



The impact of entrepreneurship education on entrepreneurial passion and behaviour: Evidence from Indonesian MSMEs

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ABSTRACT

This study examines the role of entrepreneurship education in inspiring entrepreneurial passion and how this, in turn, influences entrepreneurial intention and behavior. Using a cross-sectional design and a sample of 200 micro-, small-, and medium-sized entrepreneurs who have previously received entrepreneurship education, this study examines the influence of entrepreneurship education on entrepreneurial intention and behavior, indirectly through three dimensions of entrepreneurial passion: inventing, founding, and developing. The data were analyzed using SmartPLS software to test the hypotheses by means of a structural model. The results indicate that entrepreneurship education significantly influences all three forms of entrepreneurial passion, whereas only passion for development plays a significant mediating role in the relationship between entrepreneurship education and entrepreneurial intention. This indicates that while fostering participants' passion for invention and founding may be important, entrepreneurship education programs that also nurture participants' passion for business development are likely to produce superior outcomes in terms of entrepreneurial intention and entrepreneurial behavior. Accordingly, this study contributes theoretically to research on entrepreneurial passion and offers practical implications for designing effective entrepreneurship education programs.

Introduction

Entrepreneurship is considered important in any economy because of its vital role in creating employment, facilitating technology transfer, enhancing national competitiveness, and supporting social innovation (Tariq, 2025). Emerging economies are particularly reliant on entrepreneurship to address structural challenges, including unemployment, informal employment, and poverty. Entrepreneurship is thus considered essential for both economic development and social progress in emerging economies (Malathi and Venugopal, 2025).

Most entrepreneurship involves the establishment and operation of

micro-, small, and medium-sized enterprises (MSMEs). The formation of MSMEs, meanwhile, is generally understood to be constrained by limited access to resources and insufficient entrepreneurial skills (Dhar et al., 2024). Regarding the latter, entrepreneurship education is widely regarded as the most effective means of improving entrepreneurial skills. The emphasis of entrepreneurship education has therefore traditionally tended to be on the more technical aspects of starting up, operating, and expanding an MSME (Farhangmehr et al., 2016). Such programs deliver value mainly by teaching cognitive skills such as budgeting, communication, strategic planning, and risk management, which in turn help those who have taken the programs to practice a

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range of entrepreneurial competencies related to creativity, proactivity, adaptability, and resilience (Bhoyar et al., 2025; Zhang et al. 2025). Studies have also demonstrated that entrepreneurship education directly contributes to the development of entrepreneurial intentions among students by fostering confidence in their cognitive abilities (Chahal et al., 2024; Nabi et al., 2017).

Affective skills are increasingly recognized as essential to market performance and business stability (Morris and Tucker, 2023). A prominent example of an affective entrepreneurship skill is the ability to develop, maintain, harness, and even grow one's entrepreneurial passion (Cardon et al. 2017). Biraglia and Kadile (2017) argue that entrepreneurs require passion to sustain their businesses during difficult times. Passion for entrepreneurship is instrumental in the development of entrepreneurial intentions (Liu et al., 2025). There is, indeed, some empirical evidence in support of this proposition. Zhang et al. (2025), for example, indicate that fostering career adaptability within an entrepreneurship education program can nurture entrepreneurial passion and self-efficacy among participants. Developing these qualities can, in turn, increase participants' entrepreneurial intentions.

Despite the recognised importance of entrepreneurial passion, empirical research investigating the interplay between entrepreneurship education, entrepreneurial passion, and actual entrepreneurial behaviour remains limited, particularly in emerging-economy contexts (Anjum et al., 2021; Chahal et al., 2024, Nabi et al., 2017). Much of the extant literature focuses predominantly on entrepreneurial intention as the primary outcome of entrepreneurship education, with relatively few studies examining the mediating role of passion or the translation of intention into behaviour. An exception is Nabi et al. (2017), who argue that the relationship between intention and behavior is typically indirect, significantly influenced by mediators and contextual moderators. While it is recognized that these linkages may include entrepreneurial passion, it is not known whether the variables serve as a mediator or a moderator – or, indeed, what other variables they may mediate or moderate. There is also a dearth of knowledge regarding the forms entrepreneurial passion may take. It has been proposed, for example, that entrepreneurial passion may play an important role in three distinct entrepreneurship behaviors (Cardon et al., 2009). First is a passion for invention, which entails seeking out new business opportunities. Second is a passion for founding, which refers to establishing a new business to exploit such opportunities and bring them to market. Third is a passion for developing, which relates to taking such businesses forward and steering them successfully through the doubtless choppy waters of the marketplace.

While entrepreneurship education has been shown to influence both entrepreneurial intention and, in some cases, subsequent behaviour, research specifically examining how entrepreneurship education programs stimulate and support entrepreneurial behaviour through mechanisms such as entrepreneurial passion remain relatively limited. The purpose of this paper is therefore to investigate how entrepreneurial passion may mediate the relationship between entrepreneurship education and entrepreneurship behavior. In so doing, the study aims to expand the theoretical understanding of entrepreneurship education by exploring affective mechanisms, moving beyond conventional cognitive outcome-based research.

It is essential to clarify the conceptualization of entrepreneurial intention in this study. The focus is on assessing individuals' intentions at the point of initiating a business venture. However, regarding the sample comprising active MSME entrepreneurs with substantial business experience, the construct of entrepreneurial intention in this study is reconceptualized to encompass not only nascent venture creation but also intentions related to business growth, expansion, and diversification within ongoing enterprises. This broader and more nuanced framing aligns with empirical evidence that entrepreneurial intention among existing entrepreneurs often reflects forward-looking commitments and planned behaviours rather than solely start-up intentions (Nguyen and Nguyen, 2024; Thomas, 2022).

Furthermore, this conceptualization is supported by recent literature that recognizes entrepreneurial intention as a dynamic construct that evolves across the entrepreneurial lifecycle, particularly in contexts characterised by necessity-driven and resource-constrained entrepreneurship, such as Indonesian MSMEs (Syed et al., 2020; Tariq, 2025). Reframing entrepreneurial intention in this manner ensures coherence with the respondents' entrepreneurial status and provides a theoretically grounded basis for interpreting the motivational processes underlying ongoing entrepreneurial activities.

Furthermore, by situating the research within the Indonesian MSME sector, the study addresses contextual factors, such as resource constraints, necessity-driven entrepreneurship, and sectoral diversity, which enable a more distinct theoretical model that captures the dynamic interplay between education, affective motivation, and entrepreneurial outcomes in a developing economy, advancing the precision and applicability of entrepreneurship theory beyond its traditional domains (Syed et al., 2020; Tariq, 2025). A novel feature of this research is that it will categorize entrepreneurial passion into three categories to enable a more nuanced approach to how it may influence entrepreneurial behavior. As such, the study aims to provide new empirical insights from an emerging-economy perspective: a context in which entrepreneurship is considered vital, but resources are constrained. The study also aims to offer specific guidance to educational institutions and policymakers regarding which dimensions of entrepreneurial passion are likely to be most effective in generating the entrepreneurial outcomes they seek to achieve.

Literature review

Entrepreneurship education toward entrepreneurial passion

The term 'entrepreneurship education' refers to education programs that aim to create entrepreneurial attitudes, skills, and knowledge among individuals (Lerro et al., 2025; Rajpal and Singh, 2024). Such outcomes are considered essential in developing entrepreneurial competencies among would-be entrepreneurs. The focus of such programs is typically on providing technical training on subjects such as business opportunity identification, strategic decision-making, and other managerial competencies (Bui et al., 2025; Ou and Kim, 2025). Most also aim to provide participants with psychological skills, such as mental preparedness and adaptability, that they will inevitably need to operate in the turbulent and often unforgiving MSME sector (Bui et al., 2025). In addition, entrepreneurship education is recognized as a key driver of entrepreneurial intentions, as it develops self-efficacy and proactive attitudes, which underline entrepreneurial behavior (Cao and Kusakabe, 2025).

While prior research recognizes the importance of entrepreneurship education in developing cognitive and psychological skills, this study's theoretical framework explicitly integrates these elements within the Theory of Planned Behaviour (Ajzen, 1991) to provide a more coherent explanatory model. Specifically, this study positions entrepreneurial passion not as a replacement for TPB's core antecedents—attitudes, subjective norms, and perceived behavioural control—but as a complementary affective construct that operates alongside these antecedents to influence entrepreneurial intentions. This integration allows for a more comprehensive understanding of the affective and cognitive mechanisms through which entrepreneurship education influences intention and behaviour (Ajzen, 1991; Fayolle and Liñán, 2014).

It is also increasingly recognized that entrepreneurs need to draw upon a wider range of affective resources if they are to be (and to remain) successful. Entrepreneurs also need to possess and maintain a strong passion for entrepreneurship. This passion is characterized by a strong affective state toward important entrepreneurial activities, such as innovation, business start-up, and business growth (Kyriakopoulos et al., 2024; Zhu et al., 2025). According to Cardon et al. (2009), entrepreneurial passion has three distinct dimensions. These comprise

passion for invention, which refers to an eagerness to identify and explore new business opportunities; passion for founding, which relates to an enthusiasm for starting a business; and passion for growth, which refers to an ongoing enthusiasm for sustaining and growing the business. Entrepreneurial passion has indeed been reported to contribute substantially to entrepreneurs' perseverance and dedication to their businesses, which in turn helps them overcome business challenges (Gabrielsson et al., 2025; Hoang and Luu, 2025).

The present study develops hypotheses grounded in this theoretical synthesis, proposing that entrepreneurship education indirectly influences entrepreneurial intention through its effects on the three dimensions of entrepreneurial passion (inventing, founding, and developing). This framing articulates a clear causal pathway that extends TPB by embedding affective passion as a mediating mechanism, thereby addressing a conceptual gap in prior research, which often treats passion and TPB constructs in isolation.

The passion for inventing, or the aspiration to explore innovation and new opportunities, is considered a vital dimension of entrepreneurship (Gabrielsson et al., 2025). The ability to innovate is considered an important aim of enterprising education (Hoang and Luu, 2025; Nguyen and Nguyen, 2024). Murnieks et al. (2016) demonstrated that an entrepreneurship crash course enhanced participants' inclination to generate new business ideas. Accordingly, the following hypothesis is proposed:

H1: Entrepreneurship education has a positive and significant influence on entrepreneurial passion for inventing.

It is also recognized that entrepreneurship education can equip individuals with the skills and knowledge that encourage them to actively participate in business start-ups (Lerro et al., 2025). Passion for founding refers to the desire to launch a new venture, often driven by entrepreneurship education experiences involving business simulations or practical projects (Hoang and Luu, 2025). Such entrepreneurship education activities can foster a personal passion for business founding, particularly because individuals who gain practical experience are likely to feel more confident in starting their own businesses. Empirical studies also support the relationship between entrepreneurship education and passion for starting their business, suggesting that individuals involved in entrepreneurship education programs have a stronger desire to start their own businesses (Biraglia and Kadile, 2017; Hoang and Luu, 2025). Accordingly, the following hypothesis is proposed:

H2: Entrepreneurship education has a positive and significant influence on entrepreneurial passion for a founding.

It is further understood that entrepreneurship education may cultivate a passion for business development, specifically the passion to grow and enhance existing businesses (de Sousa et al., 2024; Lerro et al., 2025). Entrepreneurship education can help individuals develop competencies in business growth planning and management, often using real-world cases of business strategy development and the sharing of actual business experiences (Boldureanu et al., 2020; Hassan et al., 2021, 2024). This 'builder's mentality' is considered crucial, as it enables entrepreneurs to focus not only on establishing a business but also on its consolidation and further growth, which often requires continuous innovation (Ezeuduji et al., 2024). Boldureanu et al. (2020) found that participants in an entrepreneurship education program were more inclined to show their commitment to ongoing business development because they developed competencies in growth planning and innovation. Newman et al. (2021) found that entrepreneurs who received entrepreneurship education were more committed to ongoing business development, technology pull, proofing, and bootstrapping, suggesting that entrepreneurship education reinforces participants' passion for development. Accordingly, the following hypothesis is proposed:

H3: Entrepreneurship education has a positive and significant influence on entrepreneurial passion for developing.

Entrepreneurial passion and entrepreneurial intention

The importance of each dimension of entrepreneurial passion in shaping entrepreneurial intention is already well established (Hoang and Luu, 2025; Neneh, 2022). First, entrepreneurial passion for inventing or for invention is associated with enthusiasm for seeking new ideas and generating innovation (Hassan et al., 2024; Muzaffar, 2023). This passion encourages individuals to continue seeking new opportunities and to think outside the box in product or service development (Al Halbusi et al., 2024; Chen et al., 2022). Studies have also found that passion for invention drives individuals to take greater risks when launching entrepreneurial ventures and to devote more energy to bringing these innovations to market (Cardon et al., 2009, 2017). This passion for discovering new ideas not only enhances interest in entrepreneurship but also reinforces an individual's intention to establish an innovative firm (Caputo et al., 2025). The following hypothesis is therefore proposed:

H4: Entrepreneurial passion for inventing has a positive and significant influence on entrepreneurial intention

Entrepreneurial passion for founding has been found to significantly affect entrepreneurial intention (Al Halbusi et al., 2024). Passion for founding is an enthusiasm that extends beyond wanting to own a business; it is a burning desire to start a new business from the ground up (Karimi, 2020). A passion for founding kindles intrinsic motivation to address early entrepreneurial challenges, such as securing financial backing, building a team, and formulating a business model (Ezeuduji et al., 2024). Individuals with such passion are typically more determined to overcome barriers to starting a business, as they value the personal satisfaction of starting something themselves (Abbas and Uddin, 2025). Empirical research suggests that passion for founding stimulates entrepreneurial intention by increasing one's perceived ability to overcome the challenges of creating a new venture (Cardon et al., 2017; Chen et al., 2022). The following hypothesis is therefore proposed:

H5: Entrepreneurial passion for founding has a positive and significant influence on entrepreneurial intention

Entrepreneurial passion for development relates to the enthusiasm an entrepreneur has in expanding and enhancing their existing business (Abbas and Uddin, 2025). This may include expanding the business through growth strategies such as product innovation or market extension (Hoang and Luu, 2025). Evidence suggests that commitment to business development contributes to enhanced entrepreneurial intention, as such individuals are strongly motivated to innovate and scale up their business (Syed et al., 2020). The following hypothesis is therefore proposed:

H6: Entrepreneurial passion for developing has a positive and significant influence on entrepreneurial intention

Entrepreneurial intention and entrepreneurship behavior

Entrepreneurial intention is widely acknowledged to be a significant predictor of entrepreneurial behavior. It reflects attitudes and perceived behavioral control toward entrepreneurship, and it is considered the most direct antecedent of actual entrepreneurial action (Ajzen, 1991; de Sousa et al., 2024). Within the theory of planned behavior (TPB) (Ajzen, 1991), stronger intentions are expected to increase the likelihood of entrepreneurial behavior: a proposition reinforced by recent studies showing that entrepreneurship education programs systematically

strengthen intention–behavior linkages (Lerro et al., 2025). In entrepreneurial contexts, individuals with strong start-up intentions are more likely to engage in concrete behaviors such as venture creation, business strategy, continuity planning, and further innovation (Rajpal and Singh, 2024). Similarly, entrepreneurial intentions have been linked to outcomes such as invention and patenting achievements (Bui et al., 2025), and firm growth and innovation (Zhu et al., 2025). Empirical evidence consistently supports entrepreneurial intention as a robust predictor of behavior. Fayolle and Liñán (2014) emphasized its role in motivating entrepreneurial action: a finding echoed in a systematic review by de Sousa et al. (2024). Likewise, Schlaegel and Koenig (2014) demonstrated in their meta-analysis that entrepreneurial intention strongly predicts entrepreneurial behavior, while Hoang and Luu (2025) extended this by showing that the relationship is mediated by entrepreneurial passion and resilience. Earlier validation is provided in Kautonen et al. (2015), which found that strong entrepreneurial intention translates into actions such as resource acquisition and venture launches, which has been confirmed by more recent digital entrepreneurship studies (Abbas and Uddin, 2025). Meoli et al. (2020) highlighted that entrepreneurial intention enhances perseverance in confronting social and market barriers (Hassan et al., 2024). This conclusion is further supported by Nguyen and Nguyen (2024), who found that intention remains a key driver of entrepreneurial persistence among business and technical students. Accordingly, the following hypothesis is proposed:

H7: Entrepreneurial intention has a positive and significant influence on entrepreneurial behavior

The mediating role of entrepreneurial passion

In this study, entrepreneurial passion has a significant mediating influence between entrepreneurship education and entrepreneurial intention. Entrepreneurship education is concerned mainly with providing technical and business knowledge to entrepreneurs. Uddin et al. (2022) argue, however, that excellent entrepreneurship education not only advances technical skills but also develops affective components, such as entrepreneurial passion, that promote entrepreneurial intentions (see also de Sousa et al., 2024; Nabi et al., 2017). This passion tends to arise from a different set of learning activities, namely hands-on experience, practical business projects, and entrepreneurship simulations, which enable students to become more emotionally engaged and animated about various aspects of entrepreneurship (Gabrielsson et al., 2025; Jena, 2020). Entrepreneurial passion may therefore mediate the effect of entrepreneurship education on entrepreneurial intentions.

Recent studies have further suggested that entrepreneurship education is insufficient to produce high levels of entrepreneurial intention. Such educational programs should cultivate passion for activities such as investing, founding, and development to strengthen participants' intention to start a business in the first place (Hoang and Luu, 2025; Syed et al., 2020). Obschonka et al. (2013), for example, suggested that entrepreneurial passion is essential to convert skills and knowledge into intentions. Individuals who want to create something new (i.e., have a passion for inventing) or to start a business (i.e., have a passion for founding) report stronger intentions to run their own business.

Empirical studies indicate that entrepreneurial passion significantly influences entrepreneurial intention, as individuals with high passion are more motivated to confront entrepreneurial challenges and have stronger intentions to start a new venture (Hoang and Luu, 2025; Kyriakopoulos et al., 2024). Furthermore, Cardon et al. (2017) showed that passion for certain types of entrepreneurs increases resilience and persistence in the face of business challenges, thereby enhancing entrepreneurial intentions. Such entrepreneurial passion may thus be viewed as an internal motivator that transforms the knowledge and expertise obtained through entrepreneurship education into an intention to start a business (Nguyen and Nguyen, 2024). Nurturing

entrepreneurial passion can therefore be viewed as a means of enhancing the effects of entrepreneurship education on entrepreneurial intentions. Doing so is necessary to ensure that people not only have sufficient knowledge and practical skills to start and run their own businesses but also have sufficient emotional motivation to translate their desires into action. Accordingly, the following three hypotheses are proposed:

H8: Entrepreneurial passion for inventing mediates the positive relationship between entrepreneurship education and entrepreneurial intention.

H9: Entrepreneurial passion for founding mediates the positive relationship between entrepreneurship education and entrepreneurial intention.

H10: Entrepreneurial passion for developing mediates the positive relationship between entrepreneurship education and entrepreneurial intention.

While the theoretical frameworks utilised in this study, such as entrepreneurial passion (Cardon et al., 2009) and the Theory of Planned Behaviour (Ajzen, 1991), are well established in entrepreneurship research, this study provides incremental value by applying these models within the context of Indonesian MSMEs, an emerging economy setting that remains underexplored (Liu et al., 2025; Tariq, 2025). This contextual focus is important, as the interplay between entrepreneurship education and entrepreneurial passion may manifest differently in developing economies or student samples (Syed et al., 2020; Thomas, 2022). This distinct finding provides a more precise specification of the role of entrepreneurial passion, moving beyond simple confirmation toward a differentiated theoretical lens that highlights both contextual and affective specificity, responding to calls for greater granularity in entrepreneurship research (Anjum et al., 2021; Lerro et al., 2025).

Method

Research setting

The context for this study is Indonesia, an emerging economy with several characteristics that make it particularly instructive. First, it is important to note that existing studies have tended to be carried out in developed economies, often among university-student populations who may be considering entrepreneurship as an alternative to wage-based employment when they graduate (Syed et al. 2020). The decision to become an entrepreneur in emerging economies, by contrast, tends to stem from necessity. The barriers to entrepreneurship are also greater in such economies, where multiple interlocking barriers inhibit entrepreneurship. Secondly, the Indonesian economy depends heavily on MSMEs for its development. The Coordinating Ministry for Economic Affairs (2025) reports that Indonesia has >64 million MSMEs, which generate 61 % of gross domestic product and employ 97 % of the national workforce. The ANTARA state news agency (2025) reported that MSMEs employ 119 million workers, based on its research. The 60 Decibels (2025) impact study confirmed that MSMEs are a primary economic driver in Indonesia, creating most employment opportunities across all segments of society. Third, the growth of the MSME sector is a major policy goal of the Indonesian government, which supports entrepreneurship education for MSME sustainability by actively promoting digital literacy and expanding entrepreneurship education programs for aspiring entrepreneurs (Coordinating Ministry for Economic Affairs, 2025).

Sample and sampling technique

This study employed a cross-sectional survey design, collecting data from MSME actors and entrepreneurs in Indonesia who had participated in entrepreneurship education through formal lectures or courses.

Procedural phases were implemented, including respondent anonymity, reverse-coded items, and careful questionnaire design to reduce bias. Moreover, although purposive sampling limits generalizability, this technique was applied in this study. This sampling strategy is considered appropriate for targeting respondents with characteristics aligned with the study's objectives. Regarding sample size determination, [Hair et al. \(2019\)](#) explicitly caution against simplistic rules of thumb, such as a fixed number of respondents per item, and recommend power analysis to ensure adequate statistical power. While the sample size of 200 exceeds the minimum threshold for exploratory PLS-SEM models with the given number of indicators, it does not meet the upper bound of more conservative recommendations; thus, the study acknowledges potential limitations in statistical power and generalizability. A total of 360 questionnaires were distributed online via Google Forms in October 2024. Of these, 217 responses were returned (response rate = 60.28 %). After screening, 17 were excluded for incomplete or inconsistent responses, leaving a final sample of 200 valid responses. Although the final sample size exceeded the minimum threshold, it is acknowledged that a larger sample would provide greater statistical power and better accommodate non-response bias.

The respondents predominantly comprised students and alumni who had received entrepreneurship education through diverse modalities, including courses, lectures, project work, internships, formal degree programmes, conferences, workshops, and networking activities, during the period from 2019 to 2024. At the time of data collection, these individuals were typically in their second or third year of education or had recently graduated within the preceding three years. Focusing on this student population who have been exposed to varied forms of entrepreneurship education supports the study's aim to evaluate how such educational interventions influence entrepreneurial passion and subsequent intention and behaviour.

In addition, demographic and firm background data were collected primarily for descriptive purposes to characterise the sample and provide contextual understanding of the entrepreneurial environment. Key variables, including business duration, funding sources, sector, gender, education, income, and age (see [Table 1](#)), provide insights into the heterogeneity of the surveyed MSME entrepreneurs. Although these variables were not included as control variables in the primary structural model, their distribution informs the interpretation of the findings and highlights relevant contextual factors that influence entrepreneurial passion and behaviours. For example, the predominance of respondents with moderate to extensive business experience (over 77 % with >3 years), high educational attainment (98.49 % bachelor's or diploma), and diverse sectoral representation provides a distinct backdrop for understanding the observed relationships.

Measures

The conceptual model used in this study includes entrepreneurship education, entrepreneurial passion, and entrepreneurial intention. The questionnaire was developed based on previously validated scales and adapted to the Indonesian MSME context. Adaptations included contextualizing item wording to reflect the operational realities and cultures of Indonesian MSMEs, thereby ensuring that respondents could accurately relate to the questions. Entrepreneurship education was operationalized as a composite construct reflecting diverse forms of educational exposure. Participants reported on their experiences across six key elements adapted from [Thomas \(2022\)](#) and [Jena \(2020\)](#), encompassing elective entrepreneurship courses, lectures, project work, internships, formal degree programmes (bachelor's or master's level), conferences/workshops, and networking activities among entrepreneurial students. The duration of a bachelor's level is four years, while a master's is two years. The delivery modes are fully offline; however, they operated in online during the COVID-19 pandemic. Moreover, Entrepreneurial passion was measured in three dimensions: inventing (five items), founding (four items), and developing (five items), adapted

Table 1
Demographic profile.

Baseline characteristics	Frequency	Percentage
Business Duration		
< 3 years	45	22.61
3–5 years	80	40.20
> 5 years	74	37.19
Source of Funding		
Personal	117	59.39
Family	74	37.56
Partner	1	0.51
Competition Prize	5	2.54
Business Sector		
Fashion	45	22.61
Culinary	37	18.59
Craft	17	8.54
Visual Communication Design	8	4.02
Photography	16	8.04
Interior Design	10	5.03
Architecture	8	4.02
Agriculture, Plantation, and Livestock	10	5.03
Publishing	8	4.02
Advertising	19	9.55
Cosmetics & Body Care	1	0.5
Gadgets	1	0.5
Transportation and Logistics	7	3.52
Applications	2	1.01
Music	2	1.01
Services	1	0.5
Gender		
Female	121	60.8
Male	78	39.2
Education		
High School	2	1.01
Bachelor/Diploma	196	98.49
Master's	1	0.5
Income		
Rp 1000,000 or less	1	0.5
Rp 1000,001 - 2500,000	8	4.02
Rp 2500,001 - 4000,000	26	13.07
Rp 4000,001 - 5500,000	91	45.73
> Rp. 5500,000	73	36.68
Age Range		
20–24 years	22	11.11
25–29 years	139	70.2
30–34 years	35	17.68
35–39 years	2	1.01

from [Murnieks et al. \(2012\)](#) and [Anjum et al. \(2021, 2023\)](#). Entrepreneurial Intention was measured with six items adopted from [Bazkiaei et al. \(2020\)](#) and [Thomas \(2022\)](#). Complementing these measures, Entrepreneurial Behaviour was assessed with ten items adapted from [Li et al. \(2020\)](#). In total, the survey instrument contained 36 items, excluding the demographic questions (age, gender, and educational background). All items were rated on a seven-point Likert scale ranging from 1 ("strongly disagree") to 7 ("strongly agree").

Data-collection procedure

The survey was administered online in October 2024. Participation was voluntary, and informed consent was obtained electronically before respondents could proceed with the questionnaire. The survey included an information sheet explaining the study's purpose, procedures, and the voluntary nature of participation. All procedures adhered to the ethical standards of the institutional committee and to the 1964 Declaration of Helsinki and its subsequent amendments.

Data analysis

Data analysis was conducted using Partial Least Squares Structural Equation Modeling (PLS-SEM) via SmartPLS software. We argue that PLS-SEM remains appropriate due to its robustness in handling complex

mediation structures, its suitability for exploratory models, and its less stringent distributional assumptions compared to covariance-based SEM (CB-SEM) (Hair et al., 2019). This estimation paradigm is particularly suitable given the study's sample size of 200 and the model's focus on multiple mediations among latent constructs. The data were screened for completeness and consistency before analysis. Descriptive statistics were used to summarise demographic characteristics. Measurement validity and reliability were assessed using PLS-SEM conventions, including outer loadings, Cronbach's alpha, composite reliability, and Average Variance Extracted (AVE). Discriminant validity was evaluated with the Heterotrait-Monotrait Ratio (HTMT).

The ten hypotheses were tested using structural equation modelling with maximum likelihood estimation, which is appropriate for examining mediating effects among latent constructs. Hypotheses were tested

within the PLS-SEM framework using bootstrapping with 5000 resamples to obtain robust t-statistics and significance values. Model fit and predictive relevance were assessed in accordance with SmartPLS standards (Hair et al., 2019).

Given the reliance on single-source, cross-sectional survey data, common method bias (CMB) was a potential concern. Procedural remedies included ensuring respondent anonymity, using reverse-coded items, and carefully designing the questionnaire to mitigate CMB. Additionally, post hoc statistical assessments were conducted using the full collinearity variance inflation factor (VIF) approach within the PLS-SEM framework, with all VIF values observed below the recommended threshold of 3.3, indicating that CMB is unlikely to have materially influenced the results (Kock, 2015). These steps provide confidence in the internal validity of the findings despite the inherent limitations of

Table 2
Measurement test: Mean, outer loading, Cronbach's α, composite reliability and AVE.

Variables	Item	Mean	Outer Loading	Cronbach's α	Composite Reliability	AVE
Entrepreneurship Education	My university offers elective courses on entrepreneurship (EE1)	6.170	0.815	0.847	0.886	0.567
	My university offers project work focused on entrepreneurship (EE2)	6.170	0.812			
	My university offers internships focused on entrepreneurship (EE3)	6.100	0.756			
	My university offers a Bachelor's or Master's study on entrepreneurship (EE4)	5.885	0.767			
	My university arranges conferences/workshops on entrepreneurship (EE5)	5.955	0.691			
	My university brings entrepreneurial students into contact with each other (EE6)	5.725	0.662			
Entrepreneurial Passion for Inventing	It is thrilling to understand new ways to resolve virgin market requirements, which can become realized (EPI1)	5.355	0.915	0.944	0.957	0.816
	I am looking for fresh ideas for products/services to propose and make them realistic (EPI2)	5.070	0.909			
	I am motivated to upgrade the existing products/services (EPI3)	5.195	0.914			
	Coming up with new and improved solutions to problems is an essential part of who I am (EPI4)	5.400	0.890			
	Examining the work environment for fresh opportunities motivates me (EPI5)	5.460	0.890			
Entrepreneurial Passion for Founding	Setting up a new company makes me feel enthusiastic (EPF1)	5.640	0.821	0.836	0.891	0.671
	Having my own business energizes me (EPF2)	5.785	0.849			
	Providing support to a new business model during its emerging success is scintillating (EPF3)	5.815	0.853			
	To be the pioneer of a venture is an essential element of who I am (EPF4)	5.315	0.749			
Entrepreneurial Passion for Developing	I like finding the right people to market my product/service (EPD1)	5.860	0.763	0.817	0.873	0.581
	Assembling the right people to work for my business is exciting (EPD2)	5.845	0.803			
	Pushing my employees and myself to make our company better motivates me (EPD3)	5.920	0.817			
	I really enjoy commercializing new products/services (EPD4)	5.910	0.793			
	Expanding my company by offering new products and services excites me (EPD5)	5.955	0.618			
Entrepreneurial Intention	I am ready to do anything to be an entrepreneur (EI1)	5.390	0.794	0.904	0.926	0.676
	My professional goal is to become an entrepreneur (EI2)	5.600	0.881			
	I will make every effort to start and run my own firm (EI3)	5.650	0.821			
	I am determined to create a firm in the future (EI4)	5.440	0.839			
	I have very seriously thought of starting a firm (EI5)	5.700	0.796			
	I have the firm intention to start a firm 1 day (EI6)	5.425	0.799			
Entrepreneurial Behavior	I have discussed product or business idea with potential customers (EB1)	5.355	0.817	0.946	0.953	0.672
	I have collected information about markets or competitors (EB2)	4.770	0.776			
	I have written a business plan (EB3)	4.490	0.797			
	I have started product/service development (EB4)	4.855	0.754			
	I have started marketing or promotion efforts (EB5)	5.005	0.851			
	I have purchased material, equipment, or machinery for the business (EB6)	5.120	0.867			
	I attempted to obtain external funding (EB7)	5.335	0.844			
	I have applied for a patent, copyright, or trademark (EB8)	5.430	0.812			
	I will register the company (EB9)	5.450	0.831			
	I will sell products or services (EB10)	5.235	0.845			

the design.

Results

Demographic profile

Regarding business experience, the largest group of respondents were MSME actors with a business duration of 3 to 5 years (40.2 %), followed by those with >5 years (37.19 %). This indicates substantial business experience among respondents, such that they have had multiple opportunities to apply their passion and have it tested by the market. Business funding was mostly from personal funds (59.39 %) and family support (37.56 %), with a few respondents receiving funds from competition prizes or business partners. By sector, respondents' businesses were distributed across various fields, with the three largest being fashion (22.61 %), culinary (18.59 %), and advertising (9.55 %). Female respondents were the majority (60.8 %), indicating significant female involvement in MSMEs. Almost all respondents had a bachelor's or diploma-level education (98.49 %), supporting their ability to manage a business. The largest monthly income was in the range of IDR 4000,001–IDR 5500,000 (45.73 %), followed by more than IDR 5500,000 (36.68 %), indicating a generally moderate to high income distribution. Most respondents were aged 25–29 years (70.2 %), indicating considerable potential to further develop their businesses (Table 1).

Measurement model: Fit reliability and validity

Table 2 shows the results of the measurement test for each variable in this study including mean, outer loading, Cronbach's α , composite reliability, and Average Variance Expected (AVE), indicating that the entrepreneurship education variable has a strong outer loading on each item (0.662 to 0.815), with good reliability (Cronbach's $\alpha = 0.847$, composite reliability = 0.886) and adequate convergent validity (AVE = 0.567). Entrepreneurial passion for Inventing showed very strong results with a high outer loading (0.890–0.915), Cronbach's α of 0.944, composite reliability of 0.957, and an AVE of 0.816, indicating very good validity and reliability. Entrepreneurial passion for founding has an outer loading of 0.749–0.853, good reliability (Cronbach's $\alpha = 0.836$ and composite reliability = 0.891), and adequate convergent validity (AVE = 0.671). The Entrepreneurial passion for developing variable shows an outer loading in the range of 0.618 to 0.817, with a Cronbach's α of 0.817, composite reliability of 0.873, and an AVE of 0.581, indicating good consistency and validity, even though there are items with lower loadings (0.618). Entrepreneurial intention showed an outer loading between 0.794 and 0.881, with a Cronbach's α of 0.904, composite reliability of 0.926, and an AVE of 0.676, reflecting high reliability and convergent validity. Finally, entrepreneurial behavior had a consistent outer loading (0.754–0.867), with a Cronbach's α of 0.946, composite reliability of 0.953, and an AVE of 0.672, indicating a very good level of consistency and validity. Overall, the results of this exercise indicate that all variables exhibit good reliability and validity and are suitable for further analysis.

Table 3
Correlations, divergent validity and descriptive statistics.

	EB	EPD	EPF	EPI	EE	EI
Entrepreneurial Behavior						
Entrepreneurial Passion for Developing	0.365					
Entrepreneurial Passion for Founding	0.374	0.887				
Entrepreneurial Passion for Inventing	0.372	0.389	0.370			
Entrepreneurship Education	0.311	0.733	0.688	0.365		
Entrepreneurial Intention	0.297	0.575	0.509	0.233	0.531	

Table 3 presents the results of the Heterotrait-Monotrait Ratio (HTMT) test, which assesses discriminant validity among the variables in this study: entrepreneurial behavior, entrepreneurial passion for developing, entrepreneurial passion for founding, entrepreneurial passion for inventing, entrepreneurship education, and entrepreneurial intention. HTMT values below 0.9 indicate that each pair of variables meets the criteria for good discriminant validity, indicating that each construct is significantly different from each other. All pairs of variables had HTMT values below 0.9, indicating that the two constructs are distinct, even though they may exhibit high correlation. It should be noted that Entrepreneurial Passion for Inventing and Entrepreneurship Education had a relatively low HTMT value of 0.365, indicating a weaker relationship and clear differences between the two variables. Overall, these results indicate that all constructs in this model exhibit sufficient discriminant validity and are suitable for further analysis in the structural model.

Hypothesis testing (Direct effects)

Table 4 shows which of the relationships among the model variables are statistically significant. H1, that Entrepreneurship Education has a positive influence on entrepreneurial passion for inventing, is accepted, with a t-value of 8.821 and a p-value of 0.000. Similarly, H2, that entrepreneurship education has a positive influence on entrepreneurial passion for founding, is accepted ($t = 4.842, p = 0.000$). H6, which examines the influence of Entrepreneurial Passion for Developing on entrepreneurial intention, is significant ($t = 3.811, p = 0.000$), so this hypothesis can be accepted. H7, which relates to the influence of entrepreneurial intention on entrepreneurial behavior, is also accepted ($t = 3.970, p = 0.000$). However, hypotheses H4 and H5, which test the influence of Entrepreneurial Passion for Inventing and Entrepreneurial Passion for Founding on entrepreneurial intention, are not supported (p-values = 0.124 and 0.597, respectively).

Mediation analysis (Indirect effects)

Based on the results of the mediation analysis in Table 5, only one of the three mediation hypotheses was found to be significant. Hypothesis H8, that Entrepreneurial Passion for Inventing mediates the influence of Entrepreneurship Education on entrepreneurial intention, is not accepted ($p = 0.617$). Similarly, Hypothesis H9, that Entrepreneurial Passion for Founding has a mediating effect of Entrepreneurship Education on entrepreneurial intention, is rejected ($p = 0.141$). Only Hypothesis H10, that Entrepreneurial Passion for Developing mediates the influence of Entrepreneurship Education on entrepreneurial intention ($t = 3.084, p = 0.002$), is therefore accepted Fig. 1.

R-Square (R²) value analysis

The values of R-Square (R²) in Fig. 2 show that Entrepreneurship Education and the three entrepreneurial passion variables contribute toward Entrepreneurial Behavior. Entrepreneurial Passion for Inventing shows an R² of 0.174, indicating that entrepreneurial training accounts for 17.4 % of the variance in entrepreneurial passion, whereas Entrepreneurial Passion for Founding shows an R² of 0.134, accounting for 13.4 % of the variance. The strongest R² value for entrepreneurial passion is reflected in Entrepreneurial Passion for Developing at 0.190, meaning that 19 % of the variance is explained. An R² value of 0.285 shows that entrepreneurial passion as a combined variable accounts for 28.5 % of intention to become an entrepreneur, although most of the variance is accounted for by variables other than those included in the model. Entrepreneurial Intention, meanwhile, shows an R² of 0.328, suggesting that 32.8 % of Entrepreneurial Behavior is explained by Entrepreneurial Intention: the largest effect on the model. These R² values demonstrate that while entrepreneurial passion and education explain meaningful portions of variance in entrepreneurial intention and

Table 4
Hypothesis testing (direct effects).

	Standard Deviation (STDEV)	T Statistics (O/STDEV)	P Values	Conclusion
H1: Entrepreneurship Education→Entrepreneurial Passion for Inventing	0.070	8.821	0.000	H1: Accepted
H2: Entrepreneurship Education→Entrepreneurial Passion for Founding	0.070	4.842	0.000	H2: Accepted
H3: Entrepreneurship Education→ Entrepreneurial Passion for Developing	0.095	3.811	0.000	H3: Accepted
H4: Entrepreneurial Passion for Inventing →Entrepreneurial Intention	0.109	1.541	0.124	H4: Rejected
H5: Entrepreneurial Passion for Founding→Entrepreneurial Intention	0.066	0.529	0.597	H5: Rejected
H6: Entrepreneurial Passion for Developing→Entrepreneurial Intention	0.095	3.811	0.000	H6: Accepted
H7: Entrepreneurial Intention→Entrepreneurial Behavior	0.073	3.970	0.000	H7: Accepted

Table 5
Mediation analysis (indirect effects).

	Standard Deviation (STDEV)	T Statistics (O/STDEV)	P Values	Conclusion
H8: Entrepreneurship Education→Entrepreneurial Passion for Inventing→Entrepreneurial Intention	0.024	0.501	0.617	H8: Rejected
H9: Entrepreneurship Education→Entrepreneurial Passion for Founding→Entrepreneurial Intention	0.067	1.476	0.141	H9: Rejected
H10: Entrepreneurship Education→Entrepreneurial Passion for Developing→Entrepreneurial Intention	0.073	3.084	0.002	H10: Accepted

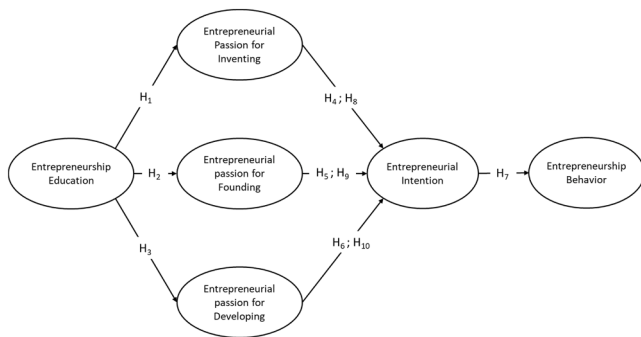


Fig. 1. Conceptual framework.

behaviour, substantial variability remains attributable to other

unmodelled factors. These findings show that entrepreneurial passion, as an outcome of entrepreneurship education, has a substantial effect on entrepreneurial intention and, thereby, entrepreneurial behavior.

Discussion and implications

Discussion

This study aimed to extend the understanding of the relationship between entrepreneurship education and entrepreneurial passion, and how this passion influences entrepreneurial intention and behaviour. More specifically, this study examines how entrepreneurship education shapes different dimensions of entrepreneurial passion, such as inventing, founding, and developing, and how this passion mediates the relationship between entrepreneurship education and entrepreneurial intention. Most of the hypotheses in this study were supported, indicating a strong relationship between entrepreneurship education,

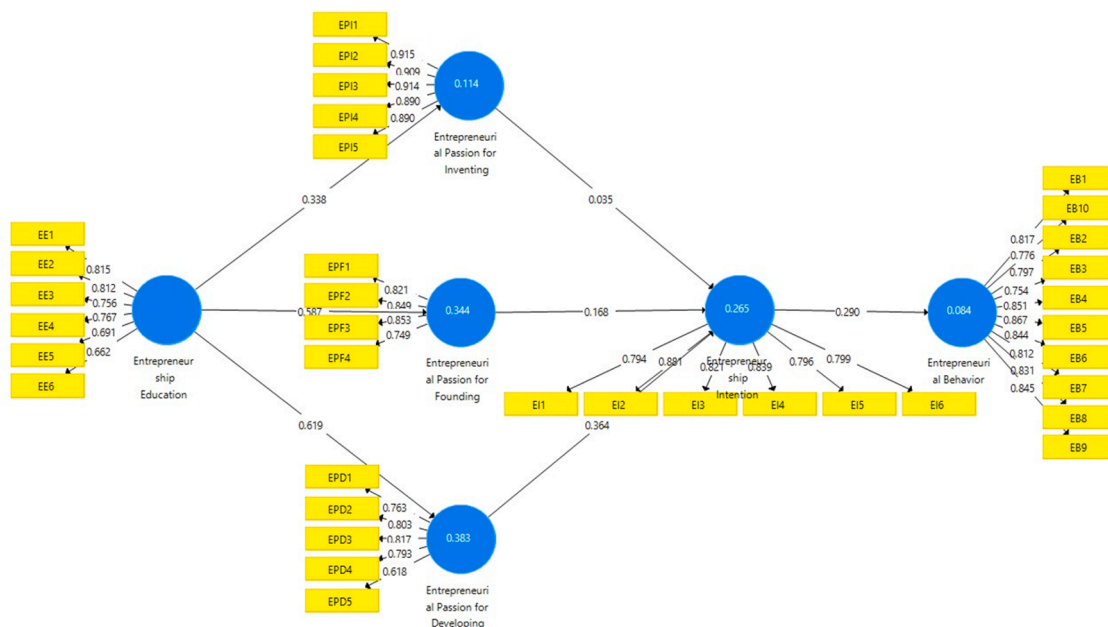


Fig. 2. Outer Loadings Values & R² Values.

entrepreneurial passion, entrepreneurial intention, and entrepreneurial behavior. These findings support the proposed conceptual model in which entrepreneurship education fosters entrepreneurial passion, which further drives entrepreneurial intention. This, in turn, drives entrepreneurial behavior. These results are consistent with previous studies that highlight the importance of entrepreneurship education in shaping entrepreneurial intention through passion.

However, several hypotheses yielded non-significant results, particularly the mediating role of passion for invention and passion for founding. While these findings align with existing studies emphasizing the critical role of entrepreneurship education in fostering entrepreneurial intention, they also highlight the complex and context-dependent nature of these relationships. It is important to interpret these non-significant paths as reflections of how passion's influence may vary across entrepreneurial phases and environments (de Sousa et al., 2024; Fayolle and Liñán, 2014; Nabi et al., 2017). Specifically, the predominance of passion for developing as a mediator aligns with the realities of MSME entrepreneurs in emerging economies—where the emphasis is often on sustaining and expanding existing ventures rather than initial venture creation or innovation (Cardon et al., 2009; Syed et al., 2020; Tariq, 2025). This study thus calls for more nuanced theorization and empirical investigation of how different passion dimensions operate in diverse contexts.

The first hypothesis (H1) regarding the influence of entrepreneurship education on entrepreneurial passion for inventing is supported. This indicates that entrepreneurship education may serve as a catalyst for a strong interest in innovation. Well-structured entrepreneurship education typically encompasses factors that stimulate creativity, critical thinking, and the exploration of new market opportunities, thereby increasing the level of innovation passion (Le and Loang, 2024; Karimi, 2020). In line with Uddin et al. (2022), they are more likely to proactively respond to market changes and challenges by innovating, thereby enhancing their competitiveness.

The second hypothesis (H2), which posits an influence of entrepreneurship education on entrepreneurial passion for founding, is also supported by the study's findings. These results align with the research of Uddin et al. (2022) and Cai, Gu, and Wu (2021), who found that heightened passion among aspiring entrepreneurs significantly predicts their intention to start a business. Passion for founding embodies a profound enthusiasm to establish new ventures, encompassing an intense desire to grow a business, improve the quality of products or services, and identify opportunities for sustainable development (Muzaffar, 2023; Zhu et al., 2025). Such passion motivates individuals to not only initiate startups but also to pursue growth, as thriving is closely linked to business expansion and success (Cardon et al., 2017; Murnieks et al., 2016; Zali and Rezaei, 2025). Neneh (2022) further emphasizes that passion for business development not only predicts entrepreneurial behavioural intentions but also reinforces an individual's commitment to becoming a dedicated entrepreneur. Therefore, entrepreneurship education that effectively fosters this passion can play a crucial role in enhancing entrepreneurial intention and subsequent venture creation.

The third hypothesis (H3), which examines the correlation between entrepreneurship education and entrepreneurial passion for developing, is statistically significant. This suggests the importance of entrepreneurship education in fostering a passion for business development, as individuals with such education tend to have stronger passion and greater motivation to grow a business. This result supports previous studies confirming that entrepreneurship education enhances not only the technical and knowledge aspects but also the affective motivation of individuals to become lifelong learners in the business environment (Ioannou and Retalis, 2025; Thelma et al., 2024). Following Newman et al. (2021), passion for business expansion can be a strong determinant of business performance, as entrepreneurs with such a passion are more persistent in overcoming challenges and more proactive in recognizing opportunities for expansion. As illustrated in Table 1, a substantial proportion of respondents (77.39 %) have businesses older than three

years, indicating that many participants are beyond the emerging start-up phase and are focused more on business growth and consolidation rather than initial venture creation or innovation. This context aligns with the TPB theoretical perspective that experienced entrepreneurs' intentions are influenced not only by cognitive evaluations but also by affective factors such as passion. In other words, passion's role evolves throughout the entrepreneurial lifecycle, with passion for developing and becoming more salient in sustaining long-term entrepreneurial intention and behaviour (Cardon et al., 2009; Kyriakopoulos et al., 2024; Newman et al., 2021).

In comparison, the fourth (H4) and fifth (H5) hypotheses, which examine the direct effects of entrepreneurial passion for founding and entrepreneurial passion for inventing on entrepreneurial intention, are not statistically significant in this study. This indicates that passion (startup/innovation) does not have a direct effect on entrepreneurial intention in this study. From the perspective of the TPB (Ajzen, 1991), entrepreneurial intention is shaped by a combination of cognitive attitudes, subjective norms, perceived behavioural control, and affective components. While passion for inventing and founding may stimulate initial attitudes and exploratory behaviours, these forms of passion may be less proximal to the forward-looking intentions required for sustained entrepreneurial engagement among established MSME entrepreneurs.

One plausible explanation is that passion for inventing and founding, although energizing early-stage entrepreneurial activities, may not be sufficient to sustain entrepreneurial intention without the complementary affective and cognitive drivers associated with business growth and development. This aligns with theoretical arguments that passion for developing reflects a more enduring motivational state linked to planned actions, persistence, and forward commitment in ongoing ventures (Kyriakopoulos et al., 2024; Newman et al., 2021).

The sixth hypothesis (H6), regarding the influence of entrepreneurial passion on developing entrepreneurial intention, is supported. This conclusion complements prior work arguing that passion for business creation motivates individuals to engage in entrepreneurial activities (Biraglia and Kadile, 2017; Karimi, 2020; Kyriakopoulos et al., 2024; Neneh, 2022). People who are passionate about business development are more likely to take actions aimed at expanding and enhancing business performance by exploring new business opportunities, developing expansion strategies, and optimizing available resources (Murad et al., 2021). This passion serves as an incentive to translate intentions into behavior, as business development is more actively driven by those with greater motivation to persist in managing their business (Chen et al., 2022; Kyriakopoulos et al., 2024).

The seventh hypothesis (H7), the influence of entrepreneurial intention toward entrepreneurial behavior, is also significant, meaning that entrepreneurial intention plays a key role in supporting an individual to engage in real entrepreneurship. This is in line with the TPB (Ajzen, 1991) which posits that intention is a direct predictor of behavior. In this vein, people with high entrepreneurial intention will express the behavior of starting, running, and growing a business (Chaudhary and Biswas, 2024; Nguyen and Nguyen, 2023). This is also in line with the literature, which demonstrates that EI is a driver of behaviors and that such behaviors encompass developing business strategies, networking, recognizing opportunities, and being innovative on a regular basis (Alshebami et al., 2024; Fayolle and Liñán, 2014; Kautonen et al., 2015). This result underscores the idea that high intention is not merely a plan or wish; rather, it is a fundamental motivator to put steps in place to attain entrepreneurial desire.

The results of the mediation hypothesis test indicated that only one of the three mediation hypotheses was significant. Hypothesis eight (H8), which tests the mediating role of entrepreneurial passion for inventing in the relationship between entrepreneurship education and entrepreneurial intention, was rejected due to the nonsignificant effect. This indicates that although entrepreneurship education can encourage passion for founding a business, passion is not sufficiently strong to mediate the relationship between entrepreneurship education and

entrepreneurial intention. This finding is consistent with the research of Dalborg and Wincent (2015), which suggests that passion for founding a business tends to be more motivating in the early stages of entrepreneurship but may be less relevant as a driver of sustainable entrepreneurial intention in later stages.

Similarly, hypothesis nine (H9), which examines the mediating role of entrepreneurial passion for founding, was also rejected due to non-significance. These results indicate that passion for founding, although influenced by entrepreneurship education, does not significantly mediate the relationship between entrepreneurship education and entrepreneurial intention in this context. Farhangmehr et al. (2016) support this finding, showing that passion for innovation is often associated with intrinsic motivation to experiment and explore but does not always lead to consistent intentions to start a new venture, especially if this passion is not accompanied by an orientation toward business development.

The hypothesis ten (H10), which examines entrepreneurial passion for developing as a mediator between entrepreneurship education and intention, demonstrates statistical significance and is accepted. The findings show that entrepreneurship education fosters a passion for business development, which in turn strengthens entrepreneurial intention. The research of Cardon et al. (2009) and Muzaffar (2023) supports this finding because they discovered that business development passion is the most important factor for sustaining enduring entrepreneurial intentions. Passion drives people to deepen their business commitment, leading to enduring entrepreneurial intentions and a stronger focus on business development. The findings demonstrate that passion for development functions as a stronger mediator between entrepreneurship education and entrepreneurial intention than passion for founding or innovation does in this context.

It is also important to acknowledge that the current model does not incorporate control variables such as business duration, sector, gender, income, or institutional support—factors widely documented to influence entrepreneurial passion and behaviour. The omission of these exogenous determinants constitutes a limitation that may bias estimates and restrict the generalizability of findings. As TPB suggests, such contextual factors shape core antecedents, such as attitudes and perceived behavioural control, which are critical to intention formation and behaviour enactment (Ajzen, 1991; Rauch and Hulsink, 2015).

Theoretical implications

This study offers several important theoretical contributions to entrepreneurship literature. First, the study provides incremental evidence on how entrepreneurship education fosters entrepreneurial passion, whereas previous research has tended to focus on educational outcomes related to skills and knowledge (Fayolle and Liñán, 2014; Nabi et al., 2017). The research demonstrates that entrepreneurship education cultivates emotional drivers, specifically passion. This suggests that entrepreneurship education requires not only cognitive learning to develop technical knowledge but also affective learning to develop passion.

Second, whereas research literature tends to depict entrepreneurial passion as a single-item construct (Cardon et al., 2017; Newman et al., 2021), this study demonstrates that, among the three forms of passion, only passion for developing plays a significant mediating role in the relationship between entrepreneurship education and entrepreneurial intention. Passion for inventing and founding did not show significant influences, highlighting that specific forms of passion—not passion in general—drive entrepreneurial intention. As the evidence shows, only development passion plays a significant mediating role in the relationship between entrepreneurship education and entrepreneurial intention, whereas inventing and founding passion do not, thereby providing a clearer theoretical framework for understanding what drives entrepreneurial intention. The evidence indicates that development passion is the only significant pathway linking entrepreneurship education to

entrepreneurial intention, whereas passion for invention and founding does not contribute.

Third, it is acknowledged that the decomposition of entrepreneurial passion into inventing, founding, and developing is derived from prior work and does not in itself constitute a novel theoretical mechanism. However, this study advances the field by empirically testing these dimensions in the underexplored context of Indonesian MSMEs, thereby revealing differential influences of these passion dimensions on entrepreneurial intention. This differentiation moves beyond aggregate conceptualizations to offer a more granular understanding of passion's role, which is crucial for tailoring entrepreneurship education interventions and theory to specific entrepreneurial phases and contexts.

The study contributes to the application of the TPB in entrepreneurship research by confirming the interplay between cognitive and affective factors. Research conducted prior to this study focused primarily on cognitive factors, including attitudes, subjective norms, and perceived behavioural control (Ajzen, 1991; Kautonen et al., 2015). The current findings confirm that entrepreneurship education not only builds cognitive skills but also stimulates emotional drivers (specifically, the development of passion), which transform learning into entrepreneurial intentions and behaviour. This integration refines existing models by linking rational choice perspectives with emotional motivations, albeit within the specific context of Indonesian MSMEs.

Nevertheless, it should be emphasised that the contributions of this study are context-specific and build incrementally on existing theory rather than representing a radical theoretical advance. The contextual focus on developing-economy MSMEs enriches the descriptive literature and suggests avenues for more nuanced theory development that accounts for environmental and institutional factors unique to emerging markets. Such contextualization is particularly relevant for strategy-oriented journals seeking to understand how entrepreneurship processes differ across economic contexts (Syed et al., 2020; Tariq, 2025). The findings extend prior work predominantly conducted in developed economies or student populations (Nabi et al., 2017; Syed et al., 2020) by demonstrating how entrepreneurship education and passion operate within developing economy MSMEs. This contextual focus enriches the literature by revealing how environmental and institutional factors unique to emerging markets shape the education–passion–intention–behaviour relationship.

Practical implications

The findings indicate that entrepreneurship education yields optimal outcomes by equipping students with practical skills and a passion for business development. Thus, educational institutions need to develop curricula that replace traditional business planning and technical management education by integrating experiential learning methods, including simulations, incubator projects, and mentorship programs to foster affective engagement alongside cognitive skill acquisition (Cai et al., 2021; Lerro et al., 2025; Uddin et al., 2022). Students can learn about successful MSME growth through case studies of small businesses that achieve sustainability as these examples demonstrate how passion for business expansion leads to long-term success and venture sustainability. In addition, entrepreneurs and MSME owners should focus on cultivating a passion for business development rather than starting new ventures. The combination of technical financial management training, resilience and innovation, and motivational development modules in workshops helps entrepreneurs remain on track during uncertain times and market fluctuations by teaching digital adoption and product diversification techniques to enhance competitiveness. Moreover, the literature recognizes that different entrepreneurship education models vary in effectiveness depending on contextual factors such as resource availability, culture, and institutional support (Cai et al., 2021; Syed et al., 2020). For MSMEs in emerging economies like Indonesia, tailored approaches that emphasise sustainable growth and resilience-building are particularly critical (Tariq, 2025). Governments and policymakers

should support such adaptive programmes through targeted incentives, accelerator initiatives, and university-MSME partnerships that bridge education with practical business expansion (Hassan et al., 2021).

Governments should develop educational programs for sustainable entrepreneurship that link learning materials to skill development and motivational elements. The establishment of national entrepreneurship labs and accelerators, which unite educational programs with mentoring services and university-MSME partnerships, will achieve this goal by making academic programs lead to actual business expansion. The programs would help new business owners develop the determination needed to sustain their businesses and continue growing beyond their first year of operation. A sustainable entrepreneurial ecosystem requires comprehensive entrepreneurship education that teaches both technical skills and emotional competencies, as well as practical business knowledge. The development of entrepreneurs who combine startup business skills with sustainable business-building capabilities for national economic growth will result from the link between education and stakeholder-driven passion-based development.

It is recognized that various models exist for promoting entrepreneurship education, yet not all programs are equally effective across contexts. This study highlights the need to tailor educational strategies to local conditions, especially in resource-constrained emerging economies. Government and institutional incentives should support scalable and adaptable programs that foster entrepreneurial passion alongside technical competencies, facilitating sustained venture growth and ecosystem development (Tariq, 2025; Hassan et al., 2021). Future program design and policy should therefore consider the heterogeneity of MSME sectors, the stage of entrepreneurial experience, and cultural factors to leverage entrepreneurship education's potential fully. By aligning pedagogical approaches with these contextual realities, educators and policymakers can enhance the effectiveness of entrepreneurship interventions, fostering resilient and growth-oriented entrepreneurial ecosystems.

Limitations and future research

The limitations in this research must be acknowledged. First, the study employed a cross-sectional design; therefore, it was not possible to measure changes in the dynamics between entrepreneurial passion and entrepreneurial intention over time. Longitudinal studies in the future would more clearly demonstrate how entrepreneurial passion and intention change and influence one another over the long term. Second, the study employed purposive sampling of MSMEs who had received entrepreneurship education. This restricts the external validity of the findings to other settings, such as among entrepreneurs without formal entrepreneurial education or in other business sectors. Further studies with more varied sampling techniques and other categories of entrepreneurs would further increase the external validity of these results. Third, the current research operationalized entrepreneurial passion in three broad dimensions – inventing, founding, and developing – which might not be as inclusive as measuring every facet of passion in entrepreneurship. Future research can seek to measure more precise dimensions of passion or those applicable to other cultures and industries. Fourth, measuring other constructs, such as social support or entrepreneurial climate, could provide a better understanding of the determinants of entrepreneurial intention and behavior. Future studies are likely to refine this model to better integrate and examine the interactions among variables in different entrepreneurial settings. Additionally, the omission of key exogenous and control variables presents a significant limitation that may affect the precision and validity of the estimated relationships. Institutional, economic, and social contextual factors—widely recognised as influential in entrepreneurial motivation and behaviour (Ajzen, 1991; Rauch and Hulsink, 2015)—were not incorporated into the current model. This omission may lead to biased estimates and over- or underestimation of the influence of entrepreneurship education and entrepreneurial passion on intention and

behaviour. Therefore, the interpretation of findings should be made with caution, recognising that a substantial portion of the variance in entrepreneurial outcomes was unexplained by the model. Future research should explicitly consider incorporating a parsimonious set of justified control variables—such as business duration, sector, gender, income, and institutional support measures—to enhance model robustness, capture boundary conditions, and improve the generalizability of results. Integrating these controls would facilitate a more comprehensive and realistic understanding of how entrepreneurship education and passion interact with broader environmental factors to influence entrepreneurial intention and behaviour, particularly in emerging economies.

CRedit authorship contribution statement

Inggang Perwangsa Nuralam: Writing – original draft, Visualization, Validation, Project administration, Methodology, Investigation, Formal analysis, Data curation, Conceptualization. **Edlyn Khurotul Aini:** Writing – original draft, Visualization, Validation, Project administration, Methodology, Investigation, Formal analysis, Data curation, Conceptualization. **Wirawan Dony Dahana:** Writing – original draft, Visualization, Validation, Project administration, Methodology, Investigation, Formal analysis, Data curation, Conceptualization. **Erose Sthapit:** Writing – review & editing, Methodology, Conceptualization. **Brian Garrod:** Writing – review & editing, Methodology, Conceptualization. **Rupam Konar:** Writing – review & editing, Methodology, Conceptualization.

Declaration of competing interest

The authors declare that they have no known competing financial interests or personal relationships that could have appeared to influence the work reported in this paper.

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