Journal of Economics, Entrepreneurship, Management Business, and Accounting (JEEMBA)

E-ISSN: 2985-3222
P-ISSN: 2985-3168

JEEMBA Volume 3, Issue 3 September 2025

The Role of Opportunity Recognition in Linking Digital Entrepreneurial Literacy and Entrepreneurial Intention

[*1]Nurhayani, [1]Agung Maulana Anas, [1]Andi Anggi Kemalasari, [2]Muhammad Akbar, [2]Nurfadilah Sindika Sari

[1]Departmen of Economics, Faculty of Economics and Business, Universitas Negeri Makassar, Indonesia
[1]Department of Economics and Development Studies, Faculty of Economics and Business, Universitas Tadulako, Indonesia

[*]*Corresponding author:* nurhayani@unm.ac.id

Received : 20 Okt 2025
Revised : 17 Nov 2025
Accepted : 25 Des 2025

ABSTRACT

This study examines the effect of digital entrepreneurial literacy on entrepreneurial intention through opportunity recognition among university students. The study is motivated by the growing importance of digital competencies in supporting entrepreneurial activities in the digital economy. This study applies a quantitative approach using a structured questionnaire distributed to 84 university students selected through purposive sampling. Data were analyzed using Partial Least Squares Structural Equation Modeling with the assistance of SmartPLS software. The results show that digital entrepreneurial literacy does not have a significant direct effect on entrepreneurial intention. However, digital entrepreneurial literacy has a positive and significant effect on opportunity recognition, and opportunity recognition has a positive and significant effect on entrepreneurial intention. The findings also confirm that opportunity recognition fully mediates the relationship between digital entrepreneurial literacy and entrepreneurial intention. This study highlights opportunity recognition as a key mechanism through which digital entrepreneurial literacy contributes to entrepreneurial intention. The findings imply that entrepreneurship education should not only develop students' digital entrepreneurial competencies but also strengthen their ability to identify and evaluate business opportunities.

Keywords: Digital Entrepreneurial Literacy, Opportunity Recognition, Entrepreneurial Intention, University Students, Entrepreneurship Education

1. INTRODUCTION

Entrepreneurship is widely recognized as a key driver of economic growth, job creation, and national competitiveness. In the context of a knowledge-based economy, higher education institutions play a strategic role in producing graduates who are not only prepared to enter the labor market but also capable of creating new business opportunities. Consequently, Entrepreneurial Intention has become a central topic in entrepreneurship research because it is considered one of the strongest predictors of actual entrepreneurial behavior. Previous studies have demonstrated that university students' entrepreneurial intention is shaped by a combination of individual characteristics, entrepreneurship education, and institutional environments that influence their perceptions of entrepreneurship as a career option (Lv et al., 2021). Within the framework of the Theory of Planned Behavior, attitude toward entrepreneurship, perceived behavioral control, and subjective norms have consistently been identified as important determinants of entrepreneurial intention (Lin et al., 2022). Nevertheless, the strength of these relationships varies across cultural settings, academic disciplines, and educational experiences (Vásquez et al., 2023; Wang et al., 2021).

E-ISSN: 2985-3222
P-ISSN: 2985-3168
JEEMBA Volume 3, Issue 3 September 2025

The rapid advancement of digital technologies has transformed the entrepreneurial landscape and created new opportunities for young people to engage in entrepreneurial activities. The emergence of digital platforms, social media, online marketplaces, and internet-based technologies enables individuals to start and develop businesses with lower entry barriers and broader market access. This transformation has increased the need for competencies that combine digital capabilities with entrepreneurial skills. Digital Entrepreneurial Literacy has emerged as a concept that reflects the ability to understand, utilize, and optimize digital technologies for business creation and development (Rizal et al., 2022). Digital environments have become the primary arena for modern entrepreneurial activities, making the ability to leverage technology-based opportunities increasingly important for university students (Gonçalves et al., 2023). In response to these developments, higher education policies have increasingly emphasized the integration of digital literacy and entrepreneurship into educational curricula (Sondak et al., 2025).
Despite the growing body of research on Entrepreneurial Intention, most studies have focused on the roles of conventional entrepreneurship education, entrepreneurial self-efficacy, and university support systems as antecedents of entrepreneurial intention (Rocha et al., 2021). Entrepreneurship education has been shown to strengthen entrepreneurial intention both directly and indirectly through the development of competencies and confidence in entrepreneurial capabilities (Nguyen & Hoa, 2024). Likewise, university support mechanisms, business incubators, and entrepreneurial role models contribute significantly to students' entrepreneurial development (Bazán, 2023). However, research specifically examining Digital Entrepreneurial Literacy as a primary determinant of Entrepreneurial Intention remains relatively limited, despite the increasing digitalization of economic and business activities.
This limitation suggests that the relationship between Digital Entrepreneurial Literacy and Entrepreneurial Intention has not yet been fully explained. Possessing digital competencies does not automatically motivate individuals to pursue entrepreneurship as a career path. Students may be proficient in using digital technologies but still lack the ability to identify viable business opportunities. Therefore, a mechanism is needed to explain how digital entrepreneurial competencies are translated into entrepreneurial intentions. Research on technology adoption indicates that effective use of digital technologies can strengthen entrepreneurial capabilities and foster a positive orientation toward digital business activities (Y. Chen & Zhao, 2022). Furthermore, perceptions of usefulness and ease of use have been found to contribute to entrepreneurial capability development in digital environments (Shen et al., 2023).
One concept that may explain this mechanism is Opportunity Recognition. In entrepreneurship literature, Opportunity Recognition refers to an individual's ability to identify, evaluate, and exploit business opportunities arising from environmental changes, market needs, and technological developments. This capability is widely regarded as the foundation of entrepreneurial processes because it serves as the starting point for new venture creation (Argade et al., 2021). Opportunity Recognition is influenced not only by individual characteristics but also by access to information, social networks, and supportive environments that facilitate opportunity exploration (Prokop & Thompson, 2022). In the digital era, expanded access to information enables individuals to discover entrepreneurial opportunities that may have been difficult to identify through traditional means (Kreuzer et al., 2022).
A growing body of evidence suggests that Opportunity Recognition is a learnable competency that can be developed through education, training, and entrepreneurial experience. Entrepreneurship education has been shown to improve students' abilities to identify and evaluate promising business opportunities (Nafukho & Mansour, 2023). Such abilities are strengthened through increased entrepreneurial alertness and self-efficacy developed during learning processes (Goktan & Gupta, 2021). Moreover, environments characterized by social legitimacy, strong networks, and supportive policies facilitate access to valuable information and enhance opportunity recognition capabilities (Hinderer & Kuckertz, 2022). Technological advancements further accelerate this process by enabling individuals to obtain real-time market information and access broader entrepreneurial ecosystems (Zhu et al., 2024).
Opportunity Recognition has also been increasingly recognized as a mediating mechanism linking various antecedent factors to Entrepreneurial Intention. Previous studies have demonstrated that Opportunity Recognition mediates the relationship between entrepreneurial attitude and entrepreneurial intention among university students (Ledi et al., 2022). Other studies have found that entrepreneurial experience and entrepreneurship education contribute to entrepreneurial intention through enhanced opportunity recognition capabilities (Alhemimah, 2022; Loan et al., 2021). Similarly, the relationship between entrepreneurial self-efficacy and entrepreneurial intention has been found to operate through Opportunity Recognition (Dar et al., 2023). In contemporary entrepreneurship models, Opportunity Recognition is frequently positioned alongside other cognitive constructs as an important mediating pathway explaining the formation of entrepreneurial intention (Bouarir et al., 2023; Wu et al., 2022).

E-ISSN: 2985-3222
P-ISSN: 2985-3168
JEEMBA Volume 3, Issue 3 September 2025

Nevertheless, empirical studies investigating the mediating role of Opportunity Recognition in the relationship between Digital Entrepreneurial Literacy and Entrepreneurial Intention remain scarce.

Based on the foregoing discussion, several research gaps can be identified. First, studies on Digital Entrepreneurial Literacy have predominantly focused on the development of digital competencies and entrepreneurial skills rather than on entrepreneurial intention outcomes among university students (Vall-llosera et al., 2022). Second, although Opportunity Recognition has been widely validated as a mediating variable in entrepreneurship research, empirical evidence linking Digital Entrepreneurial Literacy, Opportunity Recognition, and Entrepreneurial Intention within a single framework remains limited. Third, much of the existing evidence has been generated in developed-country contexts, leaving uncertainty regarding the applicability of these findings to students in developing economies. Addressing these gaps, this study aims to examine the effect of Digital Entrepreneurial Literacy on Entrepreneurial Intention through Opportunity Recognition among university students. The novelty of this study lies in integrating digital entrepreneurial literacy and opportunity recognition perspectives into a single mediation model to explain the formation of entrepreneurial intention. The findings are expected to contribute to the advancement of digital entrepreneurship literature while providing practical implications for higher education institutions in designing more effective learning strategies to foster entrepreneurial readiness in the digital era.

Literature Review & Hypothesis Development

Human Capital Theory

Human Capital Theory explains that investments in education, training, knowledge acquisition, and skills development enhance individuals' productive capacities and influence their economic behavior. According to this theory, individuals who possess higher levels of knowledge and competencies are more likely to identify opportunities, make informed decisions, and achieve superior outcomes in economic activities (Urban et al., 2022; Yami et al., 2021).

In entrepreneurship research, Human Capital Theory is frequently used to explain how educational experiences and skill development contribute to entrepreneurial capabilities. Entrepreneurial competencies are considered valuable forms of human capital because they enable individuals to recognize market opportunities, evaluate business prospects, and effectively manage entrepreneurial activities. The development of digital technologies has further expanded the scope of human capital by emphasizing the importance of digital competencies alongside traditional entrepreneurial skills (Šimović et al., 2023; Sondak et al., 2025).

In this context, Digital Entrepreneurial Literacy represents a specific form of human capital that combines digital literacy and entrepreneurial competencies. Individuals with strong digital entrepreneurial literacy possess the knowledge and skills required to utilize digital technologies, identify business opportunities in digital environments, and develop innovative entrepreneurial solutions. Therefore, Human Capital Theory provides a theoretical foundation for understanding how Digital Entrepreneurial Literacy contributes to entrepreneurial outcomes through the enhancement of entrepreneurial capabilities.

Entrepreneurial Opportunity Theory

Entrepreneurial Opportunity Theory emphasizes that entrepreneurship begins with the identification and exploitation of opportunities. According to this perspective, opportunities do not automatically translate into entrepreneurial activities unless individuals are capable of recognizing, evaluating, and acting upon them. Opportunity recognition is therefore considered one of the most fundamental entrepreneurial competencies because it serves as the starting point for venture creation and business development (Argade et al., 2021; Prokop & Thompson, 2022).

The theory suggests that opportunity recognition is influenced by both individual and environmental factors. Individual knowledge, prior experiences, and cognitive abilities shape how people perceive potential opportunities, while access to information, social networks, and institutional support facilitate opportunity discovery (Hinderer & Kuckertz, 2022; Weng et al., 2021). As a result, individuals possessing greater knowledge and broader access to information are more likely to recognize valuable entrepreneurial opportunities.

In the digital era, opportunity recognition has become increasingly dependent on the ability to utilize digital technologies and access digital ecosystems. Digital platforms, online communities, and technological innovations provide new sources of information that enable entrepreneurs to identify emerging market needs and business possibilities. Therefore, Entrepreneurial Opportunity Theory provides a foundation for explaining how Digital Entrepreneurial Literacy enhances individuals' ability to recognize entrepreneurial opportunities.

Theory of Planned Bahavior (TPB)

Theory of Planned Behavior explains that behavioral intention is determined by attitude toward the behavior, subjective norms, and perceived behavioral control. These three components collectively influence an individual's

E-ISSN: 2985-3222
P-ISSN: 2985-3168
JEEMBA Volume 3, Issue 3 September 2025

willingness to engage in a particular behavior, with intention being the most immediate predictor of actual behavior (Liu & Peng, 2025; Maheshwari et al., 2022).

Entrepreneurial Intention is one of the most extensively studied applications of TPB in entrepreneurship research. Previous studies consistently demonstrate that positive attitudes toward entrepreneurship and strong perceptions of entrepreneurial capability significantly increase individuals' intentions to start a business (Lin et al., 2022; Lopes et al., 2022). Although the effect of subjective norms varies across contexts, TPB remains one of the most robust theoretical frameworks for explaining entrepreneurial intention among university students (Vásquez et al., 2023; Wang et al., 2021).

Furthermore, cognitive processes such as opportunity evaluation and opportunity recognition are closely associated with the formation of entrepreneurial intention. Individuals who are capable of identifying promising business opportunities tend to develop stronger confidence and motivation to pursue entrepreneurial careers. Thus, TPB provides a theoretical foundation for understanding Entrepreneurial Intention as the outcome of cognitive and behavioral processes related to entrepreneurship.

Digital Entrepreneurial Literacy and Entrepreneurial Intention

Digital Entrepreneurial Literacy refers to the integration of digital literacy and entrepreneurial competencies that enable individuals to identify digital business opportunities, utilize digital technologies, and create entrepreneurial value through digital platforms (Rizal et al., 2022). As digital transformation reshapes economic activities, entrepreneurial success increasingly depends on the ability to leverage technology for innovation, marketing, communication, and business development (Gonçalves et al., 2023).

Human Capital Theory suggests that individuals who possess higher levels of relevant knowledge and competencies are more likely to engage in productive economic activities. In entrepreneurial contexts, Digital Entrepreneurial Literacy equips students with knowledge and skills that increase their confidence and preparedness for entrepreneurial activities. Empirical studies indicate that digital competencies contribute to entrepreneurial capability development and positively influence entrepreneurial behavior and intentions (Chen & Zhao, 2022; Shen et al., 2023).

Moreover, technology adoption frameworks suggest that digital knowledge enhances perceived usefulness and perceived capability, which subsequently strengthen entrepreneurial motivation and intention (Chen & Zeng, 2024; Rosmayanti et al., 2022). Therefore, students with higher levels of Digital Entrepreneurial Literacy are expected to exhibit stronger Entrepreneurial Intention.

H1: Digital Entrepreneurial Literacy affects Entrepreneurial Intention.

Digital Entrepreneurial Literacy and Opportunity Recognition

Digital Entrepreneurial Literacy provides individuals with the knowledge and skills necessary to navigate digital environments and identify emerging business opportunities. Through digital technologies, individuals gain access to broader information sources, market trends, consumer preferences, and entrepreneurial ecosystems that facilitate opportunity discovery (Rizal et al., 2022).

Entrepreneurial Opportunity Theory argues that opportunity recognition depends heavily on individuals' knowledge bases and information-processing capabilities. Digital competencies enhance individuals' ability to gather, interpret, and utilize information for entrepreneurial purposes. Consequently, students with stronger digital entrepreneurial literacy are more likely to recognize entrepreneurial opportunities arising from technological developments and changing market conditions (Kreuzer et al., 2022).

Previous studies have demonstrated that entrepreneurship education and competency development contribute significantly to opportunity recognition by enhancing entrepreneurial alertness and awareness (Hershmann et al., 2022; Nafukho & Mansour, 2023). Therefore, Digital Entrepreneurial Literacy is expected to positively influence Opportunity Recognition.

H2: Digital Entrepreneurial Literacy affects Opportunity Recognition.

Opportunity Recognition and Entrepreneurial Intention

Opportunity Recognition is widely regarded as a critical entrepreneurial capability because entrepreneurial action typically begins when individuals identify viable opportunities worth pursuing. Individuals who are capable of recognizing attractive business opportunities tend to perceive entrepreneurship as more feasible and desirable, thereby strengthening their entrepreneurial intention (Gonzales & Gevero, 2024).

From the perspective of Theory of Planned Behavior, recognizing entrepreneurial opportunities contributes to more favorable attitudes and stronger perceptions of behavioral control regarding entrepreneurial activities. When students perceive that viable opportunities exist, they become more confident in their ability to establish and manage a business successfully (Ledi et al., 2022).

E-ISSN: 2985-3222
P-ISSN: 2985-3168
JEEMBA Volume 3, Issue 3 September 2025

Empirical evidence consistently supports the positive relationship between Opportunity Recognition and Entrepreneurial Intention across different educational and entrepreneurial contexts (Dar et al., 2023; Loan et al., 2021). Accordingly, students with stronger opportunity recognition capabilities are expected to exhibit higher entrepreneurial intention.

H3: Opportunity Recognition affects Entrepreneurial Intention.

The Mediating Role of Opportunity Recognition

Although Digital Entrepreneurial Literacy provides students with valuable knowledge and competencies, its influence on Entrepreneurial Intention may not always occur directly. Human Capital Theory suggests that knowledge and competencies generate outcomes through cognitive processes that transform resources into entrepreneurial action. In this regard, Opportunity Recognition serves as a critical mechanism through which digital entrepreneurial competencies are translated into entrepreneurial intentions.

Students with higher levels of Digital Entrepreneurial Literacy possess greater access to information, stronger digital competencies, and broader awareness of emerging business opportunities. These advantages improve their ability to recognize entrepreneurial opportunities, which subsequently increases their motivation to pursue entrepreneurial careers. Therefore, Opportunity Recognition functions as an important cognitive bridge connecting digital entrepreneurial competencies and entrepreneurial intention.

Previous studies have demonstrated that Opportunity Recognition mediates the effects of entrepreneurial attitudes, entrepreneurial education, entrepreneurial experience, and entrepreneurial self-efficacy on Entrepreneurial Intention (Dar et al., 2023; Ledi et al., 2022; Loan et al., 2021). However, limited research has examined its mediating role in the relationship between Digital Entrepreneurial Literacy and Entrepreneurial Intention. Therefore, the following hypothesis is proposed:

H4: Opportunity Recognition mediates the relationship between Digital Entrepreneurial Literacy and Entrepreneurial Intention.

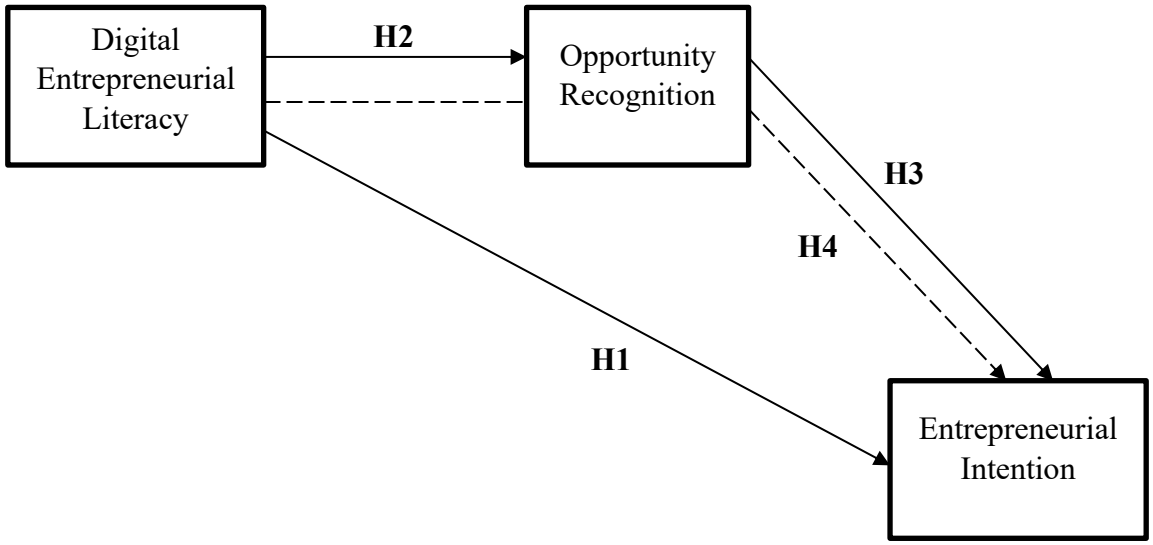

Figure 1. Research Model

2. RESEARCH METHODS

Methodology

This study employs a quantitative research approach using a structured questionnaire as the primary instrument for data collection. The research investigates three variables, namely Digital Entrepreneurial Literacy as the independent variable (X), Opportunity Recognition as the mediating variable (M), and Entrepreneurial Intention as the dependent variable (Y). The proposed research model aims to examine both the direct effect of Digital Entrepreneurial Literacy on Entrepreneurial Intention and the indirect effect through Opportunity Recognition.

The population of this study consists of university students in Makassar City. Students were selected as the target population because they represent a generation that is highly exposed to digital technology and are considered potential future entrepreneurs. The sampling technique employed is purposive sampling, whereby respondents are selected based on predetermined criteria relevant to the objectives of the study. The criteria include: (1) being an

active university student in Makassar City and (2) having experience using digital platforms, social media, online marketplaces, or other digital technologies that may support entrepreneurial activities. Data were collected through an online questionnaire distributed to eligible respondents.

The research instrument consists of 12 indicators representing the three latent variables. All indicators were measured using a five-point Likert scale ranging from 1 = strongly disagree to 5 = strongly agree. The use of a Likert scale is appropriate for capturing respondents' perceptions, attitudes, and evaluations regarding digital entrepreneurial literacy, opportunity recognition, and entrepreneurial intention.

The sample size was determined based on the rule of thumb commonly applied in Partial Least Squares Structural Equation Modeling (PLS-SEM), which recommends a minimum sample size of 5–10 times the number of indicators included in the research model (Hair et al., 2021). Given that the model contains 12 indicators, the recommended sample size ranges from 60 to 120 respondents. Accordingly, this study employs 84 respondents, which satisfies the minimum requirement for PLS-SEM analysis and is considered adequate for estimating the proposed structural model.

Data analysis was conducted using Structural Equation Modeling based on Partial Least Squares (SEM-PLS) with the assistance of SmartPLS software. SEM-PLS is particularly suitable for this study because it enables the simultaneous analysis of measurement and structural models, accommodates relatively small sample sizes, and is effective for predictive and exploratory research involving mediating variables (Hair et al., 2021). Furthermore, SEM-PLS does not impose strict assumptions regarding data normality, making it appropriate for behavioral and entrepreneurship research.

The analytical procedure consists of two major stages: measurement model evaluation (outer model) and structural model evaluation (inner model). The outer model assessment aims to examine the validity and reliability of the measurement instrument. Convergent validity is evaluated using outer loading values and Average Variance Extracted (AVE), while discriminant validity is assessed using the Fornell-Larcker criterion and Heterotrait-Monotrait Ratio (HTMT). Reliability is examined through Cronbach's Alpha and Composite Reliability values. Indicators and constructs are considered acceptable when they meet the recommended threshold values established in the PLS-SEM literature (Hair et al., 2021).

The inner model evaluation is conducted to assess the relationships among latent variables and to test the proposed hypotheses. This stage includes the examination of path coefficients, coefficient of determination (R^2), effect size (f^2), and predictive relevance (Q^2). In addition, the mediating role of Opportunity Recognition in the relationship between Digital Entrepreneurial Literacy and Entrepreneurial Intention is evaluated through indirect effect analysis. The significance of both direct and indirect relationships is tested using the bootstrapping procedure with a resampling technique recommended in PLS-SEM studies (Sarstedt et al., 2019). Hypotheses are accepted when the t-statistic exceeds 1.96 and the p-value is below 0.05, indicating statistical significance at the 5 percent level.

3. RESULTS AND DISCUSSION

Result

Outer Assessment Model

This study evaluates the reflective measurement model using several key criteria, namely convergent validity, discriminant validity, and construct reliability. Convergent validity is assessed based on outer loading values (≥0.70) and Average Variance Extracted (AVE ≥0.50), while construct reliability is evaluated using composite reliability (≥0.70) and Cronbach's alpha (≥0.60) (Hair et al., 2019). In addition, discriminant validity is examined using the Fornell-Larcker criterion, where the square root of AVE for each construct must be greater than its correlations with other constructs. The following is an image of the measurement model evaluation as follows:

Journal of Economics, Entrepreneurship, Management Business, and Accounting (JEEMBA)
E-ISSN: 2985-3222
P-ISSN: 2985-3168
JEEMBA Volume 3, Issue 3 September 2025

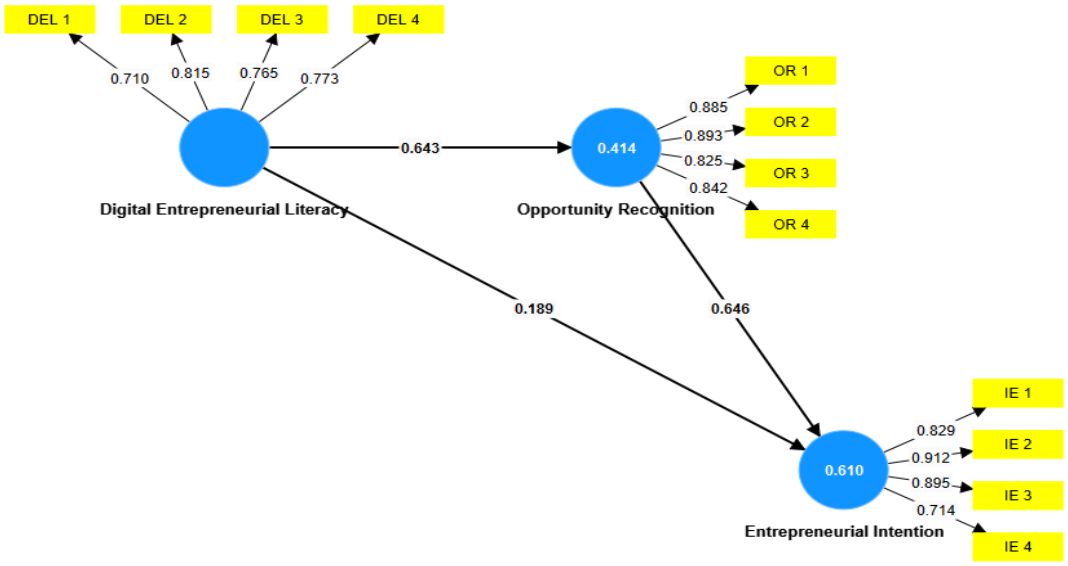

Figure 2. Reflective Meausurement Model (Outer Model)

Based on Figure 2, the results of the convergent validity assessment obtained through the PLS Algorithm indicate that all retained indicators meet the recommended threshold values. The evaluation process also confirms the adequacy of the measurement model after indicator purification. Digital Entrepreneurial Literacy (X) is represented by four indicators, namely DEL1, DEL2, DEL3, and DEL4. Opportunity Recognition (M) is represented by four indicators, namely OR1, OR2, OR3, and OR4. Meanwhile, Entrepreneurial Intention (Y) is represented by four indicators, namely EI1, EI2, EI3, and EI4.

Table 1. Measurement Model Calculation

Variables	Items	Outer Loading	Cronbach's Alpha	Rho_C	AVE
Digital Entrepreneurial Literacy (X)	DEL 1	0.710	0.770	0.850	0.588
	DEL 2	0.815			
	DEL 3	0.765			
	DEL 4	0.773			
Opportunity Recognition (M)	OR 1	0.885	0.885	0.920	0.742
	OR 2	0.893			
	OR 3	0.825			
	OR 4	0.842			
Entrepreneurial Intention (Y)	EI 1	0.829	0.858	0.906	0.708
	EI 2	0.912			
	EI 3	0.895			
	EI 4	0.714			

The results of the convergent validity assessment indicate that all indicators of Digital Entrepreneurial Literacy, Opportunity Recognition, and Entrepreneurial Intention have outer loading values ranging from 0.710 to 0.912. Since all outer loading values exceed the recommended threshold of 0.70, the indicators are considered valid for measuring their respective latent constructs. Furthermore, the Average Variance Extracted (AVE) values for Digital Entrepreneurial Literacy (0.588), Opportunity Recognition (0.742), and Entrepreneurial Intention (0.708) are all above the minimum criterion of 0.50, demonstrating that each construct possesses adequate convergent validity and explains more than half of the variance of its indicators.

The reliability test results presented in Table 1 further confirm the adequacy of the measurement model. The composite reliability (ρc) values range from 0.850 to 0.920, exceeding the recommended threshold of 0.70, which indicates satisfactory internal consistency among the indicators measuring each construct. Similarly, Cronbach's alpha values range from 0.770 to 0.885, all of which are above the minimum acceptable value of 0.70. Specifically, Digital Entrepreneurial Literacy records a Cronbach's alpha of 0.770 and a composite reliability of 0.850, Opportunity Recognition records 0.885 and 0.920, while Entrepreneurial Intention records 0.858 and 0.906,

respectively. These findings demonstrate that all constructs exhibit strong reliability and are suitable for subsequent structural model analysis.

Table 2. Discriminant Validity

Variables	DEL	EI	OR
Digital Entrepreneurial Literacy	0.767		
Entrepreneurial Intention	0.605	0.841	
Opportunity Recognition	0.643	0.767	0.862

Furthermore, the results of the discriminant validity assessment using the Fornell–Larcker criterion indicate that the square root of the Average Variance Extracted (AVE) for each construct is greater than its correlations with other constructs. Specifically, the square root of AVE for Digital Entrepreneurial Literacy is 0.767, which exceeds its correlations with Entrepreneurial Intention (0.605) and Opportunity Recognition (0.643). Similarly, the square root of AVE for Entrepreneurial Intention is 0.841, which is higher than its correlation with Opportunity Recognition (0.767) and Digital Entrepreneurial Literacy (0.605). In addition, the square root of AVE for Opportunity Recognition is 0.862, exceeding its correlations with Digital Entrepreneurial Literacy (0.643) and Entrepreneurial Intention (0.767). These results confirm that each construct possesses adequate discriminant validity and is empirically distinct from the other constructs included in the model.

Overall, the results of the measurement model evaluation demonstrate that all constructs satisfy the recommended criteria for convergent validity, discriminant validity, and reliability. All indicators exhibit satisfactory outer loading values, the AVE values exceed the minimum threshold of 0.50, and the reliability coefficients meet the recommended standards. Therefore, the measurement model is considered valid and reliable, indicating that the constructs are appropriately measured and suitable for subsequent structural model evaluation.

Inner Assessment Model

The evaluation of the structural model (inner model) in this study was conducted by examining several key indicators, namely multicollinearity, coefficient of determination (R-square), effect size (f-square), predictive relevance (Q-square), and model fit assessed using the Standardized Root Mean Square Residual (SRMR). A VIF value below 5 indicates the absence of multicollinearity issues, R-square values are categorized as weak (<0.25), moderate (0.25–0.50), and substantial (0.50–0.75), f-square values of 0.02, 0.15, and 0.35 indicate small, medium, and large effects, respectively, Q-square values of 0 indicate low predictive relevance, 0.25 moderate, and 0.50 high, while SRMR values below 0.08 indicate a good model fit, and values between 0.08 and 0.10 are considered acceptable (Hair et al., 2019; Schermelleh-Engel et al., 2003).

Table 3. Structural Model Evaluation (Inner Model)

Variables	VIF	R-square	Q^2 Predict	f-square	SRMR
Entrepreneurial Intention		0.610	0.328		
Opportunity Recognition		0.414	0.369		
Digital Entrepreneurial Literacy → Entrepreneurial Intention	1.705			0.054	0.096
Digital Entrepreneurial Literacy → Opportunity Recognition	1.000			0.705	
Opportunity Recognition → Entrepreneurial Intention	1.705			0.627	

The results of the multicollinearity assessment indicate that the Variance Inflation Factor (VIF) values range from 1.000 to 1.705. Specifically, the relationship between Digital Entrepreneurial Literacy and Opportunity Recognition has a VIF value of 1.000, while the relationships involving Entrepreneurial Intention have VIF values of 1.705. Since all VIF values are well below the recommended threshold of 5.00, the structural model is free from multicollinearity issues. Therefore, the relationships among the latent constructs can be interpreted without concerns regarding excessive correlations among predictor variables.

The coefficient of determination (R-square) results show that Opportunity Recognition has an R-square value of 0.414, indicating that Digital Entrepreneurial Literacy explains 41.4% of the variance in Opportunity Recognition. According to the commonly accepted criteria, this value can be categorized as moderate. Meanwhile, Entrepreneurial Intention has an R-square value of 0.610, suggesting that Digital Entrepreneurial Literacy and Opportunity Recognition jointly explain 61.0% of the variance in Entrepreneurial Intention. This value indicates substantial explanatory power, demonstrating that the proposed model adequately explains students' entrepreneurial intention.

The effect size (f-square) analysis reveals varying levels of influence among the structural relationships. Digital Entrepreneurial Literacy has a large effect on Opportunity Recognition with an f^2 value of 0.705, indicating that

E-ISSN: 2985-3222
P-ISSN: 2985-3168
JEEMBA Volume 3, Issue 3 September 2025

digital entrepreneurial competencies play an important role in enhancing students' ability to identify entrepreneurial opportunities. Similarly, Opportunity Recognition exerts a large effect on Entrepreneurial Intention with an f^2 value of 0.627, highlighting the critical role of opportunity recognition in shaping students' entrepreneurial intentions. In contrast, the direct effect of Digital Entrepreneurial Literacy on Entrepreneurial Intention is relatively small, with an f^2 value of 0.054, suggesting that its direct contribution is limited compared to its indirect contribution through Opportunity Recognition.

The predictive relevance (Q-square) results further demonstrate the predictive capability of the model. The Q^2 value for Opportunity Recognition is 0.369, indicating moderate predictive relevance. Meanwhile, Entrepreneurial Intention records a Q^2 value of 0.328, which also falls within the moderate predictive relevance category. These findings suggest that the model possesses adequate predictive accuracy for both endogenous constructs and is capable of predicting the observed outcomes satisfactorily.

The assessment of model fit using the Standardized Root Mean Square Residual (SRMR) yields a value of 0.096. Although this value is slightly above the ideal threshold of 0.08, it remains within the acceptable range of 0.08–0.10 commonly reported in PLS-SEM studies. Therefore, the structural model can be considered to exhibit an acceptable level of fit and is appropriate for further hypothesis testing.

Overall, the structural model evaluation demonstrates satisfactory model quality. The absence of multicollinearity problems, moderate to substantial explanatory power, moderate predictive relevance, and acceptable model fit collectively indicate that the proposed model is statistically adequate. Furthermore, the large effect sizes observed for the relationships between Digital Entrepreneurial Literacy and Opportunity Recognition as well as between Opportunity Recognition and Entrepreneurial Intention provide preliminary evidence that Opportunity Recognition may play a central role in explaining how digital entrepreneurial competencies influence students' entrepreneurial intentions. Consequently, the model is suitable for subsequent hypothesis testing and mediation analysis.

Hypothesis Testing

Hypothesis testing in this study was conducted using the bootstrapping procedure in PLS-SEM, by examining the t-statistics and p-values. A hypothesis is considered supported if the t-statistic exceeds 1.96 and the p-value is below 0.05.

Table 4. Hypothesis Testing

Hypothesis	Model	Standard deviation	T-Statistics	*P* values	Results
H_1	Digital Entrepreneurial Literacy → Entrepreneurial Intention	0.109	1.734	0.083	Insignificant
H_2	Digital Entrepreneurial Literacy → Opportunity Recognition	0.069	9.299	0.000	Significant
H_3	Opportunity Recognition → Entrepreneurial Intention	0.097	6.680	0.000	Significant
H_4	Digital Entrepreneurial Literacy → Opportunity Recognition → Entrepreneurial Intention	0.086	4.845	0.000	Significant

The results of hypothesis testing are presented in Table 4. The findings indicate that the direct effect of Digital Entrepreneurial Literacy on Entrepreneurial Intention is positive but not statistically significant ($t = 1.734$; $p = 0.083$). Therefore, H1 is not supported. This result suggests that students' digital entrepreneurial literacy does not directly increase their intention to engage in entrepreneurial activities. Although digital competencies are important, possessing digital entrepreneurial knowledge and skills alone may not be sufficient to motivate students to pursue entrepreneurship as a career choice.

In contrast, the effect of Digital Entrepreneurial Literacy on Opportunity Recognition is positive and highly significant ($t = 9.299$; $p < 0.001$). Therefore, H2 is supported. This finding indicates that students with higher levels of digital entrepreneurial literacy are better able to identify and evaluate entrepreneurial opportunities. The result supports the argument of Human Capital Theory, which posits that knowledge and competencies enhance individuals' capacity to recognize and exploit economic opportunities.

Furthermore, the relationship between Opportunity Recognition and Entrepreneurial Intention is positive and significant ($t = 6.680$; $p < 0.001$). Thus, H3 is supported. This finding implies that students who are more capable of recognizing business opportunities are more likely to develop stronger entrepreneurial intentions. The ability to identify promising opportunities appears to increase students' confidence and motivation to pursue entrepreneurial careers, thereby strengthening their entrepreneurial intention

E-ISSN: 2985-3222
P-ISSN: 2985-3168
JEEMBA Volume 3, Issue 3 September 2025

Additionally, the mediation analysis reveals that Opportunity Recognition significantly mediates the relationship between Digital Entrepreneurial Literacy and Entrepreneurial Intention ($t = 4.845$; $p < 0.001$). Therefore, H4 is supported. Given that the direct effect of Digital Entrepreneurial Literacy on Entrepreneurial Intention is insignificant, while the indirect effect through Opportunity Recognition is significant, the results indicate a full mediation effect. This finding suggests that Digital Entrepreneurial Literacy influences Entrepreneurial Intention only through its ability to enhance Opportunity Recognition. In other words, digital entrepreneurial competencies contribute to entrepreneurial intention when they enable students to recognize and evaluate viable entrepreneurial opportunities.

Overall, the hypothesis testing results highlight the central role of Opportunity Recognition in the proposed model. While Digital Entrepreneurial Literacy does not directly influence Entrepreneurial Intention, it significantly enhances students' ability to recognize entrepreneurial opportunities, which subsequently drives their intention to become entrepreneurs. These findings underscore the importance of fostering not only digital entrepreneurial competencies but also opportunity recognition capabilities in entrepreneurship education programs aimed at increasing entrepreneurial intention among university students.

Discussion

This study aimed to examine the effect of Digital Entrepreneurial Literacy on Entrepreneurial Intention through Opportunity Recognition among university students in Makassar City. The findings reveal that Digital Entrepreneurial Literacy does not have a significant direct effect on Entrepreneurial Intention but has a positive and significant effect on Opportunity Recognition. Furthermore, Opportunity Recognition significantly influences Entrepreneurial Intention and fully mediates the relationship between Digital Entrepreneurial Literacy and Entrepreneurial Intention. These findings provide a deeper understanding of the mechanism through which digital entrepreneurial competencies are translated into entrepreneurial intentions among university students.

The first finding indicates that Digital Entrepreneurial Literacy does not directly influence Entrepreneurial Intention. This result is noteworthy because digital entrepreneurial literacy is often considered a critical factor in encouraging individuals to engage in technology-based entrepreneurial activities. However, the findings suggest that possessing digital competencies and entrepreneurial knowledge alone does not automatically motivate students to pursue entrepreneurship as a career option. This outcome can be explained through the perspective of the Theory of Planned Behavior, which argues that behavioral intention is influenced not only by knowledge and skills but also by cognitive factors such as attitudes, perceived behavioral control, and subjective norms (Lin et al., 2022; Lv et al., 2021; Vásquez et al., 2023). In this context, students may possess the technical ability to use digital tools, online platforms, and digital marketing applications, yet they may not have developed a clear perception of viable business opportunities. Consequently, digital entrepreneurial competencies alone may be insufficient to generate entrepreneurial intention.

This finding also suggests that the relationship between Digital Entrepreneurial Literacy and Entrepreneurial Intention is more complex than often assumed in previous studies. Earlier research has argued that integrating digital literacy with entrepreneurship education can strengthen entrepreneurial intention by enhancing individuals' capacity to utilize digital technologies for venture creation and business development (Chen & Zeng, 2024; Shen et al., 2023). However, the present findings indicate that digital competencies do not necessarily translate directly into entrepreneurial aspirations. Students require an additional cognitive process that enables them to connect their digital capabilities with concrete entrepreneurial opportunities. Therefore, this study extends the existing literature by demonstrating that the influence of Digital Entrepreneurial Literacy on Entrepreneurial Intention may operate indirectly rather than directly, particularly among university students who are still exploring potential career pathways.

In contrast, the results show that Digital Entrepreneurial Literacy has a positive and significant effect on Opportunity Recognition. This finding supports the view that digital entrepreneurial literacy enables individuals to access broader information sources, identify market needs, and explore emerging business opportunities through digital technologies (Gonçalves et al., 2023; Rizal et al., 2022). Students with higher levels of digital entrepreneurial literacy are more capable of utilizing social media, e-commerce platforms, digital analytics tools, and online information networks to understand consumer behavior and market trends. Such capabilities enhance their ability to identify and evaluate entrepreneurial opportunities that may otherwise remain unnoticed.

The findings also reinforce the argument that Opportunity Recognition is a learnable competency that can be developed through education and training. Previous studies have consistently demonstrated that educational experiences contribute to opportunity recognition by enhancing entrepreneurial alertness, self-efficacy, and information-processing capabilities (Goktan & Gupta, 2021; Hershmann et al., 2022; Lim et al., 2021; Nafukho & Mansour, 2023). In the context of this study, Digital Entrepreneurial Literacy can be viewed as a form of human

E-ISSN: 2985-3222
P-ISSN: 2985-3168
JEEMBA Volume 3, Issue 3 September 2025

capital that expands students' access to information and technological resources, thereby strengthening their ability to identify entrepreneurial opportunities. This finding is also consistent with Human Capital Theory, which emphasizes that investments in knowledge and skills increase individuals' capacity to make productive economic decisions and engage in entrepreneurial activities.

The results further demonstrate that Opportunity Recognition has a positive and significant effect on Entrepreneurial Intention. This finding confirms that the ability to recognize opportunities is a key determinant of entrepreneurial intention among university students. Students who can identify market opportunities, recognize unmet consumer needs, and evaluate the potential value of business ideas are more likely to develop stronger intentions to engage in entrepreneurial activities. This result is consistent with the widely accepted view that opportunity recognition lies at the core of the entrepreneurial process because it serves as the link between entrepreneurial ideas and entrepreneurial action (Argade et al., 2021; Prokop & Thompson, 2022; Weng et al., 2021).

Moreover, this finding supports previous empirical evidence highlighting the important role of Opportunity Recognition in shaping Entrepreneurial Intention. The ability to recognize opportunities enables individuals to perceive entrepreneurship as a feasible and attractive career option. When students identify opportunities that align with their skills, resources, and interests, their perception of risk tends to decrease while their confidence in achieving entrepreneurial success increases. As a result, they become more willing to pursue entrepreneurial careers. This finding is in line with the work of Gonzales & Gevero (2024), who identified Opportunity Recognition as a central characteristic within university entrepreneurial ecosystems, and with Ledi et al. (2022), who demonstrated that Opportunity Recognition serves as an important cognitive mechanism linking entrepreneurial attitudes to Entrepreneurial Intention.

The most significant finding of this study concerns the full mediating role of Opportunity Recognition in the relationship between Digital Entrepreneurial Literacy and Entrepreneurial Intention. The analysis reveals that the direct effect of Digital Entrepreneurial Literacy on Entrepreneurial Intention is insignificant, whereas the indirect effect through Opportunity Recognition is significant. This finding suggests that digital entrepreneurial competencies enhance entrepreneurial intention only when they are translated into the ability to identify viable entrepreneurial opportunities. In other words, students are not motivated to become entrepreneurs simply because they possess strong digital literacy; rather, they become motivated when their digital competencies help them recognize and evaluate promising business opportunities.

This full mediation effect extends the growing body of literature emphasizing Opportunity Recognition as a critical cognitive mechanism in entrepreneurial intention formation. Previous studies have shown that Opportunity Recognition mediates the relationship between business experience and Entrepreneurial Intention (Loan et al., 2021), between entrepreneurship education and Entrepreneurial Intention (Alhemimah, 2022), and between entrepreneurial self-efficacy and Entrepreneurial Intention (Dar et al., 2023). The present study contributes additional empirical evidence by demonstrating that Opportunity Recognition also mediates the relationship between Digital Entrepreneurial Literacy and Entrepreneurial Intention. Therefore, the findings strengthen the argument that Opportunity Recognition functions as a central pathway through which various forms of knowledge, competencies, and experiences influence entrepreneurial intention.

From a theoretical perspective, this study contributes to the development of both Human Capital Theory and the Theory of Planned Behavior within the context of digital entrepreneurship. The findings indicate that digital entrepreneurial competencies, as a form of human capital, do not automatically generate entrepreneurial intention. Instead, these competencies must be internalized through a cognitive process of opportunity recognition before influencing students' entrepreneurial aspirations. This finding enriches the understanding of how entrepreneurial intentions are formed by highlighting the importance of intermediary cognitive mechanisms.

From a practical perspective, the results suggest that universities should not focus solely on improving students' digital skills through technology training or digital marketing courses. Entrepreneurship education programs should also be designed to strengthen students' ability to identify, evaluate, and develop business opportunities in digital environments. Learning approaches based on real-world projects, business simulations, startup incubation activities, and exposure to digital entrepreneurial ecosystems may be particularly effective in fostering opportunity recognition. By enhancing students' capacity to recognize entrepreneurial opportunities, higher education institutions can more effectively translate digital entrepreneurial competencies into stronger entrepreneurial intentions and contribute to the development of future entrepreneurs in the digital economy.

E-ISSN: 2985-3222
P-ISSN: 2985-3168

JEEMBA Volume 3, Issue 3 September 2025

5. Conclusion and Suggestion

This study examines the relationship between Informal Entrepreneurship Education, Entrepreneurial Mindset, and SDG-Oriented Entrepreneurial Intention. The findings reveal that Informal Entrepreneurship Education does not directly influence SDG-oriented entrepreneurial intention. However, it has a positive and significant effect on Entrepreneurial Mindset, which in turn significantly influences SDG-Oriented Entrepreneurial Intention. Furthermore, Entrepreneurial Mindset is found to fully mediate the relationship between Informal Entrepreneurship Education and SDG-Oriented Entrepreneurial Intention.

These results indicate that informal learning alone is insufficient to directly foster sustainability-oriented entrepreneurial intention. Instead, its impact operates through the development of entrepreneurial mindset as a key cognitive mechanism. Therefore, the formation of sustainability-oriented entrepreneurial intention is an indirect and complex process that requires not only experiential learning but also the internalization of entrepreneurial thinking aligned with sustainability values.

6. Limitiations and Future Research

Partical Implications

The findings suggest that efforts to promote entrepreneurship among students should not rely solely on informal or experiential learning approaches. Educational institutions and policymakers need to design programs that explicitly focus on developing entrepreneurial mindset, particularly by integrating sustainability values such as social responsibility and environmental awareness. Combining practical experiences with reflective and value-based learning approaches can enhance students' readiness to engage in SDG-oriented entrepreneurship.

Research Recommendations

Future studies are recommended to incorporate additional variables such as sustainability awareness, environmental values, or institutional support to better explain SDG-oriented entrepreneurial intention. Expanding the research context beyond a single group of students and employing longitudinal designs may also provide deeper insights into the dynamic process of entrepreneurial intention formation over time.

REFERENCESS

Alhemimah, A. (2022). Understanding Tourists' Attitude Toward Online Travel Health Information During and Post-Covid-19: A Health Belief Model Application. Tourism and Hospitality Research, 24(2), 257–271. https://doi.org/10.1177/14673584221119379

Argade, P., Salignac, F., & Barkemeyer, R. (2021). Opportunity Identification for Sustainable Entrepreneurship: Exploring the Interplay of Individual and Context Level Factors in India. Business Strategy and the Environment, 30(8), 3528–3551. https://doi.org/10.1002/bse.2818

Bazán, C. (2023). Factor Analysis of the University Environment and Support System: A Bayesian Approach. Sage Open, 13(4). https://doi.org/10.1177/21582440231218511

Bouarir, H., Diani, A., Boubker, O., & Rharzouz, J. (2023). Key Determinants of Women's Entrepreneurial Intention and Behavior: The Role of Business Opportunity Recognition and Need for Achievement. Administrative Sciences, 13(2), 33. https://doi.org/10.3390/admsci13020033

Chen, B., & Zeng, W. (2024). Students' Intention to Adopt E-Learning Platform for College English Study: Mediating Effect of Satisfaction of Basic Psychological Needs. Sage Open, 14(4). https://doi.org/10.1177/21582440241286956

Chen, Y., & Zhao, S. (2022). Understanding Chinese EFL Learners' Acceptance of Gamified Vocabulary Learning Apps: An Integration of Self-Determination Theory and Technology Acceptance Model. Sustainability, 14(18), 11288. https://doi.org/10.3390/su141811288

Dar, A. A., Hurrah, S. A., Hassan, A., Mansuri, B. B., & Saleem, A. (2023). Entrepreneurial Intention of University Students: A Moderated Approach Using Entrepreneurship Education. Industry and Higher Education, 38(4), 350–362. https://doi.org/10.1177/09504222231208436

Goktan, A. B., & Gupta, V. K. (2021). Linking Entrepreneurial Intention and Opportunity Recognition: Role of Self- Efficacy. Glob J Entrep, 5(1), 44–57. https://doi.org/10.47177/gje.05.01.2021.044

Gonçalves, M. P. V, Ferreira, F. A. F., Dabić, M., & Ferreira, J. J. (2023). "Navigating Through the Digital Swamp": Assessing SME Propensity for Online Marketplaces. Review of Managerial Science, 18(9), 2583–2612. https://doi.org/10.1007/s11846-023-00704-2

Gonzales, M., & Gevero, R. D. (2024). University Ecosystem, Entrepreneurial Characteristics and Entrepreneurial

Intentions. Cognizance Journal of Multidisciplinary Studies, 4(5), 164–170. https://doi.org/10.47760/cognizance.2024.v04i05.015

Hair, J. F., Hult, G. T. M., Ringle, C. M., Sarstedt, M., Danks, N. P., & Ray, S. (2021). Evaluation of The Structural Model. Partial Least Squares Structural Equation Modeling (PLS-SEM) Using R: A Workbook, 115–138. https://doi.org/10.1007/978-3-030-80519-7_6

Hair, J. F., Risher, J. J., Sarstedt, M., & Ringle, C. M. (2019). When to use and how to report the results of PLS-SEM. European Business Review, 31(1), 2–24.

Hershmann, T. E., Yuan, J., Follmer, J., Kale, U., & White, C. (2022). The Impacts of a Blended Entrepreneurship Course on Secondary Students' Entrepreneurial Self-Efficacy and Entrepreneurial Intentions. Entrepreneurship Education and Pedagogy, 6(2), 359–379. https://doi.org/10.1177/25151274221108433

Hinderer, S., & Kuckertz, A. (2022). The Bioeconomy Transformation as an External Enabler of Sustainable Entrepreneurship. Business Strategy and the Environment, 31(7), 2947–2963. https://doi.org/10.1002/bse.3056

Kreuzer, T., Lindenthal, A.-K., Oberländer, A. M., & Röglinger, M. (2022). The Effects of Digital Technology on Opportunity Recognition. Business & Information Systems Engineering, 64(1), 47–67. https://doi.org/10.1007/s12599-021-00733-9

Ledi, K. K., Ameza-Xemalordzo, E. B., & Owusu, J. (2022). The Role of Entrepreneurial Attitude and Opportunity Recognition on Entrepreneurial Intention of University Students. International Journal of Entrepreneurial Knowledge, 10(2), 54–67. https://doi.org/10.37335/ijek.v10i2.155

Lim, W., Lee, Y., & Mamun, A. A. (2021). Delineating Competency and Opportunity Recognition in the Entrepreneurial Intention Analysis Framework. Journal of Entrepreneurship in Emerging Economies, 15(1), 212–232. https://doi.org/10.1108/jeee-02-2021-0080

Lin, S., De-Pablos-Heredero, C., Botella, J. L. M., & Lin-Lian, C. (2022). Entrepreneurial Intention of Chinese Students Studying at Universities in the Community of Madrid. Sustainability, 14(9), 5475. https://doi.org/10.3390/su14095475

Liu, Q., & Peng, M. Y. (2025). Exploring Factors Influencing University Students' Entrepreneurial Intentions: The Role of Attitudes, Beliefs, and Environmental Support. Plos One, 20(1), e0316392. https://doi.org/10.1371/journal.pone.0316392

Loan, L. T. T., Doanh, D. C., Thắng, H. N., Nga, N. T. V, Van, P. T., & Hoa, P. T. (2021). Entrepreneurial Behaviour: The Effects of the Fear and Anxiety of Covid-19 and Business Opportunity Recognition. Entrepreneurial Business and Economics Review, 9(3), 7–23. https://doi.org/10.15678/eber.2021.090301

Lopes, J. M., Laurett, R., Ferreira, J. J., Silveira, P., Oliveira, J., & Farinha, L. (2022). Modeling the Predictors of Students' Entrepreneurial Intentions: The Case of a Peripheral European Region. Industry and Higher Education, 37(2), 208–221. https://doi.org/10.1177/09504222221117055

Lv, Y., Chen, Y., Sha, Y., Wang, J., An, L., Chen, T., Huang, X., Huang, Y., & Huang, L. (2021). How Entrepreneurship Education at Universities Influences Entrepreneurial Intention: Mediating Effect Based on Entrepreneurial Competence. Frontiers in Psychology, 12. https://doi.org/10.3389/fpsyg.2021.655868

Maheshwari, G., Kha, K. L., & Arokiasamy, A. R. A. (2022). Factors Affecting Students' Entrepreneurial Intentions: A Systematic Review (2005–2022) for Future Directions in Theory and Practice. Management Review Quarterly, 73(4), 1903–1970. https://doi.org/10.1007/s11301-022-00289-2

Nafukho, F. M., & Mansour, W. E. (2023). Factors Determining Entrepreneurial Opportunity Recognition and the Significant Role of Education and Training. European Journal of Training and Development, 49(1/2), 77–96. https://doi.org/10.1108/ejtd-04-2023-0054

Nguyen, T. T., & Hoa, P. T. (2024). Entrepreneurship Environments and Entrepreneurial Intention- The Role of Self Efficacy and Role Model. International Journal of Engineering Business Management, 16. https://doi.org/10.1177/18479790241275925

Prokop, D., & Thompson, P. (2022). Defining Networks in Entrepreneurial Ecosystems: The Openness of Ecosystems. Small Business Economics, 61(2), 517–538. https://doi.org/10.1007/s11187-022-00710-w

Rizal, Y., Sudira, P., & Mutohhari, F. (2022). Digital Entrepreneurship of Vocational Educations: Enthusiasm Level and Entrepreneurial Personality of Students. Journal of Education Technology, 6(4), 578–585. https://doi.org/10.23887/jet.v6i4.46297

Rocha, A. K. L. da, Moraes, G. H. S. M. de, & Fischer, B. B. (2021). The Role of University Environment in Promoting Entrepreneurial Behavior: Evidence From Heterogeneous Regions in Brazil. Innovation & Management Review, 19(1), 39–61. https://doi.org/10.1108/inmr-08-2020-0112

Rosmayanti, V., Noni, N., & Patak, A. A. (2022). Students' Acceptance of Technology Use in Learning English

E-ISSN: 2985-3222
P-ISSN: 2985-3168

JEEMBA Volume 3, Issue 3 September 2025

Pharmacy. International Journal of Language Education, 6(3), 314. https://doi.org/10.26858/ijole.v6i3.24144

Sarstedt, M., Hair Jr, J. F., Cheah, J.-H., Becker, J.-M., & Ringle, C. M. (2019). How to specify, estimate, and validate higher-order constructs in PLS-SEM. Australasian Marketing Journal, 27(3), 197–211.

Schermelleh-Engel, K., Moosbrugger, H., & Müller, H. (2003). Evaluating the fit of structural equation models: Tests of significance and descriptive goodness-of-fit measures. Methods of Psychological Research Online, 8(2), 23–74.

Shen, F., Liang, L., & Feng, Y. (2023). A Study on Factors Influencing Chinese Undergraduate EFL Learners' Self-Directed Use of Mobile English Learning Resources. Frontiers in Psychology, 14. https://doi.org/10.3389/fpsyg.2023.1189055

Šimović, V., Domazet, I., Bugarčić, M., Safi, M., Sarhan, H., Bhagat, R., & Martinovic, A. B. (2023). The Association of Socio-Demographic Characteristics of University Students and the Levels of Their Digital Entrepreneurial Competences. Heliyon, 9(10), e20897. https://doi.org/10.1016/j.heliyon.2023.e20897

Sondak, M. R., Ardianti, R., Wijaya, S., & Liauw, T. T. (2025). Bridging Parental Influence and Entrepreneurship Education: The Role of Entrepreneurial and Digital Competencies in Shaping Entrepreneurial Career Aspirations. Sage Open, 15(4). https://doi.org/10.1177/21582440251367512

Urban, B., Murimbika, M., & Mhangami, D. (2022). Immigrant Entrepreneurship With a Focus on Human and Social Capital as Determinants of Success: Evidence From South Africa. Journal of Entrepreneurship in Emerging Economies, 16(2), 257–272. https://doi.org/10.1108/jeee-08-2021-0306

Vall-llosera, L., Renart, G., Saurina, C., & Serra, L. (2022). Entrepreneurial Skills in University Degrees. Intangible Capital, 18(2), 182. https://doi.org/10.3926/ic.1542

Vásquez, M. C., Cuecuecha, A., & Mejía, E. T. (2023). The Impact of the Components of Planned Behavior on Entrepreneurial Intentions Among University Students in Puebla, Mexico. Ensayos Revista De Economía, 42(2), 121–150. https://doi.org/10.29105/ensayos42.2-1

Wang, M., Soetanto, D., Cai, J., & Munir, H. (2021). Scientist or Entrepreneur? Identity Centrality, University Entrepreneurial Mission, and Academic Entrepreneurial Intention. The Journal of Technology Transfer, 47(1), 119–146. https://doi.org/10.1007/s10961-021-09845-6

Weng, D. H., Lee, S., & Yamakawa, Y. (2021). Time to Change Lanes: How Pro-market Reforms Affect Informal Ventures' Formalization Speed. Global Strategy Journal, 11(4), 767–795. https://doi.org/10.1002/gsj.1421

Wu, J., Alshaabani, A., & Rudnák, I. (2022). Testing the Influence of Self-Efficacy and Demographic Characteristics Among International Students on Entrepreneurial Intention in the Context of Hungary. Sustainability, 14(3), 1069. https://doi.org/10.3390/su14031069

Yami, S., M'Chirgui, Z., Spano, C., & Barykina, O. G. (2021). Reinventing Science and Technology Entrepreneurship Education: The Role of Human and Social Capitals. Technological Forecasting and Social Change, 164, 120044. https://doi.org/10.1016/j.techfore.2020.120044

Zhu, F., Adomako, S., Donbesuur, F., Ahsan, M., Shinnar, R. S., & Sadeghi, A. (2024). Entrepreneurial Passion, Alertness and Opportunity Recognition: Affective-Cognitive Interactions in Dynamic Environments. International Small Business Journal Researching Entrepreneurship, 43(4), 358–390. https://doi.org/10.1177/02662426241298176