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

Abstract

This study aims to thoroughly examine the influence of digital competencies on the relationship between entrepreneurial education (EE), entrepreneurial self-efficacy, and entrepreneurial intention among Generation Z university students in Indonesia. Considering the fact 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. In order to achieve the stated objective, a quantitative survey design including the participation of 190 undergraduate students who had completed entrepreneurship education programs across several Indonesian universities was adopted. Accordingly, data collection was conducted within the period from February to April 2025 using an online questionnaire. 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 study results showed 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 did not significantly moderate the relationship between education and intention, nor between self-efficacy and intention. This suggested 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. Rather, more targeted, context-specific digital skills relevant to business and entrepreneurship may be necessary to significantly strengthen entrepreneurial aspirations. By exploring these nuanced relationships, the study contributes to the growing literature on entrepreneurship education in developing countries and provides insights for educators and policymakers aiming to nurture digital-savvy entrepreneurs.

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 presents a strategic avenue for addressing socio-economic challenges by facilitating job creation, driving innovation, and promoting sustainable economic growth. Within this context, entrepreneurial education (EE) programs have been observed to be a key instrument for cultivating entrepreneurial competencies, nurturing entrepreneurial mindsets, and equipping students with essential business skills (Cui & Bell, 2022; Hou et al., 2023; Nguyen & Nguyen, 2023). These programs are saddled with the task 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 showed 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. 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 (Leoni Susanto, 2024). Furthermore, the unemployment rate among this demographic was reported to remain disproportionately high, reflecting a structural mismatch between education outputs and labor market needs (Kemenko PMK, 2024).

Compounding the outlined labor market challenges is Indonesia's uneven digital readiness. Regardless of how Gen Z is often labeled as "digital natives", evidence suggests that digital competencies of the demographic, particularly in applying digital tools for entrepreneurial or productive activities, remains limited. According to SMERU Research Institute & Pathways at University of Oxford (2022), only 43.5% of Indonesians use the internet regularly, with stark disparities based on geography, gender, socio-economic status, and education level. The majority of youths were observed to use the internet for entertainment and social media rather than for educational or entrepreneurial purposes.

Results from a recent study further showed 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 been found to possess profound implications, as evidenced by the observation that although 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 possesses insufficient digital preparedness, particularly in areas such as 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 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 inten tion, which is a strong predictor of entrepre neurial 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 obstacle (Madawala et al., 2023). Therefore, enhancing self-efficacy through entrepreneurial education is essential for fostering entrepreneurial intention among students.

According to previous studies, 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 landscape, 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.

Studies show that this demographic's digital engagement is often centered on enter tainment and social media, rather than business applications (Rafiah et al., 2022).This research addresses that critical gap by investigating how digital competencies interact with entrepreneur ial 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 may 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., 2024a; 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 within the context of upcoming economies such as Indonesia.

Focusing on Gen Z university students in Indonesia, this study 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 study 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 (EE) is foun dational in fostering students' belief in their en trepreneurial capabilities, commonly called en trepreneurial self-efficacy (ESE). Research has consistently shown that structured entrepre neurial programs enhance cognitive and behavioral readiness by imparting knowledge, build ing skills, and offering experiential learning op portunities (Qudsia Yousaf et al., 2022;Cui & Bell, 2022; Hou et al., 2023). These programs give students the tools to understand business challenges, design solutions, and gain confi dence in their decision-making abilities. As stu dents participate in entrepreneurial training, their perception of self-efficacy strengthens, re flecting a higher belief in their capability to per form entrepreneurial tasks (Nguyen & Nguyen, 2023). Therefore, entrepreneurial education is expected to affect en trepreneurial self-efficacy significantly.
H1: Entrepreneurial education affects entrepre neurial self-efficacy.

Entrepreneurial self-efficacy is critical in shaping one's intention to engage in entrepre neurial behavior (Jiatong et al., 2021). Individ uals with higher self-efficacy are more confi dent in their success and, thus, are more inclined to pursue entrepreneurial ventures (Amin & Fa jri, 2024; Anwar et al., 2023; Sahid et al., 2024) Self-efficacy influences the formulation of en trepreneurial intentions and the perseverance required to implement and sustain business ef forts. 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 entre preneurial intention.

Entrepreneurial education contributes directly to the formation of entrepreneurial in tention by promoting the knowledge, mindset, and behavioral competencies required to recog nize 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 entrepreneur ship (Otache et al., 2024). These experiences shape favorable attitudes toward entrepreneur ship, strengthening their intentions to start new ventures (Cui & Bell, 2022). Thus, entrepreneurial education is instru mental in developing self-efficacy and exerts a direct and significant influence on entrepre neurial intention.
H3: Entrepreneurial education affects entrepre neurial intention.

Self-efficacy is a mediating variable explaining how entrepreneurial education af fects entrepreneurial intention (Jiatong et al., 2021). Through entrepreneurial education, individuals acquire the competencies and confidence needed to per ceive themselves as capable entrepreneurs, which subsequently enhances their entrepre neurial intention (Le et al., 2023; Anwar et al., 2023). The mediation role of self-efficacy is supported by studies showing that entrepreneurial education alone may not be sufficient to foster intention unless it strengthens internal beliefs and perceived ca pabilities (Biswakarma et al., 2023; Yousaf et al., 2021). Considering these elucidations, it was hypothesized that entrepreneurial 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 gain feedback rapidly, 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, such that the relationship becomes stronger among individuals with high digital proficiency. This led to the formulation of H% as follows:

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 enhanced the capacity of an individual 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 respective ideas, specifically in digital contexts, intention of these individuals may not materialize (Bachmann et al., 2024). Digital competencies provide the means to actualize 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. This expectation led to the formulation of H6.

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

The study framework presented in Figure 1 shows the relationships between entrepreneurial education, entrepreneurial self-efficacy, digital competencies, and entrepreneurial intention.

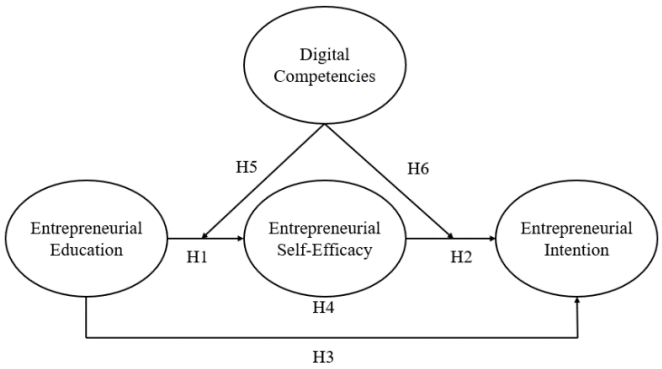

Figure 1 Research Framework

II. METHODS

Research Design

The present study was conducted using 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 was selected primarily because of its appropriateness in assessing the causal relationships and testing the proposed hypotheses using established theoretical models and previous empirical results (Lim, 2024).

Sampling Method

The sampling method adopted was non-probability purposive sampling, where participants were selected based on specific criteria relevant to the study 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 this study include 19 measurement indicators, the minimum required sample size is 190 respondents.

Data Collection

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

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

Data Analysis

The data were analyzed using Partial Least Squares Structural Equation Modeling (PLS-SEM) to examine both the measurement model as well as the structural model, and the analysis was conducted using SmartPLS 4.0. The measurement model was 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 was 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 were examined using interaction terms and conditional indirect effects.

III. RESULTS AND DISCUSSION

The respondents of this study comprised individuals who participated in the survey, providing valuable insights into the topic of discourse. The respondents were between 18 and 28 years old, and the gender distribution of the population was relatively balanced, with 46% identifying as male and 54% identifying as female. All respondents reported having either currently enrolled in or previously participated in entrepreneurship education at respective universities, reflecting a strong academic interest in entrepreneurship. A significant majority of respondents, 72%, reported using digital technology during daily lives, while 28% reported frequent use, reflecting a high level of digital engagement. Geographically, 23% of respondents resided in Jakarta, 67% in Surabaya, and the remaining were distributed across other cities.

Table 1 Respondents' Demographic Information

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

Source: Data processed (2025)

Tables 2 and 3 show that both validity and reliability tests were conducted to ensure the accuracy and consistency of the measurement model used in this study. Convergent validity was evaluated using the Average Variance Extracted (AVE), which showed the proportion of variance in observed variables that can be attributed to corresponding latent constructs. According to established standards, an AVE value greater than 0.50 is

considered acceptable, while values above 0.70 suggest strong convergent validity (Hair et al., 2014). The AVE values for all constructs in this study exceeded 0.70, including digital competencies (0.772), entrepreneurial education (0.745), entrepreneurial intention (0.813), and entrepreneurial self-efficacy (0.788). These results showed that the indicators used for each construct consistently measured 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 was performed using Composite Reliability (CR), which is a standard measure used to evaluate internal consistency. In this study, the CR values ranged from 0.936 to 0.956, all exceeding the recommended threshold of 0.70 (Hair et al., 2014). These results confirm that the items within each construct were highly consistent in measuring the same concept, showing strong internal reliability across the instrument.

Table 2: Validity and Reliability Test Result

Variabel	Indicator	Outer Loading	AVE	Composite Reliability
Entrepreneurship Education	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	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	DC1: I am capable of using digital tools effectively to support my productivity. DC2: I am proficient in using various digital tools to improve my productivity. DC3: I use digital tools to solve operational problems quickly and efficiently. DC4: I am able to adapt to technological changes in digital era to improve work efficiency. DC5: I am open to adopting new technologies and continuously learning to face challenges in digital era.	0,884 0,870 0,860 0,902 0,878	0.772	0.944
Entrepreneurial Intention	EI1: I will do whatever it takes to become an entrepreneur. EI2: My professional goal is to become an entrepreneur. EI3: I will strive with all my strength to start my own business. EI4: I am determined to start a business in the future. EI5: I have a firm intention to start a business someday.	0,912 0,854 0,932 0,901 0,908	0.813	0.956

Source: Data processed (2025)

The Fornell–Larcker criterion shows how the square-root of each construct's AVE is larger than any off-diagonal correlation, establishing that the four constructs share more variance with respective indicators than with other constructs. Collectively, the measurement model satisfied convergent, internal-consistency, and discriminant validity, providing a sound foundation for interpreting the structural relationships.

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 showed that the independent variable(s), specifically entrepreneurial education and its interaction with digital competencies, were 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 can be considered moderate, suggesting that the model had satisfactory explanatory strength 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.

The R-squared value for entrepreneurial Intention was found to be 0.610, implying that 61.0% of the variance in entrepreneurial intention was explained by entrepreneurial education, entrepreneurial self-efficacy, and the moderating role of digital competencies. This R^2 value falls within the substantial range and shows how the model had strong predictive accuracy in explaining entrepreneurial intention in the context of 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.

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 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 represents the relationships among the key variables in the study, namely entrepreneurial education, entrepreneurial self-efficacy, digital competencies, and entrepreneurial intention. The model supported the theoretical framework by showing how entrepreneurial education influenced intention both directly and indirectly through self-efficacy. This mediating role was 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 were 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) suggested that education contributed to intention beyond the confidence it builds, supporting the model's partial mediation structure. Meanwhile, digital competencies were included both as a direct predictor and as moderators, but the low t-values (1.771, 1.218, and 0.958) obtained reflected these effects as statistically insignificant. The effects invariably weaken the moderating role proposed in the theoretical model and suggest that digital competencies, in general, do not significantly alter the effect of education or self-efficacy on intention. Figure 2 provides a visual confirmation of the model's core mechanism while also showing the limited role of digital competencies in enhancing these pathways.

The first hypothesis (H1) proposed that entrepreneurial education (EE) positively influences entrepreneurial self-efficacy (ESE). The analysis conducted showed a significant effect with a path coefficient of 0.633, a t-statistic of 9.381, and a p-value of 0.000, which implied a highly significant relationship. This confirms that exposure to entrepreneurship education significantly enhanced students' confidence in 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 the inherent ability to perform entrepreneurial tasks.

As stated in a previous exploration, universities facilitate a sense of mastery and confidence by providing experiential learning opportunities, such as incubator programs, mentorship, and hands-on business projects (Khayatovich, 2024). 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).

Hypothesis 3 (H3), proposing a direct relationship between entrepreneurial education and entrepreneurial intention, was 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 contributed directly to students' entrepreneurial intention.

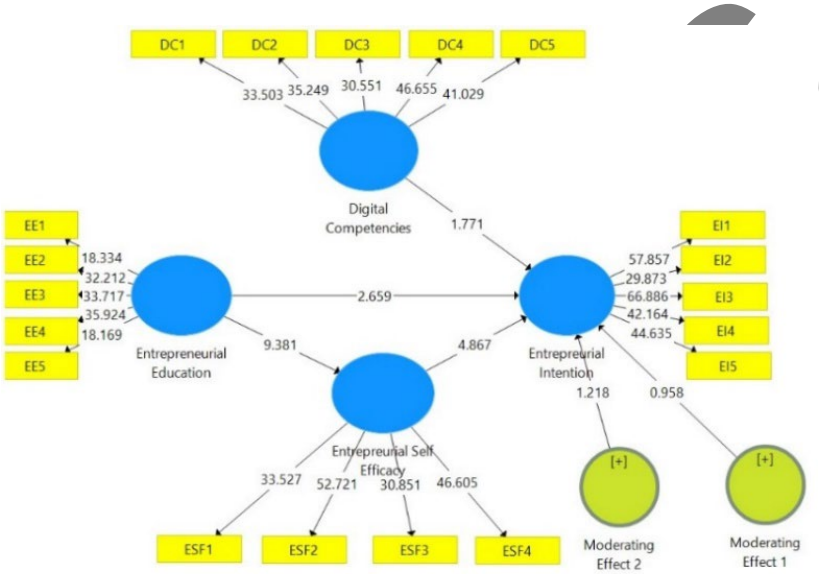

Figure 2 Path Analysis Result
Source: Data processed (2025)

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)

The results obtained from testing H3 suggested 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 tested the indirect relationship from entrepreneurial education to entrepreneurial intention through self-efficacy. The results showed 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)

Dissimilar to the results obtained for H4, the results for the two moderation hypotheses (H5 and H6) showed no significant moderating effects of digital competencies within the proposed model. For Hypothesis 5 (H5), which examined whether digital competencies moderate the relationship between entrepreneurial education and entrepreneurial intention, the statistical analysis produced a path coefficient of -0.078, with a t-statistic of 0.958 and a p-value of 0.339. These values reflect the presence of an insignificant effect, suggesting that digital competencies, as measured in this study, do not enhance the influence of entrepreneurial education on intention. Similarly, Hypothesis 6 (H6), with the proposition that digital competencies would moderate the relationship between entrepreneurial self-efficacy and entrepreneurial intention, also produced non-significant results ($\beta = 0.129$, $t = 1.218$, $p = 0.224$). In both cases, digital competencies did not meaningfully strengthen the effects of the core predictors on entrepreneurial intention. This is in line with the results of Bachmann et al. (2024), who emphasized 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, the result points 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 further strengthen that intention (Isma & Rakib, 2024). This disconnect becomes more apparent when considering the specific context of Indonesian higher education. Regardless of the fact that students may express high self-confidence and motivation toward entrepreneurship, respective digital engagement often hinges on academic or personal tasks, not entrepreneurial applications. Rodríguez-Moreno et al. (2021) stated that digital fluency should not be mistaken for digital entrepreneurial capability. The majority of students have been observed to remain unfamiliar with tools and systems that are essential 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 may 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; Evita et al., 2023; 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, even though Gen-Z may be comfortable with technology in everyday life, the comfort does not automatically translate into the kinds of digital proficiency needed to navigate entrepreneurial environments.

The nature of digital competencies measured in this study may offer additional context for the non-significant results. The indicators used focused 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. Based on the observation that studies on digital competencies within entrepreneurial contexts are still developing, there is not yet a universally established set of indicators designed to fully correspond with digital entrepreneurship needs. As such, this study 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 competencies assessed within this study may partially explain why the respective moderating roles on the relationships between education, self-efficacy, and intention was not observed.

IV. CONCLUSION

In conclusion, this study confirmed that entrepreneurial education (EE) 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 develop a strong belief in the inherent capacity to succeed as entrepreneurs. Based on the observations made during the course of the exploration, general digital competencies did not strengthen the relationship between entrepreneurial education and intention, nor between self-efficacy and intention. This suggested 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 the inherent ability to launch ventures. Building on this confidence, institutions can further reinforce students' belief in 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 study is subject to several limitations that should be acknowledged. First, the measurement of digital competencies was relatively broad and may not have captured 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 was 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 aiming to empower diverse segments of Indonesia's young population to pursue entrepreneurial pathways in an increasingly digital world.

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