Do Digital Competencies Matter? Exploring Entrepreneurial Education, Self-Efficacy, and Intention Among Gen Z in Indonesia

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Abstract - This research aimed to thoroughly examine the influence of digital competencies on the relationship between entrepreneurial education, entrepreneurial self-efficacy, and entrepreneurial intention among Generation Z (Gen Z) university students in Indonesia. Considering that digital technologies increasingly shape entrepreneurial landscapes, understanding the extent to how digital competencies contribute to entrepreneurial development is very important, specifically among youth who are often described as digital natives. To achieve the stated objective, a quantitative survey design was adopted, involving 190 undergraduate students who had completed entrepreneurship education programs across several Indonesian universities. Accordingly, data collection was conducted from February to April 2025 using online questionnaires. The obtained responses were subsequently analysed using Partial Least Squares Structural Equation Modeling (PLS-SEM) to examine the direct, mediating, and moderating relationships among the variables. The results show that entrepreneurial education significantly enhanced entrepreneurial intention both directly and indirectly through entrepreneurial self-efficacy. Within this context, self-efficacy played a mediating role by translating the impact of education into intention, thereby emphasizing the importance of confidence-building as a mechanism for fostering entrepreneurial motivation. However, digital competencies do not significantly moderate the relationship between education and intention, nor between self-efficacy and intention. This suggests that while Gen Z students may be digitally fluent in everyday contexts, digital competencies alone are not sufficient to amplify entrepreneurial outcomes. The observations made invariably implied that although confidence and practical, hands-on entrepreneurial education are essential for fostering entrepreneurial intention in Gen Z, general digital literacy alone may not suffice.

Keywords: entrepreneurial education, self-efficacy, entrepreneurial intention, digital competencies

I. INTRODUCTION

Entrepreneurship is very important in promoting economic development and improving societal well-being, particularly through job creation (Kim et al., 2022). In Indonesia, where a substantial proportion of the population comprises youth, entrepreneurial activity offers a strategic avenue to address socio-economic challenges by facilitating job creation, driving innovation, and promoting sustainable economic growth. Within this context, entrepreneurial education programs have been observed to be a key instrument for cultivating entrepreneurial competencies, nurturing entrepreneurial mindsets, and equipping students with essential business skills (Cui

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& Bell, 2022; Hou et al., 2023; Nguyen & Nguyen, 2023). These programs are tasked of instilling confidence in individuals by enhancing respective abilities to identify opportunities, take calculated risks, and engage in entrepreneurial behaviour.

The importance of advancing youth entrepreneurship in Indonesia is further emphasized by recent demographic and labor-market data, which highlight pressing structural vulnerabilities. According to Statistics Indonesia, the youth cohort aged 15–24 years totaled approximately 64.16 million in 2023, representing a significant demographic asset (Rizaty, 2024). Despite the associated potential, a substantial segment of this demographic remains underutilized, as evidenced by the results that an estimated 9.9 million youth, or 22.25%, were categorized as NEET (Not in Employment, Education, or Training). It is also important to state that although approximately 40.2% of youth were employed in 2023, a significant 22.3% were disengaged from both formal education and productive economic activities (Susanto, 2024). Furthermore, the unemployment rate among this demographic was reported to remain disproportionately high, reflecting a structural mismatch between educational outputs and labor-market needs (Kemenko PMK, 2024).

Compounding the outlined labor market challenges is Indonesia's uneven digital readiness. Despite being labeled as "digital natives", evidence suggests that the digital competencies of Genetarion Z (Gen Z)—particularly in using digital tools for entrepreneurial or productive activities—remain limited. According to the SMERU Research Institute (2022), only 43.5% of Indonesians use the internet regularly, with stark disparities by geography, gender, socio-economic status, and education level. The majority of youths are observed to use the internet for entertainment and social media rather than for educational or entrepreneurial purposes.

Results from a recent study show that Indonesia's small and medium enterprises (SMEs), including youth-led ventures, largely fell under the "digital novice" category, with over 75% of surveyed SMEs lacking advanced digital tools, skills, or strategic planning for digital transformation (Anatan, 2023). Despite awareness of digitalization, business actors often lack readiness, emphasizing the need for targeted interventions to enhance digital capabilities and technology integration.

The stated paradox has possess profound implications, as evidenced by the observation that although the digital economy in Indonesia is projected to contribute up to USD 150 billion and create 3.7 million jobs by 2025, digital skills gap threatens to marginalize a generation from these opportunities (Rafiah et al., 2022). As stated by Badri (2022), Gen Z in Indonesia has insufficient digital preparedness, particularly in content creation, communication, and digital problem-solving. Considering this context, strengthening entrepreneurial education with a strong digital component becomes essential not only to foster business creation but also to enhance youth resilience and inclusivity in a rapidly digitizing economy.

Entrepreneurial self-efficacy is a very significant psychological construct influenced by entrepreneurial education programs. Self-efficacy within this context refers to the belief in one's ability to successfully execute the roles and responsibilities associated with entrepreneurship (Ouni & Boujelbene, 2023). Acquiring entrepreneurial knowledge and skills contributes significantly to self-efficacy by providing students with a structured foundation and tangible experiences. According to previous explorations, these learning processes help individuals develop higher confidence in their respective entrepreneurial capabilities, empowering the demographic to face business challenges and uncertainties with resilience (Anwar et al., 2023; Le et al., 2023). Self-efficacy, in turn, is closely linked to entrepreneurial intention, which is a strong predictor of entrepreneurial behavior. Individuals who believe in their ability to succeed are more likely to take the initial steps toward starting a business and to persevere despite obstacles (Madawala et al., 2023). Therefore, enhancing self-efficacy through entrepreneurial education is essential for fostering entrepreneurial intention among students.

According to previous research, entrepreneurial success depends heavily on digital competencies in the present digital era (Chandra & Hendayana, 2024; Cheng et al., 2024; Mohamad et al., 2025). These competencies include utilizing digital tools, platforms, and technologies to identify market opportunities, innovate, and manage business operations. For Gen Z, digital skills are not merely supportive assets but foundational capabilities that shape their interactions with the world, including business contexts (Kohnová et al., 2021; Riyanto et al., 2023). Recent studies suggest that digital competencies strengthen entrepreneurial education's effects on self-efficacy and enhance the transformation of self-efficacy into entrepreneurial intentions (Bachmann et al., 2024; Duong et al., 2024). Digitally competent individuals are better equipped to navigate the demands of the modern entrepreneurial landscape, which increasingly relies on digital marketing, e-commerce, and remote operations.

Despite the growing recognition of the importance of digital competencies in today's entrepreneurial education, empirical research exploring their role as a moderating variable in the relationship between entrepreneurial education, self-efficacy, and entrepreneurial intention remains notably limited, particularly within the context of Gen Z in Indonesia. For Gen Z, digital skills are not merely supportive assets but foundational capabilities that shape their interactions with the world, including in business contexts (Kohnová et al., 2021; Riyanto et al., 2023). However, while Gen Z is often labeled as "digital natives," their proficiency in leveraging digital technologies for entrepreneurial endeavors remains inconsistent.

Research shows that this demographic's digital engagement is often centered on entertainment and

social media, rather than business applications (Rafiah et al., 2022).This research addresses that critical gap by investigating how digital competencies interact with entrepreneurial education and entrepreneurial self-efficacy in shaping entrepreneurial intention. Specifically, the study examines whether digital skills enhance the impact of entrepreneurial education on self-efficacy and whether the skills strengthen the translation of self-efficacy into concrete entrepreneurial intention.

Recent explorations further suggested how digital competencies not only contribute to business operations but also serve as moderating factors that enhance the effectiveness of entrepreneurial education on self-efficacy and facilitate the translation of self-efficacy into entrepreneurial intention (Bachmann et al., 2024; Duong et al., 2024). Despite these theoretical propositions, the empirical literature remains underdeveloped in this area. The majority of existing studies treat digital competency as general technological literacy rather than as business-specific enablers of entrepreneurial action. Only a few explorations have comprehensively examined how digital competencies function as interactive mechanisms that shape the outcomes of entrepreneurial education, particularly in emerging economies such as Indonesia.

This research, focusing on Gen Z university students in Indonesia, contributes novel insights to the entrepreneurship literature. It does so by positioning digital competencies not as background variables but as essential moderating forces that influence the efficacy of both educational and psychological determinants of entrepreneurial intention. Specifically, the investigation aims to examine the mediating role of entrepreneurial self-efficacy in the relationship between entrepreneurial education and entrepreneurial intention, while also assessing the moderating role of digital competencies in both the entrepreneurial education and entrepreneurial intention link.

Furthermore, by clarifying these interrelationships, the research addresses key gaps in the literature and responds to Indonesia's strategic need for digitally competent, entrepreneurially minded youth. The results are expected to inform the development of more effective entrepreneurship education programs that integrate digital skill-building with self-efficacy development, thereby fostering a generation of agile and resilient entrepreneurs prepared for the demands of digital economy.

Entrepreneurial education is foundational in fostering students' belief in their entrepreneurial capabilities, commonly referred to as entrepreneurial self-efficacy (ESE). Research has consistently shown that structured entrepreneurial programs enhance cognitive and behavioral readiness by imparting knowledge, building skills, and offering experiential learning opportunities (Yousaf et al., 2022; Cui & Bell, 2022; Hou et al., 2023). These programs give students the tools to understand business challenges, design solutions, and build confidence in their decision-making. As students participate in entrepreneurial training, their self-efficacy strengthens, reflecting a higher belief in their capability to perform entrepreneurial tasks (Nguyen & Nguyen, 2023). Therefore, EE is expected to significantly affect entrepreneurial self-efficacy.

H1: Entrepreneurial education affects entrepreneurial self-efficacy.

Entrepreneurial self-efficacy is critical in shaping one's intention to engage in entrepreneurial behavior (Jiatong et al., 2021). Individuals with higher self-efficacy are more confident in their success and more inclined to pursue entrepreneurial ventures (Amin & Fajri, 2024; Anwar et al., 2023; Sahid et al., 2024). Self-efficacy influences the formulation of entrepreneurial intentions and the perseverance required to implement and sustain business efforts. It is a psychological mechanism that transforms knowledge and skills into motivated action (Deliana, 2023; Ferreira-Neto et al., 2023). Accordingly, individuals who believe in their entrepreneurial competencies are more likely to form strong entrepreneurial intentions.

H2: Entrepreneurial self-efficacy affects entrepreneurial intention.

Entrepreneurial education directly shapes the formation of entrepreneurial intention by fostering knowledge, mindset, and behavioral competencies required to recognize and pursue business opportunities (Hou et al., 2023; Iwu et al., 2021). Entrepreneurial education helps students understand the entrepreneurial process, explore opportunity recognition, and experience the risks and rewards associated with entrepreneurship (Otache et al., 2024). These experiences shape favorable attitudes toward entrepreneurship, strengthening their intentions to start new ventures (Cui & Bell, 2022). Thus, entrepreneurial education is instrumental in developing self-efficacy and exerts a direct and significant influence on entrepreneurial intention.

H3: Entrepreneurial education affects entrepreneurial intention.

Self-efficacy is a mediating variable explaining how entrepreneurial education affects entrepreneurial intention (Jiatong et al., 2021). Through entrepreneurial education, individuals acquire the competencies and confidence needed to perceive themselves as capable entrepreneurs, thereby enhancing their entrepreneurial intention (Le et al., 2023; Anwar et al., 2023). The mediation role of self-efficacy is supported by research showing that entrepreneurial education alone may not be sufficient to foster intention unless it strengthens internal beliefs and perceived capabilities (Biswakarma et al., 2023; Yousaf et al., 2021). Considering these elucidations, it is hypothesized that entrepreneurial

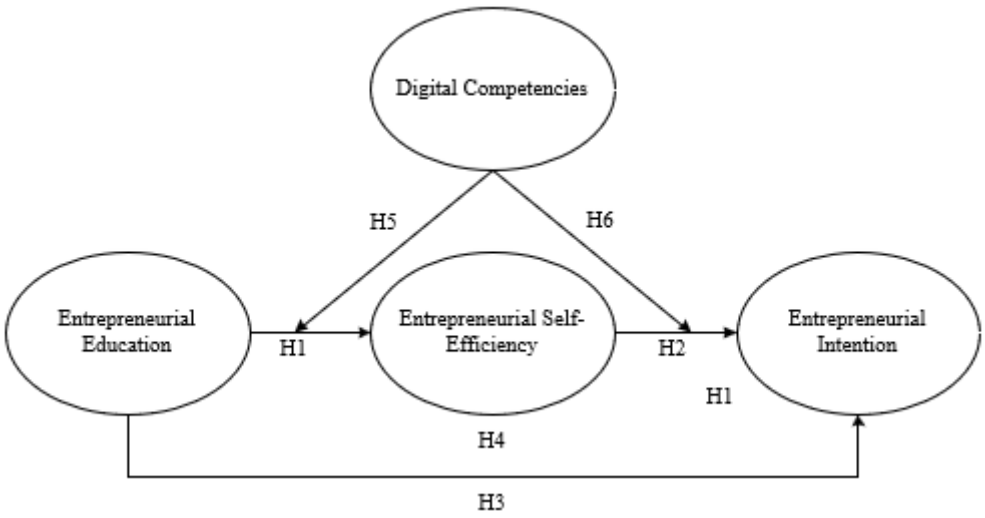

Figure 1 Research Framework

self-efficacy is a psychological bridge through which entrepreneurial education influences entrepreneurial intention.

H4: Entrepreneurial self-efficacy mediates the relationship between entrepreneurial education and intention.

Digital competencies invariably enhance the effectiveness of entrepreneurial education by enabling students to apply entrepreneurial concepts in digital environments. As the modern entrepreneurial landscape increasingly relies on digital tools, students with strong digital skills are more tendency to internalize educational content and translate it into perceived self-efficacy (Bachmann et al., 2024). These competencies allow learners to simulate business environments, engage in online experimentation, and receive rapid feedback, thereby reinforcing the demographic's confidence in managing entrepreneurial tasks (Sánchez-Vera & López-Vicent, 2024). Considering the associated benefits, digital competencies are expected to positively moderate the relationship between entrepreneurial education and self-efficacy, making it stronger among individuals with high digital proficiency. This led to the formulation of H5.

H5: Digital competencies moderate the relationship between entrepreneurial education and entrepreneurial self-efficacy.

According to Bachmann et al. (2024), the ability to use digital technologies significantly enhances individual's capacity to act on entrepreneurial beliefs. Individuals with high self-efficacy may possess the desire and drive to engage in entrepreneurship. However, without the tools to operationalize their respective ideas, specifically in digital contexts, the intentions of these individuals may not materialize (Bachmann et al., 2024). Digital competencies provide the actualization of business concepts through online platforms, social media marketing, e-commerce tools, and digital analytics. Considering these benefits, digital competencies are expected to strengthen the relationship between entrepreneurial self-efficacy and intention, enabling more confident and capable transitions from belief to action in digital entrepreneurship. The expectation led to the formulation of H6.

H6: Digital competencies moderate the relationship between entrepreneurial self-efficacy and entrepreneurial intention.

Figure 1 shows the relationships between entrepreneurial education, entrepreneurial self-efficacy, digital competencies, and entrepreneurial intention.

II. METHODS

The research applies a quantitative design to empirically test the relationships between entrepreneurial education, entrepreneurial self-efficacy, digital competencies, and entrepreneurial intention among Gen Z in Indonesia. This approach is selected primarily because it is well-suited for assessing the causal relationships and testing the proposed hypotheses using established theoretical models and prior empirical results (Lim, 2024).

The sampling method is non-probability purposive sampling, in which participants are selected based on specific criteria relevant to research objectives. This includes generational classification (born between 1997 and 2012), current student or recent graduate status, and exposure to entrepreneurial education. Following the rule of thumb in structural equation modeling (SEM), which suggests a minimum sample size of 10 times the number of observed

indicators (Jhantasana, 2023), and considering that the research includes 19 measurement indicators, the minimum required sample size is 190 respondents.

Data is collected through a structured online questionnaire distributed via Google Forms. The survey link is disseminated through student forums, WhatsApp groups, and social media channels targeting university students across various regions in Indonesia. Before participation, respondents are presented with an informed consent form outlining the research's purpose, their voluntary participation, anonymity, and the right to withdraw at any time. Only those who consent may proceed. To improve response quality and filter out ineligible participants, a brief pre-screening section is included to confirm each respondent's age, enrollment status, and prior experience with entrepreneurship education.

The questionnaire consists of items adapted from validated instruments in previous studies measuring entrepreneurial education (Yousaf et al., 2022), entrepreneurial self-efficacy (Jiatong et al., 2021), digital competencies (e.g., Bachmann et al., 2024), and entrepreneurial intention (Yousaf et al., 2022). The instruments are translated into Bahasa Indonesia using a standard translation approach to ensure clarity and contextual relevance. Accordingly, all constructs are measured using a five-point Likert scale ranging from 1 (strongly disagree) to 5 (strongly agree).

Data are analyzed using PLS-SEM to examine both the measurement and the structural models, and the analysis is conducted with SmartPLS 4.0. The measurement model is evaluated first to assess indicator reliability, internal consistency reliability (Composite Reliability and Cronbach's Alpha), convergent validity (Average Variance Extracted [AVE]), and discriminant validity (using the Fornell-Larcker criterion). Reflective constructs were used for all latent variables.

The structural model, on the flip side, was assessed to test the hypothesized relationships. Bootstrapping with 5,000 resamples is applied to determine the significance of direct, indirect, and moderating effects. The mediating role of entrepreneurial self-efficacy and the moderating role of digital competencies are examined using interaction terms and conditional indirect effects.

III. RESULTS AND DISCUSSIONS

The respondents comprise individuals who participated in the survey, providing valuable insights into the topic of discourse (see Table 1). The respondents are between 18 and 28 years old, and the gender distribution of the population is relatively balanced, with 46% identifying as male and 54% identifying as female. All respondents reported either being currently enrolled in or having previously participated in entrepreneurship education at their respective universities, reflecting a strong academic interest in entrepreneurship. A significant majority of respondents (72%), is reported using digital technology during their daily lives, while 28% is indicated even more frequent use, reflecting a high level of digital engagement. Regarding geographical distribution, 23% of respondents resided in Jakarta, 67% in Surabaya, with the remaining respondents located in other cities.

Tables 2 and 3 show that validity and reliability tests are conducted to ensure the accuracy and consistency of the measurement model used in this study. Convergent validity is evaluated using AVE, which indicates the proportion of variance in observed variables that can be attributed to their corresponding latent constructs. According to established standards, an AVE value greater than 0.50 is considered acceptable, while values above 0.70 suggest strong

Table 1 Respondents' Demographic Information

Item	N (190)	Percentage (%)
Gender		
Male	87	46%
Female	103	54%
Total	190	100%
Use of Digital Technology Daily		
Very Often	136	71.6%
Often	54	28.4
Sometimes	0	0
Never	0	0
Total	190	100%
Location		
Jakarta	44	23%
Surabaya	127	67%
Others	19	10%
Total	190	100%

Source: Data processed (2025)

convergent validity (Hair Jr et al., 2014). The AVE values for all constructs are exceeded 0.70, including digital competencies (0.772), entrepreneurial education (0.745), entrepreneurial intention (0.813), and entrepreneurial self-efficacy (0.788). These results show that the indicators for each construct consistently measure the underlying theoretical concepts, with more than 70% of the variance explained by each construct. As a result, more than 70 percent of the variance in indicator responses can be traced back to the latent variable, giving strong empirical support that the items successfully captured the theorised dimensions of entrepreneurial education, entrepreneurial self-efficacy, digital competencies, and entrepreneurial intention in the Indonesian Gen Z context.

Reliability testing is performed using Composite Reliability, which is a standard measure to evaluate internal consistency. In this research, the CR values range from 0.936 to 0.956, all exceeding the recommended threshold of 0.70 (Hair Jr et al., 2014). These results confirm that the items within each construct are highly consistent in measuring the same concept, showing strong internal reliability across the instrument (see Table 2).

Table 2 Validity and Reliability Test Result

Variable	Indicator	Outer Loading	AVE	Composite Reliability
Entrepreneurial Education (EE)	EE1: Entrepreneurial education in higher education enables students to think creatively in support of entrepreneurial career.	0.860	0.772	0.936
	EE2: The university motivates students to develop skills needed for entrepreneurship.	0.882		
	EE3: The university enhances students' skills related to entrepreneurship	0.888		
	EE4: The university provides practical and helpful information to support students in starting a business.	0.869		
	EE5: I believe that entrepreneurial initiatives can begin through education.	0.816		
Entrepreneurial Self-Efficacy (ESE)	ESE1: I am confident in my ability to discover new business opportunities.	0.874	0.788	0.937
	ESE2: I am confident in my ability to successfully create new products.	0.906		
	ESE3: I am confident in my ability to think creatively.	0.873		
	ESE4: I am confident that I can successfully commercialize ideas.	0.897		
Digital Competencies (DC)	DC1: I am capable of using digital tools effectively to support my productivity.	0.884	0.772	0.944
	DC2: I am proficient in using various digital tools to improve my productivity.	0.870		
	DC3: I use digital tools to solve operational problems quickly and efficiently.	0.860		
	DC4: I am able to adapt to technological changes in digital era to improve work efficiency.	0.902		
	DC5: I am open to adopting new technologies and continuously learning to face challenges in digital era.	0.878		
Entrepreneurial Intention (E1)	EI1: I will do whatever it takes to become an entrepreneur.	0.912	0.813	0.956
	EI2: My professional goal is to become an entrepreneur.	0.854		
	EI3: I will strive with all my strength to start my own business.	0.932		
	EI4: I am determined to start a business in the future.	0.901		
	EI5: I have a firm intention to start a business someday.	0.908		

Source: Data processed (2025)

Table 3 The Results of the Fornell-Larcker Criterion

Variable	Digital Competencies	Entrepreneurial Education	Entrepreneurial Intention	Entrepreneurial Self-Efficacy
Digital Competencies	0.879			
Entrepreneurial Education	0.728	0.863		
Entrepreneurial Intention	0.628	0.654	0.902	
Entrepreneurial Self-Efficacy	0.622	0.633	0.736	0.888

Source: Data processed (2025)

As presented in Table 4, the R-squared value for entrepreneurial self-efficacy is 0.401. This result shows that the independent variables, specifically entrepreneurial education and its interaction with digital competencies, are capable of explaining approximately 40.1% of the variance in entrepreneurial self-efficacy. According to thresholds established by Hair et al. (2014), an R^2 value above 0.26 is considered moderate, suggesting that the model has satisfactory explanatory power for predicting self-efficacy among Gen Z respondents. Therefore, educational interventions, particularly those leveraging digital skills, play a practically meaningful role in shaping students' confidence in performing entrepreneurial tasks.

Table 4 The Results of R-squared Values

Variable	R-Squared
Entrepreneurial Self-efficacy	0.401
Entrepreneurial Intention	0.610

Source: Data processed (2025)

The R-squared value for entrepreneurial intention is 0.610, indicating that 61.0% of the variance in entrepreneurial intention is explained by entrepreneurial education, entrepreneurial self-efficacy, and the moderating role of digital competencies. This R^2 value falls within the substantial range and indicates that the model had strong predictive accuracy in explaining entrepreneurial intention among digitally literate youth. It suggests that more than 60 percent of the variance in students' intention to start a business can be explained by the trio of influences, including (1) direct knowledge acquisition through entrepreneurial education, (2) the cognitive appraisal captured by entrepreneurial self-efficacy, and (3) the conditional influence of digital competencies. In substantive terms, the model possesses strong predictive adequacy, reinforcing the idea that curricular design coupled with digital skill scaffolding can meaningfully move Indonesian Gen Z students toward entrepreneurial action.

The hypothesis testing results presented in Table 5 and the path analysis results shown in Figure 2 provide empirical support for the proposed relationships in the study model, particularly regarding the influence of entrepreneurial education, self-efficacy, and digital competencies on entrepreneurial intention among Gen Z in Indonesia.

Figure 2 presents the structural path model that visually depict the relationships among the key variables in the research, namely entrepreneurial education, entrepreneurial self-efficacy, digital competencies, and entrepreneurial intention. The model supports the theoretical framework by showing how entrepreneurial education influenced intention both directly and indirectly through self-efficacy. This mediating role is showed by the significant path from entrepreneurial education to self-efficacy ($t = 9.381$), and from self-efficacy to entrepreneurial intention ($t = 4.867$). These significant paths are observed to be in line with social cognitive theory, which posits that an individual's confidence in respective abilities (self-efficacy) mediates the influence of learning experiences on behavioural intentions.

A direct path from entrepreneurial education to entrepreneurial intention ($t = 2.659$) suggests that education contributed to intention beyond the confidence it builds, supporting the model's partial mediation structure. Meanwhile, digital competencies are included as direct predictors and moderators, but the low t-values (1.771, 1.218, and 0.958) reflect these effects as statistically insignificant. The effects weaken the moderating role proposed in the theoretical model, suggesting that digital competencies do not significantly modify the effect of education or self-efficacy on intention. Figure 2 provides a visual confirmation of the model's core mechanism and shows the limited role of digital competencies in enhancing these pathways.

H1 proposes that entrepreneurial education positively influences entrepreneurial self-efficacy. Therefore, the analysis shows a significant effect with a path coefficient of 0.633, a t-statistic of 9.381, and a p-value of 0.000, implying a highly significant relationship. This confirms that exposure to entrepreneurship education significantly enhanced students' confidence in their respective entrepreneurial capabilities. Consistent with Cui and Bell (2022) and Hou et al. (2023), these results reaffirmed that entrepreneurial education played an essential role in building students' confidence in their inherent ability to perform entrepreneurial tasks.

Universities facilitate a sense of mastery

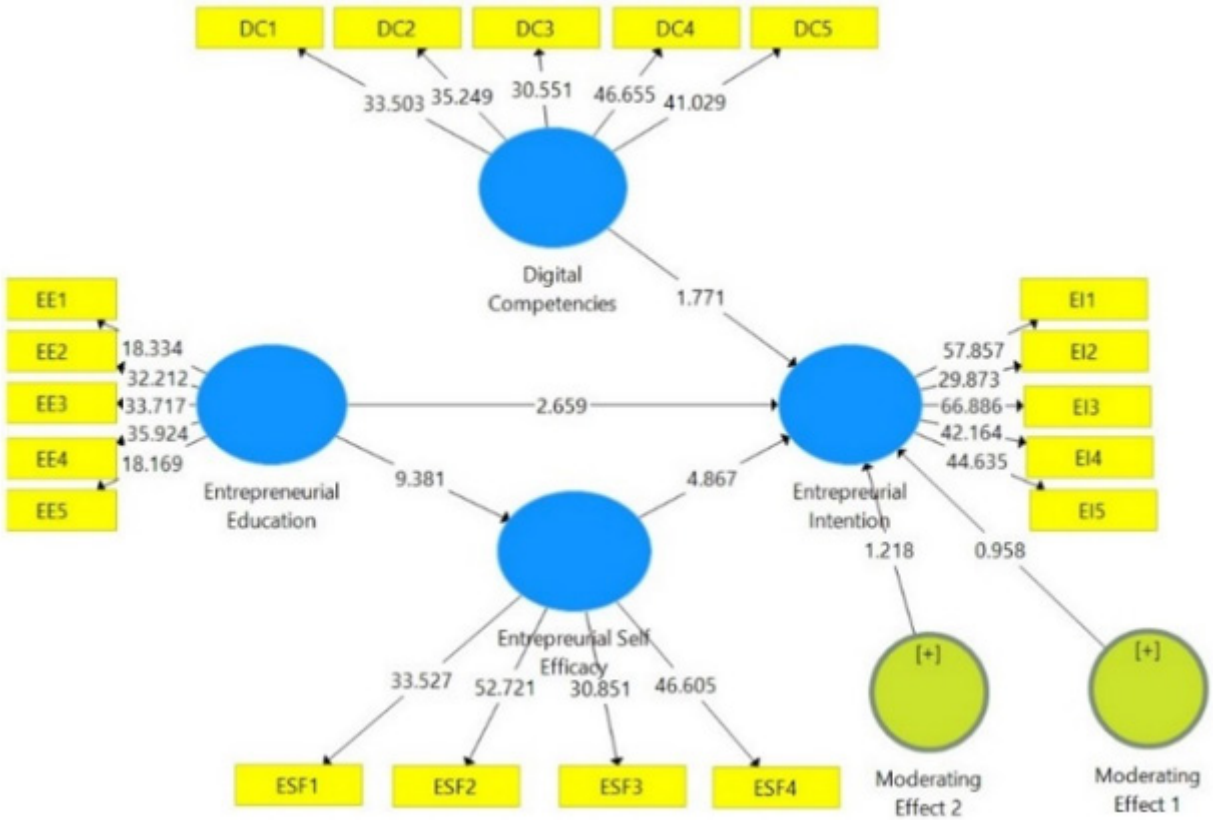

Figure 2 Path Analysis Result (Data processed, 2025)

Table 5 The Result of Hypothesis Testing

Hypothesis	Original Sample	T-Statistics	P Values	Conclusion
H1: EE → ESE	0.633	9.381	0.000	Accepted
H2: ESE → EI	0.479	4.876	0.000	Accepted
H3:EE → EI	0.245	2.659	0.008	Accepted
H4: EE→ESE→EI	0.303	4.671	0.000	Accepted
H5: DC*EE→EI	-0.078	0.958	0.339	Rejected
H6: DC*ESE→EI	0.129	1.218	0.224	Rejected

Source: Data processed (2025)

and confidence by providing experiential learning opportunities, such as incubator programs, mentorship, and hands-on business projects (Khayatovich, 2025). For instance, in Indonesia, initiatives such as "Merdeka Belajar–Kampus Merdeka" have motivated institutions to integrate real-world entrepreneurial tasks into the curriculum, which helps students move beyond theoretical knowledge to develop a genuine conviction in the ability to conceive and manage ventures (Sulastri et al., 2024).

H3, which proposes a direct relationship between entrepreneurial education and entrepreneurial intention, is similarly accepted, with a path coefficient of 0.245, a t-statistic of 2.659, and a p-value of 0.008. This invariably implies that entrepreneurial education enhanced self-efficacy and directly contributed to students' entrepreneurial intention.

The results from testing H3 suggest that exposure to entrepreneurship courses and activities increased confidence and cultivated favorable attitudes toward entrepreneurship as a viable career choice (Bahaw et al., 2024; Shahriar et al., 2024; Yang & Kim, 2020). Accordingly, it is important to state that the growing emphasis of Indonesian universities on collaboration with industry partners makes launching a business more tangible and appealing, reinforcing students' resolve to take entrepreneurial action (Amalia & von Korflesch, 2021; Riyanto et al., 2023)

Further supporting the mediation mechanism, H4 examines the indirect relationship from entrepreneurial education to entrepreneurial intention through self-efficacy. The results show a significant indirect effect with a coefficient of 0.303, a t-statistic of 4.671, and a p-value of 0.000, suggesting that

entrepreneurial self-efficacy successfully mediated the effect of education on intention. For Indonesian Gen Z, who seek meaningful engagement and visible progress, programs must prioritize activities that build mastery (Burnette et al., 2020). In other words, educational interventions translate into entrepreneurial resolve primarily by first strengthening internal beliefs about personal capability (Bahaw et al., 2024)

Unlike the results for H4, results for the two moderation hypotheses (H5 and H6) show no significant moderating effects of digital competencies within the proposed model. For H5, which examines whether digital competencies moderate the relationship between entrepreneurial education and entrepreneurial intention, the statistical analysis produces a path coefficient of -0.078, with a t-statistic of 0.958 and a p-value of 0.339. These values indicate an insignificant effect, suggesting that digital competencies do not enhance the influence of entrepreneurial education on intention. Similarly, H6, with the proposition that digital competencies would moderate the relationship between entrepreneurial self-efficacy and entrepreneurial intention, yielded non-significant results ($\beta = 0.129$, $t = 1.218$, $p = 0.224$). In both cases, digital competencies do not meaningfully strengthen the effects of the core predictors on entrepreneurial intention. This aligns with Bachmann et al. (2024), who emphasize that digital competencies must be intentionally developed for entrepreneurial contexts rather than assumed from general digital use.

Despite the level of familiarity possessed by Gen-Z with technology, results point to a gap between digital comfort and digital readiness for entrepreneurship. Once students already believe in their respective ability to launch a business, general digital literacy appears to add little to strengthen that intention further (Isma et al., 2024). This disconnect becomes more apparent when considering the specific context of Indonesian higher education. Although students may express high self-confidence and motivation toward entrepreneurship, respective digital engagement often hinges on academic or personal tasks rather than entrepreneurial applications. Rodríguez-Moreno et al. (2021) state that digital fluency should not be mistaken for digital entrepreneurial capability. The majority of students have been observed to remain unfamiliar with essential tools and systems for modern business operations, such as customer acquisition platforms, SEO and marketing analytics, financial technology applications, or digital inventory systems. Without hands-on exposure to these tools, entrepreneurial self-efficacy may not translate into concrete entrepreneurial plans or actions.

Socio-cultural and technological conditions also help explain the absence of moderating effects. Access to advanced digital infrastructure varies across Indonesia, with students in rural or underdeveloped areas facing more limited access. Furthermore, even among those with strong digital access, the nature of digital engagement tends to focus more on communication, entertainment, and general productivity rather than entrepreneurial innovation. Prior studies (Afrina et al., 2024; Limilia et al., 2022) have similarly found that the majority of digitally fluent students still lacked practical experience with platforms necessary for business, such as e-commerce systems or financial management tools. Considering this insight, although Gen-Z may be comfortable with technology in daily life, the comfort does not automatically translate into digital proficiency required to navigate entrepreneurial environments.

The nature of digital competencies measured in this research may offer additional context for the non-significant results. The indicators focus primarily on general digital abilities, such as using digital tools to enhance productivity, solve operational problems, adapt to technological changes, and maintain a willingness to learn new technologies. While these competencies are broadly relevant and reflect digital fluency, they may not fully capture the specific digital capabilities most directly associated with entrepreneurial action. Given that studies on digital competencies in entrepreneurial contexts are still developing, there is not yet a universally established set of indicators that fully aligns with digital entrepreneurship needs. As such, this research contributes to the ongoing conversation by emphasizing the complexity of defining and measuring digital skills that are meaningfully connected to entrepreneurial outcomes. The general nature of the competencies assessed in this research may partially explain why the respective moderating roles in the relationships between education, self-efficacy, and intention are not observed.

IV. CONCLUSIONS

In conclusion, the research confirms that entrepreneurial education significantly enhanced entrepreneurial self-efficacy, fostering stronger entrepreneurial intention among Gen Z in Indonesia. The observed direct effect of education on intention and the mediating role of self-efficacy emphasized the importance of experiential, confidence-building interventions. These results invariably reinforced the value of integrating entrepreneurship education into higher education curriculum, specifically those designed to offer practical, real-world learning experiences. Such interventions enable students not only to gain knowledge but also to develop a strong belief in the inherent capacity to succeed as entrepreneurs.

Based on observations, general digital competencies did not strengthen the relationship between entrepreneurial education and intention, nor between self-efficacy and intention. This suggests that basic digital literacy, though essential, may not be sufficient to enhance entrepreneurial outcomes. In the present digital economy, entrepreneurship demands more than knowing how to use common digital tools; it requires targeted, business-specific digital skills. Therefore, integrating more contextual digital

entrepreneurship training into educational programs may be essential to bridging this gap.

Entrepreneurial education in Indonesia should emphasize experiential learning to create mastery experiences that build students' confidence in their inherent ability to launch ventures. Building on this confidence, institutions can further reinforce students' belief in their respective entrepreneurial potential through peer coaching sessions, entrepreneurial role-model interactions, and reflective workshops. These sessions can showcase real success stories and help students internalize a sense of agency and readiness for entrepreneurship. In doing so, universities can cultivate not just knowledge but also the mindset and skills necessary for effective entrepreneurial action.

The present research is subject to several limitations that should be acknowledged. First, the measurement of digital competencies is relatively broad and may not capture the comprehensive, business-specific digital skills, such as e-commerce operations, digital branding, platform management, or content marketing, that are increasingly important in digital entrepreneurship. Second, the sample is drawn primarily from urban universities, limiting the generalizability of the results to Gen Z students in rural, vocational, or underserved regions across Indonesia, where access to digital infrastructure and educational resources may vary widely.

Future explorations should explore more context-specific measures of digital entrepreneurial skills, including platform utilization, data analytics, digital customer acquisition, and online marketing capabilities. Additionally, expanding the sample to include vocational school students, rural populations, and non-university youth will offer a more comprehensive understanding of how infrastructure, access, and socioeconomic factors moderate these relationships. This form of investigation would invariably provide deeper insights for policymakers and educators seeking to empower diverse segments of Indonesia's young population to pursue entrepreneurial pathways in an increasingly digital world.

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