

Social cognitive career theory and higher education students' entrepreneurial intention: The role of perceived educational support and perceived entrepreneurial opportunity

Cong Doanh Duong¹ , Van Trang Tran² , Étienne St-Jean³ 

Abstract

PURPOSE: This study aims to integrate insights from the Socio-Cognitive Career Theory (SCCT) and entrepreneurship literature to develop a research framework of how perceived entrepreneurial opportunities (PEO) and perceived educational support (PES) shape the progression of entrepreneurial self-efficacy (ESE) and entrepreneurial career interests (ECI). Additionally, this study investigates whether ECI mediates the effects of PEO and PES on entrepreneurial intention (EI) and how PEO and PES moderate the effects of ESE and ECI on EI. **METHODOLOGY:** A sample of 888 university students was recruited from Vietnam. Cronbach's alpha and confirmatory factor analyses were adopted to test the reliability and validity of the scales. Structural equation modeling (SEM) is then used to test formulated hypotheses. **FINDINGS:** The current study demonstrates that ESE and ECI directly trigger EI. Although PES and PEO did not directly impact EI, their influence on EI was mediated through ESE and ECI. In addition, PEO was found to act as a positive catalyst for the transformation of ESE and ECI into EI. The greater the entrepreneurial opportunities students perceive, the more likely they are to convert ESE and ECI into intentions to become entrepreneurs. **IMPLICATIONS:** This study makes a significant contribution by emphasizing the relevance of the SCCT framework in understanding entrepreneurship and brings to the forefront the role of PES and PEO in shaping the progression of ESE, ECI and, ultimately, EI. In addition, the findings of this study provide practical implications for nascent entrepreneurs, entrepreneurship educators, and policymakers. **ORIGINALITY AND VALUE:** This study is one of the first to investigate the role of PEO and PES in the development of Vietnamese students' SES, ECI and, ultimately, their intention to engage in entrepreneurship.

Keywords: entrepreneurial intention, social cognitive career theory, perceived educational support, perceived entrepreneurial opportunities, entrepreneurial self-efficacy, entrepreneurial career interests, structural equation modeling, SEM

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Received 16 August 2023; Revised 03 December 2023, 11 December 2023; Accepted 18 December 2023.

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INTRODUCTION

In the last few years, there has been a strong interest from entrepreneurship scholars to investigate the drivers of EI, leading to many meta-analyses and systematic literature reviews on the thematic (Donaldson, 2019; Douglas, 2020; Hueso et al., 2020; Liñán & Fayolle, 2015; Meoli et al., 2020; Neves & Brito, 2020; Schlaegel & Koenig, 2014). Based on these compilations, one can see that most of the research relies on two main theories to explain EI: The Entrepreneurial Event Model (EEM) (Shapiro & Sokol, 1982) and the Theory of Planned Behaviour (TPB) (Ajzen, 1991). In one of the latest compilations of research related to EI, Donaldson (2019) concludes that to gain a deeper understanding of the phenomenon, more complex theories should be mobilized just as testing models in more specific contextual situations that interact with the main contributing variables.

Some studies have recently used the Socio-Cognitive Career Theory (SCCT) (Lent et al., 2002) to understand entrepreneurship as a career choice and, more specifically, to study EI (Liguori et al., 2020; Liguori et al., 2018; Tran & Von Korflesch, 2016). SCCT aims to understand how career choices are developed through self-efficacy and outcome expectations, leading to career interest, career intention and choice of actions, in considering the effect of the learning experiences and the contextual factors that could affect the process of career choice. Although very promising in studying entrepreneurial career choice and intention, this theory is silent about the specific nature of entrepreneurship: the role of entrepreneurial opportunities (Davidsson et al., 2019; Sarasvathy et al., 2010; Scheaf et al., 2020; Shane & Venkataraman, 2000). In fact, and surprisingly, the most important theory to study EI, namely TPB (Lortie & Castrogiovanni, 2015; Schlaegel & Koenig, 2014), is also silent about the role of the opportunity to develop the intentions to become an entrepreneur. On the one hand, taking action to become an entrepreneur based on previous intentions requires pursuing an entrepreneurial opportunity (Henríquez-Daza et al., 2019; Schmitt et al., 2018). On the other hand, there is some evidence that the perception of opportunities can interact with self-efficacy and individual characteristics to develop EI (Doanh et al., 2021; Hajizadeh & Zali, 2016; Ko, 2012; Tumasjan & Braun, 2012).

At the same time, entrepreneurship education is also gaining in popularity, with many systematic literature reviews related to its impact on entrepreneurship in general, or on EI and career choice in particular (Ali et al., 2020; Bazan et al., 2020; Brüne & Lutz, 2020; Galvão et al., 2018; Lorz et al., 2013; Nabi et al., 2017; Walsh et al., 2021). As many university students are at the crossroads of their career choice and could potentially start new businesses while they are studying or just after finishing their degree, they constitute a population of interest in understanding how universities can support them to develop this intention and effectively start new ventures. Besides entrepreneurship education in itself, universities can support entrepreneurship through incubators/accelerators, start-up creation support programs, university-industry partnerships and, more globally, inducing an entrepreneurial culture on the campus (Bazan et al., 2019; Walsh et al., 2021). How this support is effective in stimulating EI, and how it interacts with the individual aspects, remain important gaps identified in the literature (Schuhmacher & Thieu, 2020).

This research aims to fill these gaps in our understanding by integrating insights from the SCCT framework and entrepreneurship literature. Specifically, this study developed a research framework to investigate the role of PEO and PES within the university in the development of students' SES, ECI and, ultimately, their intention to engage in entrepreneurship. Additionally, this study investigates whether ECI mediates the effects of PEO and PES on EI and how PEO and PES moderate the effects of ESE and ECI on EI.

With a sample of 888 Vietnamese university students from different faculties, this study used a structural equation model (SEM) to test the research hypotheses. Based on our results, this research contributes to highlighting the relevance of SCCT in entrepreneurship by illustrating how ECI develops upstream to having an EI, and how ESE leads to ECI. Secondly, it contributes to explaining the role of PEO in the process of developing ESE, ECI and EI. This concept appears to be an important missing dimension in models explaining EI.

The next sections will explain the SCCT and the relevant concepts of the study before explaining the hypotheses and presenting the methodology, the results and a discussion about the contributions, the limitations, and the research paths that open for the future.

LITERATURE REVIEW

Social-Cognitive Career Theory and entrepreneurship

Entrepreneurship not only is identified as a career choice, but it is also defined as a process of discovering, evaluating, and exploring entrepreneurial opportunities, by which persons strive to search and produce additional value via new venture creations or other modes of innovation and creativity, referring to the interconnection of opportunities and individuals (Davidsson, 2015; Gartner et al., 2004; Pérez-López et al., 2019). From a psychological aspect, individual behavior is emphasized, and scholars have considered the impact of this behavior on a process of social cognition that individuals employ in building representations of environmental influences, and motivational constructs that influence choice actions (Wang et al., 2019). Social Cognitive Career Theory (SCCT) (Lent & Brown, 2013; Lent et al., 2002), built on Social Cognitive Theory (SCT) (Bandura, 1986) to address how the social influences in which a person is nested complements his/her intention to involve in a certain career and affect this career transition (Lent & Brown, 2013). This theory conceptualizes how environmental influences accompany internal motives in driving a specific decision (Lent & Brown, 2019). According to SCCT, environmental influences can promote task-particular self-efficacy, outcome expectation (motivation), career interests, intention, and career choice as well as performance (Lent & Brown, 2013). Meoli et al. (2020) emphasize that SCCT addresses how a person develops career interest and makes a related career choice decision, allowing us to understand entrepreneurship from a career perspective. Individuals' self-beliefs concerning their ability and capacity to organize and execute specific behaviors, as well as the expected and unexpected results of carrying out those actions, are primarily influenced by that individual's will or intention (Blanco, 2011). Therefore, the SCCT postulates that self-efficacy and interest are precursors of career intentions (Uysal et al., 2022).

Given the growing importance of SCCT in explaining entrepreneurial career choices in various cultural contexts (e.g. Adebusuyi et al., 2022; Pérez-López et al., 2019; Wang et al., 2021), including the higher education context in Vietnam (Duong, 2023a; Duong & Vu, 2023a), this study also aims to investigate the applicability of SCCT to the Vietnamese higher education setting. The SCCT can offer a comprehensive theoretical framework, which helps assess under what conditions a nascent entrepreneur decides to engage in an entrepreneurial career. In the stream of entrepreneurship research, SCCT takes into account the central antecedents of the extended frameworks of EI, such as ESE, entrepreneurial attitudes, or goals (Liguori et al., 2018) and accompanies them with a broad range of start-up components that affect the process followed by persons in considering entrepreneurship as a career choice (Duong, 2021). Indeed, the framework of SCCT highlights the paths in which individuals undergo personal agencies in their process of career development as well as how environmental influencers and motivational antecedents can reinforce or weaken these agencies (Uysal et al., 2022). In the line of entrepreneurship research, generally, scholars believe that the variables of the SCCT are strictly involved in the antecedents forming EI, including ESE (Duong & Le, 2021) and ECI (Segal et al., 2002).

Specifically, we propose that the causal nexus of self-efficacy, expected outcomes, interests, and choice goals within SCCT, influenced by the Vietnamese contextual, personal, and experiential factors, will significantly impact higher education students' EI in Vietnam. Previous studies have demonstrated vocational interests were significantly associated with career intentions (e.g., Chan et al., 2018; Turner et al., 2019) and decisional goals and actions (e.g., Lent et al., 2016). Indeed, Blanco (2011) argues that career interests are statistically predictive of Spanish students' future career intentions, while Chan et al. (2018) reveal that career interests strongly contribute to explaining career intentions among Taiwanese sport management students. Consequently, drawing from prior studies on vocational business venturing interests and intentions as well as considering the unique Vietnamese context (Duong, 2023a; Duong & Vu, 2023a), we posit that positive interests in a future entrepreneurial career (ECI) will emerge as a central determinant in understanding how EI is formed and developed during the initial stages of a person's entrepreneurship career in the Vietnamese higher education context. Thus, the following hypothesis is formulated:

H1: Entrepreneurial career interests (ECI) positively affects entrepreneurial intention (EI).

Self-efficacy, a foundational psychological construct rooted in Bandura's social cognitive theory (Bandura, 2012), delineates an individual's cognitive appraisals of their capability to mobilize motives, cognitive resources, and effective courses of action to exert control over life events. It encapsulates beliefs in one's ability to achieve specific accomplishments. Aligned with Social Cognitive Theory (SCT), individuals shape their attitudes based on expected outcomes, selecting tasks

commensurate with their skills and capacities to confront challenges. ESE, within the entrepreneurial context, is defined as the individual's perceived capability to execute entrepreneurial activities (Burnette et al., 2020; Tsai et al., 2016; Wilson et al., 2007). As posited by SCT, heightened ESE corresponds to a stronger belief in one's ability to succeed as an entrepreneur, consequently fostering intentions to engage in entrepreneurial activities (Nowiński et al., 2020). Noteworthy is the body of evidence demonstrating the pivotal role of ESE in driving EI (Elnadi & Gheith, 2023). In the context of Vietnam, some prior studies also reported that there is a strong correlation between ESE and EI (Duong, 2023b; Duong & Vu, 2023a; Le et al., 2023). Consistent with SCCT, which underscores the role of self-efficacy in shaping career interests (Blanco, 2011; Lent et al., 2016; Scheuermann et al., 2014), we hypothesize a positive correlation between ESE and ECI among university students in Vietnam. This implies that as individuals perceive themselves as more capable of entrepreneurial success, their inclination towards entrepreneurial career pursuits is expected to intensify. Moreover, building on the SCT framework, our second sub-hypothesis posits a positive correlation between ESE and EI among university students in Vietnam. This suggests that heightened entrepreneurial self-efficacy is likely to contribute positively to the formation and intensification of intentions to pursue entrepreneurship as a career path. Thus, the following hypothesis is formulated:

H2: Entrepreneurial self-efficacy (ESE) positively affects (a) entrepreneurial career interests (ECI), and (b) entrepreneurial intention (EI).

Direct, indirect, and moderation effects of perceived educational support and perceived entrepreneurial opportunities

According to SCCT, choice goals and intentions in the entrepreneurial domain are intricately linked to outcome expectations, self-efficacy, and career interests (Lent & Brown, 2008). Of particular importance, Lent et al. (2016) suggest that environmental supports and barriers not only have direct effects on self-efficacy, career interests and intentions, but they also can strengthen or weaken the translations from self-efficacy and career interests into career intentions. In the context of Vietnam, some prior studies also showed that environmental factors either increase or decrease the relationship between entrepreneurial self-efficacy, entrepreneurial intention, and entrepreneurial behavior. For example, Duong (2023a) argued that perceived barriers not only decrease the effect of entrepreneurial intention on action but also negatively moderate the mediation link between entrepreneurial self-efficacy, entrepreneurial intention and entrepreneurial behavior among masters students in Vietnam, whereas Tran et al. (2023) reported that entrepreneurial education can increase the transformation from Vietnamese undergraduate students' entrepreneurial intention to entrepreneurial behaviors.

Existing empirical studies showed evidence that entrepreneurship can be taught through educational programs (Ratten & Usmanij, 2021). Some previous studies tested the value and effects of education programs on EIs (Hassan et al., 2020) at different educational levels, such as primary and secondary schools (e.g., Ni & Ye, 2018; Sánchez, 2013), high schools (e.g., Handayati et al., 2020), and universities/colleges (e.g., Nowiński et al., 2020; Tung et al., 2020). Fayolle et al. (2006) reported that educational programs were instrumental in promoting EIs since they equipped students with the relevant skills, knowledge, and techniques for a business venture, which boosted individuals' motivation for engaging in entrepreneurship.

To support this view, recent studies confirmed that entrepreneurship can be imparted and learnt via training and educational programs (Boubker et al., 2021; Walter & Block, 2016), leading to successful entrepreneurial attempts afterwards and higher business performance (Hoang et al., 2020). Particularly, students who received educational support can have higher EIs (Nowiński et al., 2019; Ratten & Usmanij, 2021). However, the relationship between perceptions of educational support and EIs was not clear when many other scholars claimed that PES was not directly associated with EIs (Iwu et al., 2021; Maheshwari, 2021; Maheshwari & Kha, 2022), and even reduced intentions to become an entrepreneur (e.g., Martin et al., 2013; Sánchez, 2013). Recently, several studies illustrated that perceptions of educational support can increase ESE and ECI (Arifin et al., 2020; Nguyen & Duong, 2021; Shi et al., 2019). This suggests that a supportive educational environment is not only likely to stimulate students' entrepreneurial self-efficacy and interests in pursuing entrepreneurial careers but is also expected to play a constructive role in shaping and strengthening intentions to pursue entrepreneurship as a career path within the specific academic and cultural context of Vietnam. Thus, the following hypothesis is formulated:

H3: Perceived educational support (PES) positively affects (a) entrepreneurial self-efficacy (ESE), (b) entrepreneurial career interests (ECI), and (c) entrepreneurial intention (EI).

Shane and Venkataraman (2000) argue that entrepreneurial opportunities are considered an 'objective' phenomenon that not all people realize, and whose existence relies on personal perceptions. Indeed, Kaish and Gilad (1991) state that "opportunity by definition is unknown until discovered" (p.38). Some persons, therefore, are more alert to adopting and seeking new information instinctively (Mira-Solves et al., 2021), and prospective entrepreneurs who discover entrepreneurial opportunities tend to make analyses and utilize the ability and essential resources to transfer these opportunities into entrepreneurial activities (Alonso et al., 2016). Dutta and Thornhill (2014) assert that entrepreneurs seize entrepreneurial opportunities through a creative process stemming from their efforts and diverse actions, suggesting that entrepreneurial opportunities are created as possibilities through individual analyses and activities. Building on this perspective, we hypothesize that PEO is significantly related to key entrepreneurial career components among university students in Vietnam. Recent studies reported that perceptions of entrepreneurial opportunities act as an important antecedent that contributes to shaping ESE (Henríquez-Daza et al., 2019; Le et al., 2021; Mira-Solves et al., 2021) and EI (Tsai et al., 2016). It is therefore hypothesized that PEO is significantly related to ESE, ECI and EIs among university students in Vietnam. Thus, we proposed the following hypothesis:

H4: Perceived entrepreneurial opportunities (PEO) positively affects (a) entrepreneurial self-efficacy (ESE), (b) entrepreneurial career interests (ECI), and (c) entrepreneurial intention (EI).

Career choice goals and intentions are intricately woven from the threads of outcome expectations, self-efficacy, and career interests/attitudes (Lent & Brown, 2013). The SCCT posits that environmental and contextual factors can act as catalysts or impediments in the development of career attitudes and intentions (Lent et al., 2017). Therefore, based on the lens from SCCT, the paths from self-efficacy and career interests to intention can be reinforced or weakened by contextual influencers (Lent et al., 2016), such as PES and PEO. Examining the cognitive view of entrepreneurship, the translation of individuals' ESE and ECI into EIs can be contingent on the knowledge acquired from educational programs (Shirokova et al., 2016). Individuals, motivated not only by their goals but also by the entrepreneurial knowledge gained through training programs, are inclined to exhibit entrepreneurial behaviors with a practical application in real business life (Hassan et al., 2020). Thus, if these individuals perceive that they receive educational support, they can convert their ESE and initial ECI into intentions to become entrepreneurs. Second, PEO depends on perceived aptitude. Individuals with high perceived aptitude can have higher behavioral controls and outcomes (Tsai et al., 2016). Thus, individuals can transform their ESE and career interests into intentions to become entrepreneurs when they recognize entrepreneurial opportunities (Le et al., 2021). This leads to the next hypotheses:

H5: PES positively moderates the effects of (a) ESE and (b) ECI on EI. As such, the impacts of ESE and ECI become stronger when the level of PES is high.

H6: PEO positively moderates the effects of (a) ESE and (b) ECI on EI. As such, the impacts of ESE and ECI become stronger when the level of PEO is high.

In line with the SCCT framework, self-efficacy and career interests can turn the effects of different antecedents, such as supports and barriers (Lent & Brown, 2019), ability/past performance (Lee et al., 2015) and personality and contextual influences (Lent et al., 2021), into choice goals/intentions. In other words, self-efficacy and career interests can serve as mediators in the links between antecedents and intentions/choice goals within the SCCT framework (Blanco, 2011; Lent et al., 2016; Scheuermann et al., 2014). ESE and ECI therefore can mediate the effects of PEO and PES on EIs. As such, PEO and PES first affect ESE and ECI, and then ESE and ECI transfer these influences on EIs. Recently, several studies illustrated that ESE significantly mediated the effects of precursors on intentions to become entrepreneurs (e.g. Maheshwari, 2021; Nguyen & Duong, 2021; Uysal et al., 2022). Thus, the following hypotheses are formulated.

H7: ESE positively mediates the effects of (a) PEO and (b) PES on EI.

H8: ECI positively mediates the effects of (a) PEO, (b) PES, and (c) ESE on EI.

Figure 1 shows the conceptual framework that will be tested empirically: H7a: PEO -> ESE -> EI; H7b: PES -> ESE -> EI; H8a: PEO -> ECI -> EI; H8b: PES -> ECI -> EI.

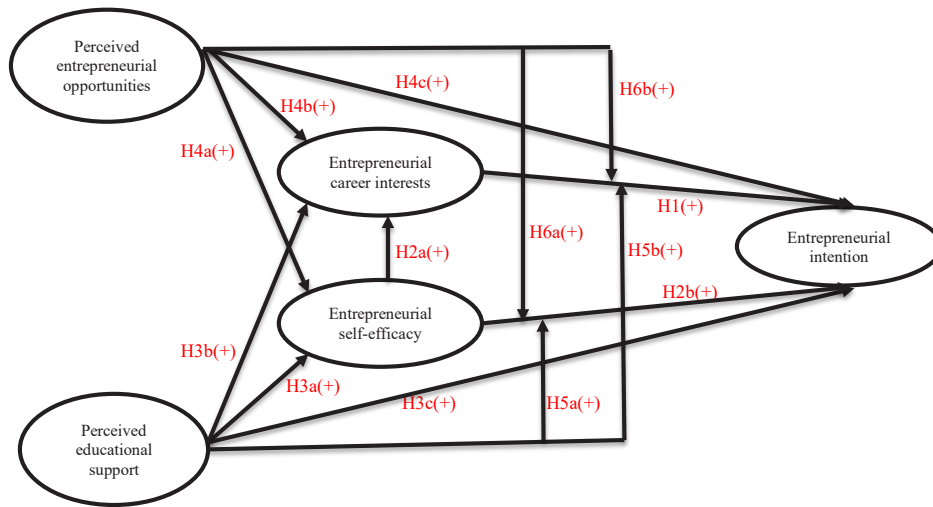


Figure 1. Conceptual framework

METHODOLOGY

Measurement

The measurements of almost all variables in this study were adapted from previous studies. Specifically, *EI* was measured using three items adapted from the study by Fernández-Pérez et al. (2019) and assessed on a seven-point Likert scale. The *ESE* scale was adopted from the study by McGee et al. (2009) and was assessed by asking participants how confident they were in their ability to complete five types of tasks. Respondents indicated their confidence on a scale ranging from 0% to 100%, with increments of 10%. *ECI* was measured using ten items from the scale developed by McNally et al. (2016), using a five-point Likert scale. Respondents are asked to indicate how important these factors are in their entrepreneurial career choice (1= not at all important, 2= a little important, 3= moderately important, 4= somewhat important, and 5= very important). And PES was measured with a six-item scale developed by Saeed et al. (2015), using a five-point Likert scale. In this study, PEO scale was created to be suitable for the research context. It included three items and was assessed by a seven-point Likert scale.

The concept of variables is presented in Table 1.

Table 1. The measurement scale

Variable	Items	Code
Entrepreneurial intention (EI)	I plan to start a new business within 5 years of completing my studies	EI1
	It is one of my career goals to become an entrepreneur	EI2
	I am sure I will start my own business within 5 years of completing my studies.	EI3
Entrepreneurial career interest (ECI)	Not having long working hours	ECI1
	To have fixed working hours	ECI2
	Not to have a stressful job	ECI3
	Independence	ECI4
	To be my own boss	ECI5
	To be able to choose my own work tasks	ECI6
	To create something	ECI7
	To fulfil my creative needs	ECI8
	Improving society to make it better	ECI9
	Improving the environment and ecology	ECI10

Variable	Items	Code
Entrepreneurial self-efficacy (ESE)	Identify new products/services to meet a need	ESE1
	Plan the development and marketing of new products/services	ESE2
	Explain and convince others of your vision or business project	ESE3
	Recruit, train, manage and lead employees	ESE4
	Manage, organize and interpret financial statements	ESE5
Perceived entrepreneurial opportunities (PEO)	There are good start-up opportunities in my area	PEO1
	I identified a business idea that would be a good opportunity for me	PEO2
	I am confident that my business idea would be profitable	PEO3
Perceived entrepreneurial support (PES)	My university offers elective courses on entrepreneurship	PES1
	My university offers project work focused on entrepreneurship	PES2
	My university offers internships focused on entrepreneurship	PES3
	My university offers a bachelor or masters study in entrepreneurship	PES4
	My university arranges conferences/workshops on entrepreneurship	PES5
	My university brings entrepreneurial students in contact with each other	PES6

Sample and data collection

The overall population of this study consists of business and management students in Hanoi. These students are exposed to business and entrepreneurship knowledge within their academic curriculum and should be engaged in extracurricular activities in entrepreneurship. In Hanoi, there are more than 10 general economic universities offering business and management programs. However, entrepreneurship support activities such as extracurricular programs, workshops, orientation sessions, and start up incubators have only been developed in the last 5-6 years, and some universities are still in the early stages of implementing these activities, making it challenging for students to answer questions about entrepreneurship support. Therefore, through preliminary investigation (interviews with program managers), we selected four universities actively involved in entrepreneurship support activities in Hanoi. These are general universities (not vocational or technical ones). Each of these universities enrolls approximately 1000 business and management students annually, resulting in a constant population of around 4000 business and management students (the undergraduate program duration is four years). Entrepreneurship support activities are designed for students with interest and voluntary participation, leading to varying degrees of engagement. Thus, our study sample meets the conditions to test the PES variable.

We conducted a convenient sampling of students based on direct access to classes through personal networks – our colleagues at these universities. Key characteristics of our student population that we identified include gender (male, female), academic year (focused on years 2 and 3 – students with clear career orientation and exposure to the university’s entrepreneurial training), university (those actively involved in entrepreneurship support activities), work experience, and entrepreneurial experience, all of which were considered in the survey sample.

The total number of collected and usable questionnaires for analysis was 888, achieving a response rate of 88.8%. The characteristics of the survey sample are presented in Table 2.

In the collected sample, female students accounted for a higher proportion, at 86.7%, which occurred randomly as a result of the survey approach. An interesting aspect of Hanoi universities is the higher proportion of female students in economic schools (over 60% are female), while technical schools have a majority of male students. Since we surveyed students directly in class, the results show a higher proportion of females than males, reflecting the gender structure. In addition, among respondents, 68.4% were third-year students, 69.9% had part-time work experience, and 35.7% had prior entrepreneurial experience (engaging in small-scale business activities or participating in start-up ventures).

Table 2. Sample demographics (N=888)

Demographic variables		Frequency	%
Gender	Male	118	13.3
	Female	770	86.7
Study years	Second year	281	31.6
	Third year	607	68.4
University	1	241	27.1
	2	177	19.9
	3	237	26.7
	4	233	26.2
Work experience	No experience	267	30.1
	Part-time worker	621	69.9
Entrepreneurial experiences	Yes	317	35.7
	No	571	64.3

Analyses

SPSS 24.0 and AMOS 24.0 software were employed in our research to conduct statistical analyses. Firstly, Cronbach's alpha and confirmatory factor analysis (CFA) were simultaneously utilized to examine the reliability and validity of scales. Secondly, Harman's one-factor test and common latent factor were used to confirm the consistent absence of biasing levels of common method variance (CMV). Finally, structural equation modeling (SEM) was utilized to test the relationships between constructs as well as formulated hypotheses.

RESULTS

Measurement model

The scales used in our study were modified from prior studies, it is, therefore, necessary to examine the reliability and validity of these constructs by utilizing Cronbach's alpha and CFA. Figure 1 illustrates the measurement model, while Table 3 shows the composite reliability and validity of constructs. Cronbach's alpha of scales ranged from 0.785 (PEO) to 0.898 (ESE). Initially, the CFA results reported a poor level of fit indices: $\chi^2(314) = 1809.236$; Chi-square/df=5.762; $p < 0.01$; GFI=0.858 < 0.9; AGFI=0.820 < 0.9; CFI=0.863 < 0.9; TLI=0.846 < 0.9; NFI=0.839 < 0.9 and RMSEA=0.073 < 0.08 (Hu & Bentler, 1999) while standardized regression weights of ECI1 (0.274), ECI2 (0.174), ECI3 (0.271), ECI4 (0.418), ECI5 (0.498), ECI6 (0.437) were much lower than the threshold value of 0.5. Thus, all unsatisfactory items were eliminated from the initial scales, then the CFA was re-performed. Finally, the CFA results illustrated a good level of modeling fitness: $\chi^2(179)=876.697$; Chi-square/df=4.898; $p < 0.01$; GFI=0.911 > 0.9; AGFI=0.885 > 0.8; CFI=0.927 > 0.9; TLI=0.914 > 0.9; NFI=0.910 > 0.9 and RMSEA=0.066 < 0.08 (Anderson & Gerbing, 1988; Hu & Bentler, 1999). Standardized regression weights of all items ranged from 0.564 (PEO1) to 0.874 (ESE2). Table 3 also demonstrated that the composite reliability (CR) of all constructs was higher than the cut-off value of 0.7 while the average variance extract (AVE) of all scales was higher than the threshold value of 0.5 (Henseler et al., 2016). As such, the reliability and validity of the scales were confirmed.

Table 3. Reliability, convergent validity, and discriminant validity

Variable	Code	Mean	SD	λ	α	CR	AVE
Entrepreneurial intention (EI)	EI1	4.13	1.571	0.825	0.842	0.841	0.639
	EI2	4.53	1.549	0.756			
	EI3	4.23	1.609	0.815			
Entrepreneurial career interest (ECI)	ECI7	3.90	0.880	0.760	0.842	0.843	0.574
	ECI8	3.90	0.877	0.797			
	ECI9	3.94	0.866	0.779			
	ECI10	4.00	0.899	0.689			
Entrepreneurial self-efficacy (ESE)	ESE1	5.30	2.082	0.785	0.898	0.900	0.643
	ESE2	4.94	1.936	0.874			
	ESE3	5.02	1.976	0.826			
	ESE4	4.98	2.129	0.774			
	ESE5	5.14	2.151	0.743			
Perceived entrepreneurial opportunities (PEO)	PEO1	4.26	1.465	0.564	0.785	0.794	0.569
	PEO2	4.08	1.502	0.821			
	PEO3	4.25	1.434	0.845			
Perceived entrepreneurial support (PES)	PES1	2.84	1.050	0.630	0.870	0.873	0.535
	PES2	3.13	0.931	0.792			
	PES3	3.10	0.972	0.780			
	PES4	2.89	1.036	0.766			
	PES5	3.31	0.939	0.694			
	PES6	3.19	0.966	0.713			

Common method variance

In order to control for common method variance (CMV), Harman's one-factor test (an unrotated factor solution) was carried out and reported an explained variance of 25.733%, which was much lower than the cut-off value of 50% (Podsakoff et al., 2003). The CFA was also conducted to test Harman's single-factor modelling, the results reported a very poor fitness ($\chi^2(189)=6610.290$; Chi-Square/df=34.975; GFI=0.485; AGFI=0.370; CFI=0.238; TLI=0.253; NFI=0.323; RMSEA=0.196). These results confirmed that the common method bias is not a problem in our study (Jordan & Troth, 2020). To be more evident, the common latent factor was tested, and then, standardized regression weights of all observed variables were compared. The results reported that the difference between these regression weights was very low ($\Delta < 0.2$). Consequently, the common method variance is not a major issue in our dataset.

Hypothesis testing

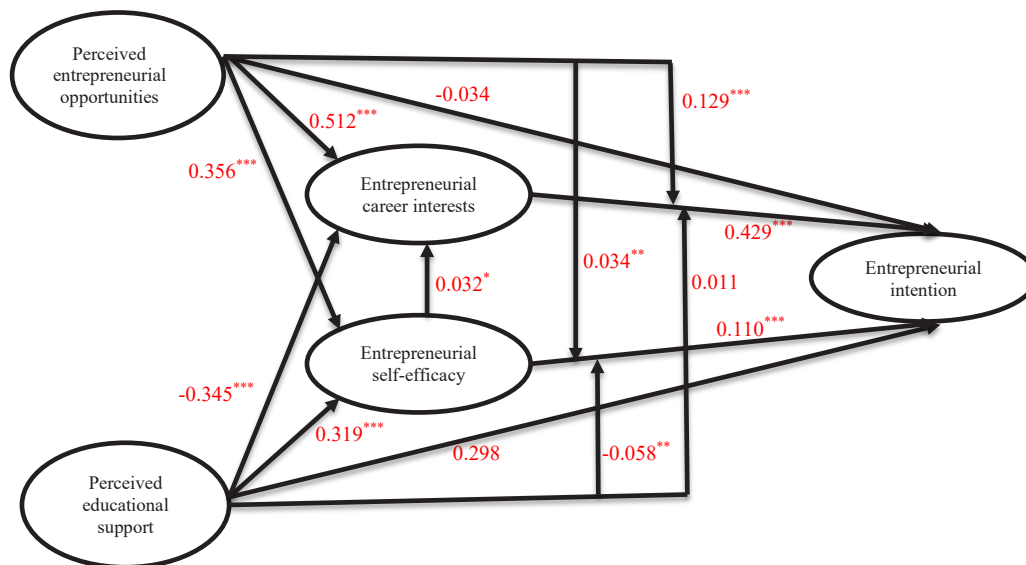
Structural equation modelling (SEM) was utilized to test formulated hypotheses (see Table 4). First, results reported that both ECI ($\gamma=0.429$; p-value < 0.001) and ESE ($\gamma=0.110$; p-value < 0.001) were significantly correlated with EI whereas ESE was found to have an impact on ECI ($\gamma=0.032$; p-value < 0.05). H1, H2a, and H2b were thus supported. Second, perceived education support had a strong and positive effect on ESE ($\gamma=0.319$; p-value < 0.001). However, perceived education support negatively affected ECI ($\gamma=-0.345$; p-value < 0.001) and did not influence EI ($\gamma=0.298$; p-value > 0.05). Consequently, H3a was supported while H3b and H3c were not supported. Third, PEO was significantly and positively associated with ESE ($\gamma=0.356$; p-value < 0.001) and ECI ($\gamma=0.512$; p-value < 0.001), but not with EI ($\gamma=-0.034$; p-value > 0.05). Therefore, while it was supported for H4a and H4b, it was not for H4c.

Table 4. Hypotheses testing results (direct effects)

Hypotheses				Estimate	SE	CR	P-value	Results
H1	ECI	→	EI	0.429	0.090	4.742	***	Supported
H2a	ESE	→	ECI	0.032	0.013	2.500	0.012	Supported
H2b	ESE	→	EI	0.110	0.027	4.139	***	Supported
H3a	PES	→	ESE	0.319	0.074	4.318	***	Supported
H3b	PES	→	ECI	-0.345	0.035	-9.723	***	Not supported
H3c	PES	→	EI	0.298	0.206	1.448	0.148	Not supported
H4a	PEO	→	ESE	0.356	0.044	8.097	***	Supported
H4b	PEO	→	ECI	0.512	0.028	18.298	***	Supported
H4c	PEO	→	EI	-0.034	0.018	-1.855	0.064	Not supported
H5a	PES x ESE	→	EI	-0.058	0.019	-3.092	0.002	Not supported
H5b	PES x ECI	→	EI	0.011	0.027	0.418	0.676	Not supported
H6a	PEO x ESE	→	EI	0.034	0.013	2.635	0.008	Supported
H6b	PEO x ECI	→	EI	0.129	0.014	9.503	***	Supported

Note: N= 888, *** p < 0.001.

Regarding the moderation effects, the link between ECI and EI was not significantly moderated by perceived education support ($\gamma=0.011$; p-value > 0.05), while the link between ESE and EI was negatively moderated by perceived education support ($\gamma=-0.058$; p-value < 0.05), thus H5a and H5b were not supported. Interestingly, the links between ESE, ECI, and EI were significantly moderated by PEO ($\gamma=0.034$; p-value < 0.01; $\gamma=0.129$; p-value < 0.001, respectively). Hence, H6a and H6b were supported.



Note: N= 888. *: p < 0.05; **: p < 0.01; ***: p < 0.001.

Figure 2. The results of direct and moderate effects

PROCESS macro (5000 bootstrap samples and 95% confidence interval) was also approached in our study to test mediation effects (see Table 5). Results revealed that ESE fully mediated the effects of PEO ($\gamma=0.0236$; p-value < 0.05) and perceived education support ($\gamma=0.0610$; p-value < 0.05) on EI. Additionally, ECI fully mediated the impact of PEO on EI ($\gamma=0.0111$; p-value < 0.05), and partially mediated the effect of ESE on EI ($\gamma=0.0146$ p-value < 0.05), yet ECI did not mediate the link between perceived education support and EI ($\gamma=0.0028$; p-value > 0.05). Thus, while H7a, H7b, H8a and H8c were supported by the data, H8b was not.

Table 5. The mediating tests

Hypotheses						Indirect effects	SE	95% confidence interval	
								LLCI	ULCI
H7a	PEO	→	ESE	→	EI	0.0236*	0.0090	0.0167	0.0562
H7b	PES	→	ESE	→	EI	0.0610*	0.0177	0.0307	0.0993
H8a	PEO	→	ECI	→	EI	0.0111*	0.0055	0.0080	0.0429
H8b	PES	→	ECI	→	EI	0.0028	0.0085	-0.0136	0.0210
H8c	ESE	→	ECI	→	EI	0.0146*	0.0051	0.1329	0.2342

Note: N= 888, LLCI: Lower level of confidence interval. ULCI: Upper level of confidence interval. SE: Standard errors. *p < 0.05.

DISCUSSION AND CONCLUSION

Scholars are striving to adopt the SCCT to the entrepreneurial context to explain entrepreneurial career choices (e.g., Adebusuyi et al., 2022; Pérez-López et al., 2019; Uysal et al., 2022). However, almost all previous studies either only consider the direct effects of antecedents on EIs (e.g., Liguori et al., 2018) or ignore the mediation role of ESE and ECI (e.g., Tinoco et al., 2020). Besides testing the direct effects of PEO and PES on EIs, our study examines the moderation effects of these factors on the translations from ESE and ECI into EI. Additionally, the mediating role of ESE and ECI in the links between entrepreneurial opportunities and PES is also tested.

Firstly, we found that ESE and ECI significantly contributed to shaping EI. These findings were consistent with prior studies that adopted the SCCT framework to explain EIs (e.g., Tinoco et al., 2020; Turner et al., 2019). Therefore, our study provides empirical evidence that the SCCT can be effectively utilized to explore EI in the emerging economic context of Vietnam. This result also reflects the fact that to foster entrepreneurial activities, increasing individuals' beliefs related to the ability to create new business ventures and interest in entrepreneurship is necessary.

Secondly, our study reported that while PES significantly increases ESE, it was found to have a negative impact on ECI and have no impact on EI. The positive effect of PES on ESE indicated that when students perceived support from their universities, their confidence in their ability to undertake entrepreneurial tasks was notably strengthened. This finding was in line with previous studies (e.g., Saeed et al., 2015; Bello et al., 2018). However, the unexpected finding that PES negatively affects ECI, implies that when individuals perceive an abundance of support for their entrepreneurial aspirations, it can decrease their enthusiasm and interest in pursuing a career in entrepreneurship. This can be explained by the notion that excessive support could lead to a sense of expectation or conformity, where individuals may feel they have to follow a certain path due to external support, rather than exploring their genuine interests and career aspirations. In addition, unlike our expectations, the results showed that PES did not affect EI. This finding is inconsistent with previous studies (e.g., Sidratulmunthah et al., 2018; Liu et al., 2022).

Thirdly, our study showed that PEO strongly contributes to the formation of ESE and ECI, yet it was not found to directly affect EIs. The positive effects of PEO on ESE and ECI were in line with several previous studies (Henríquez-Daza et al., 2019; Le et al., 2021; Mira-Solves et al., 2021). These findings suggested that individuals' perceptions of the entrepreneurial opportunities in their environment play a substantial role in shaping their confidence in their entrepreneurial abilities and their interest in pursuing a career in entrepreneurship. In contrast, PEO was found to have no impact on EI. This finding was inconsistent with prior studies, such as Hassan et al. (2020) and Mahmood et al. (2019).

Fourthly, it is noteworthy that while PES and PEO did not exhibit a direct impact on EI, their influence on EI was mediated through ESE and ECI. Specifically, PES indirectly affected EI by enhancing ESE, while PEO indirectly increased EI through its effects on both ESE and ECI. These findings implied that PES and PEO first enhance an individual's self-confidence in their ability to undertake entrepreneurial tasks. This boost in self-efficacy then contributes to an increased intention to engage in entrepreneurial activities. In addition to ESE, PEO also positively affects an individual's interest and enthusiasm for pursuing a career in entrepreneurship. This heightened career interest further contributes to an increased intention to engage in entrepreneurial activities.

Finally, this study found that PEO acts as a positive moderator in the effects of ESE and ECI on EI, while PES significantly weakens the translation from ESE to EIs. This means that the greater the entrepreneurial opportunities students perceive, the more likely they are to convert ESE and ECI into intentions to become entrepreneurs. In contrast, when a person perceives higher educational support, the effect of ESE on EI will become weaker. This finding reflects

that, even though educational programs at university can help individuals have high beliefs about their capacities to conduct entrepreneurial activities, the entrepreneurial education program in Vietnam focuses on theoretical perspectives and lacks implications and practices (Hoang et al., 2020) and students feel that entrepreneurial knowledge, which is acquired from the entrepreneurial education program, is difficult to use in real business life. Thus, they can hesitate to transform the initial ESE into EIs. In addition, the interpretation proposes that individuals, especially females, with higher PES and ESE levels may lean towards seeking high-wage employment in corporate environments due to the perceived attractiveness of financial stability, safety, and job security (Duong & Vu, 2023b). This interpretation aligns with existing literature on gendered career choices, where women may prioritize established career paths and financial security over the uncertainties associated with entrepreneurial endeavors. It offers a nuanced understanding of how perceptions and self-efficacy influence career preferences, especially within the context of gender-specific considerations.

In sum, the findings of this research hold particular relevance within the Vietnamese context, offering insights into the intricate dynamics shaping entrepreneurial career components among university students. The nuances of the Vietnamese higher education system, cultural influences, and socio-economic factors contribute to a unique landscape that necessitates careful consideration. The study's validity within the Vietnamese context is supported by the deliberate focus on the experiences of local university students, ensuring the applicability of results to this specific demographic.

Theoretical implications

Our study results make several contributions to the extant entrepreneurship literature. First, this study makes a significant contribution by emphasizing the relevance of the SCCT framework in understanding entrepreneurship. It sheds light on the temporal sequence of factors involved in the development of ECI leading to EI, emphasizing that ECI precedes EI in the entrepreneurial decision-making process. Moreover, it illuminates how ESE plays a crucial role in fostering ECI. Second, this research brings to the forefront the role of PES and PEO in shaping the progression of ESE, ECI and, ultimately, EI. The inclusion of PES and PEO as driving forces in the EI development process fills a notable gap in existing models explaining EI. This expanded understanding underscores the multi-dimensional nature of entrepreneurship.

Practical implications

The findings of this study provide the practical and managerial implications for nascent entrepreneurs, entrepreneurship educators and policymakers, who are responsible for developing and reinforcing the entrepreneurial ecosystem. Indeed, our findings can help recommend national strategies for entrepreneurship for policymakers. Nonetheless, instead of the spread of various solutions, such as stimulating cultural values (Calza et al., 2020), facilitating a more efficient allocation of state funding and capital for ventures (Douglas et al., 2021), using the role models (Nowiński et al., 2019), and so on, our study results recommend a focus on entrepreneurship education programs. This strategy focus will not only help increase ECI and intentions but also help the students recognize entrepreneurial opportunities from business markets. However, it is noticed that this strategy also takes into consideration the pedagogical method of experiential learning and real-life business situations (Cui et al., 2021) as well as increasing extracurricular activities (Nguyen et al., 2021), which can help equip students with the necessary knowledge and ability in real-life entrepreneurship and help them follow their EI.

Limitations of the study and direction for future research

First, in contrast to previous research, this study reveals a nuanced relationship involving PES in the specific context of Vietnam. While PES demonstrates a positive influence on ESE, it surprisingly exerts a negative impact on ECI and does not directly affect EI. This intricate dynamic suggests the need for additional investigations in diverse contexts to fully comprehend the complexities of this phenomenon. Second, it is essential to acknowledge and consider the potential limitation stemming from the over-representation of female students, comprising 86.7% of the study participants. While the proportion mentioned accurately represents the gender distribution of business and management students in Vietnamese economics universities, it also highlights a potential issue. This disparity raises concerns that the research findings may be more reflective of the experiences, perspectives, and behaviors of female students, rather than providing a comprehensive view of the entire student population. Future research endeavours should aim for a more balanced and representative participant composition to ensure a more nuanced and inclusive understanding of the role of PES and PEO in forming EI. Third, while the study contributes valuable insights into the Vietnamese context, caution is advised when

generalizing findings to other contexts. Cultural, economic, and educational variations across different regions and nations may influence the applicability of the observed relationships between variables. Future research endeavors should explore the generalizability of these findings to diverse settings to enhance the robustness and external validity of the study.

Acknowledgment(s)

This research is funded by Thuongmai University, Hanoi, VietNam.

References

- Adebusuyi, A. S., Adebusuyi, O. F., & Kolade, O. (2022). Development and validation of sources of entrepreneurial self-efficacy and outcome expectations: A social cognitive career theory perspective. *The International Journal of Management Education*, 20(2), 100572. <https://doi.org/10.1016/j.ijme.2021.100572>
- Ajzen, I. (1991). The theory of planned behavior. *Organizational Behavior and Human Decision Processes*, 50(2), 179-211. [https://doi.org/10.1016/0749-5978\(91\)90020-T](https://doi.org/10.1016/0749-5978(91)90020-T)
- Ali, A., Irfan, S., & Salman, Y. (2020). University business incubators: A Systematic literature review from 2000 to 2019. *Abasyn University Journal of Social Sciences*, 13(2), 499-523. <https://doi.org/10.34091/AJSS.13.2.03>
- Alonso, M. A. P., Sanchez, J. C., & Maditinos, D. (2016). Entrepreneurial opportunities perception and intentions within European innovation-driven economies under the shadow of a financial crisis. In M. H. Bilgin & H. Danis (Eds.), *Entrepreneurship, Business and Economics. Proceedings of the 15th Eurasia Business and Economics Society Conference*. (Vol. 1, pp. 3-13). Springer. https://doi.org/10.1007/978-3-319-27570-3_1
- Anderson, J. C., & Gerbing, D. W. (1988). Structural equation modeling in practice: A review and recommended two-step approach. *Psychological Bulletin*, 103(3), 411-423. <https://psycnet.apa.org/doi/10.1037/0033-2909.103.3.411>
- Arifin, I., Ariyanti, N. S., & Adha, M. A. (2020). The mediating role of entrepreneurship interest on the effect of entrepreneurship education to digital startup preparation in the digital age. 1st International Conference on Information Technology and Education (ICITE 2020). <https://doi.org/10.2991/assehr.k.201214.238>
- Bandura, A. (1986). *Social Foundations of Thought and Action - A Social Cognitive Theory*. Prentice-Hall.
- Bandura, A. (2012). On the functional properties of perceived self-efficacy revisited. *Journal of Management*, 38(1), 9-44. <https://doi.org/10.1177/0149206311410606>
- Bazan, C., Gaultois, H., Shaikh, A., Gillespie, K., Frederick, S., Amjad, A., Yap, S., Finn, C., Rayner, J., & Belal, N. (2020). A systematic literature review of the influence of the university's environment and support system on the precursors of social entrepreneurial intention of students. *Journal of Innovation and Entrepreneurship*, 9(4), 1-28. <https://doi.org/10.1186/s13731-020-0116-9>
- Bazan, C., Shaikh, A., Frederick, S., Amjad, A., Yap, S., Finn, C., & Rayner, J. (2019). Effect of memorial university's environment & support system in shaping entrepreneurial intention of students. *Journal of Entrepreneurship Education*, 22(1), 1-35.
- Blanco, Á. (2011). Applying social cognitive career theory to predict interests and choice goals in statistics among Spanish psychology students. *Journal of Vocational Behavior*, 78(1), 49-58. <https://doi.org/10.1016/j.jvb.2010.07.003>
- Boubker, O., Arroud, M., & Ouajdouni, A. (2021). Entrepreneurship education versus management students' entrepreneurial intentions. A PLS-SEM approach. *The International Journal of Management Education*, 19(1), 100450. <https://doi.org/10.1016/j.ijme.2020.100450>
- Brüne, N., & Lutz, E. (2020). The effect of entrepreneurship education in schools on entrepreneurial outcomes: a systematic review. *Management Review Quarterly*, 70(2), 275-305. <https://doi.org/10.1007/s11301-019-00168-3>
- Burnette, J. L., Pollack, J. M., Forsyth, R. B., Hoyt, C. L., Babij, A. D., Thomas, F. N., & Coy, A. E. (2020). A growth mindset intervention: Enhancing students' entrepreneurial self-efficacy and career development. *Entrepreneurship Theory and Practice*, 44(5), 878-908. <https://doi.org/10.1177/1042258719864293>
- Calza, F., Cannavale, C., & Nadali, I. Z. (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>
- Chan, C.-C., Chen, S.-C., Lin, Y.-W., Liao, T.-Y., & Lin, Y.-E. (2018). Social cognitive perspective on factors influencing Taiwanese sport management students' career intentions. *Journal of Career Development*, 45(3), 239-252. <https://doi.org/10.1177/0894845316681643>
- Cui, J., Sun, J., & Bell, R. (2021). The impact of entrepreneurship education on the entrepreneurial mindset of college students in China: The mediating role of inspiration and the role of educational attributes. *The International Journal of Management Education*, 19(1), 100296. <https://doi.org/10.1016/j.ijme.2019.04.001>
- Davidsson, P. (2015). Entrepreneurial opportunities and the entrepreneurship nexus: A re-conceptualization. *Journal of Business Venturing*, 30(5), 674-695. <https://doi.org/10.1016/j.jbusvent.2015.01.002>
- Davidsson, P., Gregoire, D. A., & Lex, M. (2019, August 9-13). Developing and validating a new measure of opportunity confidence. Academy of Management Proceedings, Boston, MA. <https://doi.org/10.1016/j.jbusvent.2015.01.002>
- Doanh, D. C., Thang, H. N., Nga, N. T. V., Van, P. T., & Hoa, P. T. (2021). Entrepreneurial behavior: The effects of the fear and anxiety of COVID-19 and business opportunity recognition. *Entrepreneurial Business and Economics Review*, 9(3), 7-23.
- Donaldson, C. (2019). Intentions resurrected: a systematic review of entrepreneurial intention research from 2014 to 2018 and future research agenda. *International Entrepreneurship and Management Journal*, 15(3), 953-975. <https://doi.org/10.1007/s11365-019-00578-5>
- Douglas, E. J. (2020). *Entrepreneurial Intention: Past, Present, and Future Research*. Edward Elgar Publishing.
- Douglas, E. J., Shepherd, D. A., & Venugopal, V. (2021). A multi-motivational general model of entrepreneurial intention. *Journal of Business Venturing*, 36(4), 106107. <https://doi.org/10.1016/j.jbusvent.2021.106107>
- Duong, C. D. (2021). The moderating role of self-efficacy on the cognitive process of entrepreneurship: An empirical study in Vietnam. *Journal of Entrepreneurship, Management and Innovation*, 17(1), 129-146.
- Duong, C. D. (2023a). A moderated mediation model of perceived barriers, entrepreneurial self-efficacy, intentions, and behaviors: A social cognitive career theory perspective. *Oeconomia Copernicana*, 14(1), 355-388. <https://doi.org/10.24136/oc.2023.010>

- Duong, C. D. (2023b). A serial mediation model of the linkage between entrepreneurial education, self-efficacy, attitudes and intentions: does gender matter? A multi-group analysis. *On the Horizon: The International Journal of Learning Futures*. <https://doi.org/10.1108/oth-01-2023-0002>
- Duong, C. D., & Le, T. L. (2021). ADHD symptoms and entrepreneurial intention among Vietnamese college students: An empirical study. *Journal of Entrepreneurship in Emerging Economies*, 17(1), 147-174. <https://doi.org/10.1108/JEEE-02-2021-0049>
- Duong, C. D., & Vu, N. X. (2023a). Entrepreneurial education and intention: fear of failure, self-efficacy and gender. *Journal of Small Business and Enterprise Development*. <https://doi.org/10.1108/jsbed-02-2023-0057>
- Duong, C. D., & Vu, N. X. (2023b). The single, complementary, balanced, and imbalanced influences of entrepreneurial attitudes and intentions on entrepreneurial behaviors: Polynomial regression with response surface analysis. *Heliyon*, 9(3), e14604. <https://doi.org/10.1016/j.heliyon.2023.e14604>
- Dutta, D. K., & Thornhill, S. (2014). Venture cognitive logics, entrepreneurial cognitive style, and growth intentions: A conceptual model and an exploratory field study. *Entrepreneurship Research Journal*, 4(2), 147-166. <https://doi.org/10.1515/erj-2012-0004>
- Elnadi, M., & Gheith, M. H. (2023). The role of individual characteristics in shaping digital entrepreneurial intention among university students: Evidence from Saudi Arabia. *Thinking Skills and Creativity*, 47. <https://doi.org/10.1016/j.tsc.2023.101236>
- Fayolle, A., Gailly, B., & Lassas-Clerc, N. (2006). Assessing the impact of entrepreneurship education programmes: A new methodology. *Journal of European Industrial Training*, 30(9), 701-720. <https://doi.org/10.1108/03090590610715022>
- Fernández-Pérez, V., Montes-Merino, A., Rodríguez-Ariza, L., & Galicia, P. E. A. (2019). Emotional competencies and cognitive antecedents in shaping student's entrepreneurial intention: The moderating role of entrepreneurship education. *International Entrepreneurship and Management Journal*, 15(1), 281-305. <https://doi.org/10.1007/s11365-017-0438-7>
- Galvão, A., Ferreira, J. J., & Marques, C. (2018). Entrepreneurship education and training as facilitators of regional development: A systematic literature review. *Journal of Small Business and Enterprise Development*, 25(1), 17-40. <https://doi.org/10.1108/JSBED-05-2017-0178>
- Gartner, W. B., Shaver, K. G., Carter, N. M., & Reynolds, P. D. (Eds.). (2004). *Handbook of entrepreneurial dynamics: The process of business creation*. Sage.
- Hajizadeh, A., & Zali, M. (2016). Prior knowledge, cognitive characteristics and opportunity recognition. *International Journal of Entrepreneurial Behavior & Research*, 22(1), 63-83. <https://doi.org/10.1108/IJEER-05-2015-0110>
- Handayati, P., Wulandari, D., Soetjipto, B. E., Wibowo, A., & Narmaditya, B. S. (2020). Does entrepreneurship education promote vocational students' entrepreneurial mindset? *Heliyon*, 6(11), e05426. <https://doi.org/10.1016/j.heliyon.2020.e05426>
- Hassan, A., Saleem, I., Anwar, I., & Hussain, S. A. (2020). Entrepreneurial intention of Indian university students: The role of opportunity recognition and entrepreneurship education. *Education+ Training*, 62(7/8), 843-861. <https://doi.org/10.1108/ET-02-2020-0033>
- Henríquez-Daza, M., Capelleras, J.-L., & Osorio-Tinoco, F. (2019). Entrepreneurial engagement and growth aspirations: The moderating role of opportunity perception. *International Review of Entrepreneurship*, 17(2).
- Henseler, J., Hubona, G., & Ray, P. A. (2016). Using PLS path modeling in new technology research: Updated guidelines. *Industrial Management & Data Systems*, 116(1), 2-20. <https://doi.org/10.1108/IMDS-09-2015-0382>
- Hoang, G., Le, T. T. T., Tran, A. K. T., & Du, T. (2020). Entrepreneurship education and entrepreneurial intentions of university students in Vietnam: The mediating roles of self-efficacy and learning orientation. *Education+ Training*, 61(1), 115-133. <https://doi.org/10.1108/ET-05-2020-0142>
- Hu, L.-t., & Bentler, P. M. (1999). Cutoff criteria for fit indexes in covariance structure analysis: Conventional criteria versus new alternatives. *Structural Equation Modeling*, 6(1), 1-55. <https://doi.org/10.1080/10705519909540118>
- Hueso, J. A., Jaén, I., & Liñán, F. (2020). From personal values to entrepreneurial intention: A systematic literature review. *International Journal of Entrepreneurial Behavior & Research*, 27(1), 205-230. <https://doi.org/10.1108/IJEER-06-2020-0383>
- Iwu, C. G., Opute, P. A., Nchu, R., Eresia-Eke, C., Tengeh, R. K., Jaiyeoba, O., & Aliyu, O. A. (2021). Entrepreneurship education, curriculum and lecturer-competency as antecedents of student entrepreneurial intention. *The International Journal of Management Education*, 19(1), 100295. <https://doi.org/10.1016/j.ijme.2019.03.007>
- Jordan, P. J., & Troth, A. C. (2020). Common method bias in applied settings: The dilemma of researching in organizations. *Australian Journal of Management*, 45(1), 3-14. <https://doi.org/10.1177/0312896219871976>
- Kaish, S., & Gilad, B. (1991). Characteristics of opportunities search of entrepreneurs versus executives: Sources, interests, general alertness. *Journal of Business Venturing*, 6(1), 45-61. [https://doi.org/10.1016/0883-9026\(91\)90005-X](https://doi.org/10.1016/0883-9026(91)90005-X)
- Ko, S. (2012). Entrepreneurial opportunity identification: A motivation-based cognitive approach. *Journal of Applied Management and Entrepreneurship*, 17(2), 23-37.
- Le, T. L., Duong, C. D., Ha, N. T., Ngo, T. V. N., Pham, T. V., & Phan, T. H. (2021). Entrepreneurial behavior: the effects of the fear and anxiety of COVID-19 and business opportunity recognition. *Entrepreneurial Business and Economics Review*, 9(3), 7-23.
- Le, T. T., Doan, X. H., & Duong, C. D. (2023). A serial mediation model of the relation between cultural values, entrepreneurial self-efficacy, intentions and behaviors: Does entrepreneurial education matter? A multi-group analysis. *Journal of Open Innovation: Technology, Market, and Complexity*, 9(2). <https://doi.org/10.1016/j.joitmc.2023.100064>
- Lee, H.-S., Flores, L. Y., Navarro, R. L., & Kanagui-Muñoz, M. (2015). A longitudinal test of social cognitive career theory's academic persistence model among Latino/a and White men and women engineering students. *Journal of Vocational Behavior*, 88, 95-103. <https://doi.org/10.1016/j.jvb.2015.02.003>
- Lent, R. W., & Brown, L. (2013). Social cognitive model of career self-management: Toward a unifying view of adaptive career behavior across the life span. *Journal of Counseling Psychology*, 60(4), 557-568. <https://doi.org/10.1037/a0033446>
- Lent, R. W., & Brown, S. D. (2008). Social cognitive career theory and subjective well-being in the context of work. *Journal of Career Assessment*, 16(1), 6-21. <https://doi.org/10.1177/1069072707305769>
- Lent, R. W., & Brown, S. D. (2019). Social cognitive career theory at 25: Empirical status of the interest, choice, and performance models. *Journal of Vocational Behavior*, 115. <https://doi.org/10.1016/j.jvb.2019.06.004>
- Lent, R. W., Brown, S. D., & Hackett, G. (2002). Social cognitive career theory. In D. Brown (Ed.), *Career choice and development* (4th ed., pp. 255-311). Jossey-Bass.
- Lent, R. W., Ezeofor, I., Morrison, M. A., Penn, L. T., & Ireland, G. W. (2016). Applying the social cognitive model of career self-management to career exploration and decision-making. *Journal of Vocational Behavior*, 93, 47-57. <https://doi.org/10.1016/j.jvb.2015.12.007>

- Lent, R. W., Ireland, G. W., Penn, L. T., Morris, T. R., & Sappington, R. (2017). Sources of self-efficacy and outcome expectations for career exploration and decision-making: A test of the social cognitive model of career self-management. *Journal of Vocational Behavior*, 99, 107-117. <https://doi.org/10.1016/j.jvb.2017.01.002>
- Lent, R. W., Morris, T. R., Tatum, A. K., Wang, R. J., Moturu, B. P., & Ireland, G. W. (2021). Predictors of workplace sexual identity management behaviors: A test of the social cognitive career self-management model. *Journal of Vocational Behavior*, 127. <https://doi.org/10.1016/j.jvb.2021.103566>
- Liguori, E., Winkler, C., Vanevenhoven, J., Winkel, D., & James, M. (2020). Entrepreneurship as a career choice: intentions, attitudes, and outcome expectations. *Journal of Small Business & Entrepreneurship*, 32(4), 311-331. <https://doi.org/10.1080/08276331.2019.1600857>
- Liguori, E. W., Bendickson, J. S., & McDowell, W. C. (2018). Revisiting entrepreneurial intentions: a social cognitive career theory approach. *International Entrepreneurship and Management Journal*, 14(1), 67-78. <https://doi.org/10.1007/s11365-017-0462-7>
- Liñán, F., & Fayolle, A. (2015). A systematic literature review on entrepreneurial intentions: citation, thematic analyses, and research agenda. *International Entrepreneurship and Management Journal*, 11(4), 907-933. <https://doi.org/10.1007/s11365-015-0356-5>
- Lortie, J., & Castrogiovanni, G. (2015). The theory of planned behavior in entrepreneurship research: what we know and future directions. *International Entrepreneurship and Management Journal*, 11(4), 935-957. <https://doi.org/10.1007/s11365-015-0358-3>
- Lorz, M., Mueller, S., & Volery, T. (2013). Entrepreneurship education: A systematic review of the methods in impact studies. *Journal of Enterprising Culture*, 21(02), 123-151. <https://doi.org/10.1142/S0218495813500064>
- Maheshwari, G. (2021). Factors influencing entrepreneurial intentions the most for university students in Vietnam: educational support, personality traits or TPB components? *Education+ Training*, 63(7/8), 1138-1153. <https://doi.org/10.1108/ET-02-2021-0074>
- Maheshwari, G., & Kha, K. L. (2022). Investigating the relationship between educational support and entrepreneurial intention in Vietnam: The mediating role of entrepreneurial self-efficacy in the theory of planned behavior. *The International Journal of Management Education*, 20(2), 100553. <https://doi.org/10.1016/j.ijme.2021.100553>
- Martin, B. C., McNally, J. J., & Kay, M. J. (2013). Examining the formation of human capital in entrepreneurship: A meta-analysis of entrepreneurship education outcomes. *Journal of Business Venturing*, 28(2), 211-224. <https://doi.org/10.1016/j.jbusvent.2012.03.002>
- McGee, J., Peterson, M., Mueller, S., & Sequeira, J. (2009). Entrepreneurial Self Efficacy: Refining the Measure. *Entrepreneurship Theory and Practice*, 33(4), 965-988. <https://doi.org/10.1111/j.1540-6520.2009.00304.x>
- McNally, J. J., Martin, B. C., Honig, B., Bergmann, H., & Piperopoulos, P. (2016). Toward rigor and parsimony: a primary validation of Kolvereid's (1996) entrepreneurial attitudes scales. *Entrepreneurship & Regional Development*, 28(5-6), 358-379. <https://doi.org/10.1080/08985626.2016.1154985>
- Meoli, A., Fini, R., Sobrero, M., & Wiklund, J. (2020). How entrepreneurial intentions influence entrepreneurial career choices: The moderating influence of social context. *Journal of Business Venturing*, 35(3), May 2020, 105982. <https://doi.org/10.1016/j.jbusvent.2019.105982>
- Mira-Solves, I., Estrada-Cruz, M., & Gomez-Gras, J. M. (2021). Analysing academics' entrepreneurial opportunities: The influence of academic self-efficacy and networks. *European Research on Management and Business Economics*, 27(2), 100152. <https://doi.org/10.1016/j.iedeen.2021.100152>
- Nabi, G., Liñán, F., Fayolle, A., Krueger, N., & Walmsley, A. (2017). The impact of entrepreneurship education in higher education: A systematic review and research agenda. *Academy of Management Learning & Education*, 16(2), 277-299. <https://doi.org/10.5465/amle.2015.0026>
- Neves, S., & Brito, C. (2020). Academic entrepreneurship intentions: a systematic literature review. *Journal of Management Development*, 39(5), 645-704. <https://doi.org/10.1108/JMD-11-2019-0451>
- Nguyen, H. T., & Duong, D. C. (2021). Dataset on the effect of perceived educational support on entrepreneurial intention among Vietnamese students. *Data in brief*, 35, 106761. <https://doi.org/10.1016/j.dib.2021.106761>
- Nguyen, T. T., Nguyen, L. T. P., Phan, H. T. T., & Vu, A. T. (2021). Impact of Entrepreneurship Extracurricular Activities and Inspiration on Entrepreneurial Intention: Mediator and Moderator Effect. *SAGE Open*, 11(3), 21582440211032174. <https://doi.org/10.1177/21582440211032174>
- Ni, H., & Ye, Y. (2018). Entrepreneurship education matters: exploring secondary vocational school students' entrepreneurial intention in China. *The Asia-Pacific Education Researcher*, 27(5), 409-418. <https://doi.org/10.1007/s40299-018-0399-9>
- Nowiński, W., Haddoud, M. Y., Lančarič, D., Egerová, D., & Czeglédi, C. (2019). The impact of entrepreneurship education, entrepreneurial self-efficacy and gender on entrepreneurial intentions of university students in the Visegrad countries. *Studies in Higher Education*, 44(2), 361-379. <https://doi.org/10.1080/03075079.2017.1365359>
- Nowiński, W., Haddoud, M. Y., Wach, K., & Schaefer, R. (2020). Perceived public support and entrepreneurship attitudes: A little reciprocity can go a long way! *Journal of Vocational Behavior*, 121, 103474. <https://doi.org/10.1016/j.jvb.2020.103474>
- Pérez-López, M. C., González-López, M. J., & Rodríguez-Ariza, L. (2019). Applying the social cognitive model of career self-management to the entrepreneurial career decision: The role of exploratory and coping adaptive behaviors. *Journal of Vocational Behavior*, 112, 255-269. <https://doi.org/10.1016/j.jvb.2019.03.005>
- Podsakoff, P. M., MacKenzie, S. B., Lee, J. Y., & Podsakoff, N. P. (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>
- Ratten, V., & Usmanij, P. (2021). Entrepreneurship education: Time for a change in research direction? *The International Journal of Management Education*, 19(1), 100367. <https://doi.org/https://doi.org/10.1016/j.ijme.2020.100367>
- Sánchez, J. C. (2013). The impact of an entrepreneurship education program on entrepreneurial competencies and intention. *Journal of Small Business Management*, 51(3), 447-465. <https://doi.org/10.1111/jsbm.12025>
- Sarasvathy, S. D., Dew, N., Velamuri, S. R., & Venkataraman, S. (2010). Three views of entrepreneurial opportunity. In Z. J. Acs & D. Audretsch (Eds.), *Handbook of entrepreneurship research* (Vol. 5, pp. 77-96). Springer.
- Scheaf, D. J., Loignon, A. C., Webb, J. W., Heggstad, E. D., & Wood, M. S. (2020). Measuring opportunity evaluation: Conceptual synthesis and scale development. *Journal of Business Venturing*, 35(2). <https://doi.org/10.1016/j.jbusvent.2019.04.003>
- Scheuermann, T. S., Tokar, D. M., & Hall, R. J. (2014). An investigation of African-American women's prestige domain interests and choice goals using Social Cognitive Career Theory. *Journal of Vocational Behavior*, 84(3), 273-282. <https://doi.org/10.1016/j.jvb.2014.01.010>
- Schlaegel, C., & Koenig, M. (2014). Determinants of Entrepreneurial Intent: A Meta-Analytic Test and Integration of Competing Models. *Entrepreneurship Theory and Practice*, 38(2), 291-332. <https://doi.org/10.1111/etap.12087>
- Schmitt, A., Rosing, K., Zhang, S. X., & Leatherbee, M. (2018). A dynamic model of entrepreneurial uncertainty and business opportunity identification: exploration as a mediator and entrepreneurial self-efficacy as a moderator. *Entrepreneurship Theory and Practice*, 42(6), 835-859. <https://doi.org/10.1177/1042258717721482>

- Schuhmacher, M. C., & Thieu, H. T. (2020). The role of students, educators, and educational institutes in entrepreneurship education: A systematic literature review and directions for future research. *Entrepreneurship Education and Pedagogy*, 25(1), 127-142. <https://doi.org/10.1177/2515127420977773>
- Segal, G., Borgia, D., & Schoenfeld, J. (2002). Using social cognitive career theory to predict self-employment goals. *New England Journal of Entrepreneurship*, 5(2), 47-56. <https://doi.org/10.1108/NEJE-05-02-2002-B007>
- Shane, S. A., & Venkataraman, S. (2000). The promise of entrepreneurship as a field of research [Note]. *Academy of Management Review*, 25(1), 217-226. <https://doi.org/10.5465/amr.2000.2791611>
- Shapero, A., & Sokol, L. (1982). The social dimensions of entrepreneurship. In C. Kent, D. Sexton, & K. V. Vesper (Eds.), *The Encyclopedia of Entrepreneurship* (pp. 72-90). Prentice Hall, Englewood Cliffs.
- Shi, L., Yao, X., & Wu, W. (2019). Perceived university support, entrepreneurial self-efficacy, heterogeneous entrepreneurial intentions in entrepreneurship education: The moderating role of the Chinese sense of face. *Journal of Entrepreneurship in Emerging Economies*, 12(2), 205-230. <https://doi.org/10.1108/JEEE-04-2019-0040>
- Shirokova, G., Osiyevskyy, O., & Bogatyreva, K. (2016). Exploring the intention-behavior link in student entrepreneurship: Moderating effects of individual and environmental characteristics. *European Management Journal*, 34(4), 386-399. <https://doi.org/10.1016/j.emj.2015.12.007>
- Tinoco, F. O., Bayon, M. C., & Vargas, G. M. (2020). Entrepreneurial career choice intentions among secondary students in Colombia: the role of entrepreneurial exposure. *International Journal of Emerging Markets*, 17(1), 277-298. <https://doi.org/10.1108/IJOEM-10-2019-0872>
- Tran, A. T., & Von Korfflesch, H. (2016). A conceptual model of social entrepreneurial intention based on the social cognitive career theory. *Asia Pacific Journal of Innovation and Entrepreneurship*, 10(1), 17-38. <https://doi.org/10.1108/APJIE-12-2016-007>
- Tran, V. H., Vu, T. N., Pham, H. T., Nguyen, T. P. T., & Duong, C. D. (2023). Closing the entrepreneurial attitude-intention-behavior gap: The direct and moderating role of entrepreneurship education. *Journal of International Education in Business*. <https://doi.org/10.1108/jieb-05-2023-0026>
- Tsai, K.-H., Chang, H.-C., & Peng, C.-Y. (2016). Extending the link between entrepreneurial self-efficacy and intention: a moderated mediation model. *International Entrepreneurship and Management Journal*, 12(2), 445-463. <https://doi.org/10.1007/s11365-014-0351-2>
- Tumasjan, A., & Braun, R. (2012). In the eye of the beholder: How regulatory focus and self-efficacy interact in influencing opportunity recognition. *Journal of Business Venturing*, 27(6), 622-636. <https://doi.org/10.1016/j.jbusvent.2011.08.001>
- Tung, D. T., Hung, N. T., Phuong, N. T. C., Loan, N. T. T., & Chong, S.-C. (2020). Enterprise development from students: The case of universities in Vietnam and the Philippines. *The International Journal of Management Education*, 18(1), 100333. <https://doi.org/10.1016/j.ijme.2019.100333>
- Turner, S. L., Joeng, J. R., Sims, M. D., Dade, S. N., & Reid, M. F. (2019). SES, gender, and STEM career interests, goals, and actions: A test of SCCT. *Journal of Career Assessment*, 27(1), 134-150. <https://doi.org/10.1177/1069072717748665>
- Uysal, Ş. K., Karadağ, H., Tuncer, B., & Şahin, F. (2022). Locus of control, need for achievement, and entrepreneurial intention: A moderated mediation model. *The International Journal of Management Education*, 20(2), 100560. <https://doi.org/10.1016/j.ijme.2021.100560>
- Walsh, G. S., Cunningham, J. A., Mordue, T., McLeay, F., O'Kane, C., & Connolly, N. (2021). What business schools do to support academic entrepreneurship: A systematic literature review and future research agenda. *Studies in Higher Education*, 46(5), 988-999. <https://doi.org/10.1080/03075079.2021.1896805>
- Walter, S. G., & Block, J. H. (2016). Outcomes of entrepreneurship education: An institutional perspective. *Journal of Business Venturing*, 31(2), 216-233. <https://doi.org/10.1016/j.jbusvent.2015.10.003>
- Wang, C., Mundorf, N., & Salzarulo-McGuigan, A. (2021). Entrepreneurship education enhances entrepreneurial creativity: The mediating role of entrepreneurial inspiration. *The International Journal of Management Education*, 100570. <https://doi.org/10.1016/j.ijme.2021.100570>
- Wang, S., Hung, K., & Huang, W.-J. (2019). Motivations for entrepreneurship in the tourism and hospitality sector: A social cognitive theory perspective. *International Journal of Hospitality Management*, 78, 78-88. <https://doi.org/10.1016/j.ijhm.2018.11.018>
- Wilson, F., Kickul, J., & Marlino, D. (2007). Gender, entrepreneurial self-efficacy, and entrepreneurial career intentions: Implications for entrepreneurship education. *Entrepreneurship Theory and Practice*, 31(3), 387-407. <https://doi.org/10.1111/j.1540-6520.2007.00179.x>

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Authorship contribution statement

Duong Cong Doanh: Research Idea, Literature Review, Results Writing. **Van Trang Tran:** Data Collection, Data Analysis, Methodology, Funding Acquisition. **Étienne St-Jean:** Introduction, Conclusion, Review & Editing.

Conflicts of interest

The authors declare no conflict of interest.

Citation (APA Style)

Duong, C.D., Tran, V.T., & St-Jean, E. (2024). Social cognitive career theory and higher education students' entrepreneurial intention: The role of perceived educational support and perceived entrepreneurial opportunity. *Journal of Entrepreneurship, Management and Innovation*, 20(1), 86-102. <https://doi.org/10.7341/20242015>