

Artificial Intelligence Literacy and Digital Entrepreneurial Intention: The Mediating Role of Attitude toward Digital Entrepreneurship at Two Public Vocational Institutions

Ahmadi Usman^{1*}, Asri Essada Nurachmah², Maududi Lamparawi Magenda³, A. Putri Pratiwi Pramulia AR⁴, Ahmad Afif Bakhtiar⁵, Muhammad Sadiq⁶, Aedil Firmansya⁷, Muhammad Dzaky Al Fatihah Putra⁸

^{1,3,5,6,7,8}Department of Digital Business, Politeknik Negeri Ujung Pandang, 90245, Indonesia

^{2,4}Department of Business Administration, Politeknik Negeri Ujung Pandang, 90245, Indonesia

*Corresponding Author

Jl Perintis Kemerdekaan Km 10 Makassar City, South Sulawesi, Indonesia, 90245

e-mail: ahmadiusman@poliupg.ac.id

Received: April 19, 2026; **Revised:** August 26, 2026; **Accepted:** September 15, 2026

Abstract: The accelerating development of artificial intelligence (AI) is transforming the knowledge, competencies, and capabilities required to engage in digital entrepreneurship. Yet, the possession of AI-related competencies does not necessarily translate into entrepreneurial intention, particularly among vocational students who experience extensive exposure to digital technologies but remain comparatively less engaged in entrepreneurial activities. Addressing this issue, this study explores how artificial intelligence literacy shapes digital entrepreneurial intention and investigates the mediating role of attitude toward digital entrepreneurship in this relationship. Drawing on a quantitative cross-sectional design, data were collected from 300 vocational students in South Sulawesi, Indonesia. Data were analyzed using Partial Least Squares Structural Equation Modeling. The findings demonstrated that artificial intelligence literacy positively influences students' attitudes toward digital entrepreneurship, while such attitudes substantially enhance their intention to pursue digital entrepreneurial activities. However, artificial intelligence literacy does not exert a significant direct influence on digital entrepreneurial intention. Instead, its influence emerges indirectly through attitude toward digital entrepreneurship, highlighting the importance of an attitudinal mechanism in translating technological competence into entrepreneurial intention. These findings advance the emerging literature on AI and digital entrepreneurship by challenging the assumption that technological literacy alone is sufficient to foster entrepreneurial intention. The study further underscores the importance of cultivating favorable entrepreneurial attitudes alongside AI competencies within vocational education, particularly in emerging-economy contexts where digital transformation is reshaping pathways to entrepreneurship.

Keywords: Artificial Intelligence Literacy; Attitude Toward Digital Entrepreneurship; Digital Entrepreneurial Intention; Emerging Economy; Vocational Education

How to Cite: Usman, A., Nurachmah, A. E., Magenda, M. L., Pramulia AR, A. P. P., Bakhtiar, A. A., Sadiq, M., Putra, M. D. A. F. (2026). Artificial Intelligence Literacy and Digital Entrepreneurial Intention: The Mediating Role of Attitude toward Digital Entrepreneurship at Two Public Vocational Institutions. *Journal of Economic Education and Entrepreneurship Studies*, 7(5), 107-127. <https://doi.org/10.62794/je3s.v7i5.472>
Copyright 2026 © The Author(s)

The work is licensed under a [Creative Commons Attribution-ShareAlike 4.0 International \(CC BY-SA 4.0\)](https://creativecommons.org/licenses/by-sa/4.0/)



INTRODUCTION

The global economic landscape undergoes a rapid transformation driven by the widespread adoption of artificial intelligence (AI) technologies, which are systematically disrupting traditional business models. Across diverse industries, organizations actively deploy intelligent automation systems to optimize operational efficiency, lower overhead costs, and accelerate strategic decision-making. This technological shift compels conventional enterprises to migrate toward data-driven digital entrepreneurship platforms. To compete in this market, founders need practical AI literacy, not just to spot opportunities, but to use machine learning for predictive analysis and workflow automation. High levels of AI literacy enable aspiring entrepreneurs to identify market opportunities, deploy predictive machine learning models, and streamline automated business workflows (Akhtar et al., 2024). Although structural implementation challenges remain, AI integration exerts a demonstrably positive impact on sustainable entrepreneurship (Gupta et al., 2023). Consequently, developing nations are formulating strategic policies to accelerate the adoption of intelligent technologies across productive sectors, placing higher education institutions at the forefront of producing technologically proficient innovators.

Higher education institutions increasingly rely on science and technology-based entrepreneurship education to commercialize fundamental scientific knowledge and technical innovations. This educational framework forms a cornerstone of institutional strategy, enabling universities to address complex economic and sustainability challenges. Although science and technology-based entrepreneurship education is a relatively modern discipline, scholars widely recognize it as the missing link between academic research and commercial application (Blankesteyn et al., 2024). Through structured entrepreneurship coursework, students participate in progressively complex tasks that cultivate entrepreneurial self-efficacy by demonstrating incremental skill improvements (M. Liu et al., 2022). For vocational students, practical AI literacy provides the technical capabilities required to design digital business solutions independently. Integrating successful role models, relevant case studies, and experiential learning activities significantly increases student confidence in initiating new ventures (Z. Liu et al., 2025). Furthermore, applying AI within practical business simulations helps vocational students master the operational architectures of digital startups, translating technical proficiency into collaborative venture productivity.

This educational model becomes especially important because Indonesia faces critical economic and demographic conditions that necessitate the rapid development of young, tech-enabled entrepreneurs. According to data from the Central Statistics Agency (BPS), Indonesia's open unemployment rate reached 4.68% in February 2026, representing approximately 7.24 million unemployed individuals (Statistik, 2026). In fact, the country is experiencing a demographic dividend dominated by a productive age population, which offers immense potential for national economic growth. Using this demographic dividend requires strengthening the national entrepreneurial ecosystem through higher education interventions. In response to these structural imperatives, the Ministry of Higher Education and Technology launched the Student Entrepreneurship Development Program (*Program Pembinaan Mahasiswa Wirausaha—P2MW*) to encourage university-level venture creation (Humas Kementerian Pendidikan Tinggi, Sains, 2026). This policy mandates that vocational institutions redesign their instructional models to incorporate state-of-the-art technological developments. Vocational students must master AI-driven analytical tools to bridge the gap between academic capabilities and industrial

demands. Strategic partnerships with digital industry partners further facilitate technology transfer by exposing students to real-world business case studies involving intelligent automation systems. Moreover, institutional leaders must implement tactical measures, such as providing open-access cloud infrastructure, to ensure equitable access to practical digital skill development.

This policy requires vocational institutions to reform their instructional frameworks by integrating advanced technological innovations. To bridge the gap between academic capabilities and industrial demands, vocational students must attain proficiency in AI-driven analytical tools. Furthermore, strategic alliances with digital enterprise partners facilitate technology transfer through student exposure to real-world business case studies involving intelligent automation systems. Simultaneously, institutional leadership must implement tactical measures, such as providing open-access cloud infrastructure to guarantee equitable access to practical digital skill development.

The Stimulus–Organism–Response (SOR) framework proposed by Mehrabian & Russell (1974) explains how stimuli relate to responses through internal cognitive and affective states. This study applies the framework by treating AI literacy as the competence informing students' entrepreneurial evaluations, attitude toward digital entrepreneurship as the internal evaluative state, and digital entrepreneurial intention as the response. Empirical studies demonstrate that entrepreneurship education significantly enhances digital entrepreneurial self-efficacy, which subsequently mediates the relationship between education and digital entrepreneurial intention (Duong & Vu, 2025). Previous research also links AI literacy to digital entrepreneurial intention through entrepreneurial self-efficacy (Duong, 2025b). These findings establish an existing basis for examining AI literacy and psychological mechanisms in entrepreneurship research (Duong, 2025). The present study extends this discussion by focusing on attitude toward digital entrepreneurship.

Similarly, the Theory of Planned Behavior (TPB) explains how attitudes, subjective norms, and perceived behavioral control contribute to intention formation. These components are associated with behavioral, normative, and control beliefs, respectively (Ma et al., 2025). Perceived behavioral control reflects an individual's belief in their ability to perform a behavior based on resource accessibility, technical knowledge, and financial capacity (Yuet Mun et al., 2026). When attitudes and subjective norms become more favorable, and perceived control increases, individual behavioral intentions strengthen significantly (Melios et al., 2026). In this study, TPB clarifies why favorable evaluations of digital entrepreneurship may be associated with stronger entrepreneurial intentions. The analysis draws specifically on the attitudinal component rather than testing the complete TPB model.

Attitude toward digital entrepreneurship denotes an individual's positive or negative assessment regarding the establishment of a digital venture. This construct is distinct from perceived entrepreneurial capability, as it maintains the perceived desirability of entrepreneurship rather than an individual's self-assessed ability to pursue it. AI literacy can inform this evaluation by enhancing students' understanding of the opportunities and constraints associated with integrating AI into business operations. For example, recognizing the utility of AI in streamlining routine tasks may make digital entrepreneurship a more attractive career trajectory. Consequently, the proposed mediating mechanism investigates whether these evaluations serve to explain the relationship between AI literacy and digital entrepreneurial intention. Sustainable entrepreneurship emphasizes the preservation of natural, social, and community well-being while pursuing economic and non-economic value creation (Soria-Barreto & Novoa-Hernández, 2025). Although this broader perspective is relevant to entrepreneurship

education, the present study measures digital entrepreneurial intention rather than sustainability outcomes or actual business creation.

Investigating attitude in conjunction with AI literacy offers valuable insights for vocational pedagogy. If attitude indeed mediates the relationship between AI literacy and entrepreneurial intention, technical instruction should be augmented by opportunities that enable students to evaluate digital entrepreneurship as a viable career path. Educational strategies such as business simulations, interactive sessions with entrepreneurial alumni, and reflective exercises on practical AI applications could effectively support this pedagogical objective. Nevertheless, these approaches represent potential educational implications rather than empirical interventions tested within this study. Ultimately, the analysis focuses on whether students' entrepreneurial evaluations serve to elucidate the link between their technological competence and entrepreneurial intention.

This study builds on research examining AI literacy and entrepreneurship education in relation to entrepreneurial intention through psychological mechanisms, including self-efficacy (Alkhalaileh & Qasim, 2026; Duong, 2025b, 2025a; Duong & Vu, 2025; Hajizadeh et al., 2026). Its contribution lies in examining attitude toward digital entrepreneurship as a specific mediator, rather than introducing AI literacy as a previously unexamined antecedent. This focus complements research on perceived entrepreneurial capability by addressing students' evaluations of digital business creation. The proposed relationship is examined among students from two public vocational institutions in South Sulawesi who had taken entrepreneurship or digital business coursework and had prior AI experience. This setting defines the scope of the evidence rather than constituting the sole basis for the study's originality.

The study draws on SOR and TPB to explain how AI literacy may relate to digital entrepreneurial intention through attitude toward digital entrepreneurship. SOR organizes the proposed relationship between competence, internal evaluation, and intention, while TPB explains the role of attitude in intention formation. Using partial least squares structural equation modeling (PLS-SEM), the study evaluates the measurement model and estimates the direct and indirect relationships among these constructs. Its contribution is the empirical examination of this attitudinal pathway within a defined vocational education context. Accordingly, the study addresses four central research questions:

1. "How is AI literacy associated with digital entrepreneurial intention, directly and indirectly through attitude toward digital entrepreneurship?"
2. Does AI literacy have a direct effect on digital entrepreneurial intention?
3. Does attitude toward digital entrepreneurship have a direct effect on digital entrepreneurial intention?
4. Does attitude toward digital entrepreneurship mediate the relationship between AI literacy and digital entrepreneurial intention?

By answering these research questions, this study highlights the essential role of human psychological mechanisms amidst rapid technological automation, offering a strategic roadmap for developing an adaptive, sustainable digital entrepreneurship ecosystem in vocational higher education.

METHOD

Research Design and Context

This study used a quantitative, cross-sectional survey design to examine the relationships among artificial intelligence literacy (AIL), attitude toward digital entrepreneurship (ADE), and digital entrepreneurial intention (DEI) among vocational students. The proposed model categorizes AIL as the exogenous construct, ADE as the mediating construct, and DEI as the endogenous outcome. The conceptual framework is presented in Figure 1.

The study was conducted in South Sulawesi, Indonesia, focusing on two locations, Makassar and Pangkep. The selection of these locations was intended to capture variation in the educational and digital environments in which vocational students develop technology-related competencies and entrepreneurial orientations. Makassar represents an urban educational and economic center with substantial exposure to digital technologies, whereas Pangkep provides a semi-urban context characterized by an emerging adoption of digital technologies. Including both settings provides contextual variation while maintaining a geographically coherent study area.

Vocational students constitute an appropriate population for this study because their educational programs emphasize applied competencies, technological skills, employability, and preparation for entrepreneurial activities. Their exposure to entrepreneurship and digital technologies therefore provides a relevant context for examining how AI-related competencies are associated with attitudes and intentions toward digital entrepreneurship.

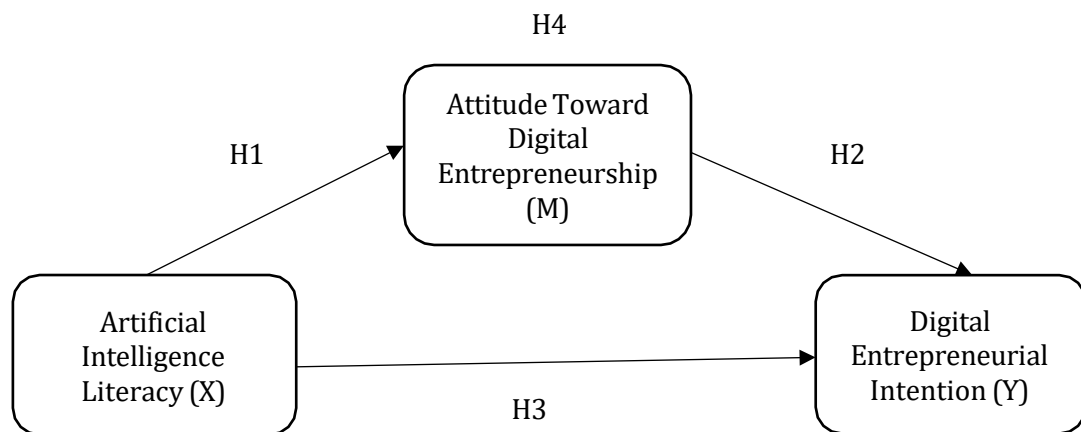


Figure 1 Conceptual Model

Sampling and Sample Size Justification

Purposive sampling was employed to recruit respondents who met three predefined eligibility criteria: (1) current enrollment as an active vocational student, (2) having taken or completed an entrepreneurship- or digital business-related course, and (3) prior experience using artificial intelligence-based technologies. These criteria were established to ensure that participants had relevant exposure to entrepreneurship education and AI-related technologies. The final sample comprised 300 students from two public vocational institutions in South Sulawesi, Indonesia: 225 respondents (75%) from Politeknik Negeri Ujung Pandang and 75 respondents (25%) from Politeknik Negeri Pangkep. These percentages describe the institutional composition of the achieved sample. Given the nonprobability sampling strategy, the findings should be interpreted

within the context of eligible students from the participating institutions rather than generalized to the entire vocational student population.

Before data collection, an a priori power analysis was conducted using G*Power 3.1 to justify the minimum required sample size for hypothesis testing. Considering that the study employed Partial Least Squares Structural Equation Modeling (PLS-SEM), the sample size estimation followed a multiple regression-based approach, which is commonly used to evaluate the statistical power of structural models. The analysis was based on the most complex endogenous construct in the proposed model, namely digital entrepreneurial intention, which was predicted by two antecedent constructs: artificial intelligence literacy and attitude toward digital entrepreneurship. The calculation was specified using the F-test family with the statistical test of linear multiple regression (fixed model, R^2 deviation from zero), an effect size of $f^2 = 0.15$, an alpha significance level of 0.05, and a desired statistical power of 0.80 with two predictors. The analysis indicated that a minimum sample size of 68 respondents was required to detect a medium effect under these assumptions. Therefore, the achieved sample of 300 respondents exceeded the minimum requirement established prior to data collection and was considered sufficient for conducting the subsequent PLS-SEM analysis.

Prior to data collection, an a priori power analysis was performed using G*Power 3.1 to determine the minimum sample size required for hypothesis testing. Given that this study employed Partial Least Squares Structural Equation Modeling (PLS-SEM), sample size estimation was conducted based on a multiple regression approach, which is widely applied for assessing the statistical power of structural models. The analysis considered the most complex endogenous construct in the proposed model, namely digital entrepreneurial intention, which was predicted by two antecedent variables: artificial intelligence literacy and attitude toward digital entrepreneurship. The calculation employed the F-test family with linear multiple regression (fixed model, R^2 deviation from zero), assuming a medium effect size ($f^2 = 0.15$), a significance level of 0.05, a statistical power of 0.80, and two predictors. The results indicated that a minimum sample size of 68 respondents was required to detect the specified effect. Accordingly, the final sample of 300 respondents exceeded the minimum threshold and was considered adequate for subsequent PLS-SEM analysis.

Following a prior power justification, a supplementary sensitivity analysis was conducted during manuscript revision to further evaluate the detectable effect associated with the achieved sample size. This analysis was performed as an additional assessment of statistical sensitivity and was not intended to replace the theoretically grounded a priori power analysis. Following the distinction between sensitivity analysis and a priori power analysis discussed by Lakens (2022), the sensitivity assessment was used only to characterize the minimum detectable standardized path coefficient given the achieved sample size, significance level, and target statistical power. Related studies by Xin and Ma (2023) and Nguyen Thi et al. (2026) supported the relevance of examining direct and mediated relationships in entrepreneurial intention research. However, differences in predictors, mediators, and research contexts prevented these studies from serving as a direct basis for establishing a theoretically meaningful numerical effect threshold for the present model.

The sensitivity assessment employed a two-sided normal approximation based on an inverse-square-rooted standard-error approximation. Consistent with the hypothesis testing procedure, the significance level was set at $\alpha = 0.05$, with a target statistical power of 0.80. Under this

approximation, the achieved sample of 300 respondents corresponded to a sensitivity level of approximately 0.162 for detecting an individual standardized structural path coefficient. This value was interpreted only as an indicator of the statistical sensitivity of the achieved sample and was not considered a theoretically meaningful minimum effect threshold. Accordingly, nonsignificant direct relationships were not interpreted as evidence that the corresponding population effects were absent.

The measurement and structural models were estimated using SmartPLS 3.0. Statistical inference was conducted using two-tailed bootstrap tests with a significance level of 0.05 and 95% bootstrap confidence intervals. The supplementary sensitivity calculation was performed separately from the primary PLS-SEM analysis using the analytical approximation described above.

Data Collection and Measurement

Primary data were using a structured questionnaire. The measurement instrument was developed by adapting established scales from previous empirical studies. Artificial intelligence literacy was measured using four items adapted from Wang et al., (2023). Attitude toward digital entrepreneurship was assessed using five items modified from Nguyen Thi et al., (2026), whereas digital entrepreneurial intention was measured using three items adapted from Xin & Ma, (2023). To ensure translation accuracy and clear comprehension among respondents, the original English items were translated into Bahasa Indonesia using a standard back-translation procedure.

The adaptation process was undertaken to maintain consistency with previously established conceptualizations while ensuring that the items were appropriate for the context of digital entrepreneurship and vocational students. All constructs were measured using a five-point Likert scale ranging from 1 = strongly disagree to 5 = strongly agree.

The questionnaire consisted of measurement items and respondent background information. The latter included relevant demographic and academic characteristics used to describe the sample. Prior to structural model estimation, the measurement properties of the constructs were evaluated to establish the reliability and validity of the instrument.

Data Analysis

The hypotheses were tested using Partial Least Squares Structural Equation Modeling (PLS-SEM) implemented in SmartPLS 3.0. PLS-SEM was selected because the study focuses on explaining and predicting relationships among multiple latent constructs and includes a mediation mechanism. The approach is particularly suitable for models involving latent variables measured through multiple indicators and does not impose stringent multivariate normality assumptions (Sarstedt et al., 2021, Hair Jr et al., 2020)

The analysis followed a two-stage procedure comprising measurement model assessment and structural model assessment. First, the measurement model was evaluated to establish the reliability and validity of the constructs. Indicator reliability was assessed using outer loadings, while internal consistency reliability was examined using Cronbach's alpha and composite reliability (CR). Convergent validity was assessed using the average variance extracted (AVE). Discriminant validity was examined using the Fornell–Larcker criterion and the heterotrait–monotrait ratio (HTMT). These procedures were used to determine whether the indicators adequately represented their respective constructs and whether the constructs demonstrated sufficient empirical distinctiveness. Second, the structural model was assessed to evaluate the

hypothesized relationships among AIL, ADE, and DEI. The assessment included standardized path coefficients (β), t-statistics, p-values, and coefficients of determination (R^2). The structural relationships examined the direct effect of AIL on ADE, the direct effect of ADE on DEI, and the direct effect of AIL on DEI.

The mediating role of ADE was examined by estimating the indirect effect of AIL on DEI through ADE. Significance testing of the indirect effect was performed using bootstrapping. The bootstrapping procedure generated sampling distributions for the indirect effect and was used to determine whether the corresponding confidence interval excluded zero. The mediation analysis therefore enabled the study to assess whether the association between AI literacy and digital entrepreneurial intention operates, at least in part, through students' attitudes toward digital entrepreneurship.

All statistical tests were evaluated using the corresponding significance levels and confidence intervals generated by the PLS-SEM procedure. The analytical sequence was designed to ensure that conclusions regarding the structural relationships were based on constructs that first demonstrated acceptable measurement quality.

RESULTS AND DISCUSSION

RESEARCH RESULTS

Respondent Profile

The empirical analysis was based on 300 vocational students from South Sulawesi, Indonesia, comprising students from Politeknik Negeri Ujung Pandang (75%) and Politeknik Negeri Pangkep (25%). As reported in Table 1, female respondents accounted for 65% of the sample, while male respondents represented 35%. In terms of age, respondents were predominantly 20–21 years old, accounting for 55% of the total sample.

Regarding business ownership experience, only one-tenth of the surveyed individuals indicated that they were actively managing or running a company, while the vast majority (90%) lacked ongoing entrepreneurial ventures. In stark contrast, the entire cohort (100%) possessed hands-on familiarity with artificial intelligence tools, such as ChatGPT, Gemini, and Canva AI. As a result, the sample was comprised of vocational students who exhibited substantial engagement with AI software despite having minimal practical involvement in business operations. The detailed characteristics of the respondents are presented in Table 1.

Table 1. Demographic Profile of students

Profile	Category	Frequency	Percentage (%)
Gender	Male	105	35
	Female	195	65
Owns a business	Yes	30	10
	No	270	90
Uses AI (e.g., ChatGPT, Gemini, Canva AI, or other AI applications)	Yes	300	100
	No	0	0
Vocational Education Institutions	Politeknik Negeri Ujung Pandang	225	75
	Politeknik Negeri Pangkep	75	25
Age	18	18	6

19	60	20
20	90	30
21	75	25
22	57	19

Source: Processed Data (2026)

Measurement Model Assessment

Table 2. Measurement model, item factor loadings, composite reliability, and average variance extract

Variable		Items	Factor Loading (>0.70)	Cronbach's Alpha (>0.7)	Composite Reliability (>0.7)	Average Variance Extract (>0.5)
AI Literacy	AIL 1	I can distinguish between smart devices and non-smart devices.	0.720	0.715	0.824	0.539
	AIL 2	I know how AI technology can help me.	0.773			
	AIL 3	I can identify the AI technology used in the applications and products I use.	0.730			
	AIL 4	I can skillfully use AI applications or products to assist with my daily work/studies.	0.712			
Attitude toward Digital Entrepreneurship	ADE 1	I am interested in digital entrepreneurship activities.	0.783	0.802	0.863	0.558
	ADE 2	If I have sufficient opportunities and resources, I would like to start my own digital business.	0.763			
	ADE 3	I would feel satisfied and successful if I became a digital business owner.	0.761			
	ADE 4	I believe that if I start my own digital business project, the probability of success is quite high	0.712			
	ADE 5	I believe that digital entrepreneurship	0.714			

Digital Entrepreneurial Intention (DEI)	DEI 1	will yield more benefits than drawbacks. If I have the opportunity or can make decisions freely, I will choose to become a digital entrepreneur	0.805	0.752	0.858	0.668
	DEI 2	Considering various limitations (such as a lack of capital), I will still choose digital entrepreneurship.	0.839			
	DEI 3	I am likely to become a digital entrepreneur in the next five years.	0.809			

Source: Processed Data (2026)

The measurement model was assessed prior to evaluating the structural relationships. The assessment examined indicator reliability, internal consistency reliability, and convergent validity using outer loadings, Cronbach's alpha, composite reliability (CR), and average variance extracted (AVE). As reported in Table 2, all indicators achieved outer loadings above the recommended threshold of 0.70.

For the AI literacy (AIL) construct, the outer loadings ranged from 0.712 to 0.773. Cronbach's alpha was 0.715, while composite reliability was 0.824 and AVE was 0.539. These values indicate satisfactory internal consistency and convergent validity. Similarly, the attitude toward digital entrepreneurship (ADE) construct demonstrated outer loadings ranging from 0.712 to 0.783, with Cronbach's alpha of 0.802, composite reliability of 0.863, and AVE of 0.558.

The digital entrepreneurial intention (DEI) construct exhibited comparatively higher indicator loadings, ranging from 0.805 to 0.839. Its Cronbach's alpha was 0.752, composite reliability was 0.858, and AVE was 0.668. Overall, the reliability and convergent validity statistics exceeded the recommended thresholds, indicating that the measurement indicators adequately represented their respective latent constructs.

Discriminant Validity

Discriminant validity was assessed using the Fornell–Larcker criterion and the Heterotrait–Monotrait ratio (HTMT). As shown in Table 3, the square roots of the AVE values for ADE (0.747), AIL (0.734), and DEI (0.818) were higher than the corresponding inter-construct correlations. Specifically, the correlations between ADE and AIL, ADE and DEI, and AIL and DEI were 0.477, 0.660, and 0.383, respectively. These results satisfy the Fornell–Larcker criterion and provide evidence of discriminant validity among the constructs.

Table 3. Fornell-Larcker Criterion

	ADE	AIL	DEI
ADE	0.747		
AIL	0.477	0.734	
DEI	0.660	0.383	0.818

Source: Processed Data (2026)

The HTMT results provide further evidence of discriminant validity (Table 4). The HTMT ratios were 0.623 for ADE–AIL, 0.845 for ADE–DEI, and 0.518 for AIL–DEI. All values were below the conservative threshold of 0.90, indicating that the constructs were empirically distinguishable from one another.

Table 4. HTMT

	ADE	AIL	DEI
ADE			
AIL	0.623		
DEI	0.845	0.518	

Source: Processed Data (2026)

Common Method Bias

Potential common method bias was assessed using the full collinearity assessment approach. Variance inflation factor (VIF) values for all latent constructs ranged from 1.280 to 1.907, which are well below the conservative threshold of 3.3. These results confirm that the empirical data are free from substantial common method bias, ensuring the statistical validity of subsequent structural model evaluations.

Structural Model Assessment

Following the satisfactory assessment of the measurement model, the structural model was evaluated by examining the coefficient of determination (R^2), effect sizes (f^2), and the significance of the hypothesized structural paths.

The effect-size analysis provides information regarding the substantive contribution of each exogenous construct to the endogenous constructs. As shown in Table 5, AIL demonstrated a medium effect on ADE ($f^2 = 0.294$), whereas ADE exhibited a large effect on DEI ($f^2 = 0.529$). In contrast, the direct effect of AIL on DEI had a negligible effect size ($f^2 = 0.011$).

Table 5. Effect Size (f^2)

	ADE_	AIL_	DEI
ADE			0.529
AIL_	0.294		0.011
DEI			

Source: Processed Data (2026)

Determination Coefficient

The coefficient of determination further indicates the explanatory capacity of the structural model. AIL explained 22.7% of the variance in ADE ($R^2 = 0.227$). For DEI, the model explained 44.2% of the variance ($R^2 = 0.442$). Thus, the model accounted for a larger proportion of variance in digital entrepreneurial intention than in attitude toward digital entrepreneurship.

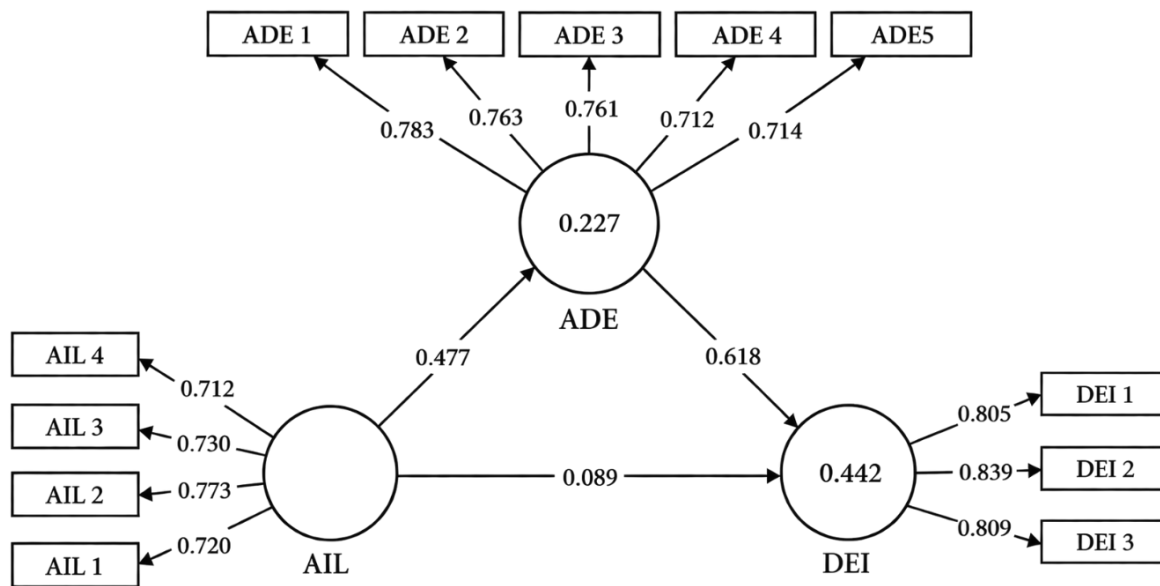


Figure 2. Structural Model Results

Hypothesis Testing

The hypothesized relationships were tested using a bootstrapping procedure in SmartPLS. The results are presented in Table 6. The results support H1, which predicted a positive relationship between AI literacy and attitude toward digital entrepreneurship. The path coefficient was positive and statistically significant ($\beta = 0.477$, $t = 9.002$, $p < 0.001$), with a 95% confidence interval ranging from 0.370 to 0.579. Because the confidence interval does not include zero, the hypothesized relationship is statistically supported. H2 was also supported. Attitude toward digital entrepreneurship had a positive and statistically significant association with digital entrepreneurial intention ($\beta = 0.618$, $t = 15.285$, $p < 0.001$). The corresponding 95% confidence interval ranged from 0.538 to 0.696, indicating a statistically significant positive relationship. In contrast, H3 was not supported. The direct relationship between AI literacy and digital entrepreneurial intention was positive but statistically non-significant ($\beta = 0.089$, $t = 1.864$, $p = 0.062$). The 95% confidence interval ranged from -0.002 to 0.183 and therefore included zero. Accordingly, the hypothesized direct relationship between AI literacy and digital entrepreneurial intention was not statistically supported.

Table 6. Hypothesis Testing

Hypothesis	Linkages	Beta Value	t-value	p-value	95% Confidence Interval		Hypothesis Result
					LL	UL	
H1	AIL->ADE	0.477	9.002	0.000***	0.370	0.579	Supported
H2	ADE->DEI	0.618	15.285	0.000***	0.538	0.696	Supported

H3	AIL->DEI	0.089	1.864	0.062	-0.002	0.183	Not Supported
----	----------	-------	-------	-------	--------	-------	---------------

Note(s): *** $p < 0.001$, ** $p < 0.010$, * $p < 0.050$, ns = not significant ($p > 0.050$)

Source: Processed Data (2026)

Mediation Analysis

The indirect effect of artificial intelligence literacy on digital entrepreneurial intention through attitude toward digital entrepreneurship was examined using bootstrapping with 5,000 resamples. The results showed that the indirect pathway was positive and statistically significant ($\beta = 0.295$, $t = 8.048$, $p < 0.001$, 95% CI [0.221, 0.365]). This finding indicates that artificial intelligence literacy contributes to digital entrepreneurial intention through the development of favorable attitudes toward digital entrepreneurship.

Conversely, the direct relationship between artificial intelligence literacy and digital entrepreneurial intention was statistically non-significant ($\beta = [0.089]$, $t = [1.864]$, $p = [0.062]$, 95% CI [-0.002, 0.183]). Following contemporary PLS-SEM mediation assessment approaches, the combination of a significant indirect effect and a non-significant direct effect indicates an indirect-only mediation pattern. This suggests that attitude toward digital entrepreneurship represents an important pathway through which artificial intelligence literacy is associated with digital entrepreneurial intention, while other potential explanatory mechanisms may also exist.

Using a bootstrapping method with 5,000 resamples, researchers evaluated how artificial intelligence literacy indirectly influences digital entrepreneurial intention via attitudes toward digital entrepreneurship. The findings revealed a statistically significant positive indirect pathway ($\beta = 0.295$, $t = 8.048$, $p < 0.001$, 95% CI [0.221, 0.365]), demonstrating that AI literacy fosters digital entrepreneurial intentions by shaping positive attitudes toward the field.

In contrast, the direct connection between AI literacy and digital entrepreneurial intention was not statistically significant ($\beta = 0.089$, $t = 1.864$, $p = 0.062$, 95% CI [-0.002, 0.183]). Under modern PLS-SEM guidelines, the combination of a significant indirect link and a non-significant direct link reflects an indirect-only mediation structure. This indicates that personal attitude serves as a crucial underlying mechanism connecting AI literacy to entrepreneurial intent, although other contributing factors may also play a role.

Table 7. Indirect Effect

Linkages	Beta Value	t-value	p-value	95% Confidence Interval	
				LL	UL
AIL->ADE->DEI	0.295	8.048	0.000***	0.221	0.365

Note(s): *** $p < 0.001$, ** $p < 0.010$, * $p < 0.050$, ns = not significant ($p > 0.050$)

Source: Processed Data (2026)

Discussion

H1. The Effect of Artificial Intelligence Literacy on Attitude Toward Digital Entrepreneurship

The empirical results demonstrate that Artificial Intelligence Literacy (AIL) exerts a positive and significant effect on Attitude toward Digital Entrepreneurship (ADE) ($\beta = 0.477, t = 9.002, p < 0.001$). This finding indicates that higher levels of AI literacy among vocational students correspond to more positive attitudes toward digital entrepreneurship. Understanding AI concepts, benefits, opportunities, limitations, and practical applications enhances not only technical competence but also shapes students' evaluation of digital entrepreneurship as an attractive, relevant, and viable career path in the digital era.

This relationship highlights that AI literacy serves a broader function than mere operational capability. Students who understand how AI can be leveraged for business idea generation, market analysis, operational efficiency, work automation, and decision-making can more readily identify the economic potential of digital entrepreneurship. Recognizing these opportunities forms the basis of a positive entrepreneurial evaluation; students transition from viewing technology merely as an academic support tool to recognizing it as a strategic resource for value creation and competitive advantage. Consequently, enhancing AI literacy expands students' perspectives toward business opportunities they might not have previously considered.

These findings can be comprehensively interpreted through the Stimulus–Organism–Response (SOR) framework. In line with the SOR framework, AI literacy functions as an external stimulus. However, technical exposure alone does not trigger action; students must first evaluate whether digital business is desirable and feasible. Higher-quality stimuli increase the likelihood of favorable evaluations toward entrepreneurial activities. Thus, the results indicate that AI literacy does not drive behavior directly, but operates by reshaping how students evaluate the benefits and opportunities offered by digital entrepreneurship.

This explanation is also consistent with the Theory of Planned Behavior (TPB) as postulated by Ajzen (1991, 2020); Ajzen & Schmidt (2020); Fishbein & Ajzen (1975); Madden et al. (1992). According to TPB, attitudes develop through an evaluative process regarding the potential outcomes of a behavior. Students with higher AI literacy possess more comprehensive information about technological benefits in business contexts, leading to more positive evaluations of digital entrepreneurship. Conversely, students with lower AI literacy tend to perceive AI strictly as an academic aid, overlooking its potential for business creation. Hence, AI literacy functions as an antecedent cognitive factor that enriches the evaluative process preceding attitude formation.

In this context, the specific characteristics of vocational students reinforce this relationship. Unlike traditional academic education, which focuses primarily on conceptual frameworks and theory, vocational education is structured to foster applied competencies through hands-on practice, project-based work, and real-world problem-solving. This orientation enables vocational students to readily connect AI skills with practical business applications. Learning to use AI for digital marketing strategies, consumer behavior analysis, content generation, or operational efficiency provides concrete insights into venture creation. Consequently, AI literacy in vocational education translates into positive entrepreneurial attitudes more rapidly than purely conceptual learning would allow.

This interpretation is further corroborated by the sample demographics. All respondents (100%) actively use AI applications, such as ChatGPT, Gemini, and Canva AI, in their coursework, indicating that access to AI technology is no longer a primary barrier. High usage frequency allows students to directly experience the functional value of AI in academic and project settings. This hands-on experience serves as a stimulus that strengthens positive perceptions of AI utilization in broader domains, including digital entrepreneurship. Thus, widespread AI adoption among

respondents solidifies AI literacy as a critical foundation for cultivating positive attitudes toward digital entrepreneurship.

However, these results also indicate that AI literacy should not be viewed as the ultimate end goal of vocational education. Educational success in AI should be measured not only by technical proficiency, but also by the extent to which it transforms students' mindsets toward emerging digital business opportunities. AI education achieves higher efficacy when technical competence instills the conviction that technology can drive innovation, venture creation, and economic value.

Empirically, this finding aligns with Nguyen et al. (2024), who reported that AI literacy influences attitudes toward digital entrepreneurship. Nevertheless, the present study offers a more nuanced explanation of the underlying mechanism. While previous studies emphasized empirical correlations between these variables, this study demonstrates that the relationship is governed by psychological mechanisms within the SOR framework. Furthermore, it highlights vocational education as a contextual facilitator, as practical learning environments help students bridge AI competencies with real-world digital business applications. Ultimately, this study extends the literature on AI literacy by showing that its benefits extend beyond digital competence to fostering psychological readiness for digital entrepreneurship as a viable career path. Curricula in vocational education should therefore pair technical skill development with an entrepreneurial mindset that frames AI as a strategic resource for innovation and venture creation.

H2. The Effect of Attitude Toward Digital Entrepreneurship on Digital Entrepreneurial Intention

Our empirical results strongly support H2, showing that attitude toward digital entrepreneurship is the main driver of entrepreneurial intent ($\beta = 0.618$, $f^2 = 0.529$). This confirms that attitude is the primary predictor of digital entrepreneurial intention among vocational students. Favorable evaluations of digital entrepreneurship strongly increase students' propensity to select it as a future career choice.

This substantial effect implies that the decision to pursue digital entrepreneurship depends less on technical capability alone and more on how students perceive the opportunities, rewards, and prospects of digital ventures. Students who view digital entrepreneurship as a means to achieve creative freedom, financial gain, workplace flexibility, and innovation are significantly more driven to launch digital ventures. Conversely, students lacking positive evaluations rarely consider entrepreneurship a viable career path, regardless of their technical proficiency. Thus, psychological evaluation plays a more decisive role than technical mastery in shaping entrepreneurial intention.

These findings provide strong empirical support for the Theory of Planned Behavior, which posits attitude as a primary determinant of behavioral intention. Individuals display stronger intentions when they evaluate a behavior as advantageous, valuable, and capable of producing desired outcomes. The present results confirm this mechanism in digital entrepreneurship: when students believe digital ventures offer economic opportunities, employment prospects, and productive technological integration, their intent to engage in digital entrepreneurship rises markedly.

Viewed through the SOR model, attitude toward digital entrepreneurship represents the *organism*, which is the internal psychological state that translates external stimuli into behavioral responses. Students are exposed to various stimuli, such as AI literacy, digital tool usage, entrepreneurship coursework, and market trends. However, these inputs do not automatically

translate into entrepreneurial intent without a positive psychological evaluation. Thus, attitude serves as the primary mechanism bridging knowledge and intent, explaining why its effect on entrepreneurial intention is substantially stronger than the direct effect of AI literacy.

The vocational education setting further accounts for these results. Applied learning, project work, and industry exposure allow vocational students to observe practical applications of technology in business contexts. This hands-on experience fosters realistic perceptions of both the opportunities and challenges of starting a digital business. Consequently, once vocational students form a positive attitude toward digital entrepreneurship, they translate that perception into actionable intent more readily than students exposed only to conceptual instruction.

Demographic factors also support this interpretation. Most respondents fall within the 19–21 age bracket, which represents a transitional developmental phase focused on entering the workforce. At this stage, career alternatives are actively evaluated based on perceived opportunity, job security, and personal growth. Favorable evaluations of digital entrepreneurship at this critical juncture make students far more likely to consider venture creation over traditional employment.

Notably, although only 10% of respondents possessed prior business experience, attitude remained a robust predictor of entrepreneurial intention. This indicates that prior venture experience is not a prerequisite for intent. Before engaging in actual business activities, students build psychological readiness by recognizing digital entrepreneurship as a viable career option. Fostering positive attitudes is therefore a crucial prerequisite to practical entrepreneurial engagement.

These findings align with prior studies, such as Nguyen et al. (2024), Al-Mamary & Alraja (2022), Aloulou et al. (2023), Vu et al. (2024) demonstrating the positive impact of attitude on entrepreneurial intention. Attitude remains one of the most consistent predictors of intent (Linan & Chen, 2009), as corroborated by meta-analytic evidence within the TPB framework (Schlaegel & Koenig, 2014). In digital domains, while technology creates new economic avenues, individual decisions to exploit them remain governed by underlying attitudes (Nambisan, 2017). The present study reinforces these insights, demonstrating that within vocational education, where instruction closely mirrors industry practice, the influence of attitude is particularly dominant.

These results basically demonstrate that technical competence alone is insufficient to cultivate digital entrepreneurial intention; attitude serves as the essential psychological catalyst. On a practical level, vocational institutions should combine technical AI training with experiential learning frameworks, such as project-based modules, student startup incubators, business mentorship, and industry collaborations, to cultivate positive attitudes and empower students to build sustainable digital ventures.

H3. The Effect of Artificial Intelligence Literacy on Digital Entrepreneurial Intention

Interestingly, AI literacy does not directly influence entrepreneurial intention ($p = 0.062$). Knowing how to use AI tools helps students' complete tasks, but it does not automatically inspire them to launch a startup. AI literacy functions primarily as an enabling capability rather than a direct driver of entrepreneurial career decisions.

This outcome highlights that the link between technical competency and entrepreneurial intent is non-linear. Although AI proficiency enhances productivity, information processing, idea generation, and decision-making, these cognitive capabilities alone do not compel individuals toward entrepreneurial careers. Venture creation involves complex decisions shaped by

evaluations of market opportunities, personal risks, financial rewards, and career goals. Therefore, AI literacy provides the foundational capacity to identify and act on opportunities, but the decision to pursue them depends on downstream psychological processes.

This pattern aligns with the SOR framework. AI literacy acts as an external *stimulus* (knowledge, skills, and experience), which does not directly trigger the *response* of entrepreneurial intent. Instead, individuals must first process this stimulus through internal evaluations of feasibility and desirability. The behavioral outcome depends on the quality of this psychological processing; technical competence alone fails to drive intent if a positive entrepreneurial attitude has not been formed.

This conclusion also reinforces the Theory of Planned Behavior. High AI literacy does not yield entrepreneurial intent unless students evaluate digital entrepreneurship as an attractive and viable career choice. Technical literacy and entrepreneurial motivation are distinct constructs: AI literacy provides the cognitive foundation to identify business opportunities, whereas the choice to exploit those opportunities depends on evaluative attitudes.

The vocational context provides further clarity on this finding. Vocational curricula focus primarily on practical skills and professional qualifications to prepare students for the workforce. As a result, students routinely use AI tools to solve academic tasks and complete course projects rather than to launch independent ventures. Because their exposure to venture building remains limited, students use AI primarily to enhance learning productivity rather than as a springboard for entrepreneurship.

Demographics further illuminate this result. While 100% of respondents frequently use AI tools in their studies, only 10% have real-world business experience. Universal tool access paired with limited entrepreneurial experience leads students to use AI primarily for academic tasks rather than commercial exploration. Consequently, high AI literacy does not automatically generate psychological readiness for an entrepreneurial career.

This contextual dynamic explains why these results differ from studies reporting a direct link between technology competence and entrepreneurial intent, such as Hajizadeh et al. (2026), (Duong, 2025). Previous research often sampled individuals with strong prior entrepreneurial orientations or business experience, enabling direct translation of tech skills into intent. In contrast, this vocational student sample was primarily oriented toward workforce entry, making their entrepreneurial intentions highly dependent on intermediary psychological evaluations.

This interpretation is reinforced by indirect effect analysis, which shows that AI Literacy positively and significantly influences Digital Entrepreneurial Intention *indirectly* through Attitude toward Digital Entrepreneurship ($\beta = 0.295$, $t = 8.048$, $p < 0.001$). The 95% bootstrap confidence interval [0.221, 0.365] excludes zero, confirming a statistically robust mediation model. Thus, AI literacy does not directly instigate entrepreneurial intent; rather, it fosters a positive attitude toward digital entrepreneurship, which in turn drives intention. The lack of a direct effect does not diminish the importance of AI literacy, but demonstrates that its influence operates through attitude mediation.

These mediation results highlight Attitude toward Digital Entrepreneurship as the central mechanism converting technological capability into entrepreneurial orientation. AI literacy provides the operational capacity to recognize opportunities, whereas attitude dictates whether that capacity translates into intent. This sequence fits the SOR framework, with AI Literacy as the *stimulus*, Attitude as the *organism*, and Digital Entrepreneurial Intention as the *response*, while extending TPB by establishing AI literacy as a cognitive antecedent that informs attitude formation prior to intent.

Theoretically, artificial intelligence literacy operates as a foundational capability mediated by psychological attitudes rather than a direct antecedent of digital entrepreneurial intention. Ultimately, technical skills open the door to recognizing opportunities, but personal attitudes decide whether a student takes the leap into entrepreneurship. Conceptual frameworks must therefore position artificial intelligence literacy as an indirect driver within digital entrepreneurship models.

From a practical perspective, higher education institutions must integrate affective attitudinal development into technical artificial intelligence training. Vocational curricula should extend beyond functional software instruction by embedding experiential learning modules, business incubation, and industry mentorship. Aligning technical competencies directly with commercial opportunity identification systematically reinforces positive student attitudes. This integrative pedagogical approach effectively converts basic digital literacy into actionable entrepreneurial intention.

Beyond pedagogical applications, the empirical evidence underscores vital strategic insights for university incubators, technology industries, and broader entrepreneurial ecosystems. University affiliated accelerators must evolve beyond basic software bootcamps toward experiential tracks focused on business model validation and venture scalability. Demonstrating how intelligent automation reduces operational overhead and mitigates early-stage risks fosters the positive cognitive evaluations required for venture formation. Ultimately, these targeted interventions enable higher education ecosystems to convert technologically proficient students into active startup founders.

Finally, industry stakeholders and policymakers play a critical role in bridging the gap between student technical capabilities and sustainable venture creation. Technology enterprises should collaborate with academic institutions to provide developer access, cloud infrastructure, and specialized tools tailored for micro entrepreneurship. Concurrently, public funding initiatives such as the Student Entrepreneurship Development Program should update evaluation criteria to prioritize cross disciplinary business models over pure technological novelty. Establishing regional entrepreneurship hubs that connect vocational talent with industry mentors ensures that public investments in technology education generate tangible economic outcomes through scalable digital startups.

CONCLUSION

This study examined the relationships among Artificial Intelligence Literacy (AIL), Attitude toward Digital Entrepreneurship (ADE), and Digital Entrepreneurial Intention (DEI) among vocational students. The findings indicate that AIL was positively associated with ADE, while ADE was positively associated with DEI. However, the direct relationship between AIL and DEI was not statistically significant, whereas the indirect effect of AIL on DEI through ADE was statistically significant. These findings suggest that AI literacy alone does not necessarily translate directly into digital entrepreneurial intention; rather, its relationship with entrepreneurial intention may operate through students' psychological evaluations of digital entrepreneurship. From a theoretical perspective, the findings support the SOR framework by illustrating how AI literacy can function as a technological stimulus associated with an internal attitudinal state, while ADE represents an important psychological mechanism associated with entrepreneurial intention. The findings also complement the Theory of Planned Behavior by highlighting the relevance of attitudinal evaluation in the formation of digital entrepreneurial intention.

Importantly, the significant indirect effect should not be interpreted as evidence that attitude is the only mechanism through which AI literacy may influence entrepreneurial intention, as other psychological and contextual factors may also contribute to this relationship. Practically, the findings suggest that vocational higher education should complement AI-related technical training with experiential entrepreneurship learning, project-based activities, business incubation, and industry engagement that can help students develop favorable evaluations of digital entrepreneurship. Nevertheless, the cross-sectional design and the restriction of the sample to students from two public vocational institutions in South Sulawesi limit causal interpretation and broader generalizability. Future studies should therefore consider longitudinal designs, more diverse institutional and geographical settings, and additional psychological or contextual variables, such as perceived behavioral control, subjective norms, AI anxiety, and institutional technology support, to further examine the mechanisms underlying digital entrepreneurial intention.

REFERENCES

- Ajzen, I. (1991). The theory of planned behavior. *Organizational Behavior and Human Decision Processes*, 50, 179–211. doi.org/10.1016/0749-5978(91)90020-T
- Ajzen, I. (2020). The theory of planned behavior: Frequently asked questions. *Human Behavior and Emerging Technologies*, 2(4), 314–324. https://doi.org/10.1002/hbe2.195
- Ajzen, I., & Schmidt, P. (2020). Changing behavior using the theory of planned behavior. *The Handbook of Behavior Change*, 17–31. https://doi.org/10.1017/9781108677318.002
- Akhtar, P., Ghouri, A. M., Ashraf, A., Lim, J. J., Khan, N. R., & Ma, S. (2024). Smart product platforming powered by AI and generative AI: Personalization for the circular economy. *International Journal of Production Economics*, 273, 109283. https://doi.org/10.1016/j.ijpe.2024.109283
- Al-Mamary, Y. H. S., & Alraja, M. M. (2022). Understanding entrepreneurship intention and behavior in the light of TPB model from the digital entrepreneurship perspective. *International Journal of Information Management Data Insights*, 2(2), 100106. https://doi.org/10.1016/j.jjime.2022.100106
- Aloulou, W., Ayadi, F., Ramadani, V., & Dana, L.-P. (2023). Dreaming digital or chasing new real pathways? Unveiling the determinants shaping Saudi youth's digital entrepreneurial intention. *International Journal of Entrepreneurial Behavior & Research*, 30(23), 709–734. https://doi.org/10.1108/IJEBR-10-2022-0942
- Blankesteyn, M. L. (M. L., Houtkamp, J. (J., & Bossink, B. (B. A. G. (2024). Towards transformative experiential learning in science- and technology-based entrepreneurship education for sustainable technological innovation. *Journal of Innovation & Knowledge*, 9(3), 100544. https://doi.org/10.1016/j.jik.2024.100544
- Duong, C. D. (2025). AI literacy and higher education students' digital entrepreneurial intention: A moderated mediation model of AI self-efficacy and digital entrepreneurial self-efficacy. *Industry and Higher Education*, 09504222251370089. https://journals.sagepub.com/doi/abs/10.1177/09504222251370089

- Duong, C. D., & Vu, T. N. (2025). Entrepreneurial education and higher education students' e-entrepreneurial intention: a moderated mediation model of generative AI incorporation and e-entrepreneurial self-efficacy. *Higher Education, Skills and Work-Based Learning*, 15(5), 1024–1048. <https://doi.org/10.1108/HESWBL-12-2024-0390>
- Fishbein, M., & Ajzen, I. (1975). *Belief, attitude, intention, and behavior: An introduction to theory and research*. Reading, MA: Addison-Wesley. <https://www.jstor.org/stable/40237022>
- Gupta, B. B., Gaurav, A., Panigrahi, P. K., & Arya, V. (2023). Analysis of artificial intelligence-based technologies and approaches on sustainable entrepreneurship. *Technological Forecasting and Social Change*, 186, 122152. <https://doi.org/10.1016/j.techfore.2022.122152>
- Hair Jr, J. F., Howard, M. C., & Nitzl, C. (2020). Assessing measurement model quality in PLS-SEM using confirmatory composite analysis. *Journal of Business Research*, 109, 101–110. <https://doi.org/10.1016/j.jbusres.2019.11.069>
- Hajizadeh, A., Hassani, M., & Shirbagi, N. (2026). *The Impact of Generative AI Language Tools and Digital Literacy on Entrepreneurial Intention and Behavior: The Mediating Role of Self-Efficacy and the Moderating Role of Social Support in Academic Settings*. <https://doi.org/10.22059/jed.2025.396673.654536>
- Humas Kementerian Pendidikan Tinggi, Sains, dan T. (2026). *Wamendiktisaintek Dorong Kampus Lahirkan Wirausahawan Muda*. <https://kemdiktisaintek.go.id/news/article/wamendiktisaintek-dorong-kampus-lahirkan-wirausahawan-muda>
- Lakens, D. (2022). Sample size justification. *Collabra: Psychology*, 8(1), 33267. <https://doi.org/10.1525/collabra.33267>
- Linan, & Chen, Y. W. (2009). Development and cross-cultural application of a specific instrument to measure entrepreneurial intentions. *Entrepreneurship Theory and Practice*, 593–617. <https://doi.org/10.1111/j.1540-6520.2009.00318.x>
- Liu, M., Gorgievski, M. J., Qi, J., & Paas, F. (2022). Increasing teaching effectiveness in entrepreneurship education: Course characteristics and student needs differences. *Learning and Individual Differences*, 96, 102147. <https://doi.org/10.1016/j.lindif.2022.102147>
- Liu, Z., Zhang, M., Guo, Y., Mao, T., Deng, S., & Li, Y. (2025). Entrepreneurship education stimulates entrepreneurial intention of college students in China: A dual-pathway model. *The International Journal of Management Education*, 23(2), 101107. <https://doi.org/https://doi.org/10.1016/j.ijme.2024.101107>
- Ma, M., Ng, D. T. K., Liu, Z., Lin, J., & Wong, G. K. W. (2025). Why don't teachers teach AI ethics? Understanding teachers' beliefs and intentions in Chinese AI curriculum implementation through the theory of planned behaviour. *Computers and Education: Artificial Intelligence*, 9, 100518. <https://doi.org/10.1016/j.caeai.2025.100518>
- Madden, T. J., Ellen, P. S., & Ajzen, I. (1992). A comparison of the theory of planned behavior and the theory of reasoned action. *Personality and Social Psychology Bulletin*, 18(1), 3–9. <https://doi.org/10.1177/0146167292181001>
- Mehrabian, A., & Russell, J. A. (1974). *An approach to environmental psychology*. the MIT Press. [https://psycnet.apa.org/record/1974-22049-000?ref\\$=\\$nepopularna.org](https://psycnet.apa.org/record/1974-22049-000?ref$=$nepopularna.org)

- Melios, S., Harbourne, N., Bolton, D., & Crofton, E. (2026). Exploring beliefs, intentions, and expectations towards cured meat alternatives: A qualitative analysis based on the theory of planned behaviour and product tasting. *Future Foods*, 13, 100912. <https://doi.org/https://doi.org/10.1016/j.fufo.2026.100912>
- Nambisan, Satish. (2017). Digital Entrepreneurship: Toward a Digital Technology Perspective of Entrepreneurship. *Entrepreneurship Theory and Practice*, 41(6), 1029–1055. <https://doi.org/10.1111/etap.12254>
- Nguyen, T. T., Dao, T. T., Tran, T. B., Nguyen, H. T. T., Le, L. T. N., & Pham, N. T. T. (2024). Fintech literacy and digital entrepreneurial intention: Mediator and Moderator Effect. *International Journal of Information Management Data Insights*, 4(1), 100222. <https://doi.org/10.1016/j.jjime.2024.100222>
- Nguyen Thi, X., Nguyen, D. Van, & Ngoc Nguyen, D. (2026). Examining the roles of entrepreneurship education, entrepreneurial attitude, and parental support in shaping students' entrepreneurial intentions. *Social Sciences & Humanities Open*, 13, 102534. <https://doi.org/10.1016/j.ssaho.2026.102534>
- Sarstedt, M., Ringle, C., & Hair, J. (2021). *Partial Least Squares Structural Equation Modeling* (pp. 1–47). https://doi.org/10.1007/978-3-319-05542-8_15-2
- Schlaegel, C., & Koenig, M. (2014). Determinants of entrepreneurial intent: A meta-analytic test and integration of competing models. *Entrepreneurship Theory and Practice*, 38(2), 291–332. <https://doi.org/10.1111/etap.12087>
- Soria-Barreto, K., & Novoa-Hernández, P. (2025). A systematic mapping and meta-analysis on sustainable entrepreneurial intention: Insights from the theory of planned behavior. *Acta Psychologica*, 260, 105733. <https://doi.org/https://doi.org/10.1016/j.actpsy.2025.105733>
- Statistik, B. P. (2026). *Indikator Pasar Tenaga Kerja Indonesia Februari 2026*. <https://www.bps.go.id/id/publication/2026/06/26/f00a5821056e518c20d1546e/indikator-pasar-tenaga-kerja-indonesia-februari-2026.html>
- Vu, T. H., Do, A. D., Ha, D. L., Hoang, D. T., Van Le, T. A., & Le, T. T. H. (2024). Antecedents of digital entrepreneurial intention among engineering students. *International Journal of Information Management Data Insights*, 4(1), 100233. <https://doi.org/10.1016/j.jjime.2024.100233>
- Wang, B., Rau, P.-L. P., & Yuan, T. (2023). Measuring user competence in using artificial intelligence: validity and reliability of artificial intelligence literacy scale. *Behaviour & Information Technology*, 42(9), 1324–1337. <https://doi.org/10.1080/0144929X.2022.2072768>
- Xin, B., & Ma, X. (2023). Gamifying online entrepreneurship education and digital entrepreneurial intentions: An empirical study. *Entertainment Computing*, 46, 100552. <https://doi.org/10.1016/j.entcom.2023.100552>
- Yuet Mun, R. C., Chuah, C., & Homer, S. T. (2026). Understanding malaysian homeowners' intention to adopt photovoltaic systems for EV charging: An integrated theory of planned behaviour and diffusion of innovation approach. *Renewable Energy Focus*, 56, 100767. <https://doi.org/10.1016/j.ref.2025.100767>