

Integrating Business Courses Mentorship Programs and Investment to Enhance Entrepreneurial Opportunities

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ABSTRACT

Much research highlights the role of **business** incubators in fostering student entrepreneurship, but the impact of **business** courses and **mentoring** programs on recognizing **business** opportunities remains underexplored. This study investigates how entrepreneurship education, **mentorship**, and investment enhance students' ability to identify and create **business** opportunities, particularly in uncertain times. Data were collected from 205 third-year university students with experience in incubator and **mentoring** programs conducted by universities or external organizations. A quantitative approach was employed, utilizing SMART-PLS tools to analyze correlations between entrepreneurship education, **mentorship**, investment, and **opportunity** recognition. Results show investment and **mentoring** have the strongest correlation, highlighting the importance of financial and non-financial support for entrepreneurial success. The findings emphasize the significance of a well-designed **curriculum** in fostering **business opportunity** recognition, with **mentoring** programs mediating the relationship between educational and financial support. Integrating education, **mentorship**, and investment significantly influences student ventures by fostering entrepreneurial intentions and providing critical resources. Collaboration among educational institutions, policymakers, and investors is vital to establish comprehensive support systems that prepare future entrepreneurs to succeed in dynamic markets.

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1. INTRODUCTION

Entrepreneurship plays a vital role in driving innovation and fostering economic resilience amidst global market volatility. It has become a preferred avenue for young individuals worldwide to create opportunities, with Indonesia seeing significant interest in startups and creative projects [1, 2]. This trend underscores the need for robust support systems comprising entrepreneurship education, mentorship, and investment to provide aspiring entrepreneurs with essential tools and guidance [3].

Research highlights the impact of entrepreneurship education, entrepreneurial mindsets, and creativity in nurturing talent and increasing entrepreneurial intentions through formal and informal learning [4, 5]. Collaboration between academic programs and business incubators is crucial for enhancing entrepreneurial competencies and providing experiential learning opportunities [6, 7].

Business incubators significantly contribute to job creation, innovation, and economic development by validating business opportunities and offering comprehensive support to ventures of all scales [8–10]. They also enhance entrepreneurial skills through programs like peer mentoring, which expand networking and strategic insights crucial for navigating new business challenges [11, 12].

Despite extensive studies on business incubators roles, limited focus has been placed on integrating entrepreneurship courses and mentoring to accelerate opportunity recognition [13]. This study addresses this gap by examining how education, mentorship, and investment synergistically equip students to identify and seize business opportunities in uncertain markets. It provides insights into fostering resilience and adaptability in future entrepreneurs.

2. LITERATURE REVIEW

2.1. Entrepreneurship Education (BC)

Entrepreneurship education encompasses formal and informal programs that equip students with essential entrepreneurial knowledge, skills, and mindsets, fostering creativity, innovation, and the ability to recognize business opportunities through environmental and market analysis [5, 14].

This education plays a pivotal role in developing entrepreneurial capabilities. Literature highlights the breadth of topics covered in such courses, designed to prepare students for managing successful ventures [5, 14]. Integrating social entrepreneurship literature into teaching connects theory with practical skills, enhancing relevance [5, 15]. Universities utilize diverse teaching and evaluation methods to enrich entrepreneurship education, broadening its scope and impact [5, 14, 16].

Modern entrepreneurship education emphasizes conventional business concepts while nurturing creativity, leadership, innovation, and strategic thinking—critical for thriving in dynamic environments [17]. Research suggests entrepreneurship awareness courses should shape students attitudes and serve as precursors to skill development programs like mentoring [18]. Studies also affirm the positive influence of entrepreneurial education on intentions and behaviors [19, 20].

2.2. Mentorship Program (M)

Entrepreneurial mentorship involves guidance from experienced individuals to help less-experienced entrepreneurs navigate challenges and refine ideas [21–23]. In higher education, mentorship often features in incubator programs.

The interdisciplinary role of business incubators highlights their importance in embedding entrepreneurship into curricula to foster competencies [24]. Research links evolving entrepreneurship courses with the need for alignment with entrepreneurial demands [25]. Studies emphasize mentorship influence on intentions, career choices, and opportunity recognition [6, 9, 22, 23] and underscore the importance of pedagogical approaches [26].

Mentoring initiatives also incorporate design thinking and experiential methods like business plan simulations, enhancing practical understanding [27]. Peer activities in mentoring foster collaborative environments, boosting self-efficacy and strategic insights [28, 29].

2.3. Being Invested (BI)

Investment, encompassing seed capital, venture funding, and other financial support, is crucial for startup growth, transforming ideas into marketable solutions [30, 31]. Beyond financial aid, it provides access to industry networks, mentorship, and validation [32], boosting entrepreneurial confidence and motivation [33].

Industry engagement offers students invaluable market insights, aiding venture positioning [34, 35]. Mentorship programs linked to investment initiatives equip students with skills and tools for navigating entrepreneurship complexities [12].

2.4. Business Opportunities (OR)

Opportunity recognition is central to entrepreneurship education, combining theoretical and experiential learning to develop practical recognition skills [22, 23]. Real-world contexts cultivate innovation-oriented mindsets, fostering viable business ideas [6, 36]. Mentorship complements this education, guiding students in opportunity identification and pursuit [37]. Investments further enhance these capabilities by transforming opportunities into ventures [38].

2.5. Research Framework and Hypotheses

Based on the literature, the research proposes the following hypotheses: H1: Business Courses (BC) positively influence Mentorship Programs (M). H2: Business Courses (BC) positively influence Opportunity Recognition (OR). H3: Investment (BI) positively influences Mentorship Programs (M). H4: Investment (BI) positively influences Opportunity Recognition (OR). H5: Mentorship Programs (M) positively influence Opportunity Recognition (OR). H6: Mentorship Programs (M) mediate the relationship between Business Courses (BC) and Opportunity Recognition (OR). H7: Mentorship Programs (M) mediate the relationship between Investment (BI) and Opportunity Recognition (OR).

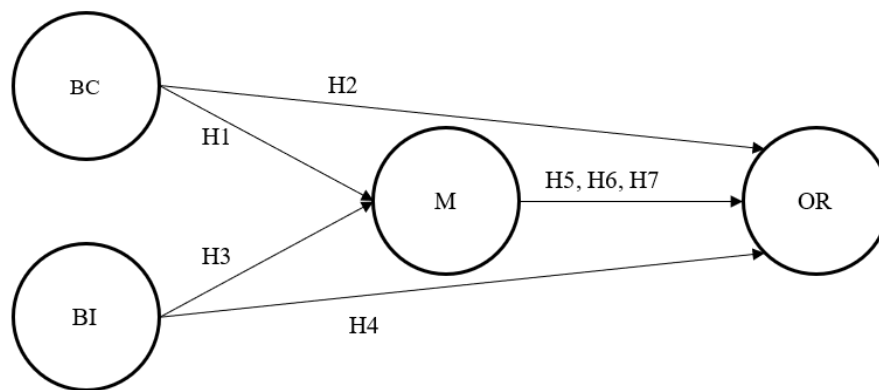


Figure 1. Research Framework

Figure 1 illustrates the hypothesized relationships among Business Courses (BC), Mentorship Programs (M), Investment (BI), and Opportunity Recognition (OR). Mentorship mediates the effects of education and financial support, highlighting its role in bridging theoretical knowledge, investment, and entrepreneurial success.

3. METHODOLOGY

The methodology for this research employs a quantitative approach utilizing non-probability sampling, specifically a purposive sampling technique. This method is particularly suitable for targeting specific respondent criteria [39], including third-year college students with experience with incubators and mentoring programs. These programs can be either formal, conducted by higher education institutions, or informal, such as those offered by non-formal mentoring or incubator initiatives. The selection criterion stipulates that respondents must have engaged with these programs for a minimum duration of four months, ensuring that they possess adequate exposure to the entrepreneurial processes and environments fostered by such initiatives. This targeted sampling approach allows for a focused analysis of the impact of incubators and mentoring on students' ability to recognize and act upon business opportunities.

This research adopts a 95% confidence level with a 10% margin of error to determine the minimum required sample size. Using this criterion and based on calculations performed with specialized sampling software, the minimum sample size was determined to be 97. This aligns with the methodologies of prior studies that also utilized the SAM software to establish sample size requirements [40]. However, in our research, we exceeded this minimum threshold by collecting data from 205 valid respondents who met our defined criteria. These respondents were third-year university students with significant experience participating in business incubators or mentorship programs for a minimum of four months. This extended exposure ensured that participants had sufficient familiarity with entrepreneurial processes and ecosystems, making their insights highly relevant and reliable for our study.

The dataset collected from these respondents was analyzed using the Smart-PLS (Partial Least Squares Structural Equation Modeling) tool, which is well-suited for evaluating complex models with multiple constructs and indicators. The Smart-PLS analysis was employed to measure the validity and reliability of the construct variables, ensuring robust and credible results. Furthermore, it allowed us to test the proposed hypotheses effectively, providing a deeper understanding of the relationships between business courses, mentorship programs, financial investment, and entrepreneurial opportunity recognition. By employing a larger-than-required

sample size, the study strengthens its statistical power and enhances the generalizability of its findings.

The indicators that were used in this research came from previous research which modify that fit for our research purposes. For business course variables adopted from Jena [15, 22, 23], we apply five indicators:

BC1: Business studies create better business skills.

BC2: Business courses improve the ability to recognize business opportunities.

BC3: Business lectures increase business knowledge.

BC4: Business studies improve business skills.

BC5: Business lectures increase creativity.

Four indicators used to measure the being invested variable in this research adopted from [39], namely:

BI1: Capital support helps business development.

BI2: Business requires additional business capital.

BI3: Investors help founders grow the business.

BI4: Investors help businesses grow.

For the mentoring program, we adopt four indicators taken from the previous research conducted by [33] namely:

M1: Mentoring with experts helps in business development.

M2: Mentoring with experts helps in getting business inspiration.

M3: Mentoring with experts helps to be more productive.

M4: Mentoring with experts helps to achieve business targets.

Lastly, for the student opportunity recognition variable adopted from [9, 15], we used five indicators namely:

OR1: Ability to see business problems.

OR2: Ability in information management.

OR3: Ability to provide alternative business solutions.

OR4: Ability to obtain and create new ideas.

OR5: Ability to innovate and improve.

4. RESULTS AND DISCUSSION

4.1. Respondents Profile

Table 1. Respondent Profile

Gender	Count	%	Type of Business	Count	%
Female	101	49%	F&B	121	59%
Male	104	51%	Fashion	35	17%
Age			Digital Services	12	6%
18	58	28%	Trading	10	5%
19	28	14%	Essential Service	9	4%
20	24	12%	Craft	9	4%
21	91	44%	Others	9	4%
22	4	2%			

Table 1 represents the respondent profile in our research. Most of our respondent started their business in the Food and Beverages (F&B) and fashion sectors, similar to the data from the Indonesian government which mentions that most of the creative industries in Indonesia are F&B and fashion which these creative industries sectors contribute significantly to the GDP of Indonesia [41].

4.2. Validity and Reliability

Table 2 and Table 3 represent the validity and reliability of our research model, which consists of outer loading factors and convergent validity. As represented in Table 2 and Table 3, all our outer loading and convergent validity values show satisfactory results, except the indicator BI2. However, even though indicator BI2 in our research shows score below the ideal score (0.7), this result still can be acceptable when the score of outer loading is between 0.4 – 0.7 and convergent validity such as the Cronbach's Alpha (CA), rho_A, Composite Reliability (CR), Average Variance Extracted (AVE) above the threshold number. The value of

CA, rho_A, and CR must be above 0.7 and AVE must be above 0.5. The information on CA, rho_A, and CR further reinforces the constructs internal consistency. The AVE also provides a significant convergent validity indicator, validating the result to show that the constructs are capable of measuring the desired concepts.

Table 2. Outer Loading Result

Indicator	BC	BI	M	OR
BC1	0.870			
BC2	0.864			
BC3	0.846			
BC4	0.869			
BC5	0.845			
BI1		0.762		
BI2		0.639		
BI3		0.847		
BI4		0.845		
M1			0.912	
M2			0.924	
M3			0.924	
M4			0.905	
OR1				0.772
OR2				0.852
OR3				0.871
OR4				0.840
OR5				0.849

Table 2 presents the outer loading values for each indicator used in the research model. These values represent the individual contribution of each indicator to its respective latent variable. Most indicators exceed the recommended threshold of 0.7, indicating strong individual reliability. However, indicator BI2 has a lower value (0.639), which is still acceptable as per [34] when the composite reliability and other validity criteria are met.

Table 3. Construct Validity and Reliability

Variable	CA	rho_A	CR	AVE
BC	0.911	0.914	0.934	0.738
BI	0.781	0.805	0.858	0.605
M	0.936	0.938	0.954	0.839
OR	0.893	0.900	0.921	0.701

Table 3 displays the validity and reliability metrics for the constructs used in the research. Cronbach's Alpha (CA), rho_A, Composite Reliability (CR), and Average Variance Extracted (AVE) all exceed their respective thresholds, confirming the internal consistency and convergent validity of the constructs.

Cronbach's Alpha (CA) measures the internal consistency of the items within each construct, ensuring that they collectively represent a single latent variable. The values exceeding 0.7 indicate that the constructs exhibit satisfactory reliability, aligning with established benchmarks in the literature. Similarly, rho_A further strengthens this reliability assessment by providing an alternative measure of internal consistency, ensuring robustness across different calculation methods.

Composite Reliability (CR) serves as a more comprehensive metric by accounting for the varying contributions of individual indicators. The CR values above 0.7 reinforce the reliability of the constructs, indicating that the items consistently measure their respective latent variables.

The Average Variance Extracted (AVE) values, which are all above the threshold of 0.5, confirm convergent validity. This means that more than 50% of the variance in the indicators is explained by their associated latent variables, demonstrating that the constructs adequately capture their intended concepts. High AVE values also suggest that the constructs have strong explanatory power, minimizing measurement error.

Overall, these results validate the measurement model, ensuring that the constructs are both reliable and valid for subsequent structural equation modeling. By exceeding the recommended thresholds for CA, rho_A, CR, and AVE, the constructs in this study are well-suited for exploring the hypothesized relationships among the variables.

4.3. Discriminant Validity and Collinearity Analysis

Table 4. Collinearity Result

Indicator	VIF	Indicator	VIF
BC1	2.736	M1	3.899
BC2	2.829	M2	4.038
BC3	2.473	M3	4.197
BC4	2.787	M4	3.526
BC5	2.380	OR1	1.865
BI1	1.485	OR2	2.315
BI2	1.369	OR3	2.689
BI3	2.322	OR4	2.338
BI4	2.300	OR5	2.242

The collinearity result, as indicated in Table 4, indicates that the predictor variables used in this research, namely Business Courses, Being Invested, Mentoring Program, and Opportunity Recognition, do not show problematic levels of multicollinearity within the measured constructs which show the value of all indicators is below 5 [37]. This enhances the analysis dependability and our comprehension of the link between the research's variables.

Table 5. Discriminant Validity - HTMT

Variable	BC	BI	M	OR
BC				
BI	0.610			
M	0.467	0.617		
OR	0.504	0.418	0.471	

The discriminant validity is used to demonstrate whether the constructs in a research model are distinct from each other, ensuring that the correlation criterion serves as a reliable estimator. A value below 0.7 is considered ideal for discriminant validity, as it indicates that the constructs are adequately independent. However, in cases where the threshold is not met, values below 1 are still deemed acceptable for demonstrating construct validity. This assessment is critical in structural equation modeling to confirm that each latent variable measures a unique concept, preventing redundancy and overlap between constructs.

As shown in Table 5, all construct scores in the research model are below the 0.7 threshold, confirming that the variables used in this study are distinct and accurately represent their intended constructs. These results reinforce the robustness of the model, ensuring that multicollinearity is not a concern and that the constructs exhibit sufficient discriminant validity. The findings further validate the theoretical framework of this study, supporting the reliability of the hypothesized relationships between the variables. Overall, achieving strong discriminant validity enhances the credibility and generalizability of the research outcomes, providing a solid foundation for drawing meaningful conclusions.

Table 6. Model Fit Result

	Saturated Model	Estimated Model
SRMR	0.059	0.059
d_ULS	0.604	0.604
d_G	0.299	0.299
Chi-Square	371.282	371.282
NFI	0.858	0.858

Table 6 presents the consistency in values for both the estimated and saturated models across these fit metrics. The similarity in goodness-of-fit measures indicates that the estimated model fits the observed data well satisfactorily. The standardized root mean square residual (SRMR) score below 0.08 indicates model has a good. The Normed Fit Index (NFI) relates to a meaningful standard that is used in the research model, the ideal threshold value is above 0.9, but the range starts from 0 to 1, the bigger value is better goodness of fit model. The geodesic discrepancy (d_G) or the unweighted least squares discrepancy (d_{ULS}) was also used to identify the goodness of fit model with a minimum threshold below 0.95.

4.4. Effect of Hypothesis Testing

The bootstrapping technique was used in this research to determine the path coefficient and test the proposed hypothesis of the study. As shown in Table 7 and Figure 1, all proposed hypotheses in this research are valid as a p-value score less than 0.05 [37, 42].

Being invested and mentoring programs show the strongest correlation within the hypothesis, with p-value=0 and T statistics=5.436, which means that while education provides a theoretical foundation and critical thinking skills, mentorship translates these theories into practice by offering real-world perspectives and strategic advice. Students who participate in both robust academic programs and comprehensive mentorship are better equipped to adapt their learning to dynamic business environments. The results also highlight the vital role of financial investment in fostering entrepreneurial readiness, which means that financial backers often play a crucial role in facilitating or providing access to mentoring resources, thereby enhancing the overall support system or ecosystem available to student entrepreneurs.

The business course to opportunity recognition shows the second highest correlation within the hypothesis, with p-value=0 and T statistics=5.432, which means the curriculum of the study program has an essential role for students in terms of opportunity recognition for their new venture and is consistent with previous studies that have been done, which has emphasized the importance of entrepreneurship education in developing students ability to identify and exploit business opportunities [14].

The significant correlation suggests that well-designed entrepreneurship courses can effectively enhance students opportunity recognition capabilities, a key component of entrepreneurial success. Meanwhile, the relationship between the mentoring program and opportunity recognition also shows the third effect, p-value=0 and T statistics=3.671, which means that the appropriate mentoring program can stimulate the opportunity recognition of the students to start their new venture. Mentors can provide personalized guidance, helping students identify market gaps, refine their business ideas, and develop strategies to capitalize on emerging trends [43]. For example, mentoring or sharing sessions with experienced entrepreneurs often involve sharing practical insights and real-life experiences, which helps students understand how to navigate volatile markets and respond to unforeseen challenges effectively.

The relationship between business courses and mentoring programs, as well as the relationship between being invested and opportunity recognition, show moderate relationships, which means that while entrepreneurship education provides the foundational knowledge and skills necessary for venture creation, the role of mentoring in applying this knowledge in practical contexts is pivotal. This relationship underscores the importance of integrating experiential learning with traditional coursework to enhance students entrepreneurial capabilities [44]. The combined approach prepares students to think critically and creatively and offers them the practical tools and resources to execute their ideas. Mentoring programs have the role of serving as a bridge between theoretical knowledge acquired through business course programs at higher education and the practical challenges of entrepreneurship, which offer personalized guidance, feedback, and support that are critical for navigating the entrepreneurial landscape for students which they may lack business experience.

The mentoring program also mediates both business courses and investment, showing that mentoring programs play a crucial role in mediating the relationships between business courses and investment and students recognition of business opportunities. These findings suggest that mentoring programs for new entrepreneurs significantly can enhance the impact of entrepreneurship education and financial support on students ability to recognize and pursue business opportunities, similar to the research that found mentorship provides added value through long-term benefits for mentees, which can be particularly pronounced in the context of entrepreneurship education. Mentors can offer guidance and facilitate students with access to business networks, resources, and strategic insights that are essential for navigating the complexities of starting and managing a new business [12]. Through the mentoring program, students may have access to invaluable insights, business networks, and practical advice that can significantly enhance their opportunity recognition

capabilities. Mentors can help students better understand market needs, refine their business ideas, and develop venture creation and growth strategies [45].

Table 7. Structural Model Evaluation and Verification

Hypothesis	Path	T Statistics (O/STDEV)	P Values	Result
H1	BC ->M	2.476	0.014	Significant
H2	BC ->OR	5.432	0.000	Significant
H3	BI ->M	5.436	0.000	Significant
H4	BI ->OR	2.273	0.023	Significant
H5	M ->OR	3.671	0.000	Significant
H6	BC ->M ->OR	2.041	0.042	Significant
H7	BI ->M ->OR	2.918	0.004	Significant

Table 7 summarizes the structural model evaluation and hypothesis testing results. All proposed hypotheses are supported, as indicated by T-statistics greater than 1.96 and p-values below 0.05. Notably, the strongest relationship is observed between Being Invested (BI) and Mentorship Programs (M), with T-statistics of 5.436 and a p-value of 0.000, highlighting the significant role of financial investment in enhancing mentorship initiatives. The results confirm that both direct and mediated relationships contribute to opportunity recognition among students, underlining the importance of integrating business courses, mentorship, and financial investment.

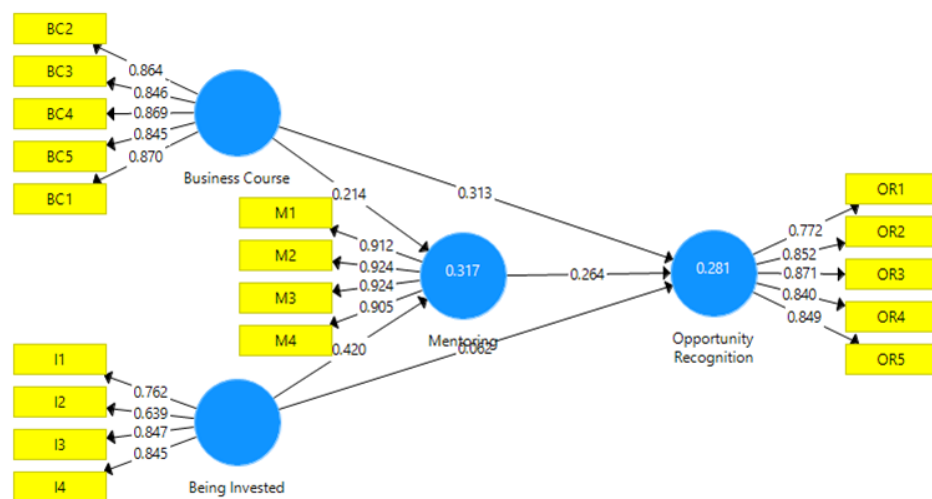


Figure 2. Structural Model Result

Figure 2 visualizes the structural model results, depicting the relationships among Business Courses (BC), Mentorship Programs (M), Being Invested (BI), and Opportunity Recognition (OR). The figure includes the path coefficients and their significance levels, illustrating the direct and mediated effects within the research model. The results emphasize the pivotal role of Mentorship Programs (M) in mediating the effects of both Business Courses (BC) and Being Invested (BI) on Opportunity Recognition (OR). This highlights the importance of a well-rounded support system combining education, financial backing, and mentorship to foster entrepreneurial success.

5. MANAGERIAL IMPLICATIONS

The findings of this study offer valuable managerial implications for educational institutions, policymakers, and investors. Universities should integrate entrepreneurship courses, mentorship programs, and investment opportunities into their curricula to enhance students' entrepreneurial capabilities through exposure to business opportunity recognition, creativity, and innovation. Tailored mentorship programs, including peer mentoring, problem-solving workshops, and business simulations, should provide both financial and non-financial support while offering strategic guidance and access to business networks. Furthermore, financial

investment plays a critical role in bridging the gap between entrepreneurial intent and execution; therefore, collaboration among policymakers, investors, and educational institutions is essential in providing early stage funding and venture opportunities. A collaborative stakeholder approach uniting educational institutions, government agencies, and private investors can establish a robust support system that equips future entrepreneurs to navigate market uncertainties, drive innovation, and promote sustainable economic growth.

6. CONCLUSION

This study has nuanced the perspective that the success of student ventures can be significantly influenced by entrepreneurship business courses, investment access, and mentoring programs. Through a comprehensive review of the literature, we have identified that these external factors play a pivotal role in not only fostering the entrepreneurial intentions among students but also in providing them with the necessary tools, resources, and networks to translate these intentions into successful business ventures. The role of business incubators and mentorship programs, in particular, has been highlighted as crucial in facilitating connections with potential investors, thereby enhancing the visibility and credibility of student startups. Furthermore, the impact of early-stage funding on the development and growth of student startups cannot be overstated, as it allows for prototyping, market testing, and refining of business models based on real-world feedback. While this study has shed light on the importance of research variables in the success of student ventures, it also opens avenues for future research to explore internal factors within higher education institutions that may influence entrepreneurial success. One such factor is the quality of lecturers and their pedagogical approaches to teaching entrepreneurship because previous studies have indicated that the educators skills, knowledge, and methods of teaching entrepreneurship significantly impact students entrepreneurial intentions and capabilities to find the new venture business opportunities.

According to this study, we suggest some important implications for educational institutions, policymakers, and investors. Fostering entrepreneurial success in uncertain times is essential to create a holistic ecosystem that integrates educational programs, mentorship, and financial support. Universities should consider developing partnerships with industry players and investors to provide comprehensive support to aspiring entrepreneurs. Additionally, incorporating elements of experiential learning, such as real-world problem-solving, market simulations, and mentorship from experienced entrepreneurs, can help students build the adaptability and resilience needed to thrive in uncertain markets.

7. DECLARATIONS

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7.2. Author Contributions

Conceptualization: ID, PP, and ZM; Methodology: ID; Software: PP; Validation: ZM; Formal Analysis: ID, PP, ZM; Investigation: ID, PP, ZM; Resources: ID; Data Curation: ID; Writing Original Draft Preparation: PP and ZM, Writing Review and Editing: ID, PP, ZM; Visualization: ID; All authors, ID, PP, ZM, have read and agreed to the published version of the manuscript.

7.3. Data Availability Statement

The data of this research already uploaded and can be found at Mendeley data <https://data.mendeley.com/datasets/j9h8z3zvwx/1>

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7.5. Declaration of Conflicting Interest

The authors declare that they have no conflicts of interest, known competing financial interests, or personal relationships that could have influenced the work reported in this paper.

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