

Entrepreneurship Education, Capability Development, and SME Performance in a Developing Economy: Evidence from Indonesia

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Abstract: Entrepreneurship education and training (EET) is widely promoted as a strategic instrument to strengthen small and medium-sized enterprises (SMEs) and support inclusive economic development in emerging economies. However, empirical evidence on how EET translates into superior SME performance remains mixed, particularly in contexts characterized by institutional constraints and resource scarcity. This study aims to examine whether the effects of EET on SME performance operate primarily through entrepreneurial competence and entrepreneurial intention or whether EET exerts a more direct influence on business outcomes. The study draws on survey data from 400 SME owners in five cities in East Java, Indonesia. The relationships between EET, entrepreneurial competence, entrepreneurial intention, and SME performance were analyzed to test both direct and mediated pathways linking education to firm performance. The results show that EET has a positive and significant direct effect on SME performance and significantly enhances both entrepreneurial competence and entrepreneurial intention. Entrepreneurial competence also positively influences entrepreneurial intention. However, neither competence nor intention significantly affects SME performance, and neither variable mediates the relationship between EET and performance. These findings reveal a persistent intention–action gap under institutional weakness and resource constraints, where improvements in skills and motivation do not automatically translate into superior firm outcomes. The study demonstrates that education-driven capability building alone is insufficient to generate sustainable SME growth and highlights the need to integrate EET with broader ecosystem support to enable performance gains.

Keywords: emerging economies; entrepreneurial competence; entrepreneurship education; intention–action gap; SME performance

Introduction

Entrepreneurship is widely recognized as a strategic driver of economic development, particularly in emerging economies where small and medium-sized enterprises (SMEs) account for the majority of employment and value creation (Tshikovhi et al., 2023). In Indonesia, SMEs represent more than 99% of all businesses and play a central role in poverty reduction and livelihood generation. Despite their importance, SME growth remains constrained by managerial weaknesses, limited digital capability, and persistent institutional inefficiencies (Zhu et al., 2023). These challenges raise a critical development question: to what extent can entrepreneurship education and training (EET) strengthen the capabilities that SMEs need to compete, adapt, and grow under conditions of resource scarcity (Aftab et al., 2022; Duong et al., 2024; Soomro et al., 2024).

A growing body of research suggests that EET improves business knowledge, managerial practices, and entrepreneurial motivation, and may enhance firm performance (Abdul et al., 2023; Amani et al., 2024; Ying et al., 2025). Studies grounded in Human Capital Theory and the Resource-Based View argue that education builds valuable

competencies that can generate competitive advantage (Barney, 1991; Unger et al., 2011). At the same time, behavioral theories such as the Theory of Planned Behavior emphasize entrepreneurial intention as a key psychological mechanism linking education to entrepreneurial action (Ajzen, 1991). However, empirical findings remain mixed, especially in developing-country contexts. While many studies report positive effects of EET on competence and intention, evidence on whether these factors translate into superior SME performance is inconsistent (Duong et al., 2024; Ndibalema et al., 2024; Soomro et al., 2024). This inconsistency reflects an ongoing debate around the “intention–action gap,” whereby entrepreneurs acquire skills and motivation but fail to convert them into measurable business outcomes due to institutional voids, financing constraints, weak digital infrastructure, and regulatory frictions (Abbasiachavari & Moritz, 2021; Cui et al., 2021).

Another limitation of existing research is its strong focus on students and nascent entrepreneurs. Such samples provide limited insight into the realities faced by practicing SME owners who operate under real market pressures, financial constraints, and governance weaknesses (Mujtaba et al., 2025). As a result, the mechanisms through which EET affects performance among established SMEs remain insufficiently understood, particularly in emerging economies (Olalekan, 2024).

This study addresses these gaps by examining how EET influences entrepreneurial competence, entrepreneurial intention, and SME performance among practicing SME owners in Indonesia. Specifically, it tests whether EET primarily affects performance through competence- and intention-based pathways or whether it exerts a more direct influence on business outcomes. The findings show that while EET significantly strengthens competence, intention, and firm performance, neither competence nor intention independently translates into higher performance, revealing a persistent intention–action gap. These results demonstrate that education-driven capability-building alone is insufficient to sustain SME growth without complementary institutional and ecosystem support.

Literature Review

Entrepreneurship Education and Training (EET)

Entrepreneurship education and training (EET) is widely regarded as a strategic intervention for strengthening SME capabilities and fostering inclusive economic growth, particularly in emerging economies. Prior studies show that EET enhances business formalization, innovation adoption, and integration into value chains (Nikmatullah & Adnan, 2025; Sakib et al., 2022; Soomro et al., 2024). By facilitating knowledge transfer and skill acquisition, EET improves entrepreneurs’ capacity to identify opportunities, mobilize resources, and respond to market and environmental uncertainty.

Empirical evidence further indicates that EET directly improves managerial practices, business legitimacy, and network access (Abdul et al., 2023; Amani et al., 2024). At the same time, EET also operates through indirect mechanisms by shaping psychological attributes and competence formation (Ying et al., 2025). However, in resource-constrained contexts, the effectiveness of EET depends heavily on complementary institutional conditions, such as access to finance and digital infrastructure (Singh et al., 2022). These findings suggest that EET functions as both a capability-building mechanism and a psychological stimulus, potentially influencing SME performance through multiple pathways.

Entrepreneurial Intention

Entrepreneurial intention represents a cognitive state of readiness to engage in entrepreneurial behavior and is widely considered a key antecedent of entrepreneurial action. According to the Theory of Planned Behavior (TPB), intention is shaped by attitudes, subjective norms, and perceived behavioral control, all of which can be strengthened through EET (Jundulloh & Nasution, 2024). EET enhances self-efficacy, perceived capability, and opportunity recognition, thereby fostering stronger entrepreneurial intentions (Otache et al., 2024). Self-efficacy, in particular, plays a mediating role in linking education to entrepreneurial outcomes (Yousaf et al., 2021). Evidence from Tanzania shows that entrepreneurs with higher self-efficacy achieve superior financial and non-financial performance (Ndibalema et al., 2024). Moreover, entrepreneurial intention is not formed in isolation but is influenced by competence endowments. Entrepreneurs with stronger managerial and cognitive capabilities tend to perceive themselves as better prepared to initiate and grow businesses, leading in higher intention levels.

Entrepreneurial Competence

Entrepreneurial competence encompasses cognitive, managerial, interpersonal, and digital capabilities that enable entrepreneurs to innovate, manage operations, and respond to environmental change (Pennetta et al., 2023). Human Capital Theory conceptualizes competence as an outcome of learning investments. At the same time, the Resource-

Based View (RBV) frames it as a valuable, rare, and difficult-to-imitate resource that can generate competitive advantage (Al Mamun et al., 2018). Empirical studies indicate that competence mediates the effects of knowledge, skills, and networks on business outcomes (Soomro et al., 2024) and strengthens the influence of entrepreneurial orientation on SME performance (Setiani et al., 2024). In environmentally oriented enterprises, competence also interacts with entrepreneurial leadership to promote innovation and sustainability (Jundulloh & Nasution, 2024). Nevertheless, competence alone may be insufficient when structural constraints such as limited access to finance or inadequate technology restrict its productive deployment.

SME Performance

SME performance comprises both financial indicators (e.g., sales growth and profitability) and broader development outcomes such as innovation, job creation, and sustainability. From an RBV perspective, performance depends on the alignment between internal capabilities and external opportunities (Barney, 1991; Unger et al., 2011). Within the Business Strategy and Development (BSD) framework, SME performance also contributes to poverty reduction, improved well-being, and inclusive growth.

EET may influence SME performance through multiple channels. Direct effects may arise from improved strategic orientation, enhanced legitimacy, expanded business networks, and stronger integration into supply chains (Qi et al., 2017; Sullivan & Marvel, 2011; Zimmerman & Zeitz, 2002). Indirect effects operate through entrepreneurial competence and intention, which shape innovation, decision-making quality, and strategic adaptability (Judijanto et al., 2025; Soomro et al., 2024). However, empirical findings in developing-country contexts remain mixed, mainly due to financing constraints and weak infrastructure (Ndibalema et al., 2024; Setiani et al., 2024). These inconsistencies raise questions about whether competence and intention can effectively translate into performance gains under institutional constraints.

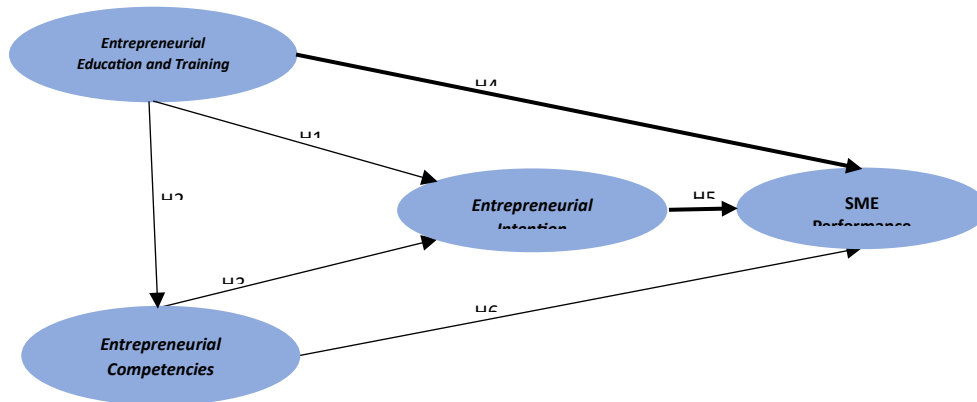
Hypotheses Development

Building on the above theoretical arguments and empirical evidence, this study proposes that EET affects SME performance through both direct and indirect pathways involving entrepreneurial competence and entrepreneurial intention. The following hypotheses are formulated:

- H1:** Entrepreneurship education and training positively influence entrepreneurial intention.
- H2:** Entrepreneurship education and training positively influence entrepreneurial competence.
- H3:** Entrepreneurial competence positively influences entrepreneurial intention.
- H4:** Entrepreneurship education and training positively influence SME performance.
- H5:** Entrepreneurial intention positively influences SME performance.
- H6:** Entrepreneurial competence positively influences SME performance.

The conceptual model (Figure 1) thus specifies two pathways from EET to SME performance:

Figure 1: Research Model



Source: Developed by the authors (2025)

Materials and Methods

Research Design and Context

This study employed a quantitative, cross-sectional survey design to examine the direct and indirect effects of entrepreneurship education and training (EET) on entrepreneurial competence, entrepreneurial intention, and SME performance. This design is appropriate for testing theory-driven relationships among latent constructs. It aligns with the Business Strategy and Development (BSD) perspective, which emphasizes how business interventions contribute to development outcomes by fostering capabilities.

The study was conducted in East Java, Indonesia, an economically significant province characterized by a high concentration of SMEs and strong regional entrepreneurship policies. East Java is a major contributor to national GDP and employment, making it a relevant setting for analyzing how capability-building interventions such as EET shape SME performance in emerging-economy contexts. Five cities Surabaya, Malang, Sidoarjo, Jember, and Banyuwangi were purposively selected based on three criteria: (1) a high density of active SMEs as reported by the East Java Cooperatives and MSME Office; (2) the availability of EET programs within the previous two years; and (3) geographic diversity reflecting variation in industrialization levels and local development trajectories.

Sampling and Data Collection

The target population consisted of registered SME owners operating in the five selected cities. Eligibility criteria were: (a) a minimum of two years of continuous business operations; (b) annual revenues between IDR 300 million and IDR 2.5 billion (approximately USD 20,000–170,000); and (c) participation in entrepreneurship-related programs within the past three years. SMEs affiliated with large corporations, operating in the agricultural sector, or engaged in semi-legal activities were excluded. Agricultural SMEs were omitted because their structurally distinct production systems and value chains could confound comparisons with non-agricultural enterprises.

A stratified proportional random sampling technique was employed to ensure representation across sectors, firm sizes, and geographic locations. Sampling frames were compiled from government SME registries and training-program databases. Random selection within each stratum used computer-generated sequences, and replacement procedures were applied to manage non-responses. Of the 485 SMEs contacted, 400 completed the questionnaire, yielding an effective response rate of 82.5%.

Data collection was conducted between February and April 2025. To enhance inclusiveness and reduce response burden, 35% of questionnaires were administered digitally and 65% through face-to-face interviews. Trained enumerators followed standardized field protocols to ensure data quality, minimize interviewer bias, and promote consistent administration. This mixed-mode approach was appropriate for a developing-economy context characterized by uneven access to digital infrastructure.

Measures and Instrumentation

Four latent constructs were measured using previously validated instruments adapted to the Indonesian SME context:

- **Entrepreneurship Education and Training (EET):** Thirteen items adapted from (Singh & Dwivedi, 2023), capturing exposure to structured training, informal learning, and experiential entrepreneurship programs.
- **Entrepreneurial Competence:** Five items derived from (Man et al., 2002), measuring managerial, interpersonal, and opportunity-recognition capabilities.
- **Entrepreneurial Intention:** Five items adapted from (Liñán & Fayolle, 2015), capturing motivation, behavioral readiness, and opportunity pursuit.
- **SME Performance:** Five items from (Wiklund & Shepherd, 2005), assessing financial growth, competitive positioning, and sustainability outcomes.

All items were measured on a five-point Likert scale (1 = strongly disagree; 5 = strongly agree). The instruments underwent expert review and back-translation to ensure content validity and cultural relevance. A pilot study with 30 SME owners indicated satisfactory internal consistency (Cronbach's $\alpha = 0.82\text{--}0.91$), resulting in minor wording revisions for clarity.

Analytical Approach

Data were analyzed using Partial Least Squares Structural Equation Modeling (PLS-SEM) with SmartPLS 4.0. PLS-SEM was selected because it accommodates complex research models, performs well under non-normal data conditions, and is suitable for predictive and theory-development research involving SMEs in developing economies.

The analysis followed a two-step procedure. First, the measurement model was evaluated for reliability and validity, including internal consistency (Cronbach's alpha and Composite Reliability), convergent validity (indicator loadings > 0.70 and Average Variance Extracted [AVE] > 0.50), and discriminant validity (Fornell–Larcker criterion and Heterotrait–Monotrait [HTMT] ratio). Second, the structural model was assessed using a bootstrapping procedure with 5,000 subsamples to test direct, indirect, and total effects. Model fit was examined using the standardized root mean square residual (SRMR < 0.08), normed fit index (NFI > 0.90), and RMS theta (< 0.12). Mediation effects were evaluated using bias-corrected confidence intervals following (Hair et al., 2021), enabling the assessment of both cognitive–psychological and capability-based pathways linking EET to SME performance.

Ethical Considerations

Ethical principles were strictly observed throughout the study. Participants received clear information about the research objectives, the voluntary nature of participation, and the confidentiality of responses. Informed consent was obtained before data collection. All data were anonymized and stored on password-protected servers. Field protocols emphasized cultural sensitivity and ethical engagement, consistent with institutional and national research ethics standards.

Respondent Profile

Of the 400 respondents, 67.3% were female, and 84% were between 21 and 42 years old. Most respondents had completed senior high school (50.3%) or a bachelor's degree (34.8%). The majority operated microenterprises (92.8%), with over 90% operating for 1-11 years. This profile highlights the dominance of microenterprises in Indonesia and underscores the importance of capability-enhancing interventions, such as EET, for strengthening SME resilience, competitiveness, and livelihood outcomes.

Table 1: Demographic Respondent

No	Demographic	Classification	Number of Respondents	Percentage
1	Gender	Female	269	67,25
		Male	131	32,75
2	Age	21–31	186	46,50
		32–42	150	37,50
		43–53	53	13,25
		54–64	11	2,75
3	Education Level	Junior High School	20	5,00
		Senior High School	201	50,25
		Diploma I/II	10	2,50
		Diploma III	22	5,50
		Bachelor's Degree	139	34,75
		Master's Degree	8	2,00
4	Business Duration (years)	1–11	371	92,75
		12–22	26	6,50
		23–33	3	0,75
5	Number of Employees	1–21	371	92,75
		22–42	16	4,00
		43–63	8	2,00
		64–84	2	0,50
		85–105	3	0,75

Source: Survey data processed by the authors (2025)

Results and discussion

This study employed Partial Least Squares Structural Equation Modeling (PLS-SEM) to test the proposed dual-pathway framework linking entrepreneurship education and training (EET) to SME performance. The analysis proceeded in three stages: (1) evaluation of the measurement model, (2) assessment of the structural model, and (3) mediation analysis.

Measurement Model Evaluation

Convergent validity was established, as all indicator loadings exceeded the recommended threshold of 0.70 (Hair et al., 2021), ranging from 0.785 to 0.933 (Table 2). These results indicate strong alignment of the item constructs across EET, entrepreneurial competence, entrepreneurial intention, and SME performance.

Table 2: Outer Loadings

Variable	Dimension	Factor Loading
<i>Entrepreneurial Education And Training</i>	LP 1	0,865
	LP 2	0,852
	LP 3	0,892
	MK 1	0,837
	MK 2	0,906
	MK 3	0,877
	MK 4	0,858
	ENP 1	0,874
	ENP 2	0,878
	ENP 3	0,874
	PBP 1	0,785
	PBP 2	0,896
	PBP 3	0,865
<i>entrepreneurial competencies</i>	EC 1	0,809
	EC 2	0,848
	EC 3	0,813
	EC 4	0,799
	EC 5	0,803
<i>entrepreneurial intention</i>	EI 1	0,791
	EI 2	0,881
	EI 3	0,890
	EI 4	0,833
	EI 5	0,853
<i>SME Performance</i>	SME 1	0,892
	SME 2	0,933
	SME 3	0,901
	SME 4	0,899
	SME 5	0,857

Source: SmartPLS Output, processed by the authors (2025)

Internal consistency reliability was confirmed, with Cronbach's alpha and Composite Reliability (CR) values exceeding 0.70 for all constructs. Average Variance Extracted (AVE) values were above the 0.50 threshold, indicating

adequate convergent validity (Table 3). Discriminant validity was supported by both the Fornell–Larcker criterion and HTMT ratios, confirming that all constructs were empirically distinct (Roemer & Schuberth, 2021).

Table 3: Results of Composite Reliability and Cronbach's Alpha Tests

Variables and Indicators	Cronbach's alpha	Composite reliability (rho_a)	Composite reliability (rho_c)	AVE
Entrepreneurial Education and Training	0,941	0,942	0,948	0,585
LP	0,839	0,841	0,903	0,757
MK	0,892	0,895	0,925	0,757
PBP	0,806	0,809	0,886	0,722
ENP	0,848	0,850	0,908	0,767
Entrepreneurial Competency	0,873	0,874	0,908	0,664
Entrepreneurial Intention	0,904	0,910	0,929	0,723
SME Performance	0,939	0,943	0,953	0,804

Source: SmartPLS Output, processed by the authors (2025)

Model fit indices indicated satisfactory model adequacy (SRMR = 0.065 < 0.08). The R² values for entrepreneurial competence (0.607), entrepreneurial intention (0.582), and SME performance (0.586) suggest moderate explanatory power. Positive Q² values further confirm predictive relevance. Together, these results indicate that the measurement model provides a reliable foundation for subsequent structural analysis.

Structural Model Results and Hypothesis Testing

The structural model results (Table 4) show that four of the six hypotheses were supported. EET exerted significant positive effects on entrepreneurial intention ($\beta = 0.257, p < 0.001$), entrepreneurial competence ($\beta = 0.779, p < 0.001$), and SME performance ($\beta = 0.597, p < 0.001$). Entrepreneurial competence also significantly influenced entrepreneurial intention ($\beta = 0.517, p < 0.001$), supporting the competence–intention linkage.

In contrast, neither entrepreneurial intention ($\beta = 0.058, p = 0.405$) nor entrepreneurial competence ($\beta = -0.003, p = 0.976$) significantly predicted SME performance. These findings indicate that, although EET strengthens both cognitive readiness and capability development, these internal resources do not automatically translate into firm-level performance gains.

Overall, EET emerged as the dominant predictor of both psychological outcomes and business performance. This pattern highlights the primacy of educational inputs while simultaneously revealing an intention–action gap in resource-constrained environments. As shown in Figure 2, the EET construct is represented by four dimensions: training environment, skill motivation, professional values, and project-based training, capturing the diversity of learning experiences that shape entrepreneurial competence and intention.

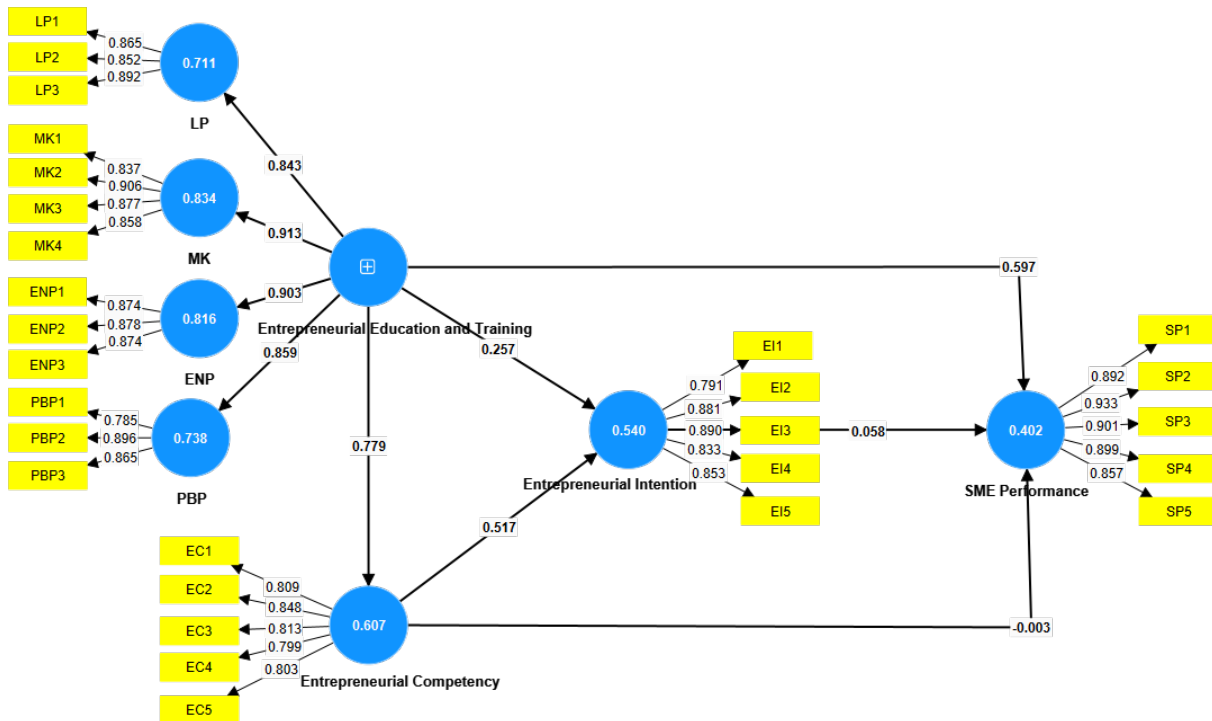
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Table 4: Research Hypothesis Testing Results

Structural Model	Path Coefficient	T Statistics	P Values	Description
Entrepreneurial Education and Training → Entrepreneurial Intention	0,257	3,719	0,000	Accepted
Entrepreneurial Education and Training → Entrepreneurial Competency	0,779	24,474	0,000	Accepted
Entrepreneurial Competency → Entrepreneurial Intention	0,517	7,197	0,000	Accepted
Entrepreneurial Education and Training → SME Performance	0,597	5,225	0,000	Accepted
Entrepreneurial Intention → SME Performance	0,058	0,833	0,405	Not Accepted
Entrepreneurial Competency → SME Performance	-0,003	0,030	0,976	Not Accepted

Source: SmartPLS Output, processed by the authors (2025)

Figure 2: Measurement of the Outer Model



Source: SmartPLS Output (2025)

Building on these findings, we further investigated potential indirect pathways through mediation analysis. The absence of significant effects from intention and competency on performance may reflect a misalignment between

motivation and operational execution. In resource-constrained environments like Indonesia, having intention alone may not lead to improved outcomes without external enablers, such as access to financing, infrastructure, or market readiness. This points to the need for integrated support systems that go beyond cognitive development.

Mediation Analysis

Mediation effects were tested using a bootstrapping procedure with 5,000 subsamples and 95% bias-corrected confidence intervals (Hair et al., 2021). The indirect impact of EET on SME performance via entrepreneurial intention was not significant ($\beta = 0.015, p = 0.412$), nor was the indirect effect via entrepreneurial competence ($\beta = -0.002, p = 0.978$). The serial mediation pathway from EET through competence and intention to performance was also unsupported ($\beta = 0.021, p = 0.447$).

However, EET significantly influenced entrepreneurial intention indirectly via entrepreneurial competence ($\beta = 0.402, p < 0.001$), indicating partial mediation. This result underscores the role of competence development as a key mechanism through which education enhances entrepreneurial motivation. Taken together, these findings suggest that neither entrepreneurial competence nor entrepreneurial intention individually or jointly mediate the relationship between EET and SME performance. Instead, the education performance linkage appears to operate primarily through a direct pathway.

Table 5: Indirect Effects and Mediation Results

Indirect Path	(β)	T Statistics	P Values	Mediation Conclusion
Entrepreneurial Education → Entrepreneurial Competence → SME Performance	-0.002	0.028	0.978	Not Supported
Entrepreneurial Education → Entrepreneurial Intention → SME Performance	0.015	0.820	0.412	Not Supported
Entrepreneurial Education → Entrepreneurial Competence → Intention	0.402	6.972	0.000	Partial Mediation
Entrepreneurial Competence → Intention → SME Performance	0.030	0.777	0.438	Not Supported
Entrepreneurial Education → Competence → Intention → SME Performance	0.021	0.761	0.447	Not Supported

Source: SmartPLS Output, processed by the authors (2025)

Entrepreneurship Education and Training and Entrepreneurial Intention

The first hypothesis proposed that entrepreneurship education and training (EET) positively influences entrepreneurial intention. The empirical results confirm this relationship ($\beta = 0.257, p < 0.001$), indicating that greater exposure to structured entrepreneurial learning is associated with stronger motivation to pursue and sustain entrepreneurial activities. This finding is consistent with the Theory of Planned Behavior (Ajzen, 1991), which posits that intention is shaped by attitudes, subjective norms, and perceived behavioral control dimensions that can be strengthened through training, mentoring, and experiential learning (Krueger et al., 2000; Liñán & Fayolle, 2015).

This result aligns with prior studies showing that experiential and project-based training enhances self-efficacy, opportunity recognition, and motivational readiness (Abbasiachavari & Moritz, 2021; Cui et al., 2021). In line with (Nikmatullah & Adnan, 2025; Ying et al., 2025), EET also appears to function as a psychological stimulus that reshapes entrepreneurial cognition and confidence, not merely as a mechanism for technical skill transfer. By strengthening perceived behavioral control and entrepreneurial self-beliefs, EET reinforces intention formation through cognitive and affective channels.

In the Indonesian SME context, where many entrepreneurs lack formal business education and systematic exposure to entrepreneurial role models, EET appears to play a significant role in shaping entrepreneurial mindsets and

perceived feasibility (Liñán & Fayolle, 2015). Through simulations, peer interaction, and problem-based assignments, entrepreneurs internalize positive beliefs about their ability to start, manage, and grow a business. However, the moderate effect size suggests that intention formation is also influenced by broader social and institutional factors, such as market uncertainty, family expectations, and regulatory credibility, which lie beyond the direct reach of training programs (Urbano & Alvarez, 2014). This finding reinforces arguments that EET strengthens intention but cannot fully offset structural uncertainty and ecosystem fragility in emerging economies (Singh et al., 2022).

Entrepreneurship Education and Training and Entrepreneurial Competence

The second hypothesis stated that EET has a positive effect on entrepreneurial competence, and this relationship was strongly supported ($\beta = 0.779$, $p < 0.001$). This indicates that education and training are highly effective in building the skills, knowledge, and capabilities required for entrepreneurial activity. The finding is consistent with Human Capital Theory (Becker, 1975) and the Resource-Based View (Barney, 1991), which conceptualizes learning as a primary mechanism for developing valuable and productive individual resources.

This result corroborates evidence from (Hernández-Carrión et al., 2017; Soomro et al., 2024), who found that training enhances managerial, cognitive, interpersonal, and digital skills critical to SME competitiveness. It also aligns with (Pennetta et al., 2023), who emphasized that entrepreneurial competence comprises multidimensional capabilities required for innovation, operational resilience, and strategic responsiveness. In volatile and resource-constrained environments such as Indonesia, these competencies are especially relevant for strategic adaptation, innovation, and operational resilience (Bauman & Lucy, 2021). They also facilitate business formalization, innovation adoption, and integration into value chains (Sakib et al., 2022).

The enormous effect size underscores that EET is a powerful instrument for capability building. Nevertheless, the subsequent hypothesis tests indicate that competence accumulation alone does not guarantee improved firm performance, supporting arguments that human capital must be complemented by financial, technological, and institutional resources to generate sustained competitive advantage (Wiklund & Shepherd, 2005). Consistent with (Ndibalema et al., 2024; Singh et al., 2022), the accumulation of competence alone does not guarantee improved firm performance, highlighting the conditional nature of human capital returns in emerging economies.

Entrepreneurial Competence and Entrepreneurial Intention

The third hypothesis proposed that entrepreneurial competence positively influences entrepreneurial intention. The results confirm this relationship ($\beta = 0.517$, $p < 0.001$), indicating that higher competence levels are associated with stronger motivation and confidence to engage in entrepreneurial action. This finding suggests that capability development strengthens perceived feasibility and reduces psychological barriers to entrepreneurship. This result is consistent with (Sanchez & Tanpoco, 2023; Ying et al., 2025), who reported that competence enhances entrepreneurial confidence, passion, and growth aspirations. Beyond its productive function emphasized in the Resource-Based View, competence also operates as a cognitive enabler that reinforces motivational readiness by increasing perceived behavioral control (Krueger et al., 2000). In development contexts characterized by uncertainty and high perceived risk, enhanced competence increases perceived preparedness, thereby strengthening entrepreneurial intention (Bandura, 2001). This mechanism explains why competence partially mediates the effect of EET on entrepreneurial intention and highlights the intertwined nature of cognitive and capability-based pathways in entrepreneurship development.

This mechanism explains why competence partially mediates the effect of EET on entrepreneurial intention and highlights the intertwined nature of cognitive and capability-based pathways in entrepreneurship development. It also supports the argument that EET operates through indirect psychological mechanisms, shaping self-efficacy and opportunity perception in addition to building technical and managerial capacity (Ying et al., 2025; Yousaf et al., 2021).

Entrepreneurship Education and Training and SME Performance

The fourth hypothesis posited that EET has a direct positive effect on SME performance, and this relationship was supported ($\beta = 0.597$, $p < 0.001$). This finding indicates that education and training contribute to firm-level outcomes beyond their indirect effects through competence and intention. It suggests that EET operates not only as a human capital investment but also as a broader strategic intervention. This result is consistent with (Sullivan & Marvel, 2011; Unger et al., 2011), who argued that training enhances strategic orientation, legitimacy, and network access. It also aligns with (Qi et al., 2017; Zimmerman & Zeitz, 2002) legitimacy-based perspective, which emphasizes that education signals credibility to external stakeholders. Training may also improve decision quality, planning discipline,

and opportunity exploitation (Brinckmann & Kim, 2015; Marvel et al., 2016). In addition, EET facilitates innovation adoption and supply-chain integration, which are critical drivers of SME growth in emerging markets (Sakib et al., 2022).

In the Indonesian context, EET appears to function as a direct performance-enhancing mechanism by improving managerial practices, market positioning, and external credibility with stakeholders such as suppliers, customers, and financial institutions. This finding is consistent with (Abdul et al., 2023; Amani et al., 2024), who reported that EET improves business legitimacy and network access. These institutional and relational benefits may explain why EET exerts a more substantial effect on performance than either competence or intention alone.

Entrepreneurial Intention and SME Performance

The fifth hypothesis proposed that entrepreneurial intention positively affects SME performance. This relationship was not supported ($\beta = 0.058$, $p = 0.405$), indicating that motivational readiness does not automatically translate into measurable business outcomes. This result reflects a pronounced intention-action gap. Consistent with (Brush et al., 2019; Gelderen et al., 2015; Ndibalema et al., 2024), the finding suggests that in emerging economies, intention is a necessary but insufficient condition for performance improvement. Structural constraints such as limited access to finance, weak digital infrastructure, regulatory inconsistency, and market volatility likely impede the conversion of intention into effective action (Brush et al., 2019). This pattern reinforces the argument that entrepreneurial intention is shaped and constrained by institutional conditions and opportunity structures. It implies that policies focused exclusively on strengthening entrepreneurial motivation may have limited economic impact unless accompanied by ecosystem-level support that enables entrepreneurs to operationalize their intentions.

Entrepreneurial Competence and SME Performance

The sixth hypothesis proposed that entrepreneurial competence positively affects SME performance. This relationship was not supported ($\beta = -0.003$, $p = 0.976$), challenging a direct Resource-Based View assumption that internal capabilities automatically generate competitive advantage. However, this finding is consistent with evidence from Malaysia, South Africa, and Tanzania, where competence did not translate into performance without enabling institutional conditions (Al Mamun et al., 2018; Matekaire & Siriram, 2025; Ndibalema et al., 2024). Similar patterns by (Unger et al., 2011), who argued that capabilities generate value only when aligned with opportunity structures and resource endowments. These results suggest that competence requires complementary assets such as financial capital, digital infrastructure, market access, and regulatory support to become economically productive (Tece et al., 1997).

These results suggest that competence requires complementary assets such as financial capital, digital infrastructure, market access, and regulatory support to become economically productive (Singh et al., 2022). In the Indonesian SME context, institutional and structural constraints appear to weaken the competence–performance linkage, underscoring the conditional nature of human capital as a strategic resource in emerging economies (Urbano & Alvarez, 2014). This finding reinforces the conclusion that EET is a necessary but not sufficient driver of SME performance and must be embedded within a supportive entrepreneurial ecosystem to generate sustained economic returns.

Theoretical and Practical Implications

This study offers several theoretical and practical contributions for entrepreneurship scholars and policymakers seeking to strengthen SME performance in emerging economies. Theoretically, it advances Human Capital Theory, the Resource-Based View (RBV), and the Theory of Planned Behavior (TPB) by demonstrating that entrepreneurship education and training (EET) simultaneously operates through capability-based, cognitive–motivational, and direct institutional–strategic pathways. While EET significantly enhanced entrepreneurial competence and entrepreneurial intention, neither of these internal resources translated into superior SME performance. This finding qualifies the RBV assumption that internal capabilities automatically generate competitive advantage and refines TPB by showing that intention does not necessarily lead to performance under institutional weakness.

The results underscore that education-driven capability building is a necessary but insufficient condition for sustainable SME growth in developing economies. Entrepreneurial competence served as a cognitive enabler, strengthening entrepreneurial intention and supporting TPB and social cognitive theory (Bandura, 2001). However, the absence of competence–performance and intention–performance linkages highlights a persistent intention–action gap. This gap suggests that internal resources must interact with complementary assets and institutional enablers such as access to finance, digital infrastructure, regulatory support, and market access to become economically productive. In this respect, the study extends RBV by incorporating ecosystem-level contingencies as boundary conditions for the value creation potential of human capital.

The confirmation of a substantial direct effect of EET on SME performance further enriches entrepreneurship theory by showing that training influences firm outcomes not only through psychological or competence-based mechanisms but also through institutional and relational channels. These channels likely include enhanced legitimacy, improved strategic orientation, stronger networks, and better external credibility with customers, suppliers, and financial institutions. This result aligns with institutional and legitimacy-based perspectives that emphasize how education strengthens firms' embeddedness within their business environments.

Practically, the findings imply that EET programs should not be implemented as stand-alone interventions focused solely on skills and motivation. Instead, policymakers and development agencies should integrate EET with broader ecosystem support mechanisms, including microfinance and fintech access, digital adoption programs, mentorship and incubation services, regulatory facilitation, and market linkage platforms. Without such complementary support, investments in education and training are unlikely to yield their full economic returns.

For SME development practitioners, the results indicate that training curricula should be aligned with real market constraints and operational bottlenecks. Embedding financial literacy, digital marketing, regulatory navigation, and supply-chain integration into EET programs may help bridge the intention–action gap. For policymakers, the study suggests a shift from narrow human capital policies toward a systemic approach to entrepreneurship development that synchronizes education policy with financial, technological, and institutional reforms.

Constraints and Prospective Investigations

Despite its contributions, this study has several limitations that suggest directions for future research. The cross-sectional design limits causal inference and the ability to capture how entrepreneurial competence and intention translate into performance over time; thus, longitudinal or panel studies are recommended. The use of self-reported performance measures may introduce recall and social desirability bias, and future research could improve validity by triangulating survey data with objective financial or third-party records. In addition, the sample was confined to SMEs in five cities in East Java, which may limit generalizability; broader national or cross-country studies are needed to assess whether the observed intention–action gap is context-specific. Finally, future studies should incorporate moderating factors such as access to finance, digital readiness, and regulatory quality to identify the boundary conditions under which competence and intention generate SME performance.

Conclusion

This study empirically examined the effects of entrepreneurship education and training (EET) on entrepreneurial competence, entrepreneurial intention, and SME performance among practicing SME owners in Indonesia. The findings confirm that EET significantly strengthens both competence and intention and exerts a substantial direct effect on firm performance. Entrepreneurial competence also positively influenced entrepreneurial intention, highlighting the intertwined nature of cognitive and capability-based pathways.

However, neither entrepreneurial competence nor entrepreneurial intention significantly affected SME performance, nor did either mediate the relationship between EET and performance. These results reveal a pronounced intention–action gap and demonstrate that education-driven capability-building alone is insufficient to drive sustainable SME growth under conditions of institutional weakness and resource scarcity.

The study reinforces the applicability of Human Capital Theory, the Resource-Based View, and the Theory of Planned Behavior while also qualifying their assumptions in emerging-economy contexts. Internal resources, such as competence and motivation, are necessary but insufficient for performance improvement. Their productive deployment depends on complementary institutional and ecosystem-level enablers. From a policy perspective, entrepreneurship development strategies should move beyond isolated training programs toward integrated support systems that combine EET with financial inclusion, digital transformation, regulatory facilitation, mentorship networks, and market access initiatives. SME support agencies should align training curricula with real operational constraints and embed practical modules on financing, digital platforms, and supply-chain integration.

By adopting these strategies, governments and development institutions can improve the economic returns of EET investments and enable SMEs to convert skills and motivation into measurable performance gains. Strengthening EET while simultaneously addressing ecosystem constraints is critical not only for firm-level competitiveness but also for inclusive growth, employment generation, and poverty reduction in Indonesia and other emerging economies. From a methodological standpoint, this study applied several procedural controls to mitigate internal biases associated with self-reported quantitative data. Measures such as ensuring respondent anonymity, randomizing questionnaire items, and validating instruments through expert review and pilot testing were implemented to reduce social desirability bias

and common-method bias. These safeguards strengthen the reliability of the statistical analysis and enhance confidence that the observed relationships among EET, entrepreneurial competence, entrepreneurial intention, and SME performance reflect substantive rather than artifactual effects.

Data Availability

The data used in this study can be obtained from the relevant authors upon request.

Conflicts of Interest

The authors have no conflict of interest related to this manuscript.

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