and is expressed through a level of positive or negative assessment of the subject's intention to start a business (Almeida et al., 2021). SN refers to people's opinions about the behavioral subject's EI (Su et al., 2021). PBC is the behavioral subject's perception of the feasibility of the EI (Laguía & Moriano, 2019). On the other hand, the EEM suggests that EI is shaped by two main elements: perceived desirability and perceived feasibility (Shapero & Sokol, 1982). Perceived desirability reflects an individual's aspiration level to start a business, while perceived feasibility represents the individual's perception of the possibility of starting a business.

TPB and EEM share a common focus on the behavioral subject's perception of their EI. Both TPB's PBC and EEM's perceived feasibility describe the level of feasibility, while EEM's perceived desirability is akin to TPB's ATT and SN, as they all encompass the desire and preference for the intention (Krueger & Brazeal, 2017; Lu et al., 2021). While EEM is specific to startup research (Esfandiar et al., 2019), TPB remains a preferred choice for many researchers, such as Schlaegel and Koenig (2014) and Lu et al. (2021). Other studies have suggested that individuals need to be aware of risks (Dao et al., 2021) and consider personal characteristics such as age, gender, education, and experience (Asma et al., 2019; Boubker et al., 2021; Hieu et al., 2021) or seek support (Liu et al., 2022) in addition to assessing their perceived ability to perform a particular activity. Furthermore, given the prevalence of interactive SM networks like Facebook, Instagram, and Twitter, the impact of SM also needs to be taken into account. Therefore, this study not only applies TPB but also analyzes the influence of demographic characteristics, risk perception, and SM on students' EI.

2.2. Hypothesis development

2.2.1. The theory of planned behavior

EI is influenced by three key factors: ATT, SN, and PBC. ATT refers to an individual's evaluation of the desirability of starting a business (Ajzen, 1991). In this study, the researchers employed EI to represent the intention to initiate a business. According to Agu (2021), an individual's behavior is influenced by their attitude toward it. Specifically, individuals with a positive attitude towards entrepreneurship are more likely to develop intentions that eventually translate into actual entrepreneurial behavior (Zaremohzzabieh et al., 2019). This concept is supported by the research of Rueda Barrios et al. (2021) who also endorse the idea that a positive attitude or awareness of entrepreneurship can facilitate the formation of EI. Therefore, the following hypothesis was proposed:

H₁: ATT positively affects EI.

SN is a factor that describes the perception of external pressures on EI. These external pressures can originate from various sources, including family members, friends, teachers, and other social connections. According to Ajzen (1991), when behavioral subjects receive greater support from their social network, they are more likely to develop EI. Support from close relationships can boost individuals' confidence and entrepreneurial spirit (Cavalcante et al., 2021). Studies conducted by Rueda Barrios et al. (2021) have shown that positive evaluation and support from family and friends can enhance students' EI in Colombia. Based on the above arguments, the following hypothesis was proposed:

H₂: SN positively affects EI.

PBC refers to the extent to which an individual perceives control over their behavior and relates to the perceived EI (Laguía & Moriano, 2019). This factor signifies an individual's perception of the possibility of becoming an entrepreneur and successfully managing a business. According to Vracheva et al. (2019), a higher perception of the possibility of success by the behavioral subject leads to a greater likelihood of forming EI. Research by Lu et al. (2021) has demonstrated that PBC has a positive influence on the EI of students in China. This positive effect is further supported by the studies

of López-Delgado et al. (2019) and Mei et al. (2015). Therefore, the following hypothesis was proposed:

H₃: PBC positively affects students' EI

2.2.2. *Perceived risks and intention to start a business*

Risk refers to the level or likelihood of experiencing losses when engaging in an action or a set of activities (Tognazzo et al., 2017). According to Laguía González et al. (2018), risk is commonly associated with newly established businesses. The European Commission (2011) reports that approximately 50% of businesses in Europe close within the first 5 years. Similarly, in Vietnam, up to 90% of startup businesses fail (Thuy, 2018). These failures can lead to societal stigmatization of entrepreneurs (Laguía González et al., 2018) and financial challenges, such as bank loans and bankruptcy. From a psychological perspective, if individuals perceive the risks and consequences associated with entrepreneurship as high, they are likely to experience fear and uncertainty (Tognazzo et al., 2017). Therefore, individuals with a high perception of risk may hesitate or even refrain from pursuing EI (Laguía González et al., 2018; Martínez-Cañas et al., 2023). Conversely, individuals with a positive attitude towards risk or a lower perception of risk are more likely to develop business intentions, as highlighted by Zhang et al. (2015) and Tognazzo et al. (2017).

H₄: PR negatively affects EI.

2.2.3. *Social media and entrepreneurial intentions*

SM is considered a useful tool for connecting individuals, gathering additional information, and acquiring knowledge (Nisar et al., 2022). According to Ellison et al. (2011) and Thomas et al. (2020), SM serves as platforms that enable individuals to expand their network by establishing new connections and maintaining existing relationships. Utilizing SM in entrepreneurship can help students connect with various partners and experienced business entities. Forming external relationships can boost an entrepreneur's confidence in their abilities (Sahoo & Panda, 2019), which, in turn, can foster EI. Based on the above arguments, the following hypothesis was proposed:

H₅: SM positively impacts EI.

In addition to fostering relationships, SM also serves as a source of information and knowledge (Johannisson, 1990; Karimi et al., 2016). Nowadays, a wide variety of information is shared on SM through diverse formats such as text (e.g. quotes), videos, audio, and more (Nisar et al., 2022). Success stories and entrepreneurial lessons are extensively shared across SM in various formats like short stories, postcards, and short videos (e.g. on TikTok). Accessing these resources can influence individuals' perceptions and EI (Camelo-Ordaz et al., 2016; Liñán & Santos, 2007). Exposure to positive information sources and the experiential lessons of successful entrepreneurs can enhance individuals' awareness and confidence in their potential for success and business model management (Hayward et al., 2010). Utilizing SM allows students easy access to positive entrepreneurial information of Barrera-Verdugo and Villarroel-Villarroel (2022), which, in turn, stimulates their PBC. Based on the above arguments, we propose the following hypothesis:

H₆: SM positively impacts PBC.

The use of SM can influence students' risk perception. On one hand, employing SM can heighten students' PR regarding entrepreneurship. According to Zhao et al. (2022), negative emotions tend to attract more attention from users on SM. In other words, in the case of student entrepreneurial failures, their information can spread across social platforms, drawing the attention of others. This may lead to negative interactions, potentially causing emotional distress. On the other hand, positive information on SM can overshadow students' perception of entrepreneurial risks (Tognazzo et al., 2017) and enhance their entrepreneurial motivation (Adekiya & Ibrahim, 2016). Based on the above arguments, the following hypothesis was proposed:

H₇: SM positively influences PR.

Despite the benefits of inspirational success stories, it is crucial to acknowledge that they can sometimes overshadow the potential risks and challenges associated with starting a business (Forlani & Mullins, 2000; Tognazzo et al., 2017). Bower (2008) proposed an 'information-processing' approach, which entails the conversion, analysis, storage, and retrieval of information. In the context of initiating a business, individuals often receive information about friends and family members engaged in entrepreneurship, which they subsequently analyze and evaluate to shape their perceptions (Hsu et al., 2019).

According to Laguía González et al. (2018), individuals with experience and knowledge in business start-ups are more likely to make accurate judgments and have more precise perceptions, reducing the likelihood of succumbing to the 'illusion of control.' Consequently, those with extensive knowledge and experience in entrepreneurship and business tend to possess enhanced abilities for information classification and evaluation. These qualities enable them to form a more accurate perception of their managerial and operational capabilities, as well as the associated risks they might encounter. This suggests that higher levels of experience will magnify the impact of SM on risk perception and the likelihood of success. In light of the above arguments, the following hypotheses were proposed:

H₈: The higher the experience (EP), the higher the influence of SM on PBC.

H₉: The higher the EP, the higher the influence of SM on PR.

3. Methodology

3.1. Data collection

This study involved a sample of 493 students from two provinces in Vietnam: Thai Nguyen and Thanh Hoa. Thai Nguyen province was selected for its significance as a regional center in the Northern mountainous region, situated 80 km north of Hanoi, the capital city. This region boasts a substantial population of ethnic minority students, and Thai Nguyen University ranks among the largest and most multidisciplinary universities in Vietnam. In contrast, Hong Duc University in Thanh Hoa province was selected. It is located approximately 150 km south of Hanoi, for its smaller scale and its position in the northern part of the Central Coast region. Surveying students in these two diverse locations allowed the gathering of varied and realistic data. To determine the minimum required sample size, Slovin's sample size calculation method was utilized, resulting in a minimum requirement of 384 participants.

From the provided list of students, a random selection process was used to get 600 students to participate in the interviews. Prior to conducting the interviews, steps were taken to ensure that the questions were appropriate for the students. This was achieved by sending survey questionnaires to the respective schools and consulting with teachers and students to confirm the suitability of the inquiries. The survey was initiated in October 2022, and a total of 600 questionnaires were distributed, with 300 allocated to each province.

To establish contact with the students, questionnaires were sent to the teachers to collect the required information. Despite the appeal to the teachers for help, some students either declined to participate or provided inaccurate information. To address this challenge, applied the attention checks methodology was used, as outlined by Vedadi et al. (2021), to exclude participants who did not fully engage with the survey.

After collecting the survey questionnaires, 10 participants qualified for in-depth interviews. In total, 493 valid questionnaires were obtained, accounting for 82.17% of the total responses. It's important to note that 107 questionnaires were excluded: 54 out of the 107 failed the attention checks, while 53 out of the 107 did not provide adequate information or complete responses.

3.2. Measurement

The interview questionnaire was divided into two main parts. The first part included questions about demographic characteristics, such as gender, educational level, ethnicity, and EP. The second part consisted of questions related to EI, ATT, SN, PBC, PR, and SM. With the exception of students' EI, the

Table 1. Measurement instruments.

Variables	Questionnaires	Adopt from
ATT	Being an entrepreneur implies more advantages than disadvantages to me. Being an entrepreneur would give me great satisfaction. It is desirable for me to become an entrepreneur. It is attractive for me to become an entrepreneur. I am in favor of entrepreneurship and household creation.	Hieu et al. (2021), Sampene et al. (2022)
SN	My closest family members think that I should pursue a career as an entrepreneur. My closest friends think that I should pursue a career as an entrepreneur. People who are important to me think that I should pursue a career as an entrepreneur. To what extent do you care about what your closest family thinks as you decide on whether or not to pursue a career as self-employed? To what extent do you care about what your closest friends think as you decide on whether or not to pursue a career as self-employed? To what extent do you care about what people important to you think as you decide on whether or not to pursue a career as self-employed?	Hieu et al. (2021), Sampene et al. (2022)
PBC	If I wanted to, I could easily become an entrepreneur. It is entirely up to me whether or not I become an entrepreneur. As an entrepreneur, I would have sufficient control over my business. There are very few circumstances outside my control that may prevent me from becoming an entrepreneur.	Hieu et al. (2021), Sampene et al. (2022)
EP	I have worked in my parents' business. I have sold goods and services. I have attempted to start a business. I have helped someone to start a business. I have worked in a part-time job such as waitering.	Bignotti and Le Roux (2020)
PR	I recognize that entrepreneurship brings financial risks. I recognize that entrepreneurship poses risks to mental well-being and health. I recognize that entrepreneurship involves various risks beyond financial and mental aspects. I acknowledge the difficulty for a new company to access customers and potential partners.	Verheul et al. (2015), Arrighetti et al. (2016)
SM	I regularly use social media platforms (e.g. Facebook, Zalo, Instagram, Twitter, etc.). I participate in various business and entrepreneurship groups on social media. I frequently follow programs related to entrepreneurship. I often follow successful entrepreneurs and businesspeople. I have connected with many business and entrepreneurial individuals through social media.	Based on Barrera-Verdugo and Villarroel-Villarroel (2022)

remaining variables in the second part were measured using a 5-point Likert scale (1 = strongly disagree; 5 = strongly agree). The measurement instruments are presented in Table 1.

3. Method of estimation

Structural Equation Modeling (SEM) serves as a valuable tool for assessing the factors influencing students' EI. The strength of this modeling approach lies in its remarkable flexibility to simultaneously test a multitude of hypotheses related to complex cause-effect relationships (Katebi et al., 2022). However, SEM necessitates continuous responses, whereas our dependent variable (EI) is binary, taking the value of 1 if the student has entrepreneurial intentions and 0 otherwise. The application of SEM in this context may introduce significant biases (Hieu et al., 2021). Therefore, in line with Doanh et al. (2022), we have chosen to employ Generalized Structural Equation Modeling (GSEM). GSEM represents an advanced iteration of SEM, capable of accommodating various data types, including binary data.

Moreover, GSEM offers the flexibility to accommodate models of the form $y_i = X_i\beta + \varepsilon_i$, and it excels in handling a variety of model types, including logit, probit, multinomial logit, and others, through the combination of different families and links (Van et al., 2022). The primary theoretical equation of GSEM can be expressed as follows:

$$g\{E(y_i)\} = X_i\beta \quad (1)$$

$$y_i \sim F \quad (2)$$

where: y_i represents endogenous variable(s); X_i signifies the explanatory variable (s); β stands for the coefficient of X_i ; $g(\cdot)$ is referred to as the link, and F is denoted as the family.

In this study, the endogenous variable(s) were characterized by two distinct data types. EI is a binary variable, while PBC and PR are continuous variables. Consequently, in the investigation of the influence of ATT, SN, PBC, PR, EP, and Gender on EI, the Bernoulli family was applied in conjunction with the logit link function. As outlined in Equations (1) and (2), the utilization of the Bernoulli family in tandem with the inverse logit link function for the dependent variable EI can be expressed as follows:

$$\log f(EI|p) = EI \log p + (1 - EI) \log(1 - p) \quad (3)$$

$$E(EI) = g^{-1}(\beta_1 \text{Gender} + \beta_2 \text{ATT} + \beta_3 \text{SN} + \beta_4 \text{PCB} + \beta_5 \text{PR} + \beta_6 \text{EP} + \beta_7 \text{SM}) \\ = \frac{1}{1 + e^{-(\beta_1 \text{Gender} + \beta_2 \text{ATT} + \beta_3 \text{SN} + \beta_4 \text{PCB} + \beta_5 \text{PR} + \beta_6 \text{EP} + \beta_7 \text{SM})}} \quad (4)$$

In this context, Gender is coded as 1 for males and 0 for females, ATT pertains to attitudes, SN corresponds to the subjective norms, PBC signifies perceived behavioral control, PR denotes perceived risks, and EP reflects the student's entrepreneurial experience.

Subsequently, the Gaussian family was applied in conjunction with the identity function to assess the impact of SM on cognitive variables (PBC and PR). Based on Equations (1) and (2), the Gaussian family and the identity function can be expressed as follows:

$$\log f(\mathbf{y} \dots, \boldsymbol{\Sigma}) = -\frac{1}{2} \{d \log 2\pi + \log |\boldsymbol{\Sigma}| + (\mathbf{y} - \dots)' \boldsymbol{\Sigma}^{-1} (\mathbf{y} - \dots)\} \quad (5)$$

$$E(PBC) = \gamma_1 \text{SM} + \gamma_2 (\text{SM} \times \text{EP}) \quad (6)$$

$$E(PR) = \gamma_3 \text{SM} + \gamma_4 (\text{SM} \times \text{EP}) \quad (7)$$

In these equations, y represents the response variable; d corresponds to the dimension of the observed response vector y ; \dots is the mean of the response; and $\boldsymbol{\Sigma}$ signifies the variance matrix of its unexplained errors.

GSEM is proficient in handling structural models encompassing various data types. However, a limitation of GSEM is its inability to provide goodness-of-fit statistics. To address this shortcoming, the Akaike Information Criterion (AIC), the Bayesian Information Criterion (BIC), and single-variable significance, such as standard errors, were utilized to evaluate the model's efficacy.

4. Empirical results

4.1. Psychometric properties

Prior to performing GSEM estimation, Exploratory Factor Analysis (EFA) was used to evaluate the factor structure and Confirmatory Factor Analysis (CFA) to define and examine the relationships within the measurement model. The results in Table 2 indicated that the loading factor exceeded 0.7, and the structure was in alignment with the theoretical framework, which suggests the adequacy of the factor structure and offers preliminary confirmation of the measurement quality.

The results of the CFA are provided in Table 3. In line with the approach by Hieu et al. (2021), the model's fit was assessed by examining factor loadings, reliability, validity, and the overall measurement model fit. As illustrated in Table 3, the standardized factor loadings surpass 0.7. The values for composite reliability (CR) exceed 0.907, and those for average variance extracted (AVE) are greater than 0.671. Furthermore, the goodness-of-fit statistics indicate that CFI stands at 0.988, TLI at 0.987, and RMSEA is less than 0.05. These findings confirm that our data is well-suited for the model.

Table 2. The results of EFA.

Variable	Factor1	Factor2	Factor3	Factor4	Factor5
ATT1				0.8506	
ATT2				0.8654	
ATT3				0.8570	
ATT4				0.8616	
ATT5				0.8438	
SN1	0.8557				
SN2	0.8371				
SN3	0.8617				
SN4	0.8615				
SN5	0.8538				
SN6	0.8551				
PBC1					0.8151
PBC2					0.7970
PBC3					0.8106
PBC4					0.7774
EP1		0.8099			
EP2		0.8659			
EP3		0.8548			
EP4		0.8227			
EP5		0.8862			
SM1			0.7838		
SM2			0.8414		
SM3			0.8145		
SM4			0.8089		
SM5			0.8148		

Table 3. The results of CFA.

Variable	Mean	Sd	λ	CR	AVE
Attitude (ATT)					
ATT1	3.566	0.835	0.806	0.911	0.671
ATT2	3.566	0.901	0.834		
ATT3	3.535	0.882	0.822		
ATT4	3.465	0.839	0.828		
ATT5	3.556	0.883	0.805		
Subjective norm (SN)					
SN1	3.513	0.892	0.831	0.929	0.686
SN2	3.531	0.891	0.811		
SN3	3.507	0.873	0.840		
SN4	3.556	0.881	0.826		
SN5	3.546	0.874	0.833		
SN6	3.513	0.887	0.827		
Perceived behavior control (PBC)					
PBC1	3.740	0.927	0.863	0.907	0.708
PBC2	3.811	0.932	0.851		
PBC3	3.832	0.903	0.815		
PBC4	3.844	0.934	0.837		
Experiences (EP)					
EP1	3.949	0.897	0.836	0.938	0.750
EP2	4.008	1.004	0.896		
EP3	4.043	1.002	0.871		
EP4	3.937	0.903	0.828		
EP5	3.941	0.989	0.897		
Social media (SM)					
SM1	3.933	0.949	0.836	0.933	0.734
SM2	3.915	0.944	0.865		
SM3	3.864	0.958	0.852		
SM4	3.909	0.972	0.856		
SM5	3.909	0.982	0.875		

$\chi^2=374.490$ ($p>\chi^2=0.000$), $\chi^2/df=1.41$, $RMSEA = 0.029$, $CFI = 0.988$, $TLI = 0.987$. $AIC = 23532.284$, $BIC = 23889.327$.

4.2. Hypothesis testing

The model results are presented in Table 4. The approach involves three iterations: first, the exclusion of control variables to assess model sensitivity, followed by a run without the moderating relationship, and finally, the inclusion of all variables in our model. As indicated by the estimated results in Table 4, the signs of the variables remain consistent, with minimal changes in their elasticity. Furthermore, Model (3)

Table 4. The results of GSEM.

Variables	Model 1		Model 2		Model 3	
	Coef	$p > z $	Coef	$p > z $	Coef	$p > z $
Dependent variable: Intention						
Gender			0.430	0.029	0.431	0.029
ATT	0.425	0.001	0.452	0.001	0.425	0.001
SN	0.357	0.006	0.335	0.011	0.335	0.011
PBC	0.314	0.045	0.329	0.038	0.329	0.038
PR	-0.841	0.000	-0.829	0.000	-0.829	0.000
SM	0.508	0.024	0.494	0.029	0.494	0.029
EP	0.316	0.022	0.301	0.030	0.301	0.030
Constant	-3.774	0.000	-4.047	0.000	-4.047	0.000
Dependent variable: PBC						
SM	0.602	0.000	0.602	0.000	0.593	0.000
SM×EP					0.105	0.005
Constant	1.456	0.000	1.456	0.000	1.491	0.000
Dependent variable: PR						
SM	0.814	0.000	0.814	0.000	0.807	0.000
SM×EP					0.083	0.003
Constant	0.762	0.000	0.762	0.000	0.791	0.000
No of Obs	493		493		493	
AIC	2277.354		2274.537		2262.387	
BIC	2331.96		2333.344		2329.595	

Note: Model 1 is without control variable, moderating relationship; Model 2 is without control variable; Model 3 is full.

exhibits the highest AIC and BIC values, signaling both the robustness of our model and the efficiency of Model (3).

In terms of control variables, Gender ($\beta=0.431$, $p=0.029$) exhibited a positive and statistically significant impact on students' EI, consistent with social characteristics. Specifically, male students showed a higher inclination toward starting a business compared to their female counterparts.

In relation to the TPB, all three variables exhibited a positive and statistically significant impact on students' EI, thereby providing support for H_1 , H_2 , and H_3 . To elaborate, ATT ($\beta=0.425$, $p=0.001$) exerts a relatively robust positive influence on EI, with a one-unit increase in ATT increasing the odds of EI by a factor of 0.425. Similarly, an increase in SN raises a student's odds of enhanced EI by a factor of 0.335. Notably, PBC ($\beta=0.329$, $p=0.038$) wields the most substantial positive impact on students' EI. Consequently, a one-unit increase in PBC elevates the odds of EI by a factor of 0.329.

In contrast to the positive effects of TPB variables, the estimated coefficient of PR ($\beta = -0.829$, $p=0.000$) demonstrated a negative and statistically significant effect on EI, supporting hypothesis H_4 . This finding indicates that individuals with lower fear and a propensity for risk-taking are more inclined toward business start-ups.

The central variable, SM ($\beta=0.494$, $p=0.029$), demonstrated a positive and statistically significant effect on EI, thereby affirming hypothesis H_5 . Furthermore, SM exerted an indirect influence on EI through PBC and PR. Specifically, a one-unit increase in SM elevated the odds of PBC and PR by factors of 0.593 and 0.807, respectively, providing support for hypotheses H_6 and H_7 . These findings underscore SM's pivotal role in enhancing students' confidence and willingness to embark on entrepreneurial ventures.

To explore the moderating role of EP, the interaction variable (SM×EP) was introduced to examine its impact on the relationships between SM and PBC, and SM and PR. Estimations revealed that SM×EP ($\beta_{PBC} = 0.105$, $p=0.005$; $\beta_{PR} = 0.083$, $p=0.003$) indirectly positively influenced EI through PBC and PR, thereby supporting H_8 and H_9 .

Moreover, students were students into three experience-based groups: Group 1 (EP_1) comprising students with low experience (experience $< \overline{EP} - SD_{EP}$),¹ Group 2 (EP_2) including those with moderate experience ($\overline{EP} - SD_{EP} \leq EP \leq \overline{EP} + SD_{EP}$), and Group 3 (EP_3) encompassing high-experience students (experience $> \overline{EP} + SD_{EP}$). The results in Table 5 revealed that, in the case of EP_1 , SM×EP ($\beta_{PBC}=0.148$, $p=0.311$; $\beta_{PR}=0.111$, $p=0.288$) demonstrated a positive impact, albeit without statistical significance, on both PBC and PR. In contrast, SM×EP exhibited a positive and statistically significant effect on PBC and PR in the instances of EP_2 ($\beta_{PBC}=0.242$, $p=0.002$; $\beta_{PR}=0.188$, $p=0.001$) and EP_3 ($\beta_{PBC}=0.227$, $p=0.000$; $\beta_{PR}=0.095$, $p=0.034$). Notably, SM×EP exerted its most substantial impact on both PBC and PR in the case of EP_2 , which is particularly intriguing.

Table 5. The impacts of social media on student's entrepreneurial intention by group of experiences.

Variables	Group 1		Group 2		Group 3	
	Coef	$p > z $	Coef	$p > z $	Coef	$p > z $
Dependent variable: Intention						
Gender	0.356	0.484	0.291	0.513	0.348	0.126
ATT	0.962	0.003	0.601	0.027	0.281	0.074
SN	0.396	0.287	1.008	0.001	0.265	0.078
PBC	0.729	0.041	0.414	0.274	0.111	0.569
PR	-1.895	0.005	-1.167	0.045	-0.687	0.006
SM	0.849	0.158	0.883	0.090	0.661	0.015
EP	0.237	0.503	6.406	0.022	0.455	0.038
Constant	-4.544	0.030	-36.866	0.009	-4.290	0.000
Dependent variable: PBC						
SM	0.507	0.001	0.435	0.000	0.414	0.000
SM×EP	0.148	0.311	0.242	0.002	0.227	0.000
Constant	1.424	0.005	2.128	0.000	2.301	0.000
Dependent variable: PR						
SM	0.828	0.000	0.704	0.000	0.792	0.000
SM×EP	0.111	0.288	0.188	0.001	0.095	0.034
Constant	0.704	0.052	1.173	0.000	0.857	0.000
No of Obs	95		121		362	
AIC	1588.403		511.908		1588.403	
BIC	1650.669		556.641		1650.669	

Note: Group 1 (EP_1) consists of students with low experience (experience $< \bar{EP} - SD_{EP}$). Group 2 (EP_2) includes students with medium experience ($\bar{EP} - SD_{EP} \leq EP \leq \bar{EP} + SD_{EP}$). Group 3 (EP_3) comprises students with high experience (experience $> \bar{EP} + SD_{EP}$).

In summary, SM exerts a positive and statistically significant impact on EI through both direct and indirect channels. Notably, the strength of the indirect effect of SM on EI is contingent upon the level of EP among students.

5. Discussion

5.1. Main findings

Our study extends the TPB model by introducing two additional factors: PR and SM. The empirical findings indicate that ATT, SN, and PBC have a positive and statistically significant influence on students' EI, aligning with prior research (Aragon-Sanchez et al., 2017; Munir et al., 2019). Specifically, students who hold positive attitudes toward entrepreneurship and receive social support are more inclined to pursue entrepreneurship. Moreover, their confidence in their business ideas and ability to run a business further bolsters their EI.

PR negatively affects PBC, supporting our hypothesis and aligning with findings from Laguía González et al. (2018). This suggests that students who are less concerned about financial risks, feel more relaxed, and exude confidence in approaching customers are more likely to embark on business startups. These characteristics mirror those of open-minded individuals who revel in exploration, innovation, and risk-taking. Initiating a new business venture, such as a startup, always carries inherent risks (Forlani & Mullins, 2000), which can potentially impact one's finances, mental well-being, or relationships. Therefore, students who are willing to confront these risks and embrace change are more likely to achieve success as entrepreneurs.

SM emerges as a significant variable with both direct and indirect positive impacts on students' EI. The results underscore the effectiveness of SM in nurturing students' entrepreneurial spirit, especially in the context of widespread SM usage and the COVID-19 pandemic. Vietnam has witnessed the establishment of several public startup groups, such as 'I-Startup - Connecting Start-ups,' 'Finding Start-up Friends - Connecting Ideas - Business Cooperation,' and 'Helping Each Other Start a Business,' which have attracted substantial memberships. The sample revealed that over half of the students have participated in 1–2 business startup groups, highlighting how SM provides an invaluable platform for expanding connections and, consequently, elevating EI (Ruiz-Palomino & Martínez-Cañas, 2021).

SM not only facilitates relationship building but also grants students access to a wealth of information, including live-streamed seminars, workshops, and talk shows featuring successful entrepreneurs, prominent personalities, and influential youth who share their experiences and interact with viewers. These

success stories serve as sources of inspiration and motivation for students, bolstering their confidence and belief in their ability to succeed in entrepreneurship. As a result, SM reduces anxiety surrounding entrepreneurship, enhances awareness of students' capacity to implement novel business ideas, and enables students to expand their networks, reduce aversion to risk, and heighten their sense of control, all of which contribute to increased EI.

Empirical results also demonstrated that the relationship between SM and perceived variables was influenced by EP. Notably, the effect of EP on this relationship varied among the student groups. Group 2 (consisting of students with moderate experience) exhibited the strongest positive effect, followed by Group 3 (comprising students with high experience), and finally Group 1 (including students with little or no experience). These findings highlight the presence of an 'illusion of control' phenomenon within Group 2, where students tend to overestimate their ability to manage businesses and control risks.

In reality, individuals with a certain level of knowledge and experience in entrepreneurship often exhibit confidence in their capacity to become entrepreneurs, manage business operations, and effectively mitigate risks. Consequently, they tend to be more susceptible to these 'rosy' success stories. The illusion of control theory posits that exposure to numerous narratives of success can lead individuals to overestimate their chances of achieving success (Alloy & Abramson, 1979; Mereu & Lleras, 2013). The influential power of successful celebrities who share their success stories in talk shows and inspirational seminars is substantial, especially considering their recognized achievements in various fields. Celebrities typically emphasize their successes rather than the challenges and failures they encountered, and their words frequently exert a positive influence on students, particularly those in Group 2.

For students in Group 3, their existing knowledge and experience in entrepreneurship enabled them to genuinely grasp that becoming a successful entrepreneur, efficiently managing business affairs, and effectively controlling risks require a solid academic foundation in addition to practical experience, rather than mere inspiration from idealistic narratives. This aligns with the perspective of Meissner and Wulf (2017), where those with more experience or a strong practical perception tend to be less susceptible to the 'illusion of control' phenomenon. Conversely, students in Group 1 lacked the confidence to envision themselves as successful entrepreneurs who can proficiently oversee business affairs in an environment filled with concealed risks.

5.2. Theoretical implications

This study is aligned with Almeida et al., 2021 and Liu et al. (2022) in applying TPB to investigate students' entrepreneurial behavior. However, it distinguishes itself from previous research in several ways. First, following Zhang et al. (2015) and Pérez Fernández et al. (2021), we include risk perception and SM awareness as additional factors, in conjunction with the fundamental factors of ATT, SN, and PBC. Second, while previous studies have explored the impact of SM on students' EI from various perspectives (Abdelfattah et al., 2022; Do et al., 2020; Pérez Fernández et al., 2021), only Barrera-Verdugo and Villarroel-Villarroel (2022) discovered that the frequency of SM use positively affects students' perceptions. In contrast to Barrera-Verdugo and Villarroel-Villarroel (2022), the focus of this investigation was on assessing the influence of SM on students' perceptions through PR and PBC. Finally, the students were categorized into groups based on their experience to evaluate the specific impact of SM on their EI.

Research findings also indicated that SM had both a direct positive impact on students' EI and an indirect impact through PBC and PR. Notably, when the aspect of EP was considered, SM had the highest positive impact on PBC and PR among students with moderate experience. These findings cast doubt on the presence of the 'illusion of control' phenomenon in Group 2. Consequently, further research must be done to delve deeper into the impact of SM on EI and the potential presence of the 'illusion of control'.

5.3. Managerial implications

First, risk perception has a negative impact on students' EI, and this impact is influenced by students' own EP. This finding highlights the importance of knowledge and practical experience for students.

Consistent with Dao et al. (2021), universities should develop supplementary programs to enhance students' understanding and experience in entrepreneurship. These programs should focus on financial management, relationship development, and business operations to expand students' knowledge base. Additionally, engaging in extracurricular activities and interacting with individuals who have EP, including those who have encountered setbacks, proves highly advantageous. Such interactions enable students to gain a realistic perspective, reduce ambiguity, and subsequently minimize risks.

Second, SM has a positive impact on students' EI both directly and indirectly. This outcome underscores the influential role of SM in shaping students' entrepreneurial mindset. In this context, it is proposed that a solution in line with Barrera-Verdugo and Villarroel-Villarroel (2022), who advocate leveraging SM as an educational platform to foster teacher-student connections and deliver entrepreneurial information. Instead of relying solely on traditional offline lectures, educational institutions should actively share educational and entrepreneurial content on SM. This approach facilitates easier communication between schools and students, while preventing the dissemination of misleading information that could impact students' perceptions.

Third, research results provide empirical evidence of the influence of SM on students' perceptions and EI. These findings can serve as a valuable reference for policymakers in the development of entrepreneurship programs and the management of information on SM. Furthermore, the varied impact of SM on perceptions among different student groups suggests that educators should consider equipping students with sufficient academic knowledge and practical experience before encouraging them to engage in entrepreneurship.

6. Conclusion

This study aimed to assess the impact of SM on students' EI by incorporating the variables of SM and PR into TPB. The study utilized the GSEM to analyze interview data from 362 students in Thai Nguyen and Thanh Hoa, Vietnam. The results revealed that ATT, SN, and PBC positively influenced students' intentions to start businesses. Conversely, PR hindered students' EI. SM exerted a positive impact on students' EI through both direct and indirect channels. Furthermore, students' EP moderated the relationship between SM and perceived variables, such as PBC and PR. The most significant effect was observed in Group 2, followed by Group 3, while no such effect was observed in Group 1.

The empirical results suggested that SM can be a powerful tool for encouraging students to start businesses. However, students need to possess adequate basic knowledge and experience to mitigate the risks and failures associated with entrepreneurship. This analytical ability enables students to accurately evaluate and analyze information, thereby reducing the 'illusion of control' phenomenon, which can lead to an overestimation of their actual abilities.

7. Limitation

Despite intensive efforts, this study is not without its limitations. The first limitation pertains to the geographical location of the study. This research was conducted in Vietnam, and the geographical constraint may influence the generalizability of the findings (Do et al., 2020). To address this limitation, research collaboration among multiple universities worldwide and substantial funding will be necessary. The second limitation concerns the identification of the 'illusion of control' phenomenon among students, especially those with moderate experiences. In this study, we utilized the 'illusion of control' concept to explain the impact of SM on perceptual factors without quantitative or empirical evaluation. Besides, training in skills that help students identify opportunities in the market will also boost students' intention to start a business (Ruiz-Palomino & Martínez-Cañas, 2021). Consequently, we recommend that future research should quantitatively measure the 'illusion of control' and training opportunity recognition and assess its impact on EI.

Note

1. \bar{EP} : the mean of EP; SD_{EP} : the standard deviation of EP.

Disclosure statement

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