BRIDGING EDUCATION TO INNOVATION THROUGH ENTREPRENEURIAL ORIENTATION AND SELF-EFFICACY: A SELF-DETERMINATION THEORY PERSPECTIVE

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ABSTRACT

Background: Entrepreneurial education (EE) has become a central topic in emerging economies; however, its interaction with entrepreneurial orientation (EO), entrepreneurial self-efficacy (ESE), and innovation capability (IC) remains underexplored, particularly in the Indonesian context. By positioning EO as a mediator and ESE as both a direct and moderating factor, this study extends prior research and provides a more integrative understanding of entrepreneurial behavior.
Purpose: This study analyzes the role of entrepreneurial education in enhancing innovation capability by analyzing entrepreneurial orientation as a mediator and entrepreneurial self-efficacy as a moderator within the framework of Self-Determination Theory.
Design/methodology/approach: The study employs a survey-based design with 166 valid responses analyzed using PLS-SEM, which allows testing of complex mediating and moderating effects simultaneously
Findings/Result: The findings reveal that entrepreneurial education significantly boosts both entrepreneurial orientation and innovation capability. Entrepreneurial orientation mediates the impact of education on innovation by encouraging proactive, innovative, and risk-taking behaviors. As evidenced by the analysis, entrepreneurial self-efficacy demonstrated a substantial and direct impact on both the orientation towards entrepreneurship and the ability to innovate but did not show significant moderating effects.
Conclusion: This study contributes theoretically by extending SDT through the integration of EO and ESE into the EE–IC relationship while empirically demonstrating the strong predictive power of the proposed model. From a practical perspective, the results suggest the importance of embedding EO-building experiences and ESE-enhancing interventions in entrepreneurship education, supported by policies that foster innovation ecosystems. Future research could expand this framework across different cultural and industrial settings.
Originality/value (State of the art): This study offers a novel integrated model connecting educational, psychological, and behavioral constructs, contributing to the existing literature by addressing gaps in previous research and offering practical insights for entrepreneurship education in emerging markets.

Keywords: entrepreneurial education, entrepreneurial orientation, innovation capability, entrepreneurial self efficacy, entrepreneur by design

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INTRODUCTION

Entrepreneurship is widely recognized as a critical driver of economic advancement, job creation, opportunity development and social transformation (Kumar et al. 2021). It contributes to national progress through industrial expansion, structural shifts in the economy, and innovation-driven social mobility (Wu et al. 2022). This recognition has spurred increasing concern among nations to reduce dependency on foreign investment and focus on strengthening domestic entrepreneurship (Vivekananth et al. 2023).

Despite these developments, Indonesia continues to lag behind its Southeast Asian neighbors in entrepreneurial participation, with only 3.55% of its population engaged in entrepreneurial activity, which is lower than in Thailand, Malaysia, and far below Singapore (Suparno et al. 2024). This relatively low ratio is primarily attributed to the failure of innovation to deliver impactful and sustainable outcomes (Maziriri et al. 2023). As value-creating innovation is considered essential to entrepreneurial quality, a lack of innovation capability undermines the sustainability of entrepreneurial ventures. Given these persistent gaps in national performance and theoretical understanding, this study is both timely and essential in strengthening Indonesia's innovation and entrepreneurship agenda

Cross-sector collaboration among startups, academia, and government institutions plays a vital role in fostering an innovation-based entrepreneurial ecosystem (Agrawal et al. 2024). The concept of entrepreneurship by design has become increasingly important, particularly through education-based innovation. Indonesia's position at 85th in the Global Innovation Index further reinforces the need to strengthen innovation and entrepreneurial competencies through education (Suparno et al. 2024). In 2025, Indonesia ranked 55th out of 139 in the Global Innovation Index, reflecting ongoing challenges in its entrepreneurial ecosystem (Indonesia Ranking in the Global Innovation Index 2025, 2025).

Higher education institutions are increasingly integrating entrepreneurship as a core mission beyond teaching and research (Feola et al. 2021; Pacheco et al. 2024)even while this remains an unexplored field. This study seeks to overcome this shortcoming and put forward empirical evidence on the EO of universities and it examines the moderating effects of networks, knowledge and trust, market orientation, and implementing sustainable development goals (SDGs. In this context, entrepreneurial education plays a transformative role in cultivating innovation capability and preparing future business leaders (Sahputri et al. 2023). A central construct emerging from this process is Entrepreneurial Orientation (EO), which encompasses proactivity, innovation, and risk-taking behavior (Kumar et al. 2021; Makhloufi et al. 2021).

EO is a strategic resource that enables individuals to recognize and exploit opportunities, particularly in volatile and uncertain environments (Silva et al. 2022)which can foster its trade fair business. Design/methodology/approach: A survey-based quantitative approach was adopted, including a questionnaire (n = 362. Its influence on innovation capability lies in its capacity to translate opportunities into actionable commercial solutions (Makhloufi et al. 2021). Furthermore, the success of innovation often depends on its marketability and alignment with consumer needs (Elgarhy & Abou-Shouk, 2023)marketing capability, innovation capability and marketing innovation.

Entrepreneurial Self-Efficacy (ESE) also has a significant influence, particularly in shaping intention, confidence, and resilience in entrepreneurial contexts (Neneh, 2020; Wu et al. 2022). ESE helps entrepreneurs manage challenges and uncertainties by reinforcing their belief in their ability to initiate and sustain business ventures.

Although EE, EO, IC, and ESE are conceptually interrelated, empirical studies comprehensively integrating these four variables are limited. Previous studies have either positioned EE as an independent predictor of innovation (Suparno et al. 2024) and intention (Vivekananth et al. 2023) or explored its moderating role in enhancing performance outcomes, particularly among women entrepreneurs (Maziriri et al. 2023). Although prior research indicates that EE, Market Orientation, and Family Business Ownership affect Entrepreneurial Intention (Sutrisno et al. 2025), it lacks clarity on how EE drives IC via EO, particularly in businesses that are not family owned. In contrast, EO is often examined as a predictor of business performance (Ngo, 2023), drawing on frameworks such as the Theory of Planned Behavior (TPB), Resource-Based View (RBV), or Social Cognitive Theory (SCT). However,

the overreliance on these models indicates the need for alternative theoretical perspectives to better explain the motivational basis of entrepreneurship.

This study adopts Self-Determination Theory (SDT) as a conceptual lens to bridge this theoretical gap. SDT posits that human behavior is driven by three core psychological needs: autonomy (sense of volition), competence (skills and confidence), and relatedness (connection with others) (Zhao, 2021). SDT distinguishes between intrinsic and extrinsic motivation (Torres-moraga & Vidal-buitano, 2022), both of which are highly relevant for understanding why individuals choose to engage in entrepreneurship.

This study focuses on assessing the impact of Entrepreneurial Education on Innovation Capability by incorporating the mediating role of Entrepreneurial Orientation and the moderating role of Entrepreneurial Self-Efficacy within the SDT framework. The proposed model is expected to provide a more profound insight into how educational and psychological factors interact to enhance entrepreneurial capacity and innovation potential. The urgency of this investigation lies in the role of Human Capital in shaping Entrepreneurial Orientation, a key driver of Business Success (Asmawiyah et al. 2025). Education remains a primary means of building such capital, underscoring the strategic importance of entrepreneurship education and the need for supportive policy initiatives (Aisyah et al. 2025).

METHODS

This study employed a quantitative survey method with a population of Master of Management students in Indonesia. Using purposive sampling, respondents were chosen based on active entrepreneurial engagement and academic status, with criteria including completion of at least three semesters, ownership of an operating business, and a minimum of five years of entrepreneurial experience. This approach is consistent with prior research, such as Bontis (1998), who utilized student participants in empirical studies.

Primary data were collected via structured questionnaires employing a 1-7 Likert scale to measure the constructs of EE, EO, ESE, and IC. The EO items were based on the validated instrument developed by Bolton and Lane (2011), and all questionnaire items were translated into Indonesian to ensure linguistic and cultural relevance. A total of 250 questionnaires were distributed online, and responses were gathered from 166 respondents, resulting in a 66% response rate.

This study's data analysis applies the Structural Equation Modeling (SEM) method using Partial Least Squares (PLS) as a statistical method (Hair et al. 2019). The data analysis process consisted of two main stages: testing the outer and inner models. At the stage of testing the outer model, a validity check is performed, which includes convergent validity and discrimination validity, as well as testing the reliability of the research indicators. Furthermore, inner model testing was performed to assess the model, including R-squared values and hypothesis testing, for direct influence and moderation effects.

Entrepreneurial Education on Entrepreneurial Orientation

Extant research frequently associates EE with EO; however, limited attention has been paid to the mediating role of EO. Sahputri et al. (2023) provide evidence that EO significantly mediates the effect of EE on Entrepreneurial Intention, emphasizing its reinforcing function in entrepreneurial development. Building on the previous explanation, the following hypothesis is proposed: H_1: Entrepreneurial Education has a positive effect on Education Orientation.

Entrepreneurial Orientation on Innovation Capability

Risk-taking, innovativeness, and proactiveness are widely recognized as core dimensions of EO (Silva et al. 2022)which can foster its trade fair business. Design/methodology/approach: A survey-based quantitative approach was adopted, including a questionnaire (n = 362, enabling entrepreneurs to anticipate customer needs through innovation and risk taking (Ngo, 2023). Thus, EO fosters the strategic mindset required to manage uncertainty and cultivate IC (Makhloufi et al. 2021). Prior studies confirm that IC mediates the EO–performance link (Ngo, 2023), while absorptive capacity and organizational learning further moderate the EO–IC relationship (Makhloufi et al. 2021). Drawing from the preceding discussion, the study formulates the following hypothesis: H_2: Entrepreneurial Orientation has a positive effect on Innovation Capability.

Entrepreneurial Education on Innovation Capability

Innovation-driven value creation is rooted in entrepreneurial attributes (Maziriri et al. 2023), positioning entrepreneurial activity as central to economic development and an innovation-oriented environment (Agrawal et al. 2024). Empirical findings show that EE strengthens the link between IC and performance outcomes (Maziriri et al. 2023), while EO and IC interact causally through Marketing Capability, underscoring the role of market-driven strategies in translating innovation into business success (Elgarhy & Abou-Shouk, 2023)marketing capability, innovation capability and marketing innovation.Considering the arguments above, the following hypothesis is proposed: H_3: Entrepreneurial Education has a positive effect on Innovation Capability.

Entrepreneurial Orientation as a Mediating Role

Although numerous studies have explored the relationships among EE, EO, and IC, most have examined these variables separately. However, this study explores the connection between EE and IC, with EO acting as a mediating factor. Prior research has demonstrated that EO significantly influences the structuring of entrepreneurial education models (Pacheco et al. 2024)even while this remains an unexplored field. This study seeks to overcome this shortcoming and put forward empirical evidence on the EO of universities and it examines the moderating effects of networks, knowledge and trust, market orientation, and implementing sustainable development goals (SDGs. Furthermore, other studies have shown that IC serves as a mediator, strengthening the link between EO and performance outcomes (Ngo, 2023). Grounded in the theoretical explanation provided, the following hypothesis is developed: H_4: Entrepreneurial Orientation can mediate the impact of Entrepreneurial Education on Innovation Capability.

Entrepreneurial Self Efficacy as a Moderating Role

The ESE has been extensively studied, most often as a mediating construct. Prior research has shown that the ESE mediates the link between EE and Entrepreneurial Intention (Jiatong et al. 2021; Taneja et al. 2024; Wang et al. 2023; Wu et al. 2022) as well as between Entrepreneurial Passion and Entrepreneurial Intention (Wu et al. 2022). Other studies have positioned ESE as a dependent variable shaped by the entrepreneurial environment, with EE acting as a moderator (Luo et al. 2022). Reflecting on the prior discussion, the outline of the hypothesis is articulated as follows: H_5: Entrepreneurial self-efficacy has a positive moderating effect on the relationship between entrepreneurial education and entrepreneurial orientation; and H_6: Entrepreneurial self-efficacy has a positive moderating effect on the relationship between Entrepreneurial Orientation and Innovation Capability.

The conceptual framework illustrated in Figure 1 investigates the interplay among EE, EO, ESE, and IC. It proposes that EE exerts a direct effect on IC while simultaneously fostering EO, which functions as a mediating mechanism channeling the impact of educational interventions toward enhancing IC. Furthermore, ESE is hypothesized to influence both EO and IC directly and to moderate the relationships between EE and EO and between EO and IC. To capture these dynamics, the model empirically tests six hypotheses (H1–H6), encompassing direct, mediating, and moderating relationships, thereby offering a comprehensive perspective on how entrepreneurial education and self-efficacy contribute to innovation-driven entrepreneurial behavior.

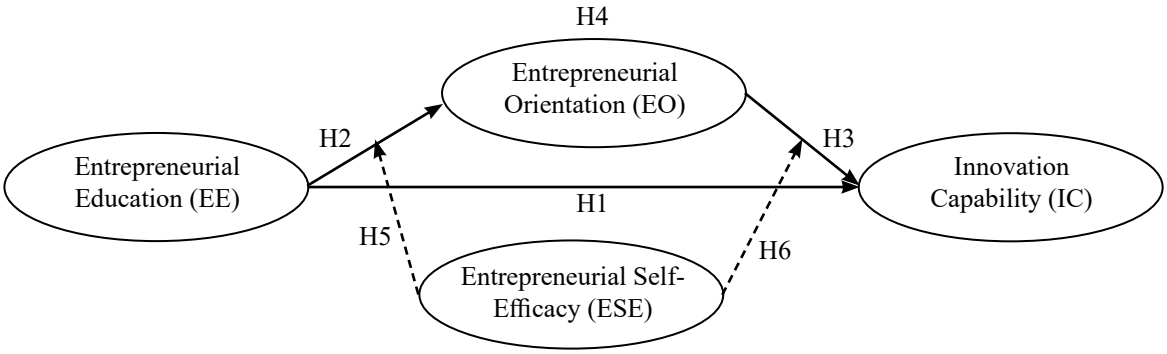

Figure 1. Conceptual framework

RESULTS

Table 1 summarizes the respondents' demographic characteristics. Of the 250 questionnaires distributed, 166 were completed and returned, yielding a response rate of 66%. As shown in the table, the majority of respondents were male (55%) and within the 21–30 age group (73%), followed by those aged 31–40 (18%), 41–50 (8%), and above 50 years (1%). Regarding marital status, 56% were unmarried, and 44% were married. Professionally, 49% identified themselves as Business Owners, 47% as Business Successors, and 4% as Professional Workers. Overall, the sample was largely composed of young entrepreneurs actively engaged in managing their businesses.

Table 2 presents the outer model assessment, showing that all indicators of EE, EO, ESE, and IC load above 0.70, confirming their convergent validity (Hair et al. 2019). Key items such as EE3 (0.853) and EO11 (0.841), and ESE indicators ranging from 0.841 to 0.897 demonstrate strong reliability, while IC5 (0.827) and IC7 (0.826) validate the Innovation Capability construct. Therefore, all items were retained for further analysis.

Table 1. Respondents profile

Category	Description	Quantity	Percentage
Gender	Male	91	55%
	Female	75	45%
Age	21 – 30	121	73%
	31 – 40	30	18%
	41 – 50	13	8%
	>50	2	1%
Marital Status	Single	93	56%
	Married	73	44%
Job	Business Owner	81	49%
	Business Successor	79	47%
	Professional Worker	6	4%

Table 2. Outer Loading

	Entrepreneurial Education (EE)	Entrepreneurial Orientation (EO)	Entrepreneurial Self-Efficacy (ESE)	Innovation Capability (IC)
EE1	0.813			
EE3	0.853			
EE4	0.858			
EO1		0.795		
EO10		0.821		
EO11		0.841		
EO12		0.838		
EO13		0.773		
EO17		0.742		
EO2		0.820		
EO9		0.823		
ESE1			0.897	
ESE2			0.841	
ESE3			0.867	
ESE4			0.858	
ESE6			0.887	
IC1				0.797
IC10				0.798
IC15				0.742
IC2				0.821
IC4				0.778
IC5				0.827
IC7				0.826
IC9				0.747

Table 3 reports the construct reliability and validity, confirming that EE, EO, ESE, and IC meet the PLS-SEM thresholds. Cronbach's alpha ranged from 0.794 to 0.923, with CR values above 0.90 and Rho A consistently over 0.87, demonstrating strong internal consistency (Hair et al. 2019). The AVE values between 0.628 and 0.757 exceed the 0.50 benchmark, establishing convergent validity. Overall, the measurement model was reliable and valid, supporting further structural analysis.

Table 4 presents the discriminant validity results using the HTMT. All values fell below the 0.85 and 0.90 thresholds recommended by Henseler et al. (2015), ranging from 0.650 to 0.851, with the highest between IC and ESE. These outcomes confirm an adequate conceptual distinction and satisfy the criteria for discriminant validity, ensuring suitability for further structural analysis.

Table 5 shows the Fornell-Larcker discriminant validity results, where the square roots of the AVE (diagonal values) exceed the inter-construct correlations. For instance, EE (0.842) is higher than its correlation with EO (0.588), ESE (0.556), and IC (0.687). This consistent pattern across constructs confirms that the criterion is met, ensuring theoretical distinctiveness (Fornell & Larcker, 1981; Hair et al. 2019).

Table 6 presents the results of the hypothesis testing. Most paths were significant ($p < 0.05$, $t > 1.96$), supporting the proposed framework. ESE has the strongest effect on EO ($\beta = 0.610$, $t = 9.949$, $p = 0.000$), while EO significantly predicts IC ($\beta = 0.320$, $t = 4.748$, $p = 0.000$). EE also influences both EO ($\beta = 0.263$, $p = 0.000$) and IC ($\beta = 0.278$, $p = 0.000$). However, the moderating effects of ESE were insignificant ($\beta = 0.042$, $p = 0.316$; $\beta = 0.005$, $p = 0.917$). Overall, the structural model is supported by the data, although the moderating role of ESE is not confirmed (Hair et al. 2019).

Table 3. Cronbach's Alpha, composite Reliability, Rho A, AVE

	Entrepreneurial Education (EE)	Entrepreneurial Orientation (EO)	Entrepreneurial Self-Efficacy (ESE)	Innovation Capability (IC)
Entrepreneurial Education (EE)	0.794	0.795	0.879	0.708
Entrepreneurial Orientation (EO)	0.923	0.925	0.937	0.652
Entrepreneurial Self-Efficacy (ESE)	0.920	0.925	0.940	0.757
Innovation Capability (IC)	0.915	0.918	0.931	0.628

Table 4. Discriminant Validity (HTMT Criterion)

	Entrepreneurial Education (EE)	Entrepreneurial Orientation (EO)	Entrepreneurial Self- Efficacy (ESE)	Innovation Capability (IC)
Entrepreneurial Education (EE)				
Entrepreneurial Orientation (EO)	0.684			
Entrepreneurial Self-Efficacy (ESE)	0.650	0.799		
Innovation Capability (IC)	0.798	0.840	0.851	

Table 5. Discriminant Validity (Fornell Larcker Criterion)

	Entrepreneurial Education (EE)	Entrepreneurial Orientation (EO)	Entrepreneurial Self- Efficacy (ESE)	Innovation Capability (IC)
Entrepreneurial Education (EE)	0.842			
Entrepreneurial Orientation (EO)	0.588	0.807		
Entrepreneurial Self-Efficacy (ESE)	0.556	0.745	0.870	
Innovation Capability (IC)	0.687	0.778	0.788	0.793

Table 7 reports the adjusted R^2 values for the endogenous constructs. EO records 0.593, meaning that EE and ESE explain 59.3% of its variance, reflecting moderate to substantial explanatory power (Hair et al. 2019). The IC was 0.746, indicating that EE, EO, and ESE jointly explained 74.6% of its variance, which was categorized as substantial and strongly predictive. These results confirm the robustness of the model and align with the path analysis findings.

Table 8 presents the Q^2predict results for the predictive relevance. The EO (0.580) and IC (0.682) both exceed the zero benchmark, confirming strong predictive validity (Shmueli et al. 2019). Prediction error metrics also support this, with IC showing lower RMSE (0.572) and MAE (0.415) than EO (0.656 and 0.474, respectively), indicating higher predictive accuracy. Overall, the model demonstrated a robust predictive capacity.

Table 9 reports the PLS-SEM model fit index. The SRMR of 0.068 is below the 0.08 threshold, indicating a good fit (Henseler et al. 2014). Other indices, d_ULS = 1.369 and d_G = 0.815, suggest no misspecification, while the chi-square is 714.289 and NFI = 0.785. Although values above 0.90 are preferred in CB-SEM, an NFI ≥ 0.70 is acceptable in PLS-SEM, which emphasizes predictive accuracy (Hair et al. 2019). Overall, the results affirmed the adequacy and predictive robustness of the model.

Table 10 compares the predictive losses between the PLS and LM models. PLS showed lower values for EO (0.457 vs. 0.471), IC (0.348 vs. 0.359), and the overall model (0.402 vs. 0.415), reflecting superior accuracy. However, the statistical tests were non-significant ($t = 1.071$, $p = 0.286$; $t = 1.103$, $p = 0.272$), indicating no decisive advantage over LM. Together with the strong Q^2predict results, these findings reaffirm the predictive robustness of the PLS-SEM model (Shmueli et al. 2019).

This study examined the role of Entrepreneurial Education (EE) in enhancing Innovation Capability (IC), with Entrepreneurial Orientation (EO) as a mediating variable and Entrepreneurial Self-Efficacy (ESE) as a moderator, guided by Self-Determination Theory (SDT). The findings offer empirical confirmation of the complex interrelationships among these constructs and contribute to the discourse on entrepreneurship education and innovation both theoretically and practically.

Table 6. Hypothesis

	O	M	STDEV	T Statistic	P Values	Status
Entrepreneurial Education → Entrepreneurial Orientation	0.263	0.265	0.056	4.673	0.000	Supported
Entrepreneurial Education → Innovation Capability	0.278	0.283	0.057	4.905	0.000	Supported
Entrepreneurial Orientation → Innovation Capability	0.320	0.315	0.067	4.748	0.000	Supported
Entrepreneurial Education → Entrepreneurial Orientation → Innovation Capability	0.084	0.084	0.026	3.291	0.001	Supported
Entrepreneurial Self-Efficacy x Entrepreneurial Education → Entrepreneurial Orientation	0.042	0.038	0.042	1.004	0.316	Not Supported
Entrepreneurial Self-Efficacy x Entrepreneurial Orientation → Innovation Capability	0.005	0.013	0.051	0.104	0.917	Not Supported

Table 7. R-Square

	R-Square Adjusted
Entrepreneurial Orientation	0.593
Innovation Capability	0.746

Table 8. Q Squared

	Q^2predict	RMSE	MAE
Entrepreneurial Orientation	0.580	0.656	0.474
Innovation Capability	0.682	0.572	0.415

Table 9. SRMR

	Estimated model
SRMR	0.068
d_ULS	1.369
d_G	0.815
Chi-square	714.289
NFI	0.785

Table 10. CVPAT

	PLS loss	LM loss	Average loss difference	t value	p value
EO	0.457	0.471	-0.014	1.071	0.286
IC	0.348	0.359	-0.010	1.103	0.272
Overall	0.402	0.415	-0.012	1.307	0.193

The significant influence of EE on EO supports the idea that structured educational programs foster the psychological need for autonomy, enabling students to develop entrepreneurial mindsets (Ryan & Deci, 2000; Sahputri et al. 2023). These programs promote proactivity, risk-taking, and innovativeness, which are traits central to EO (Silva et al. 2022) which can foster its trade fair business. Design/methodology/ approach: A survey-based quantitative approach was adopted, including a questionnaire (n = 362. This result highlights EE as not only a provider of knowledge but also a catalyst for intrinsic motivation and behavioral orientation, aligning with the principles of SDT and the concept of entrepreneurship by design (Feola et al. 2021; Luo et al. 2022).

This study also reinforces the role of EO in enhancing IC. EO operates as a strategic resource that enables entrepreneurs to convert opportunities into innovation, grounded in intrinsic motivation and self-endorsed goals (Makhloufi et al. 2021; Ngo, 2023). EO further mediates the relationship between EE and IC, indicating that entrepreneurial education affects innovation most effectively when channeled through proactive and innovative behavior patterns characterized by EO (Elgarhy & Abou-Shouk, 2023)marketing capability, innovation capability and marketing innovation.

Moreover, ESE is identified as the most influential predictor of EO and a notable driver of IC, emphasizing the importance of competence in SDT (Ryan & Deci, 2000). Entrepreneurs with strong self-efficacy are more confident in navigating challenges and are more capable of initiating innovative actions (Neneh, 2020; Wu et al. 2022). However, the hypothesized moderating effects of ESE were not statistically significant. This suggests that the ESE acts independently rather than interactively, challenging previous models in which the ESE was treated as a contextual enhancer (Luo et al. 2022) and supporting more recent perspectives that highlight its direct and consistent influence (Taneja et al. 2024).

Theoretically, this study validates an integrated model grounded in SDT, with EE serving as an autonomy-supportive stimulus, EO as a manifestation of intrinsic motivation, and ESE as a competence representation (Zhao, 2021). This holistic model enriches our understanding of how motivation-related mechanisms contribute to entrepreneurial outcomes.

The model's robustness is evidenced by its explanatory power (R^2 = 59.3% for EO and 74.6% for IC), predictive relevance ($Q^2 > 0.5$), and overall model fit (SRMR = 0.068; NFI = 0.785) (Hair et al. 2019; Shmueli et al. 2019). Despite the lack of advantage over linear regression in predictive accuracy, the use of PLS-SEM is justified because of its suitability for complex, theory-driven models involving mediation and moderation.

In conclusion, EE significantly promoted both EO and IC, with EO acting as a critical intermediary. Although ESE does not moderate key relationships, it remains a strong direct predictor and enabler of innovation-driven entrepreneurship. Framing these findings within SDT provides a nuanced understanding of how education, motivation, and behavior collectively drive innovation. These insights offer strategic value to educators and policymakers aiming to cultivate future innovators and entrepreneurial leaders.

Managerial Implications

These findings have managerial implications for entrepreneurship educators and policymakers. Universities should focus on fostering student autonomy and proactive behavior through experiential learning and curriculum design that integrates EO elements. Simultaneously, enhancing students' self-efficacy through mentorship and challenge-based learning is essential for building a resilient entrepreneurial capacity. For policymakers, developing ecosystem-based programs that address both knowledge and confidence will support innovation-driven entrepreneurship, particularly in emerging economies such as Indonesia.

CONCLUSIONS AND RECOMMENDATIONS

Conclusions

This study confirms that Entrepreneurial Education (EE) positively contributes to Innovation Capability (IC), with mediating role perform by Entrepreneurial Orientation (EO) and Entrepreneurial Self-Efficacy (ESE) serving as a key direct predictor. Framed through Self-Determination Theory (SDT), the findings show how autonomy, competence, and intrinsic motivation interact to influence innovation among aspiring entrepreneurs. By addressing the proposed research objectives, this study highlights EO as a behavioral bridge through which EE translates into innovation, while ESE operates as a fundamental psychological driver. The absence of moderation effects suggests that ESE exerts its influence independently, reinforcing its role as a direct enabler rather than as a contextual enhancer.

Recommendations

Educators should embed EO-oriented experiences into entrepreneurship curricula through project-based and reflective learning while strengthening ESE via mentorship, role modeling, and challenge-based tasks. Policymakers should support integrative programs that link education with practical exposure to build innovative entrepreneurial ecosystems, particularly in emerging economies such as Indonesia.

The limited sample size and response rate of this study constrain its generalizability. Future research should employ longitudinal and cross-cultural designs, incorporate other SDT dimensions, such as relatedness, and integrate qualitative methods to enrich insights into the impact of entrepreneurship education.

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