The Impact of Business Coaching on the Entrepreneurial Competencies of Vocational Students in Higher Education

Authors: Robby Wijaya[1], Siti Salina Mustakim[2], Eddy Sutadji[3]*, Isnandar[4], Widiyanti[5]

Affiliation: Postgraduate School, Malang State University, Malang, Indonesia [1345]
Faculty of Educational Studies, University Putra Malaysia, Sri Serdang, Malaysia[2]
*Corresponding author: eddy.sutadji.ft@.um.ac.id

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ABSTRACT

This study examines the factors influencing entrepreneurial competency (EC) among students in vocational higher education, with a focus on entrepreneurial mindset (EM), entrepreneurial experience (EE), and business coaching (BC). It also explores the moderating role of BC in these relationships. Using a quantitative explanatory approach, data were collected from 312 students enrolled in vocational programs at the university level. The findings indicate that EE has the strongest influence on EC, followed by EM and BC. While BC contributes directly to EC development, its moderating effect varies. It strengthens the relationship between EE and EC but shows limited impact when paired with EM alone, especially in learning environments with reduced direct interaction. These results underscore the importance of combining experience-based learning with structured coaching that is responsive to students' backgrounds. The study contributes to the theoretical discourse on competency development by integrating perspectives from Student Involvement Theory and Connectionism. Practically, it recommends integrating adaptive coaching into experiential learning modules in entrepreneurship curricula. Future research should investigate additional moderating factors, such as digital learning engagement and industry exposure, to further enhance the effectiveness of coaching in entrepreneurship education.

Keywords: Coaching strategy, competency development, entrepreneurial mindset, startup experience, vocational education

1. Introduction

The growth of Micro, Small, and Medium Enterprises (MSMEs) in Indonesia is heavily influenced by entrepreneurship, accounting for over 62% of the country's Gross Domestic Product (GDP) in 2021. However, despite its significant economic impact, entrepreneurship continues to face challenges in adapting to rapid technological advancements and disruptive changes in the business environment, particularly in the digitalization of business processes, shifting consumer behavior, and increasing global competition. One of the key strategies to address these challenges is the development of entrepreneurial competencies (EC), particularly in vocational education, where students are expected to gain practical skills and knowledge to prepare them for entrepreneurial careers.

Several studies have emphasized the importance of entrepreneurial competencies (EC) in fostering economic resilience and innovation (Pulka et al., 2021). However, most prior research has focused on cognitive skill-building and entrepreneurial intentions, with limited attention to behavioral and contextual factors that shape EC among vocational students. (Iwu et al., 2021). The current approach to entrepreneurial education in vocational programs often prioritizes curricular content over experiential learning, thereby limiting students' opportunities to engage in real-world entrepreneurial experiences. (Asikainen & Tapani, 2021).

A preliminary exploration was carried out at two Indonesian state universities in East Java, where vocational and diploma-level programs are offered through various faculties, including vocational and engineering faculties. Observations suggest that both institutions have moved beyond traditional teacher education by integrating more multidisciplinary and practice-based learning approaches into their vocational curricula. This evolving educational context provides a relevant setting to examine how entrepreneurial competencies are developed among vocational students within higher education institutions. Given the increasing demand for entrepreneurial skills in the Fourth Industrial Revolution, there is a pressing need to rethink how vocational students, particularly those in diploma-level applied education tracks, are prepared to develop entrepreneurial readiness and competencies. (Triyono et al., 2023).

Prior research has shown that an entrepreneurial mindset significantly predicts students' entrepreneurial intention and career adaptability. (Anjum et al., 2020). Similarly, students with hands-on entrepreneurial experience are more likely to develop strategic thinking and resilience in entrepreneurial ventures. (Fiandra et al., 2023). While these studies emphasize the individual contributions of EM and EE to entrepreneurial development, few have examined how these factors interact within vocational education settings. Moreover, the role of structured interventions such as business coaching remains underexplored in this context.

Despite extensive research on EC, there remains a significant gap in understanding how entrepreneurial mindset (EM), entrepreneurial experience (EE), and business coaching (BC) collectively contribute to EC development. While previous studies have explored these variables independently, their combined effects and potential moderating relationships, particularly in the context of disruptive education, remain underexplored. (Qureshi et al., 2023; Rae, 2005). Given the evolving demands of entrepreneurship education, particularly in vocational settings, it is essential to understand how these factors interact to shape students' entrepreneurial competencies (Lv et al., 2021; Vivekananth et al., 2023). Moreover, while business coaching (BC) has been widely recognized as an

effective strategy for developing entrepreneurial skills, its role in moderating the relationship between EM, EE, and EC in vocational education remains unclear.

Social Perception Theory explains how individuals interpret and respond to social cues, which influences entrepreneurial behavior and learning in coaching settings. Student Involvement Theory emphasizes that students learn more effectively when they are actively and purposefully engaged in structured learning environments. Meanwhile, Connectionism Theory suggests that learning is reinforced through repeated exposure and hands-on experience, aligning with the experiential nature of entrepreneurship education. This study seeks to clarify this relationship by integrating theoretical perspectives from Social Perception Theory, Student Involvement Theory, and Connectionism Theory to build a more comprehensive understanding of competency development in entrepreneurial education. This study aims to empirically examine these relationships using a structured explanatory approach, ensuring methodological alignment with its objectives and contributing to the broader discourse on the effectiveness of entrepreneurship education.

By addressing this research gap, this study makes a significant contribution to both theoretical and practical discussions in entrepreneurship education. The findings are expected to provide valuable insights for educators, policymakers, and vocational institutions in designing more effective entrepreneurship education models that align with the evolving business landscape.

2. Literature Review and Hypotheses

Entrepreneurial Competencies (EC) in Vocational Education

Entrepreneurial competencies (EC) are a combination of skills, knowledge, and attitudes that enable individuals to recognize, develop, and exploit business opportunities (Bauman & Lucy, 2021; Pulka et al., 2021) . EC plays a critical role in preparing students for entrepreneurial careers, particularly in vocational education, where practical and hands-on learning is emphasized. According to a study by (Fagadar et al., 2021) EC is a strong predictor of entrepreneurial success and can be cultivated through structured educational interventions. However, traditional pedagogical approaches in vocational education often lack the experiential learning components necessary to enhance these competencies. (Muhammad et al., 2023).

Recent studies have highlighted the need for competency-based entrepreneurial education, emphasizing skills such as opportunity recognition, risk management, and resilience. (Kanaan-Jebna et al., 2022; Pennetta et al., 2024). Despite these findings, research suggests that a gap remains in understanding how contextual and behavioral factors, such as entrepreneurial mindset, family entrepreneurial background, and business coaching, influence EC development among vocational students. (Pulka et al., 2021).

This study is grounded in three theoretical perspectives to explain the development of entrepreneurial competencies in vocational education: Social Perception Theory, Connectionism Theory, and Student Involvement Theory. These theories offer a multidimensional lens for understanding how students acquire, internalize, and refine entrepreneurial competencies through mindset formation, experiential learning, and structured coaching interventions. By integrating these theories, the study positions EC not merely as a product of instruction but as an outcome of students' perceptions, active involvement, and iterative entrepreneurial experiences in a disruptive educational environment.

Entrepreneurial Mindset (EM) and Its Impact on Entrepreneurial Competency (EC)

Entrepreneurial mindset (EM) refers to a cognitive framework that enables individuals to identify and act upon entrepreneurial opportunities. (Cui & Bell, 2022). It includes traits such as proactiveness, risk-taking, and innovativeness, which are essential for developing EC. (Nurliawati et al., 2023). Studies have shown that individuals with a strong EM are more likely to develop higher levels of EC, as they actively engage in entrepreneurial activities and learning experiences. (Namwat et al., 2024).

The Social Perception Theory has further supported the relationship between EM and EC. (Bandura & Hall, 2018), which explains how students' perceptions of entrepreneurial role models, peers, and educators influence their cognitive orientation toward entrepreneurship. When vocational students perceive entrepreneurial success as socially validated, they are more likely to internalize entrepreneurial traits and behaviors, thus enhancing their competencies. While an entrepreneurial mindset has a direct influence on entrepreneurial competency, recent studies suggest that this relationship may also be shaped by external support systems such as business coaching. In line with this perspective, the following hypotheses are proposed:

H1: EM has a significant effect on the EC of vocational students.

H3: Business coaching moderates the relationship between entrepreneurial mindset and entrepreneurial competency.

Entrepreneurial Experience (EE) and Its Impact on EC

Entrepreneurial experience (EE) refers to students' prior exposure to entrepreneurship-related activities, including participation in business planning, startup simulation, or real-world ventures. EE provides contextual learning that enables students to develop practical skills, including opportunity recognition, risk assessment, and decision-making. (Fiandra et al., 2023; Lyons et al., 2020). Research consistently shows that EE significantly contributes to the development of entrepreneurial competency (EC), especially when students engage directly in entrepreneurial projects during their studies. (Pennetta et al., 2024b).

This connection is also supported by Connectionism Theory, which posits that learning and behavior are shaped through repeated experiences and associations. (Brock, 2020). In entrepreneurship education, repeated engagement in entrepreneurial tasks reinforces students' cognitive and behavioral responses to business challenges, thereby enhancing their ability to effectively address these challenges. Coaching and mentorship can enhance this experience further by providing structured feedback and promoting reflective practice. (Jones & Smith, 2022). Accordingly, the second hypothesis is proposed:

H2: EE significantly affects the EC of vocational students

Business Coaching (BC) and Its Influence on Entrepreneurial Competency (EC)

Business coaching (BC) is a structured developmental process in which experienced mentors guide aspiring entrepreneurs. (Games, 2021; Reid et al., 2020). It has been demonstrated to enhance entrepreneurial competency (EC) by improving self-efficacy, problem-solving skills, and strategic decision-making. Jones & Smith (2022) Found that students who receive coaching report greater confidence in entrepreneurial ventures and are better equipped to face market challenges. Despite these

benefits, there is ongoing debate about the role of BC as a moderating factor. While some studies suggest that BC amplifies the effects of entrepreneurial mindset (EM) and contextual factors on EC, others caution that overdependence on coaching may hinder independent decision-making. (Kuratko et al., 2021; Nurliawati et al., 2023). Further research is needed to determine the optimal application of BC within entrepreneurship education, particularly in vocational contexts. (Istiyono et al., 2024).

The pedagogical relevance of BC is supported by Student Involvement Theory, which asserts that learning outcomes improve when students are actively engaged in structured educational experiences. (Astin, 1999). Business coaching provides such structure by promoting goal setting, reflective learning, and iterative practice, key components of experiential learning. Within vocational education, coaching interventions not only reinforce entrepreneurial content but also facilitate personalized development of competencies. This theoretical lens justifies the inclusion of BC as both an independent and moderating variable in this study.

Taken together, the literature indicates that while entrepreneurial mindset, experience, and coaching each contribute to competency development, their interrelationships, particularly in the context of vocational education, have not been fully explored. The integration of these variables, supported by established theoretical frameworks, provides a strong foundation for the empirical model proposed in this study. In addition to its direct influence on EC, BC is hypothesized to moderate the effects of both EM and EE. Therefore, the following hypotheses are proposed:

H4: Business coaching moderates the relationship between entrepreneurial experience and entrepreneurial competency.

H5: Business coaching has a direct significant effect on entrepreneurial competency.

H6: Business coaching moderates the relationship between entrepreneurial mindset, entrepreneurial experience, and entrepreneurial competency simultaneously.

Research Gap and Conceptual Framework

Although prior studies have examined entrepreneurial competencies (EC), entrepreneurial mindset (EM), entrepreneurial experience (EE), and business coaching (BC) as individual predictors of entrepreneurial outcomes, there is limited empirical evidence on how these factors interact, particularly within the context of vocational education. Most existing research has focused on traditional university students, neglecting the unique experiential and practical orientation of vocational learners who are expected to transition directly into entrepreneurial careers. Moreover, the impact of business coaching as a moderating variable remains underexplored in this setting, especially in relation to mindset-driven and experience-driven pathways to competency development.

This study addresses this gap by proposing a model that integrates EM and EE as predictors of EC, with BC serving both as an independent predictor and a moderating variable. Additionally, the study investigates whether BC enhances the impact of EM and EE on EC, either independently or in combination. The conceptual framework (Figure 1) illustrates the direct and moderating relationships hypothesized in this study, guiding the empirical validation through quantitative methods.

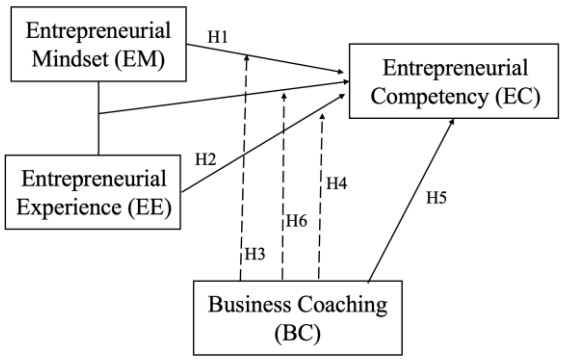

Figure 1. Conceptual Framework of This Study

As illustrated in Figure 1, the conceptual framework presents six hypothesized relationships: three direct effects, namely from EM to EC, EE to EC, and BC to EC. Three moderating effects in which BC moderates the relationships between (1) EM and EC, (2) EE and EC, and (3) the simultaneous influence of EM and EE on EC. This framework serves as the basis for formulating the research hypotheses.

3. Methods

Research Design

This study employed a quantitative, causal-explanatory research design, which is widely used to examine causal relationships between variables and assess the strength and direction of such effects. (Hair et al., 2014). A survey-based method was chosen for its effectiveness in collecting standardized data from a large sample, thereby enabling robust statistical testing of hypotheses. The research model (Figure 1) was developed through a synthesis of relevant literature to ensure that the constructs and hypothesized relationships were theoretically grounded and aligned with the study's objectives.

The research instrument consisted of a structured questionnaire divided into three sections: (A) demographic information, (B) measurements of the independent variables: entrepreneurial mindset (EM) and entrepreneurial experience (EE), and (C) measurements of the dependent variable, entrepreneurial competency (EC), as well as the moderating variable, business coaching (BC). All items were adapted from previously validated instruments and were assessed for content validity and internal consistency. Responses were measured using a 5-point Likert scale ranging from 1 (strongly disagree) to 5 (strongly agree) (Davis et al., 2016; Iwu et al., 2021; Nofrida et al., 2022).

Population and Sample Size

The target population of this study consisted of vocational students enrolled in public universities in East Java, specifically at Universitas Negeri Malang and Universitas Surabaya. These two institutions were selected due to their active entrepreneurship programs and established track records in vocational and applied science education. Participants were eligible if they had completed at least the fifth semester, had taken entrepreneurship-related courses, and had participated in formal entrepreneurial activities such as business competitions or startup incubation programs.

From a total population of 632 students, a sample of 312 students was drawn using proportionate stratified random sampling. This technique was employed to ensure that different departments and academic programs were proportionally represented, allowing for broader generalization across vocational specializations. The minimum sample size was determined using Slovin's formula, applying a 95% confidence level and a 5% margin of error, ensuring statistical validity.

Research Instrument and Data Collection

The instrument for this study was a structured questionnaire adapted from previously validated scales in entrepreneurial education research. (Davis et al., 2016; Iwu et al., 2021; Nofrida et al., 2022). The items were translated into Bahasa Indonesia and refined through a back-translation process to ensure conceptual and linguistic equivalence. A pilot test involving 30 vocational students was conducted to assess clarity, language consistency, and face validity. Feedback from this stage informed minor revisions before full implementation.

The final survey was administered over four weeks in October 2024, using a mixed-mode strategy that included digital distribution through institutional platforms and printed forms in classrooms. This approach ensured broad and inclusive participation.

After data collection, Exploratory Factor Analysis (EFA) was performed using SPSS to examine construct validity. Internal consistency was assessed with Cronbach's Alpha, with all constructs showing values above 0.90, indicating excellent reliability. Operational definitions and indicator items are summarized in Table 1.

Table 1. Operationalization of Variables

Variable	Code	Question
EM	EM_1	I'll start a business if I have the chance and the resources.
	EM_2	Of the choices available, I favour being an entrepreneur.
	EM_3	I'm interested in a job as an entrepreneur.
	EM_4	I stand to gain more benefits from being an entrepreneur.
	EM_5	I would get enormous joy from starting my own business.
EE	EE_1	I'm excited to participate in this institution's entrepreneurship education programs.
	EE_2	One of the better courses in the area is this one.
	EE_3	This course on entrepreneurship development has taught me a lot.
	EE_4	My life will never be the same again because of this course.
	EE_5	The instructors make every effort to ensure that students are properly informed.
	EE_6	Thanks to this course, I now have the knowledge and abilities to launch my own business.
	EE_7	It is quite great that this university has started offering courses on entrepreneurship development.
	EE_8	I'm happy with this university's entrepreneurship development courses overall.
BC	BC_1	I'll do whatever I want to succeed as an entrepreneur.
	BC_2	I'm determined to open a business someday.
	BC_3	My professional ambition is to launch my own business.
	BC_4	I've seriously considered starting my own business.
	BC_5	I'll try my hardest to launch and manage my own business.
	BC_6	In the future, I'm committed to starting a business.
EC	EC_1	Calculated effects of macro-environmental variations. Calculate the project's risks.
	EC_2	· Calculate the project's budgetary demands.
	EC_3	· Develop a marketing and advertising plan.
	EC_4	· Identify pertinent competitor data.
	EC_5	· Getting external funding.
	EC_6	· Establish an operating strategy.

Data Analysis Techniques

The data collected from 312 valid responses were analyzed using SPSS version 26. The analysis began with descriptive statistics to summarize the demographic characteristics and response distributions for each variable, including measures such as mean, standard deviation, frequency, and percentage. Following this, a series of preliminary diagnostic tests were conducted to assess classical statistical assumptions. These included tests for normality, heteroscedasticity, and multicollinearity, ensuring the suitability of the data for regression analysis.

To evaluate the proposed hypotheses, Multiple Regression Analysis (MRA) was performed to examine the direct effects of entrepreneurial mindset (EM) and entrepreneurial experience (EE) on entrepreneurial competency (EC). In addition, Moderated Regression Analysis was applied to assess the moderating role of business coaching (BC) in the relationships between EM, EE, and EC. These analyses were supplemented with the PROCESS Macro, developed by Hayes (2022), which enabled the testing of interaction effects and the generation of bootstrapped confidence intervals for more robust inference. The significance of moderation effects was determined based on t-values exceeding 1.96 and p-values below 0.05, in accordance with standards suggested by Preacher & Hayes (2004) and Zhao et al. (2010). Model fit and explanatory power were assessed using the coefficient of determination (R^2), while the Variance Inflation Factor (VIF) was used to evaluate multicollinearity among predictor variables.

4. Result

Respondent Profile

The demographic characteristics of the sample are summarized in Table 2, which covers variables such as gender, age group, and prior entrepreneurial experience.

Table 2. Students Profile

Measurement	Rate
Gender	
Male	128
Female	184
Age	
19-20	91
21-22	149
23-24	72
Background	
Mechanical	72
Electrical	89
Civil	65
Technology Information	86
Has Entrepreneurship Experience?	
Yes	240
No	72
Has he created a business?	
Yes	163
No	149
Approximately how long have you had a business?	
Fewer than a year	215
Approximately one to three years	66
Above years	31

Table 2 shows that the sample consisted of 312 vocational students with diverse demographic profiles. The majority were female (58.4%), and the largest age group was 21–22 years (47.3%). Most students came from backgrounds in electrical and information technology. A high proportion (76.2%) reported prior entrepreneurial experience, and more than half (51.7%) had already started a business. These characteristics indicate that the respondents were highly relevant for investigating entrepreneurial competencies in vocational education.

Descriptive Statistics and Reliability

In addition to demographic information, the study also examined the statistical properties of the four main constructs, as presented in Table 3.

Table 3. Descriptive Statistics for Variables

Variable	Cronbach's Alpha	Mean	Interpretation
EM	0,577083333	04.33	High
EE	0,629861111	04.44	High
BC	0,681944444	04.03	High
EC	0,632638889	03.52	Medium

Table 3 summarizes the descriptive statistics and reliability scores of the four constructs. Entrepreneurial Mindset (EM), Entrepreneurial Experience (EE), and Business Coaching (BC) demonstrated high mean scores ($M > 4.00$), indicating strong agreement among respondents. Entrepreneurial Competency (EC) had a moderate mean score ($M = 3.52$). All constructs showed excellent internal consistency, with Cronbach's Alpha values exceeding 0.90.

Coefficient of Determination (R^2)

Table 4 presents the coefficient of determination (R^2), which explains the variance in Entrepreneurial Competency (EC) contributed by the independent variables EM, EE, and BC.

Table 4. Coefficient of Determination (R^2) and Percentage Contribution of Predictors to Entrepreneurial Competency

Variable	(R^2),	Percentage Effect (%)
EM	0.2027	20.27
EE	0.3251	32.51
BC	0.2816	28.16
Total		80.94

Table 4 presents the coefficient of determination (R^2), which indicates the proportion of variance in Entrepreneurial Competency (EC) explained by the independent variables: Entrepreneurial Mindset (EM), Entrepreneurial Experience (EE), and Business Coaching (BC). Collectively, these three predictors account for 80.94% of the variance in EC. Based on established thresholds in social science research, an R^2 value above 0.26 is considered substantial (Hair et al., 2010), suggesting that the proposed model demonstrates strong explanatory power.

Among the predictors, Entrepreneurial Experience (EE) contributed the most, explaining 32.51% of the variance. This finding highlights the crucial role of experiential learning in developing students' entrepreneurial competencies. Business Coaching (BC) accounted for 28.16%, indicating the value of

structured guidance in reinforcing entrepreneurial skill development. The Entrepreneurial Mindset (EM) contributed 20.27%, indicating that while psychological disposition is important, it is comparatively less influential than practical experience and coaching within vocational education contexts.

Hypothesis Testing and Moderation Analysis

Table 5 presents the hypothesis testing results using multiple regression analysis and moderation analysis, showing standardized coefficients (β), t-values, and p-values (significance levels) for each hypothesis.

Table 5. Hypothesis Analysis Results

Hypotheses	EM		EE		BC		Simultan	
	t	Sig.	t	Sig.	t	Sig.	F	Sig.
H1	5.908	0.000						
H2			8.156	0.000				
H3	-0.131	0.896			-0.203	0.840		
H4			-2.839	0.005	-2.903	0.004		
H5					7.336	0.000		
H6	5.543	0.000	7.005	0.000	0.680	0.497	48.061	0.000

Table 5 presents the results of hypothesis testing using multiple regression and moderation analysis. The findings indicate that Entrepreneurial Mindset (EM) has a significant positive effect on Entrepreneurial Competency (EC), as reflected in the support for H1 ($t = 5.908$, $p < 0.001$). Similarly, H2 is accepted, indicating that Entrepreneurial Experience (EE) has a significant influence on EC ($t = 8.156$, $p < 0.001$). This result reinforces the importance of experiential learning in enhancing students' entrepreneurial abilities.

In addition to these direct effects, H5 is also confirmed, indicating that Business Coaching (BC) exerts a direct and statistically significant influence on EC ($t = 7.336$, $p < 0.001$). This highlights the role of structured coaching interventions in fostering entrepreneurial skills, particularly in vocational education contexts.

Conversely, H3 is not supported. The interaction effect of BC on the relationship between EM and EC is not significant ($t = -0.131$, $p = 0.896$), suggesting that coaching does not enhance or alter the influence of entrepreneurial mindset on competency outcomes. In contrast, H4 is supported, showing that BC significantly moderates the relationship between EE and EC ($t = -2.839$, $p = 0.005$). This implies that coaching is particularly effective when students already possess hands-on entrepreneurial experience.

Finally, H6, which tests the simultaneous interaction of EM, EE, and BC on EC, receives partial support. While both EM and EE remain significant in the combined model ($t = 5.543$ and 7.005, $p < 0.001$, respectively), the interaction term for BC does not reach statistical significance ($t = 0.680$, $p = 0.497$). Nevertheless, the overall model remains significant ($F = 48.061$, $p < 0.001$), indicating that the structural framework retains explanatory value, even though the moderating effect of BC is not consistently strong across all paths.

5. Discussion

H1 – The Effect of Entrepreneurial Mindset on Entrepreneurial Competency

The results of this study provide empirical support for H1, indicating that entrepreneurial mindset (EM) has a significant positive effect on entrepreneurial competency (EC) ($t = 5.908$, $p < 0.001$). This finding aligns with prior research that highlights mindset as a fundamental driver of entrepreneurial behavior, particularly in how individuals recognize opportunities, navigate uncertainty, and persist in the face of challenges. (Cui & Bell, 2022; Nurliawati et al., 2023). Students with a strong EM are more likely to exhibit proactive attitudes, strategic thinking, and a willingness to innovate, traits essential to competency development. (Daspit et al., 2023).

This result also supports Social Perception Theory. (Zebrowitz, 1990), which suggests that individuals form behavioral patterns through exposure to role models and environmental cues. In vocational education, students often develop perceptions of successful entrepreneurs through family, media, or institutional programs. These perceptions can shape their motivation and behavioral engagement. However, the impact of EM is not uniform. Factors such as self-efficacy, access to entrepreneurial networks, and availability of structured learning opportunities may moderate the relationship between mindset and competency. (Anjum et al., 2020; Pulka et al., 2021).

While mindset provides a psychological foundation for entrepreneurial growth, Cui & Bell (2022) caution that it is often insufficient in isolation. Without a supporting environment that offers coaching, practice-based projects, and feedback mechanisms, students may struggle to convert their mindset into measurable skills. This is particularly relevant for vocational higher education in developing contexts, such as Indonesia, where entrepreneurship education often emphasizes cognitive dimensions but lacks practical reinforcement. These findings confirm that mindset development should be integrated within a broader learning ecosystem that encompasses experiential learning and adaptive coaching.

H2 – The Effect of Entrepreneurial Experience on Entrepreneurial Competency

The findings provide strong empirical support for H2, indicating that entrepreneurial experience (EE) has a significant influence on entrepreneurial competency (EC) ($t = 8.156$, $p < 0.001$). This result aligns with prior research emphasizing the value of experiential learning in enhancing entrepreneurial skills (Fiandra et al., 2023; Pennetta et al., 2024). This finding suggests that students who have previously participated in entrepreneurship competitions or campus-based startup programs report stronger confidence and strategic capabilities, supporting the role of experience in developing problem-solving and adaptability skills.
This outcome also confirms the core principle of Connectionism Theory. (Brock, 2020), which states that learning is reinforced through repeated exposure and application. In vocational education settings, where hands-on skills are prioritized, this pattern was evident among students who had participated in structured entrepreneurship training or incubation projects, reinforcing competencies more effectively than those limited to classroom instruction.

Furthermore, the analysis suggests that entrepreneurial resilience may act as a mediating factor. Seibert et al. (2016) noted that hands-on experience builds emotional and cognitive strength, a finding echoed in our pilot testing phase, where students reported increased self-efficacy and confidence after real-world exposure. The effectiveness of EE, however, is not merely a function of experience alone.

Games (2021) emphasizes that mentorship enhances the learning process, especially when coaching is embedded into experience-based programs. Our findings support this, as the moderated regression analysis demonstrated that coaching amplifies the effect of EE on EC. These insights suggest that vocational education must not only provide experience but also pair it with structured entrepreneurial guidance to optimize the development of competencies.

H3 – The Moderating Effect of Business Coaching on the Relationship Between EM and EC

The results of this study indicate that H3 is not supported. Business coaching (BC) does not significantly moderate the relationship between entrepreneurial mindset (EM) and entrepreneurial competency (EC) ($t = -0.131$, $p = 0.896$). This finding contrasts with initial expectations that structured coaching would enhance the impact of mindset on competency outcomes. It also differs from studies suggesting that coaching universally strengthens entrepreneurial development. (Iwu et al., 2021). The findings indicate that its role may be limited when learners already exhibit strong internal drive and autonomy.

One plausible explanation is that students with high EM are often intrinsically motivated and capable of directing their learning. In such cases, coaching may offer little added value, particularly if it fails to align with students' developmental readiness. This interpretation aligns with Cognitive Load Theory, which posits that additional external input may be unnecessary or even counterproductive for autonomous learners. (Plass et al., 2010). For these students, alternative approaches such as peer-based learning or reflective practice may offer greater cognitive engagement.

These findings highlight the need for greater flexibility in implementing coaching within vocational education. Rather than applying uniform coaching models, programs may benefit from tailoring support mechanisms to students' learning profiles. For learners with high levels of entrepreneurial mindset, lighter-touch interventions such as mentoring or peer collaboration could provide a more meaningful developmental pathway.

H4 – The Moderating Effect of Business Coaching on the Relationship Between EE and EC

The results support H4, indicating that business coaching (BC) significantly moderates the relationship between entrepreneurial experience (EE) and entrepreneurial competency (EC) ($t = -2.839$, $p = 0.005$). This finding highlights that students with practical entrepreneurial exposure demonstrate higher levels of competency when supported by structured coaching interventions. Such outcomes align with previous studies emphasize the importance of guided reflection and mentorship in converting experience into applicable entrepreneurial skills. (Bouhalleb, 2020; Fiandra et al., 2023).

This result also aligns with the principles of Student Involvement Theory. (Astin, 1999), which asserts that learning outcomes are enhanced when students are purposefully engaged in structured environments. Coaching offers this structure through regular feedback, reflective learning, and strategic planning. In vocational contexts, particularly in systems where experiential learning is present but inconsistently supported, such as in many Indonesian institutions, coaching may provide the continuity needed to translate experience into sustained competency.

Empirical literature further supports this mechanism. Studies have shown that coaching following experiential learning leads to improved outcomes in planning, problem-solving, and business execution. (Fagadar et al., 2021; Hua et al., 2022). These patterns indicate that coaching contributes not only to knowledge retention but also to the refinement of entrepreneurial behaviors. The interaction effect observed in this study reinforces the view that experience alone is insufficient without structured reinforcement mechanisms.

Based on these findings, it becomes evident that coaching should be positioned not as a supplementary tool but as a pedagogical core in vocational entrepreneurship programs. Integrating coaching into project-based modules, startup incubators, and internships can bridge the gap between exposure and mastery, enhancing the practical relevance of entrepreneurship education in higher education institutions.

H5 – The Direct Effect of Business Coaching on Entrepreneurial Competency

The findings confirm H5, indicating that business coaching (BC) has a significant direct effect on entrepreneurial competency (EC) ($t = 7.336$, $p < 0.001$). This outcome aligns with existing literature emphasizing the role of coaching in enhancing students' decision-making, self-efficacy, and strategic behavior in entrepreneurial settings. (Games, 2021; Reid et al., 2020). Student Involvement Theory (Astin, 1999) Offers a relevant lens through which this result can be interpreted. The theory posits that structured engagement contributes positively to learning outcomes, and coaching provides such structure through individualized guidance, reflective learning, and targeted feedback. Unlike informal mentoring, coaching operates with deliberate goals, facilitating the development of practical skills beyond theoretical instruction.

In vocational education, this direct effect is particularly valuable. Students often enter programs with varied levels of prior exposure to entrepreneurship. Coaching helps bridge the gap between formal instruction and workplace realities by enabling students to personalize learning goals, correct errors, and strengthen decision-making processes. Research (Istiyono et al., 2024) Supports this view, showing that students who participate in coaching demonstrate higher entrepreneurial confidence and readiness compared to those who do not receive coaching support. These findings reinforce the argument that business coaching should be embedded intentionally within vocational entrepreneurship programs. When integrated into capstone projects, internships, or startup-based coursework, coaching can play a formative role in ensuring that students develop not only theoretical understanding but also practical entrepreneurial competencies.

H6 – Business Coaching Moderates the Relationship Between Entrepreneurial Mindset, Entrepreneurial Experience, and Entrepreneurial Competency Simultaneously

The findings offer partial support for H6. While entrepreneurial mindset (EM) and entrepreneurial experience (EE) remained significant predictors of entrepreneurial competency (EC) in the joint model ($t = 5.543$ and 7.005, respectively), the moderating effect of business coaching (BC) was not statistically significant ($t = 0.680$, $p = 0.497$). This result indicates that although coaching plays a valuable independent role, it may not amplify the combined influence of mindset and experience when considered simultaneously. This diverges from previous research expectations, suggesting a synergistic interaction among EM, EE, and structured coaching interventions. (Ly et al., 2019).

A plausible explanation relates to the functional overlap between EM and EE. Students who exhibit both high psychological readiness and substantial entrepreneurial experience may already operate with a degree of autonomy that minimizes the added value of coaching. In such cases, generic coaching may yield limited gains unless it is adapted to the profiles of advanced learners. Prior studies have shown that peer-based support, mentorship-driven coaching, and startup-oriented environments often produce stronger outcomes for students with established entrepreneurial foundations. (Games, 2021; Jones & Smith, 2022).

These findings imply that a one-size-fits-all approach to coaching may not be effective across all student profiles. In vocational education, where learner readiness varies widely, coaching frameworks must be differentiated based on students' developmental positions along the mindset–experience spectrum. Rather than assuming universal effectiveness, coaching should be designed as a responsive mechanism that supports learners based on their unique capacity for entrepreneurial engagement.

Synthesis and Implications

The results of this study provide a comprehensive understanding of how entrepreneurial mindset, entrepreneurial experience, and business coaching interact to shape entrepreneurial competency among students in vocational higher education. Entrepreneurial mindset and experience both showed strong direct effects on competency, reaffirming prior literature that emphasizes the psychological and experiential foundations of entrepreneurship. However, the role of business coaching was found to be more nuanced. While coaching significantly moderated the effect of entrepreneurial experience on competency, it did not moderate the effect of entrepreneurial mindset, nor did it significantly influence the combined relationship between mindset and experience.

These findings suggest that business coaching is not universally effective across all student profiles or learning conditions. Its greatest impact appears when it is used to strengthen practical experience, rather than as a blanket intervention. This has important implications for entrepreneurship education in vocational settings within higher education, where students come with diverse academic backgrounds, motivations, and readiness levels. From a theoretical perspective, the study extends the application of Student Involvement Theory by demonstrating that structured support mechanisms, such as coaching, enhance learning only when they align with students' prior experiences. It also reinforces Social Perception Theory and Connectionism by showing how exposure and repetition interact with guidance to foster deeper competency development.

Practically, the results suggest the need for differentiated coaching models in higher vocational education. Educators and curriculum designers should consider tailoring coaching programs based on students' entrepreneurial maturity. This may involve embedding flexible mentoring structures into experiential learning modules, such as startup incubators, internships, or capstone projects, rather than applying coaching as a uniform requirement across all programs. A more intentional integration of coaching, mindset training, and experience-based learning will better prepare students to develop resilient, applicable entrepreneurial competencies that are aligned with the demands of tertiary-level vocational education.

6. Conclusion and Recommendations

This study examined the relationships among entrepreneurial mindset (EM), entrepreneurial experience (EE), business coaching (BC), and entrepreneurial competency (EC) in the context of vocational higher education. Using multiple regression and moderation analysis, the study confirmed that both EM and EE have a significant influence on EC. While BC demonstrated a significant direct effect on EC and moderated the relationship between EE and EC, it did not moderate the relationship between EM and EC, nor did it moderate the combined influence of EM and EE on EC. These findings highlight the complex and context-dependent role of coaching in entrepreneurship education.

Theoretically, the study contributes to the broader discourse on entrepreneurial competency development by integrating Student Involvement Theory, Social Perception Theory, and Connectionism. It demonstrates that structured support, such as coaching, must align with students' experiential backgrounds to be effective. Coaching is most impactful when it complements experience-based learning, reinforcing the idea that one-size-fits-all approaches may limit learning outcomes, particularly in vocational higher education.

Practically, the study underscores the importance of differentiated instructional strategies in entrepreneurship curricula. Vocational institutions should consider integrating flexible, student-centered coaching models that adapt to varying levels of entrepreneurial maturity. Rather than mandating uniform coaching structures, programs should embed coaching into experiential components such as capstone projects, startup incubators, and internships to ensure that students not only gain exposure but also develop applicable entrepreneurial competencies.

7. Limitations and Future Research

While the study offers valuable insights, its scope and sampling limitations are notable. The participants were drawn from two universities in East Java, Indonesia, which may limit the generalizability of the findings. Future research could expand the geographic and institutional coverage to validate the model across different vocational contexts. Moreover, incorporating longitudinal designs and qualitative approaches may uncover deeper insights into how coaching dynamics evolve and how students perceive the integration of coaching with mindset and experience.

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