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Entrepreneurship Culture and Entrepreneurship Education Affect Students' Entrepreneurship Intentions Through Entrepreneurship Perception

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Abstract

This study aims to explore the impact of culture and education on students' entrepreneurial intentions by assessing entrepreneurship's perceived feasibility and desirability by using the PLS-SEM structural model analysis method. A survey of students in Vietnam was conducted with 1869 participants. The research results indicate that, as the cultural and educational environment increasingly supports entrepreneurial activities, students are increasingly recognizing the desirability and feasibility of engaging in entrepreneurial endeavors. Moreover, educational institutions, particularly universities, should prioritize teaching and training students in resilience, willingness to face challenges, and the courage to take risks. The study also highlights the need for faculty members with practical business management experience to foster an environment conducive to developing individual capabilities, providing effective student learning support, and inspiring the entrepreneurial spirit among young people.

Keywords: entrepreneurship culture, entrepreneurship education, entrepreneurship intentions, entrepreneurship perception, perceived feasibility, perceived desire to start a business.

1. Introduction

In Vietnam, the startup movement has received attention from the government, society, and community. According to the Annual Report of Do Ventures and Cento Ventures, Vietnam's startup ecosystem has jumped from fifth to third position among the top six economies in ASEAN, just behind Indonesia and Singapore in 2022, and has shown interest in and created conditions as well as environmental and policy support for businesses (Dinh Vu, 2022). According to statistics from the VCCI Federation, in 2021 alone, on average, there were about 13,300 newly registered businesses each month. However, investing in and encouraging startups for professionally trained students to participate in the labour market is necessary to create a strong foundation for

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entrepreneurship and for the future. Future movements represent sustainable investment trends (Linan et al., 2011). According to statistics from the Ministry of Education and Training, nearly 30 % of higher education institutions include entrepreneurship subjects in their training programmes as mandatory electives; this shows the importance of entrepreneurship. Businesses are receiving attention; however, a startup still needs to be clearly defined. Accordingly, startup activities are determined not only to apply and innovate in terms of technology but also to provide new recruitment opportunities and include activities to increase competitiveness (Reynolds, 1987).

Although entrepreneurship brings much value to individuals as well as the national economy in general, it also faces many challenges, so most previous studies have focused on exploiting and understanding the reasons for starting a business and emphasized the individual's personality, characteristics, and willingness to cope with risks (Liñán et al., 2011). However, a person is a subject living in society and faces risks from many sources in the surrounding living environment, such as family, friends, school and society, culture, and politics. Therefore, the above factors significantly affect individuals' intention to start a business. In Vietnam, students majoring in business administration tend to love business activities and buying and selling, and they have a dynamic personality. Because of choice, career orientation comes from one's personality and family orientation, so exploiting personal factors does not seem to explain the problem clearly. Previous studies have shown that students' entrepreneurial intentions increase following their engagement in entrepreneurship education and enrollment in business courses (Anwar, Saleem, 2019; Boldureanu et al., 2020). Entrepreneurship education enables students to advance through a focus on innovation and future-oriented career development (Ratten, Jones, 2020). This suggests that students possess diverse career pathways as entrepreneurs, spanning from small enterprises to well-established companies. Entrepreneurship education further provides students with the opportunity to acquire skills and management training, enhancing their entrepreneurial knowledge, fostering entrepreneurial thinking, and deepening their understanding of management, thereby boosting their entrepreneurial intentions (Hahn et al., 2017).

Besides entrepreneurship education, Pfeifer et al. (2016) and Solesvik et al. (2013) pointed out that entrepreneurial intention is associated with cognition. Increased awareness of entrepreneurship positively impacts any actions that may induce cognitive shifts and strengthen the nexus between entrepreneurial intentions and activities (Mathisen, Arnulf, 2013). In addition, students need an entrepreneurial mindset to deal with changes and build creative thinking to respond to new economic circumstances. Conversely, Jabeen et al. (2017) demonstrated the role of culture in entrepreneurship. Cultural factors can drive individual behaviour, including decision making and career choices as entrepreneurs. Investing in startups has a long-term positive effect on economic development and national disputes, so providing young people with a culture of entrepreneurship is essential. Hence, the purpose of this study is to examine the cultural and educational factors related to entrepreneurship that influence the entrepreneurial intentions of Vietnamese students. From the research results, it is possible to identify factors that serve as a basis for schools and related units to propose solutions to increase students' entrepreneurial intentions.

2. Literature review

Entrepreneurial intention is a cognitive state of mind about taking action and focusing on achieving the goal of starting a new business enterprise (Bird, 1988). Thompson (2009) identified entrepreneurial intention as an individual's belief that they intend to establish a new business at some point in the future (Thompson, 2009). According to Lee et al. (2006), the emphasis on the entrepreneurial spirit is widespread globally, recognized as a means to stimulate economic growth and job creation. Sobel and King (2008) asserted that initiating businesses is a crucial factor for economic advancement, making it a top priority for policymakers to encourage young individuals to embark on entrepreneurial ventures. Entrepreneurial intention is a concept that scholars have studied for decades.

Previous studies have used different background theories as the basis for the relationships between factors influencing entrepreneurial intention. This study summarizes three approaches based on groups of background theories on students' entrepreneurial intention: the environment's effects on entrepreneurial intention, the educational programme, and the learner (motivation, personality, thinking, attitude, gender).

Research directions are related to environmental factors, such as "family support", "entrepreneurship example", "national culture", "social capital", and "social factors" (Chand,

Ghorbani, 2011; Pruett et al., 2009). The environment that affects students' entrepreneurial intentions can be deduced and explained by institutional, cultural, and social exchange theories. The institutional theory proposed by North (1990) is used to explain the relationship between entrepreneurship education programmes and environmental factors. The cultural and institutional environment shapes the social structures within which organizations operate through policies (Fligstein, 1997). Thus, the cultural and institutional environment shapes education, economics, and law policies. In societies in which clear legal policies and material and intellectual resources to support business formation are fully provided, people will be motivated to start and develop businesses (Nguyen et al., 2009). The distinctions in the relationships within the factor model influencing the intention to initiate a business, particularly those associated with "national culture," can be elucidated by the Cultural Disposition Theory (Hofstede, 1980) and the Value Theory (Schwartz et al., 2001). Culture, at its essence, is shaped by the values held by individuals in a society, as reflected in their opinions, thoughts, beliefs, and behaviors (Hofstede et al., 2010). These cultural theories can shed light on how students' thoughts and intentions regarding entrepreneurship are influenced. Based on the results from previous studies, this approach has been the focus of a few repeated testing studies. The research by Ang and Hong (2000) compared the entrepreneurial spirit of students from Hong Kong and Singapore based on the role of personal characteristics, such as creative ability to innovate and willingness to take risks. However, humans are social individuals, so environmental factors influence their behaviours. Therefore, subsequent studies focused on exploring further the role of contextual factors. Scott and Twomey (1988) analysed the influence of parents on entrepreneurship. Lee et al. (2005) further investigated the role of culture when comparing four different countries in terms of entrepreneurial intention. Other studies, such as that by Autio et al. (1997), have examined the role of schools in motivating students to engage in entrepreneurship.

Regarding educational programmes, Astebro et al. (2012) provided evidence that entrepreneurship is not only a programme for business students but also an essential programme for students in the natural sciences, engineering, and even the arts in the US. Rae and Woodier-Harris (2013) believed that establishing a comprehensive entrepreneurship curriculum for students is crucial for businesses aiming to cultivate a strong knowledge foundation and successful business management. This curriculum should equip students with the essential knowledge required to initiate a successful business and choose a fitting career path. Huber et al. (2014) assessed the effectiveness of early entrepreneurship education for primary school children in the Netherlands. They demonstrated that early investment in entrepreneurship education for children as young as 11 or 12 improves entrepreneurial knowledge and skills. Research on entrepreneurship education tailored to the cultural, economic, and political characteristics of individual countries is essential. Such studies would make a substantial contribution to the overarching theory and practical applications of graduate education.

Many researchers have used traits theory combined with motivation theory (Maslow, 1970) and value theory combined with the theory of planned behaviour (Ajzen, 1991) to explain the relationship between individual characteristics and entrepreneurial intention. According to this approach, different personalities of each individual will affect their behavioural and thus their entrepreneurial intentions (Espiritu-Olmos, Sastre-Castillo, 2015); students' attitude towards entrepreneurship affects their entrepreneurial intentions, as proposed and tested by Boissin et al. (2009) and Wu and Wu (2008).

3. Research hypotheses

The nexus between entrepreneurial culture and entrepreneurial education, entrepreneurial awareness, and entrepreneurial intention

Chand and Ghorbani (2011) argued that variations in national culture lead to businesses being established and managed differently (financial management, control, employee training, etc.). National culture also plays a pivotal role in shaping and utilizing social capital. Therefore, in each different country, students' entrepreneurial intentions will be different. Pruett et al. (2009) provided evidence supporting the positive impact of "culture/country," "social factors," "typical role models in entrepreneurship," "family support," and "entrepreneurial inclination" on "entrepreneurship intention." Existing literature suggests that entrepreneurial culture has the potential to mold students' perspectives on entrepreneurship (Dewi et al., 2019; Yusof et al., 2017). To explain this relationship, social cognitive theory (SCT) was implemented in this study. SCT

shows the interaction between cognitive variables, environmental factors, culture, and individual behaviour (Bandura, 2001). Entrepreneurial mindset is a type of individual cognitive variable influenced by entrepreneurial culture, entrepreneurial education, and extracurricular activities (Cui et al., 2019). Some previous studies have shown that entrepreneurial thinking can be influenced and learned through individuals' initial knowledge and interaction with today's culture and environment (Mathisen, Arnulf, 2013). Similarly, Jabeen et al. (2017) and Shepherd et al. (2010) noted that an entrepreneurial culture within an organization actively encourages learning and the development of an entrepreneurial mindset.

Sesen (2013) further analysed the Schwarz model in terms of environmental factors, including "business information", "social relationships", and "university startup environment". The research results show that, as well as factors such as "access to capital" and "startup environment at university", there are "business information" and "social relationships" factors; the "startup environment at university" positively affects "startup intention".

Beyond fostering entrepreneurial thinking, community or educational organizational culture is intertwined with entrepreneurial education. Education serves as a public avenue for integrating comprehensive and objective entrepreneurship education across all educational levels (Nowinski et al., 2019). Blenker et al. (2012) highlighted a significant increase in the number of entrepreneurship courses contributing to cultural transformation in Western countries. In alignment with this trend, policymakers have introduced an academic focus to enhance cultural engagement in educational institutions (Khalid et al., 2019). One manifestation of this cultural influence is the growing availability of entrepreneurship courses in educational institutions (Farny et al., 2016). Therefore, the proposed hypotheses are as follows:

H1: Entrepreneurship culture affects entrepreneurship education.

H2: Entrepreneurship culture affects the perception of startup feasibility.

H3: Entrepreneurship culture affects the perception of the desire to start a business.

H4: Entrepreneurship culture affects startup intention.

The nexus between entrepreneurship education, entrepreneurship awareness, and entrepreneurial intention

Entrepreneurship education encompasses all the educational activities undertaken to develop students' entrepreneurial intentions (Li, Wu, 2019). Entrepreneurship education helps students to improve their entrepreneurial awareness and skills and provides students with alternative careers as entrepreneurs (Jena, 2020; Ratten, Jones, 2020). In addition, Viaz and Rivera-Cruz (2020) offered different understandings of entrepreneurship education as a teaching and learning activity that can identify entrepreneurial attitudes, such as autonomy, creativity, innovation, or taking risks and being creative in business. Meanwhile, Wu and Wu (2008) argued that entrepreneurship education can enhance students' management abilities to support their business activities. The university entrepreneurship education model equips students with the skills to pursue a startup career, especially through entrepreneurship teaching materials. This implies that entrepreneurship education strongly correlates with entrepreneurial intention (Hassi, 2016; Khalifa, Dhiyf, 2016).

Aşkun and Yildirim (2011) demonstrated that entrepreneurship courses greatly influence students' entrepreneurial intentions; their research supported business creation through entrepreneurship education programmes. Hong et al. (2012) believed that the quality of student entrepreneurship is related to the entrepreneurship education programme because it enriches knowledge about entrepreneurship and develops entrepreneurial skills for students. Universities must pay more attention to their entrepreneurship education programmes, focusing on student businesses, connecting with society, giving students more entrepreneurial opportunities, and providing internship opportunities and practical experience (Hong et al., 2012). In the context of hands-on entrepreneurship education, Taatila and Down (2012) determined that students in various training programs exhibit distinct inclinations toward entrepreneurship. Those with prior business experience are more likely to embark on entrepreneurial ventures compared to their counterparts without such experience. Moreover, students who perceive entrepreneurship positively as a career choice are more prone to initiating businesses than those who consider entrepreneurship a risky endeavor. An entrepreneurial mindset is characterized by the capability to identify, contemplate, and act upon opportunities rather than viewing challenges as hindrances (Jabeen et al., 2017). Ridley et al. (2017) also explained that an entrepreneurial mindset encompasses an individual's ability to make decisions in uncertain situations. Learning methods

and classroom activities are most likely to enhance college students' cognitive abilities directly, enabling them to participate in entrepreneurial activities actively (Solesvik et al., 2013). They also allow students to develop as learners and gain the necessary experience. The educational learning process includes ethnographic user research, brainstorming methods, collaborative activities, and advanced business practices that enable undergraduate students to develop their ability to find creative and critical solutions based on their learning experiences (Dehghani et al., 2018). These practical aspects enhance entrepreneurial thinking (Bogatyreva et al., 2019). Therefore, this study proposes the following hypotheses:

H5: Entrepreneurship education affects the perception of the feasibility of entrepreneurship.

H6: Entrepreneurship education affects students' awareness of their desire to start a business.

H7: Entrepreneurship education affects startup intention.

The nexus between entrepreneurial awareness and entrepreneurial intention

Based on Ajzen's theory of planned behaviour (TPB) (1991), previous studies have built a model of factors affecting students' entrepreneurial intention. Wu and Wu's (2008) model shows that "attitude towards entrepreneurship" and "behaviour-related control appraisal" both positively affect students' "entrepreneurship intention". Some preliminary research has demonstrated the belief in the entrepreneurial mindset as a mindset that certainly drives individuals' behaviour towards entrepreneurship-related culture and outputs (Akmaliah et al., 2016; Linan, Fayolle, 2015). This research noted that entrepreneurial thinking is closely related to an individual's thinking. Shepherd et al. (2010) supported this view and confirmed that entrepreneurial thinking provides insights into several essential outcomes for entrepreneurship research. To explain the role of entrepreneurial awareness, including perceived feasibility and perceived entrepreneurial desire, mediating entrepreneurial culture and entrepreneurial education in entrepreneurial intention, we refer to Bandura's (2001) social cognitive theory (SCT). Specifically, SCT proposes interactions between cognitive variables and environmental factors, including culture and individual behaviour (Bandura, 2001). The latest research by Cui et al. (2019) demonstrates that SCT offers a comprehensive framework for comprehending the role of determinants in extensive entrepreneurship education, particularly from the perspective of cognitive psychology. Cui et al. (2019) and Winkler & Case (2014) also pinpointed cultural, curricular, and extracurricular factors, such as learning activities or experiences, that impact cognitive elements like entrepreneurial mindset, inspiration, motivation, self-efficacy, and entrepreneurial intention. In essence, entrepreneurial culture and education bring about shifts in thinking and emotions (Gibb, 2002; Haynie et al., 2010), ultimately influencing the intentions of students. Therefore, this study proposes the following hypotheses:

H8: Perceived feasibility has a positive impact on the perceived desire to start a business.

H9: Perceived feasibility has a positive impact on startup intention.

H10: Perceived desire to start a business has a positive impact on startup intention.

4. Methodology

Study design

The study was conducted in two phases: a preliminary study and a formal quantitative study. The preliminary study used a focus group interview technique with eight direct managers of startup businesses operating in Ho Chi Minh City. The goal was to revise the draft survey to eliminate ambiguous questions and semantic errors. The revised survey was used for the formal quantitative study phase. A quota sampling method was used in the study because the sample frame was not defined. The total sample size for analysis, after cleaning, was 1869. The entrepreneurial culture scale was inherited from the scale by Ireland, Covin and Kuratko (2009), MacKenzie, Podsakoff and Podsakoff (2011), and Mukhtar, Wardana, Wibowo and Narmaditya (2021). The perception of desire scale was adopted from the study by Krueger et al. (2000), the perception of feasibility scale was acquired from the studies by Krueger et al. (2000) and Schlaegel and Koenig (2014), and the entrepreneurial intention scale was inherited from the study by Linan and Chen (2009). All the scales in this study used a 5-point Likert scale. The model was tested for fit, reliability, and validity based on the scale analysis method.

Statistical analysis

Partial Least Squares Structural Equation Modeling (PLS-SEM) was employed for the analysis due to its effectiveness in handling complex models with multiple constructs and

indicators, and its suitability for exploratory research. The statistical analysis was conducted using SmartPLS 4, a software specifically designed for PLS-SEM analysis.

The measurement model was assessed for reliability and validity. Internal consistency reliability was evaluated using Cronbach's alpha and composite reliability (CR), with values above 0.7 considered acceptable. Convergent validity was confirmed with Average Variance Extracted (AVE) values exceeding 0.5. Discriminant validity was established using the Fornell-Larcker criterion and the HTMT ratio.

The structural model was evaluated by analyzing the path coefficients, tested for significance using bootstrapping with 5,000 resamples. Model fit was assessed with the Standardized Root Mean Square Residual (SRMR), targeting values less than 0.08. The explanatory power of the model was measured by the coefficient of determination (R^2).

Hypotheses were tested by examining the t-values and p-values of the path coefficients, with a significance threshold set at $p < 0.05$. Effect sizes (f^2) were calculated to understand the impact of exogenous constructs on endogenous constructs. Multicollinearity among predictors was checked using the Variance Inflation Factor (VIF), ensuring all values were below 5. The overall model evaluation included the SRMR for fit, R^2 for explanatory power, and Q^2 for predictive relevance.

Participants

A survey of students in Vietnam was conducted with 1869 participants. The proportion of university-educated students was the largest, constituting 92.83 % of the sample. Following this, 6.96 % of students were enrolled in college, and a mere 0.21 % were attending vocational schools. Among the student body, those in their second year of study constituted the largest cohort, with 31.25 %, while those in the third year accounted for 28.79 %. The proportions of students in their first and fourth years were similar, standing at 20.76 % and 19.05 %, respectively. A mere 0.16 % of students were continuing their education beyond the standard four-year period.

Moreover, the gender distribution of the survey sample shows that female students comprised 67.58 % of the total sample, surpassing their male counterparts with 32.42 %. This can be partly explained by the survey's accessibility to a majority of students in social science disciplines, in which the enrolment of female students exceeds that of male students. Additionally, among the study participants, those with permanent residency in other provinces or cities constituted the predominant demographic, with 80.68 %. Students with permanent residency in Hanoi accounted for 12.15 %, while those in Ho Chi Minh City represented 7.17 %.

Table 1. Summary of sample

Characteristics	Items	Frequency	Percentage
Education	Universities	1735	92.83%
	Colleges	130	6.96%
	Vocational schools	4	0.21%
Year of study	First year	388	20.76%
	Second year	584	31.25%
	Third year	538	28.79%
	Fourth year	356	19.05%
	More than 4 years	3	0.16%
Gender	Female	1263	67.58%
	Male	606	32.42%
Residency	Hanoi city	227	12.15%
	Ho Chi Minh City	134	7.17%
	Others	1508	80.68%

5. Results and discussion

After the model was tested and insufficient variables were excluded from the measurement model, the measurement scales attained reliability and validity as the factor loadings of the items ranged from 0.736 to 0.906 and the Cronbach's alphas were higher than 0.881; the composite reliability was above 0.885 (see also [Table 2](#)). In addition, the average variance extracted of the

constructs was higher than 0.5; hence, all the criteria for determining the convergent validity of the constructs were satisfied (Gerbing, Anderson, 1988; Hair et al., 2018).

Table 2. Measurement of concepts

Constructs	Item	Factor loading	Cronbach's alpha	CR (Rho A)	CR (Rho C)	Average variance extracted (AVE)
Entrepreneurship Education (EDU)	EDU01	0.870	0.881	0.885	0.918	0.736
	EDU02	0.855				
	EDU03	0.889				
	EDU04	0.816				
Entrepreneurship Intentions (EI)	EIo1	0.870	0.930	0.932	0.946	0.744
	EIo2	0.861				
	EIo3	0.906				
	EIo4	0.893				
	EIo5	0.878				
	EIo6	0.759				
Perceived Desirability (PED)	PEDo2	0.868	0.906	0.910	0.930	0.727
	PEDo3	0.808				
	PEDo4	0.878				
	PEDo5	0.886				
Perceived Feasibility (PEF)	PEDo6	0.821	0.892	0.893	0.921	0.700
	PEFo1	0.848				
	PEFo2	0.867				
	PEFo3	0.843				
	PEFo4	0.884				
Entrepreneurship Culture (CUL)	PEFo5	0.736	0.915	0.916	0.937	0.747
	ECo1	0.856				
	ECo2	0.870				
	ECo3	0.902				
	ECo4	0.827				
	ECo5	0.865				

Moreover, the heterotrait–monotrait (HTMT) index (Henseler et al., 2015) and the Fornell and Larcker criterion (Bagozzi et al., 1991; Fornell, Larcker, 1981; Hair et al., 2018) revealed that the scales of the variables achieved discriminant validity (see also Table 3).

Table 3. Discriminant validity

Fornell–Larcker					
	1	2	3	4	5
1. Entrepreneurship Culture (CUL)	0.864				
2. Entrepreneurship Education (EDU)	0.583	0.858			
3. Entrepreneurship Intentions (EI)	0.652	0.728	0.863		
4. Perceived Desirability (PED)	0.654	0.685	0.817	0.853	
5. Perceived Feasibility (PEF)	0.660	0.780	0.810	0.768	0.837
HTMT					

	1	2	3	4	5
1. Entrepreneurship Culture (CUL)					
2. Entrepreneurship Education (EDU)	0.642				
3. Entrepreneurship Intentions (EI)	0.707	0.792			
4. Perceived Desirability (PED)	0.716	0.754	0.884		
5. Perceived Feasibility (PEF)	0.729	0.876	0.890	0.847	

Table 4 shows that the variance inflation factor (VIF) indicators of the exogenous variables were all between 1.970 and 3.671 and thus less than 5.0; therefore, there was no sign of multicollinearity in this sample (Hair et al., 2019). The level of explanation of variables was, for example, 76 % for entrepreneurship intentions, 64 % for perceived desirability, 67.3 % for perceived feasibility, and 34 % for entrepreneurship education. Thus, the explanatory level of entrepreneurship awareness accounted for a large proportion and played an important role. The Q² indicators of the constructs in the model revealed that the predictability scores for EI, EDU, PED, and PEF were high compared with the criteria of 0.035 according to Cohen (1988).

Table 4. Measurement indicators

Constructs	Rho_A	Composite Reliability	AVE	VIF	R ²	R ² _{adj}	Q ²
Entrepreneurship Education (EDU)	0.885	0.918	0.736	2.701	0.340	0.339	0.339
Entrepreneurship Intentions (EI)	0.932	0.946	0.744		0.760	0.760	0.424
Perceived Desirability (PED)	0.910	0.930	0.727	2.779	0.640	0.640	0.427
Perceived Feasibility (PEF)	0.893	0.921	0.700	3.671	0.673	0.673	0.435
Entrepreneurship Culture (CUL)	0.916	0.937	0.747	1.970			

The results of the bootstrap analysis with 500 subsamples are presented in Figure 1 and Table 5. All the suggested relationships in the research model were supported and comparable to those discussed in the theory. Accordingly, entrepreneurship culture (CUL) had a significant effect on entrepreneurship education (EDU) (H1, 0.583, p-value < 0.05), as did perceived feasibility (PEF) (H2, 0.311, p-value < 0.05) and perceived desirability (PED) (H3, 0.240, p-value < 0.05). Among the factors affecting entrepreneurship intentions, perceived desirability and perceived feasibility had the most significant impact (0.417 and 0.327, H9 & H10), followed by entrepreneurship education (0.140, H7) and culture (0.082, H4). Entrepreneurship education in turn affected entrepreneurship perception, for which the impact on PEF (H5, 0.599) had a greater effect than that of PED (H6, 0.179). Furthermore, PEF had strong effects on PED (H8, 0.470). Table 6 shows the indirect effect of CUL and EDU on EI via PED and PEF.

Table 5. Hypotheses testing results

Hypotheses	Coefficient	STDEV	T-Statistics	f ²	Conclusion
H1 CUL -> EDU	0.583***	0.018	31.835	0.514***	Supported
H2 CUL -> PEF	0.311***	0.021	14.926	0.195***	Supported
H3 CUL -> PED	0.240***	0.025	9.519	0.088***	Supported
H4 CUL -> EI	0.082***	0.022	3.650	0.014	Supported
H5 EDU -> PEF	0.599***	0.020	29.394	0.725***	Supported
H6 EDU -> PED	0.179***	0.029	6.195	0.034**	Supported

H7	EDU -> EI	0.140***	0.026	5.386	0.030***	Supported
H8	PEF -> PED	0.470***	0.030	15.579	0.200***	Supported
H9	PEF -> EI	0.327***	0.033	9.777	0.122***	Supported
H10	PED -> EI	0.417***	0.029	14.525	0.261***	Supported

The f^2 coefficient showed the predictability of the factors in the model, whereby H1 and H5 had a large effect size, H2 and H8 had medium effect sizes, and H3, H6, H7, and H9 had small effect sizes, while H4 was considered to have no effect. Therefore, CUL can affect EDU and EDU influences the entrepreneurship perception, specifically PEF, and eventually has an impact on EI.

Table 6. Indirect effects

Total indirect effects	Effects	STDEV	T statistics
CUL -> EI	0.570***	0.017	34.128
CUL -> PED	0.414***	0.018	23.285
CUL -> PEF	0.349***	0.015	22.664
EDU -> EI	0.388***	0.023	16.680
EDU -> PED	0.281***	0.021	13.264
PEF -> EI	0.196***	0.018	10.827
Specific indirect effect	Effects	STDEV	T statistics
CUL -> EDU -> EI	0.081***	0.015	5.381
CUL -> EDU -> PED -> EI	0.043***	0.008	5.324
EDU -> PED -> EI	0.075***	0.014	5.379
CUL -> EDU -> PEF -> EI	0.114***	0.013	8.762
EDU -> PEF -> EI	0.196***	0.022	9.000
CUL -> EDU -> PEF -> PED -> EI	0.068***	0.007	9.765
EDU -> PEF -> PED -> EI	0.117***	0.012	10.124
PEF -> PED -> EI	0.196***	0.018	10.827
CUL -> PED -> EI	0.100***	0.012	8.298
CUL -> PEF -> EI	0.102***	0.012	8.822
CUL -> PEF -> PED -> EI	0.061***	0.007	8.612
PEF -> PED -> EI	0.196***	0.018	10.827
EDU -> PED -> EI	0.075***	0.014	5.379
EDU -> PEF -> EI	0.196***	0.022	9.000
EDU -> PEF -> PED -> EI	0.117***	0.012	10.124
PEF -> PED -> EI	0.196***	0.018	10.827
PEF -> PED -> EI	0.196***	0.018	10.827

Figure 1 shows the relationships in the research model; black arrows indicate supported relationships in which CUL had positive effects on EDU, PED, and PEF as well as EI. EDU had positive effects on PED, PEF, and EI. Within the entrepreneurship perception, PEF had strong effects on PED. Both PEF and PED had positive effects on EI.

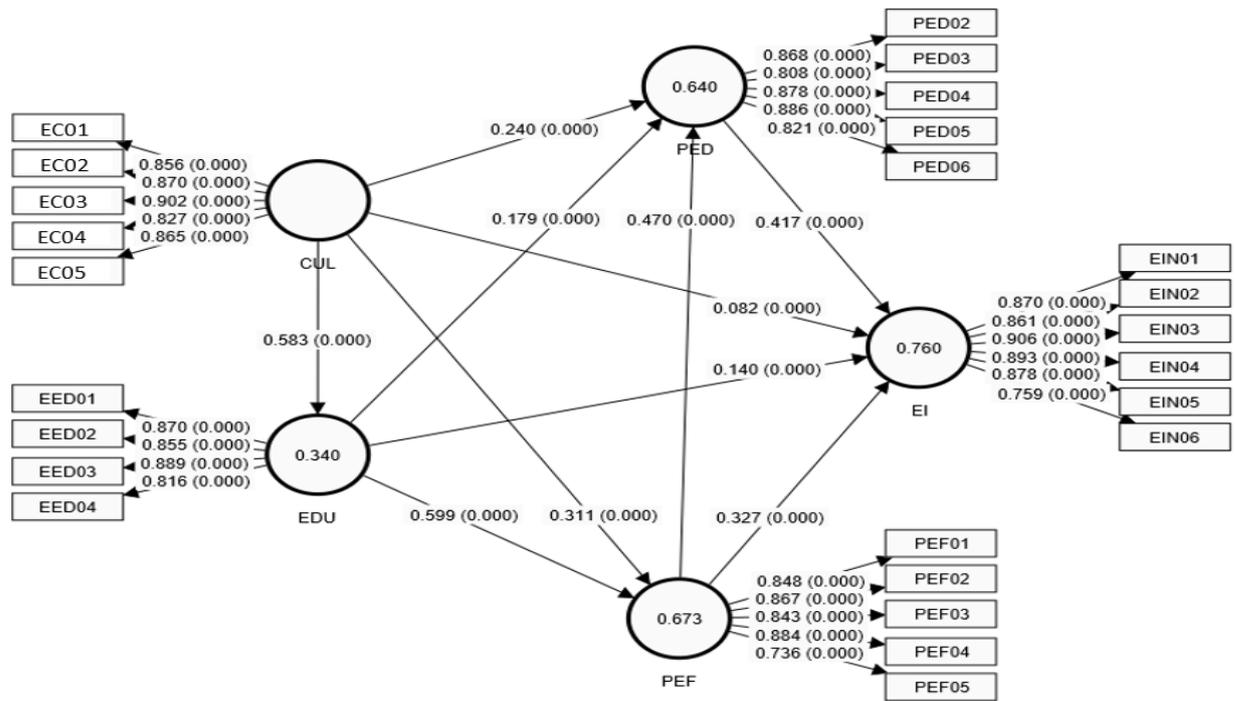


Fig. 2. Research model

Discussion

Overall, the research achieved some outstanding results, showing that the more positive the entrepreneurship culture and entrepreneurship education programmes for students are, the more they have an increased awareness of their desire to implement and the feasibility of startup projects, thereby increasing their intention to start a business.

More specifically, the perception of desirability ($p = 0.000$, $\beta = 0.417$) and the perception of feasibility positively affect students' entrepreneurial intention ($p = 0.000$, $\beta = 0.327$). This result shows that the more students perceive the project's feasibility, the more they increase their intention to start a business. According to Shapero and Sokol (1982), an individual with potential entrepreneurial intention must have the desire and perceive the feasibility of starting a business. This result is confirmed and consistent with the previous research results of Ayalew and Zeleke (2018). This is also suitable for the practical context of a startup project because the feasibility of a startup project includes financial feasibility, operational feasibility, and overall planning feasibility. All aspects must be guaranteed to help students reduce their perception of risks when starting a business because students have limited finances and resources compared with other social groups. Similarly, Cui et al. (2019) identified that entrepreneurial intention is shaped by the entrepreneurial mindset. Besides, awareness of desire is a factor that has a positive impact on students' intention to start a business. When the perception of feasibility is guaranteed, students will be aware of the desire to start a business career and firmly intend to start a business. This result is confirmed and supported by Krueger et al. (2000). The research results also reaffirm the relationship between perceived feasibility and perceived desire to start a business ($p = 0.000$, $\beta = 0.470$). This result shows that, besides the direct impact of perceived feasibility and perceived desire to start a business on students' entrepreneurial intention, the influence of perceived feasibility can occur indirectly by promoting awareness of the desire to start a business based on the perception of project feasibility as a foundation to shape students' startup intention. This result is also consistent with the research Cui et al. (2019), Gibb (2002), Haynie et al. (2010), and Winkler (2014). According to Shapero and Sokol (1982), entrepreneurial intention relies on the conscious desire perception, action tendency, and perceived feasibility of the potential entrepreneur. The perceived entrepreneurial desire pertains to the extent to which an individual feels drawn to pursuing entrepreneurship and reflects personal preferences related to entrepreneurial behavior. If the perception of starting a business is that it is not feasible or the feasibility is low, it may need to become more attractive for individuals to start or wish to start a business.

The research results show that both startup culture and entrepreneurship education positively affect students' perceived feasibility and desire to start a business. Startup culture exerts a positive impact on students' entrepreneurial intention ($p = 0.000$ and $\beta = 0.082$). Startup culture positively affects perceived feasibility ($p = 0.000$ and $\beta = 0.311$) and perceived desire to start a business ($p = 0.000$ and $\beta = 0.240$). This shows that startup culture, in addition to directly affecting startup intention, has an indirect impact through awareness of feasibility and desire to start a business. This result is consistent with much of the work by Martin, McNally, and Kay (2013) and Wibowo et al. (2018). The results of this study are consistent with Bandura's (2001) social cognitive theory (SCT), which suggests interactions between cognitive variables, environmental factors, culture, and individual behaviour. Referring to social cognitive theory, perceived feasibility and desire to start a business are two personal cognitive variables influenced by startup culture and startup education. Similarly, Jabeen et al. (2017) and Shepherd et al. (2010) confirmed that startup culture actively encourages individuals to learn and improve their knowledge and entrepreneurial mindset. Cui et al. (2019) and Mathisen and Arnulf (2013) also concluded that entrepreneurial thinking can be influenced and learned through an individual's initial knowledge and interaction with today's culture and circumstances.

Entrepreneurship education has a positive impact on students' entrepreneurial intention ($p = 0.000$ and $\beta = 0.140$); it also has a positive impact on perceived feasibility ($p = 0.000$ and $\beta = 0.599$) and perceived desire to start a business ($p = 0.000$ and $\beta = 0.179$). This shows that entrepreneurship education, in addition to having a direct impact on the intention to start a business, has an indirect impact through awareness of feasibility and awareness of the desire to start a business. This result is supported by the study by Wardana et al. (2020), who commented that entrepreneurship education can promote students' entrepreneurial intentions. This result shows that entrepreneurship education inspires and develops students' motivation to choose entrepreneurship as a career choice through the learning process and practical experience of business activities and starting a business at school. Ridley et al. (2017) also explained that entrepreneurial cognition includes an individual's ability to make decisions in uncertain situations. Learning methods and practical, experiential activities are likely to have a direct impact on improving the cognitive abilities of university students, helping them to participate actively in entrepreneurial activities (Bogatyeva et al., 2019; Deghani et al., 2018; Solesvik et al., 2013). This result also shows that entrepreneurship education helps to improve a student's capacity, influencing their intention to start a business. In other words, training and developing entrepreneurial capacity for students, when they are fully equipped with the necessary knowledge and skills and can recognize these capacities of their own, can motivate them to start more businesses. This result shows that, for students, the intention to start a business will be strongly motivated by both sides: the students themselves build their capacity through training and the specific feasibility. The nature of each startup project determines the intention to start a business.

Ultimately, startup culture significantly and positively impacts entrepreneurship education ($p = 0.000$ and $\beta = 0.583$). This outcome indicates a favorable connection between entrepreneurial culture and education. One plausible explanation for this discovery is that entrepreneurial culture fosters social legitimacy and creates an environment conducive to teaching and learning in entrepreneurship. Moreover, the values embedded in entrepreneurial culture influence psychological attitudes toward entrepreneurship education. A positive culture surrounding entrepreneurship at the university level motivates students to be more receptive to new information and knowledge. This study underscores that universities play a crucial role in encouraging students to cultivate innovative ideas, fostering entrepreneurship as a viable career alternative, and equipping them with the knowledge necessary for business competence. The structured and curriculum-supported nature of entrepreneurial education enhances business awareness and directs learning toward practical preparation. This finding is reinforced by several previous researchers, such as Adekiya and Ibrahim (2016), Farny et al. (2016), and Khalid et al. (2019).

The study implies that educational interventions are crucial in shaping entrepreneurial perceptions and intentions. Institutions may consider incorporating real-world experiences, case studies, and mentorship programmes to enhance the effectiveness of entrepreneurship education. Understanding the impact of culture on entrepreneurship intentions provides valuable insights for policymakers. Strategies to promote a favourable entrepreneurship culture, through targeted awareness campaigns or community engagement, could be explored. Policymakers can use the

study's findings to inform policies aimed at promoting entrepreneurship. This may include designing initiatives that enhance the cultural aspects influencing entrepreneurial intentions.

6. Conclusion and implication

The study successfully achieved its objective by exploring the impact of culture and education on students' entrepreneurial intentions through an assessment of the perceived feasibility and desirability of entrepreneurship. The research results indicate that, as the cultural and educational environment increasingly supports entrepreneurial activities, there is a corresponding increase in students' awareness of the desirability and feasibility of entrepreneurial projects, consequently leading to a greater intention to engage in entrepreneurship.

This suggests that educational institutions, particularly universities, should focus on educating and training students in areas such as resilience in the face of challenges, willingness to be tested, and courage to accept risks. Entrepreneurship training programmes, labelled as "Business Startup ..." should be designed to cater to students across various disciplines and not limited to those studying economics. Additionally, universities must clearly define entrepreneurship education, emphasizing the transmission not only of knowledge, skills, and business experience but also of enthusiasm, passion, and a creative and entrepreneurial mindset.

The study implies the need for a faculty with practical experience of business management to create a supportive environment for the development of individual capabilities, effective student learning support, and a place that inspires the entrepreneurial spirit of young people. For students, before embarking on entrepreneurship, it is crucial to build motivation by recognizing the attractiveness of entrepreneurial opportunities, self-assessing entrepreneurial capabilities, and forming ideas and intentions for entrepreneurship, driven by passion. Successful entrepreneurs, apart from motivation, ambition, willpower, and perseverance in developing business ideas, have to face many difficulties and challenges and be willing to accept failure.

Availability of supporting data

Please contact authors for data and program codes requests.

Competing interests

The authors declare that they have no competing interests.

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Authors' contributions

Methodology, Writing – original draft. AVT: Writing – review & editing, MNBL: Software, Data curation; HCC: Conceptualization, Project administration.

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