

The Effect Of Entrepreneurship Education And Digital Literacy On Entrepreneurial Intention Mediated By Entrepreneurial Self-Efficacy In Vocational High School Students In Malang City

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Abstract

This study aims to examine the influence of entrepreneurship education and digital literacy on entrepreneurial intention among vocational high school (SMK) students in Malang City, with entrepreneurial self-efficacy as a mediating variable. A quantitative approach was used with hypothesis testing methods. The research sample involved 226 twelfth-grade students from several SMKs in Malang City. Data analysis was performed using the Structural Equation Modeling Partial Least Squares (SEM-PLS) technique. The results showed that entrepreneurship education and digital literacy had a positive and significant effect on entrepreneurial self-efficacy and entrepreneurial intention. In addition, it was found that entrepreneurial self-efficacy acts as a partial mediator in the relationship between digital literacy and entrepreneurial intention, as well as a full mediator in the relationship between entrepreneurship education and entrepreneurial intention. These findings confirm that entrepreneurship education and the improvement of digital literacy play an important role in strengthening the entrepreneurial confidence and entrepreneurial intention of vocational high school students, in order to prepare them to become graduates who are ready to work or create their own jobs.

Keywords: Entrepreneurship Education, Digital Literacy, Entrepreneurial Self-Efficacy, Entrepreneurial Intention.

INTRODUCTION

The development of globalization and advances in information technology have brought significant changes in various sectors of life, including education and employment. Amidst this transformation, the ability to create one's own business opportunities has

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become increasingly important, especially for the younger generation who face increasingly fierce competition in the job market. Not only are they required to be ready to work, vocational high school students are now also expected to be able to become agents of change through entrepreneurial activities. Entrepreneurship education is one of the most important competencies for implementing entrepreneurial actions among students (Ver Steeg, 2022). Student skills include the ability to identify opportunities, develop innovative ideas, and have strong confidence in realizing their business (Walmsley & Wraae, 2022). Based on a report from the Central Statistics Agency (2024), vocational school graduates occupy the highest position in terms of contribution to open unemployment, at 9.42%. This condition reflects that the skills and competencies possessed by vocational school graduates do not yet fully meet the standards or needs of the world of work.

The same situation also occurs among vocational school students in Malang City, where the unemployment rate increases every year. Based on data from the Central Statistics Agency (BPS, 2024) of Malang City, vocational school graduates have a higher unemployment rate, namely 6.584%, while senior high school graduates have an unemployment rate of 3.722%. Vocational school graduates remain the graduates with the highest open unemployment rate among all education levels. This figure reflects that vocational school graduates do not yet fully possess the competence or motivation to immediately enter the workforce, let alone create business opportunities independently. Research conducted by Hattab (2022) confirms that self-efficacy is not only an internal factor but also acts as an intermediary that connects entrepreneurship education and the intention to become an entrepreneur. In other words, students who have high confidence in running a business tend to be more motivated to become entrepreneurs, especially if they receive support from entrepreneurship education and digital skills, in line with Yusoff et al. (2021).

The Theory of Planned Behavior (TPB) reveals that the stronger the entrepreneurship education, the more it will encourage students to have higher entrepreneurial behavior (Abdullahi et al., 2021). The Theory of Planned Behavior (TPB) explains this phenomenon with a psychological approach in influencing the behavior of vocational high school students to become entrepreneurs (Barba-Sannchez et al., 2022). The novelty offered in this study is that the researchers fill the gap in the differences in research results regarding the influence of entrepreneurship education and digital literacy on entrepreneurial intention mediated by students' entrepreneurial self-efficacy, with different characteristics. In addition, the researchers integrate the digital literacy variable as a contextual factor that reflects the needs of the industrial era 4.0, which has not been studied much previously. Thus, this study not only examines the mediating variable of entrepreneurial self-efficacy but also the Theory of Planned Behavior (TPB) model. These variables will be re-examined among vocational high

school students in Malang City, specifically those in the 12th grade of the Digital Business and Retail Business departments. This study also offers a cognitive theory or planned behavior theory for vocational high school students. The urgency of this study highlights the high unemployment rate in Malang City. The main problem facing school graduates today is their lack of skills and inability to accept risks and pressures at work (Junaidi et al., 2023a).

THEORETICAL REVIEW

Entrepreneurship Education

Entrepreneurship education teaches skills that students need to be employable (Marxiriri et al., 2021). Entrepreneurship education is a program within the curriculum that provides students with the ability to start a business and manage it independently (Walmsley & Wraae, 2022). Entrepreneurship education can be understood as the process of developing students' knowledge and entrepreneurial attitudes through learning activities carried out in the curriculum and from direct experience (Scahill et al., 2025). Students' mindsets must be developed so that they have competent knowledge related to entrepreneurship. According to Carol A. Dweck's theory of intelligence, a person's mindset consists of two forms, namely growth mindset and fixed mindset, which means a developing mindset and a fixed mindset (Bernardus et al., 2023).

Digital Literacy

Advances in digital technology have led to the development of the business environment. Digital literacy is a combination of knowledge, skills, attitudes, and behaviors that are essential for individuals to understand and use digital financial services and digital technology safely (Lyons and Kass-Hanna (2021a). According to Luo and Zeng (2020), digital literacy specifically refers to the ability of individuals or households to manage and utilize services, including the necessary technology and knowledge. Yano and Kim argue that digital literacy consists of three main factors, namely digital knowledge, digital application, and a positive attitude towards digital technology, which together reflect a person's level of ability to use digital technology for educational purposes (Yao, Ni et al., 2024).

Entrepreneurial Intention

Douglas et al. (2021) argue that entrepreneurial intention is influenced by three main factors, namely profit orientation, social impact, and innovation. According to Bird (1988), entrepreneurial intention is a psychological state that focuses an individual's actions on achieving a specific goal through entrepreneurial activities (Wang, S et al., 2025). Entrepreneurial intention is a very important initial stage in the entrepreneurial process, where the

level of intention determines the likelihood of a person engaging in entrepreneurial activities. They emphasize that this intention is the main driving force in starting a new business (Wang et al., 2025). Entrepreneurial intention can be defined as an individual's awareness in directing their thoughts to pursue a business field and seek appropriate steps to achieve that goal (Djazia & Darmawan, 2022).

The six dimensions of entrepreneurial self-efficacy need to be developed in the entrepreneurial education process so that students have the appropriate attitudes and skills to act effectively in the field of entrepreneurship. This is because entrepreneurial self-efficacy is an important factor that shapes the maturity of vocational school students in realizing the success of new businesses (Muliadi et al., 2021). However, these six dimensions can change along with the dynamics and developments in the world of entrepreneurship (Liu et al., 2019). To adapt to these changes, vocational school students can obtain support through the application of social cognitive theory, which plays a role in career development and performance improvement in uncertain business conditions (Newman et al., 2019).

Entrepreneurial Self-Efficacy

Self-efficacy is the most important factor in increasing students' entrepreneurial behavior (Kakouris et al., 2024). Self-efficacy can also shape students' abilities, such as the social cognitive theory used to develop students' self-efficacy in entrepreneurship within the community (Junaidi et al., 2023a). De Noble (2017) argues that there are six dimensions of self-efficacy, namely creating new products and markets, encouraging innovation, interacting, setting fundamental goals for a company, overcoming unexpected obstacles, and developing human resources. These six dimensions can develop and demonstrate self-efficacy, which is very important in entrepreneurship for higher business goals and can create broad employment opportunities, strong commitment, and high income (Durac & Moga, 2023).

METHODD

This study adopts a quantitative descriptive explanatory design (Creswell & Angeles, 2006). The tool used in this study is SEM-PLS (Structural Equation Modeling with Partial Least Squares). Quantitative research was used to statistically analyze the factors studied to evaluate the hypothesis of the influence of Entrepreneurship Education ($X_{(1)}$) and Digital Literacy ($X_{(2)}$) on Entrepreneurial Intention (Y) mediated by Entrepreneurial Self-Efficacy (Z).

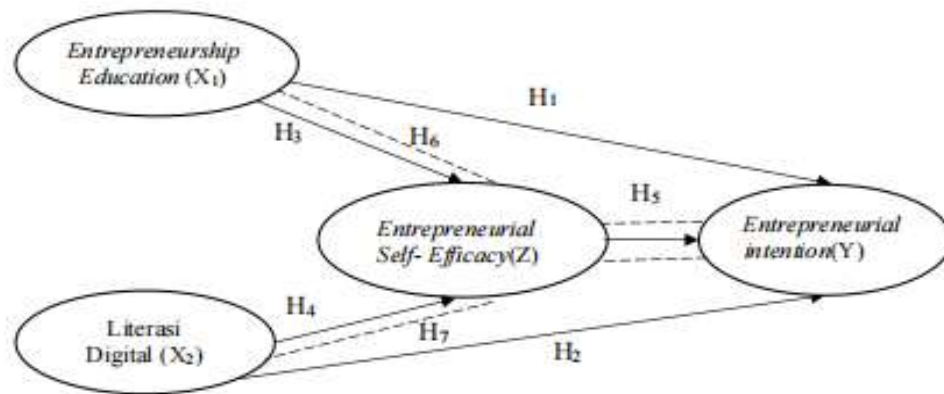


Figure 1. Research Framework Design

Respondents and Data Collection Techniques

This study involved vocational school students located in Malang City, with ten schools selected as locations in this study. A total of 226 respondents participated in this study. Respondents were selected based on certain criteria, namely: students who had taken a full course in entrepreneurship education, vocational school students majoring in digital business or retail business, and students who did not yet have a business. Data collection for this study took place between July and August 2025. This study focused on four key variables: Entrepreneurship Education (X_1), Digital Literacy (X_2), Entrepreneurial Intention (Y), and Entrepreneurial Self-Efficacy (Z).

Instrument Development and Data Analysis

The research instruments were designed by utilizing previous research and conducting an in-depth review of relevant literature. Data collection in this study was carried out using primary data sources. Primary data was used in the data consolidation process for the research, obtained from surveys or questionnaires given to respondents related to entrepreneurship education, digital literacy, entrepreneurial intention, and entrepreneurial self-efficacy. In this study, the consolidated data came from questionnaires using a Likert scale. The questionnaire consisted of questions in the form of a checklist. Respondents then checked one of five answer options. Each answer has details: Strongly Agree (5 points); Agree (4 points); Somewhat Agree (3 points); Disagree (2 points); and Strongly Disagree (1 point). The questionnaire was distributed online to respondents, mainly 12th grade students who

were practicing Creative and Entrepreneurship projects at vocational schools in Malang City. To measure entrepreneurship education, 3 items were adapted from Wardana et al. (2020), while digital literacy was measured with 4 items adapted from Imjai et al. (2024). Entrepreneurial Intention was measured using 3 items adapted from Montes et al. (2023). Finally, Entrepreneurial Self-Efficacy was measured using 3 items adapted from Saptono et al. (2021a).

Instrument Testing

Validity Testing

Validation is the process of building evidence in forming a conclusion that is to be made in research (Creswell J.Q., 2021). Convergent and discriminant validity are forms of validity. A measurement model with an indicator model that reflects the relationship between item or component scores and predetermined construct scores using PLS is known as convergent validity. If the correlation of a measure with the construct being measured is greater than 0.7, then the measure is considered reliable (Windmill, 2021). Conversely, a measurement model with indicators that reflect the evaluation based on cross loading >0.7 measurement with this concept is known as discriminant validity (Novikasari, 2017).

Reliability Test

Reliability is a measurement tool commonly used to measure questionnaires that are indicators of variables or constructs (Creswell J.W., 2021). The reliability criteria in research consist of: (a) Composite Reliability is used to measure a construct with latent variable coefficients. A construct is considered to have excellent reliability if the composite reliability of the data is greater than 0.7 (Mendoza et al., 2020). If the composite reliability is low, this indicates that the indicators are not good enough in representing the construct (Fisher et al., 1995). (b) Average Variance Extracted (AVE) shows the ability of latent variable values to represent original data scores (Nasution et al., 2020). The higher the AVE value, the better it can explain the indicator values used to measure hidden variables. An AVE value of >0.5 indicates that the model is very good. (c) The Cronbach Alpha test is used to support composite reliability findings. According to Nasution et al. (2020), data with a Cronbach alpha $>$ is used to support composite reliability findings. According to Nasution et al. (2020), data with a Cronbach alpha >0.7 indicates that the construct is reliable.

RESULT AND DISCUSSION

Partial Least Squares (PLS) was assessed to ensure the reliability of the measurement instrument. A model was considered if it met certain criteria, such as Composite Reliability.

The loading factor value of each construct indicator showed the results of the convergent validity test of the reflective indicators using SmartPLS. Generally, researchers use factor loadings > 0.70 , but for initial measurement experiences, values of 0.50 and 0.60 are still acceptable and considered sufficient (Hair et al., 2019). In addition, the AVE (average variance extracted) must be at least half. Convergent validity is not met if the AVE is below 0.5 for the entrepreneurship education variable. These items are the result of credible international journals and relevant literature studies.

Based on the convergent validity test using SmartPLS software, three indicators of the entrepreneurship education variable were obtained with loading factors in the range of $0.792 - 0.896 > 0.70$. Thus, referring to the opinion of Hair et al. (2019), the three indicators of the entrepreneurship education variable meet convergent validity. The outer model results for the digital literacy variable show that the digital literacy variable has 8 questions with 4 indicators, which are the result of the development of relevant literature reviews and reputable international journals. Based on the convergent validity test using SmartPLS software, 4 indicators of the digital literacy variable were obtained with loading factors in the range of $0.793 - 0.866 > 0.70$. Thus, referring to Hair et al. (2019), the 4 indicators of the digital literacy variable meet convergent validity.

The outer model results show that the entrepreneurial intention variable has 3 indicators. Using SmartPls software, 3 indicators of the entrepreneurial intention variable were obtained with loading factors in the range of $0.571 - 0.911 > 0.50$. Using SmartPls software, the 3 indicators of the entrepreneurial intention variable meet convergent validity. Entrepreneurial Self-Efficacy has 4 indicators, which are the result of developing relevant literature reviews and reputable international journals. Based on the convergent validity test using SmartPls software, four indicators of entrepreneurial self-efficacy were obtained with loading factors ranging from 0.793 to $0.866 > 0.70$. Thus, referring to Hair et al. (2019), the four indicators of the entrepreneurial self-efficacy variable meet convergent validity.

Average Variance Extracted (AVE) > 0.50 , Ghazali & Latan (2015) consider an instrument to be reliable. Entrepreneurship Education (X1), Digital Literacy (X2), Entrepreneurial Self-Efficacy (Z), and Entrepreneurial Intention (Y) have strong convergent validity. All values meet the Average Variance Extracted (AVE) > 0.50 discriminant validity is performed to determine the extent to which a construct is empirically different from other constructs in the structural model (Hair, et al., 2019). Discriminant validity was assessed using three criteria as suggested by Hair et al. (2017), namely cross-loading, Fornell-Lacker Criterion, and Heterotrait-Monotrait Ratio (HTMT). Cross-loading is a measurement of discriminant validity at the indicator level, where the cross-loading value of indicators from related constructs must be greater than other constructs (Hair et al., 2019). The hypotheses

in this study were tested using Structural Equation Modeling with Partial Least Squares (SEM-PLS). To assess the significance of the results, the researchers' generated 226 bootstrap samples to calculate all t-statistics as shown in the 7 supported hypotheses.

Measurement Model Evaluation (Outer Model)

The measurement model, referred to as the outer model, was designed to evaluate the dependence and validity of the model. The measurement model was assessed by testing composite reliability, discriminant validity, and convergent validity.

Table 1. Outer Model Estimation

Construct	Item	Outer Loading		CR	AVE
Entrepreneurship Education (EE)	EE1	0.804			
	EE2	0.896	0.776	0.870	0.692
	EE3	0.792			
Entrepreneurial Intention (EI)	EI 1	0.883			
	EI 2	0.911	0.730	0.840	0.645
	EI 3	0.571			
Entrepreneurial Self-Efficacy (ES)	ES1	0.884			
	ES2	0.873	0.821	0.893	0.737
	ES3	0.790			
Digital Literacy (DL)	LD1	0.835			
	LD 2	0.835	0.839	0.892	0.675
	LD 3	0.793			
	LD 4	0.866			

Source: Researcher Data Processing, 2025

Convergent Validity

The factor loading values for each construct indicator show the results of the convergent validity test of the reflective indicators using SmartPLS. Generally, researchers use factor loadings > 0.70, but for initial measurement experiences, values of 0.50 and 0.60 are still acceptable and considered sufficient (Hair et al., 2019). In addition, the AVE (average variance extracted) must be at least half. Convergent validity is not met if the AVE is below

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0.5. Table 2 shows that all variables have factor loadings consistent with the referenced theory and can measure the indicator items, thus validating these indicators.

Based on Table , there are a total of 8 questionnaire items and 3 indicators that form the entrepreneurship education variable. These items are the consequences of based on credible international journals and relevant literature studies. Based on the convergent validity test using SmartPLS software, three indicators of the entrepreneurship education variable were obtained with factor loadings in the range of $0.792 - 0.896 > 0.70$. Thus, referring to the opinion of Hair et al. (2019), the three indicators in the entrepreneurship education variable meet convergent validity. The digital literacy variable, based on Table 2 of the outer model results, shows that the digital literacy variable has eight question items with four indicators, which are the result of the development of relevant literature reviews and reputable international journals. Based on the convergent validity test using SmartPLS software, four indicators of the digital literacy variable were obtained with loading factors in the range of $0.793 - 0.866 > 0.70$. Thus, referring to the opinion of Hair et al. (2019), the four indicators of the digital literacy variable meet convergent validity.

Furthermore, based on Table 1 of the outer model results, it is known that the entrepreneurial intention variable has 7 questions in 3 indicators, which are the results of developing relevant literature reviews and reputable international journals. Based on the convergent validity test using SmartPls software, 3 indicators of the entrepreneurial intention variable were obtained with factor loadings in the range of $0.571 - 0.911 > 0.50$. Using SmartPls software, it was found that the 3 indicators of the entrepreneurial intention variable met convergent validity. Then, the entrepreneurial self-efficacy variable as a mediating variable has an outer model result value in Table 4.9, which shows that entrepreneurial self-efficacy has 8 questions with 4 indicators, which are the result of developing relevant literature reviews and reputable international journals. Based on the convergent validity test using SmartPls software, four indicators of entrepreneurial self-efficacy were found to have factor loadings in the range of $0.793 - 0.866 > 0.70$. Thus, referring to Hair et al. (2019), the four indicators of the entrepreneurial self-efficacy variable meet convergent validity. Average Variance Extracted (AVE) > 0.50 , Ghozali & Latan (2015) consider an instrument to be reliable. Table 4.9 shows that Entrepreneurship Education ($X_{(1)}$), Digital Literacy ($X_{(2)}$), Entrepreneurial Self-Efficacy (Z), and Entrepreneurial intention (Y) have strong convergent validity, with all values meeting Average Variance Extracted (AVE) > 0.50 .

Discriminant Validity

Discriminant validity analysis was conducted to determine the extent to which a construct is empirically different from other constructs in the structural model (Hair, et al., 2019). Discriminant validity was assessed using three criteria as suggested by Hair et al. (2017), namely cross-loading, the Fornell-Lacker Criterion, and the Heterotrait-Monotrait Ratio (HTMT). Cross-loading is a measure of discriminant validity at the indicator level, where the cross-loading value of indicators from related constructs must be greater than that of other constructs (Hair et al., 2019).

Table 2. Discriminant Validity Values

Variable	Digital Literacy	Entrepreneurial Intention	Entrepreneurial Self-Efficacy	Entrepreneurship Education
Digital Literacy (X ₂)	0.822			
Entrepreneurial Intention (Y)	0.628	0.803		
Entrepreneurial Self-Efficacy (Z)	0.743	0.649	0.858	
Entrepreneurship Education (X ₁)	0.673	0.564	0.717	0.832

Source: Processed by the researcher (2025)

Based on Table 2, it can be seen that the discriminant validity results referring to the Fornell-Larscher criteria show that the variables of Entrepreneurship Education (X₁), Digital Literacy (X₂), Entrepreneurial Intention, (Y), and Entrepreneurial Self-Efficacy (Z) meet the specified discriminant validity.

Reliability Test

Reliability testing is used to determine the consistency of the extent to which indicators for measuring each construct can be related to the extent to which indicators measuring each construct can be related to one another (Singh et al., 2024). The PLS-SEM reliability test can be conducted in two ways: (1) by looking at the composite reliability (CR) value > 0.70 and (2) by looking at the Cronbach's Alpha (α) value, where for confirmatory research, the α value is > 0.70.

1) Composite Reliability

Ghozali & Latan (2015) define reliability as a composite reliability value above 0.7 (Rini Rindrayati et al., 2024). Table 4.10 explains that Entrepreneurship Education ($X_{(1)}$), Digital Literacy ($X_{(2)}$), Entrepreneurial Intention (Y), and Entrepreneurial Self-Efficacy (Z) are highly reliable variables.

2) Cronbach Alpha

According to Ghozali and Latan (2015), a number is considered credible if the Cronbach Alpha is greater than 0.7 (Singh et al. 2024). In Table 4.10, Entrepreneurship Education ($X_{(1)}$), Digital Literacy ($X_{(2)}$), Entrepreneurial Intention (Y), and Entrepreneurial Self-Efficacy (Z) all have Cronbach Alpha values above 0.7, indicating a high level of reliability.

Structural Model Evaluation (Inner Model)

R-Square or R^2 Test

The coefficient of determination is used to determine the accuracy of predictions and shows the magnitude of the influence of exogenous variables on endogenous variables (Hair et al., 2017). If the model meets 100% of the data with a value close to 1, it can be said that the model explains the variation in endogenous variables (Fisher et al., 1995). The following are the results of the coefficient of determination based on data processing using SmartPLS.

Table 3. R-Square (R^2) Values

Variable	R-Square
Entrepreneurial Intention	0.475
Entrepreneurial Self-Efficacy	0.638

Source: Processed by the researcher, 2025

Based on the results of processing the coefficient of determination data using SmartPLS presented in Table 3 above, the entrepreneurial intention (Y) variable obtained a value of 0.475, which shows that 47.5% can be influenced by the variables of entrepreneurial education, digital literacy, and self-efficacy, while the remaining 52.5% is influenced by other factors or factors outside the model. The entrepreneurial self-efficacy variable has an R-Squared value of 0.638, indicating that 63.8% can be influenced by entrepreneurship education and digital literacy, while the remaining 36.2% is influenced by other variables outside the research model. Thus, the higher the R-Squared value, the greater the ability of the independent variable to explain the dependent variable, resulting in a better structural equation.

F-Square or F²Test

As explained in Chapter III, this study tests and determines the extent of the influence of latent predictors (also known as latent oxygen variables) on the structural model using the F-Squared Effect Test, which uses the rule of thumb developed by (Hair et al., 2019), where values of 0.02, 0.15, and 0.35 indicate small, medium, and large effects in this study.

Table 4. F-Square (F) Matrix Values

Variable	Digital Literacy	Entrepreneurial Intention	Entrepreneurial Self-Efficacy	Entrepreneurship Education
Digital Literacy		0.064	0.344	
Entrepreneurial Intention				
Entrepreneurial Self-Efficacy		0.084		
Entrepreneurship Education		0.012	0.236	

Source: Processed by the researcher, 2025

Table 5. F-Squared List Values (F²)

Variable	F-square	Result
Digital Literacy -> Entrepreneurial Intention	0.064	Significant influence
Digital Literacy -> Entrepreneurial Self-Efficacy	0.344	Significant influence
Entrepreneurial Self-Efficacy → Entrepreneurial Intention	0.084	Significant influence
Entrepreneurship Education → Entrepreneurial Intention	0.012	Small effect
Entrepreneurship Education → Entrepreneurial Self-Efficacy	0.236	Strong influence

Source: Processed by the researcher, 2025

The results of the F-Squared test in Table 5 show that the results of the F-Squared test for each latent predictor variable (latent variable oxygen) on the structural model. Based on the table above, this study found that the F-squared value of entrepreneurial self-efficacy

on entrepreneurial intention of 0.084 has a large effect, entrepreneurship education on entrepreneurial self-efficacy of 0.236, digital literacy on entrepreneurial self-efficacy of 0.344 shows a significant effect, digital literacy on entrepreneurial intention of 0.064 has a significant effect, digital literacy on entrepreneurial self-efficacy of 0.344 has a significant effect, and entrepreneurship education on entrepreneurial intention has an F-square value of 0.012, indicating a small effect.

Goodness of Fit

Goodness of Fit is the third procedure that evaluates the measurement model (Outer model) and the structural model (Inner model). According to Hair et al. (2019), the criteria provided by researchers indicate that the model meets goodness of fit if the Cronbach's alpha (α) value is greater than ($>$) 0.70, composite reliability/CR is greater than ($>$) 0.70, and average variance extracted/AVE is greater than ($>$) 0.50. In order for Table 6 to display the results of the researcher's findings and analysis, it can be concluded that the goodness of fit of the measurement model (outer) has been fulfilled by this study. In other words, the measurement model of this study can be said to be satisfactory or meet the goodness of fit requirements.

Table 6. Goodness of Fit (Gof) Evaluation Results

Variable	α	CR	AVE	Evaluation
Entrepreneurship Education (X^1)	0.776	0.870	0.692	Good/Fit
Digital Literacy (X^2)	0.730	0.840	0.645	Good/Fit
Entrepreneurial Intention (Y)	0.821	0.893	0.737	Good/Fit
Entrepreneurial Self-Efficacy (Z)	0.839	0.892	0.675	Good/Fit

Source: Data Processing SmartPLS (2025)

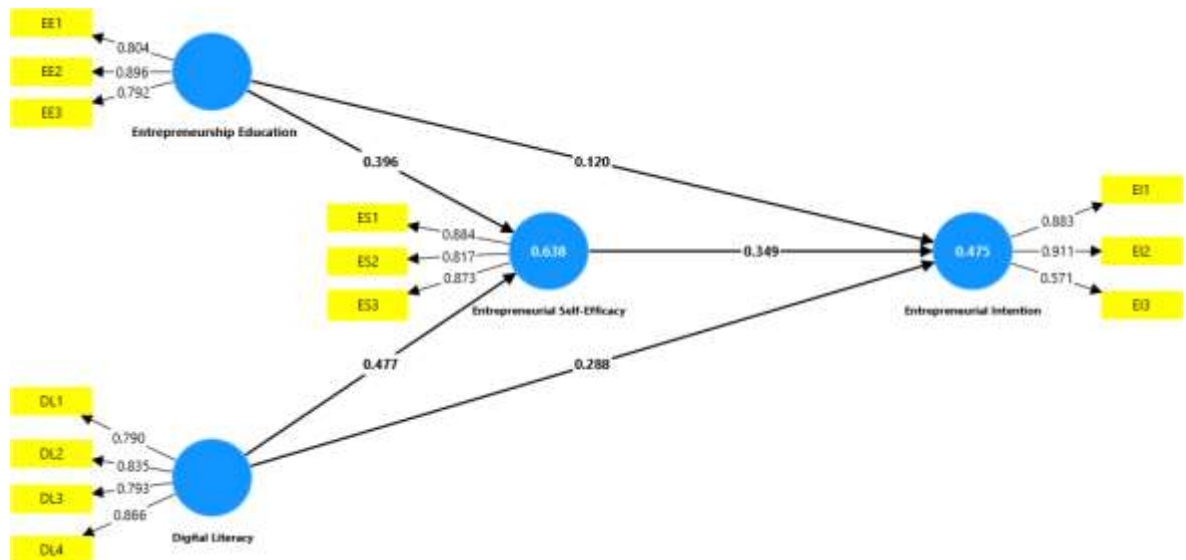


Figure 2. SEM-PLS Analysis Results 4

Hypothesis Testing

Direct Effect Testing

Hypothesis testing or significance testing is conducted to determine the effect between variables (exogenous on endogenous). Significance testing is performed using the bootstrapping procedure in SmartPLS 4 software, which is used to avoid data errors in research that may not be normal. The researcher tested hypotheses 1, 2, 3, 4, and 5 using direct effects. T-statistic values greater than 1.96 and p-values < 0.05 support the hypothesis of a substantial direct effect between the variables studied. This test uses path coefficients.

Table 7. Hypothesis Testing Results

	Variable	Original Sample	T- Statistic	P-Values	Description
H1	Entrepreneurship Education (EE) > Entrepreneurial Intention (EI)	0.120	1.669	0.095	Rejected
H2	Digital Literacy (DL) > Entrepreneurial Intention (EI)	0.288	3.532	0.000	Accepted

H3	Entrepreneurship Education (EE) > Entrepreneurial Self-Efficacy (ES)	0.396	7.085	0.000	Accepted
H4	Digital Literacy (DL) > Entrepreneurial Self-Efficacy (ES)	0.477	9.557	0.000	Accepted
H5	Entrepreneurial Self-Efficacy (ES) > Entrepreneurial Intention (EI)	0.349	3.718	0.000	Accepted

Source: Processed by the researcher, 2025

Table 7 shows that hypotheses 1, 2, 3, 4, and 5 have p-values greater than the t-table (1.96) and p-values less than 0.05, so they can be accepted. Meanwhile, for hypothesis 1, the t-statistic (1.96) and p-value are greater than 0.05, so hypothesis 1 is rejected and is negative. The first hypothesis ($H_{(1)}$) has an original sample value of 0.120 and a p-value of $0.095 > 0.005$. Based on the data processing results, the value obtained does not meet the significance requirements. Thus, the first hypothesis of this study can be rejected. The data processing results show that entrepreneurship education has no effect on entrepreneurial intention in increasing students' intention to become entrepreneurs.

The second hypothesis (H_2) explains that digital literacy affects entrepreneurial intention, showing an original sample value of 0.288, with a T-Statistic value > 1.96 and a P-Value of $0.000 < 0.05$. Thus, the second hypothesis is accepted, so it can be concluded that digital literacy has a positive and significant effect. This indicates that learning through practice and technology can influence students' intentions to engage in entrepreneurship.

The third hypothesis ($H_{(3)}$) explains that entrepreneurship education on entrepreneurial self-efficacy shows that the original sample value is 0.396, with a t-statistic value > 1.96 and a p-value of $0.000 < 0.05$. Therefore, the third hypothesis can be accepted, and it can be concluded that entrepreneurship education on entrepreneurial self-efficacy has a positive and significant effect on entrepreneurial self-efficacy.

The fourth hypothesis (H_4) explains Digital Literacy on Entrepreneurial Self-Efficacy. The data processing results show that the original sample value is 0.477, with a t-statistic value > 1.96 and a p-value of $0.000 < 0.05$. Therefore, the fourth hypothesis is accepted, and it can be concluded that digital literacy has a positive and significant effect on entrepreneurial self-efficacy.

The fifth hypothesis ($H_{(5)}$) states that Entrepreneurial Self-Efficacy has a positive and significant effect on Entrepreneurial Intention. The data processing results show that the original sample value is 0.349, with a t-statistic value >1.96 and a p-value of $0.000 < 0.05$, so the fifth hypothesis is accepted, and it can be concluded that entrepreneurial self-efficacy has a positive and significant effect on entrepreneurial intention.

Indirect Effect Test

The results of the indirect effect hypothesis test are described in Table 9, which shows the following subsequent hypotheses:

Table 8. Indirect Effect Test

	Variable	Original Sample	T-Statistic	P-Values	Description
H6	>Entrepreneurship Education (EE) >Entrepreneurial Self-Efficacy (ES) > Entrepreneurial Intention (EI)	0.138	3.475	0.001	Accepted
H7	Digital Literacy (DL) > Entrepreneurial Self-Efficacy (ES) > Entrepreneurial Intention (EI)	0.166	3.187	0.001	Accepted

Source Processed by Researcher, 2025

The results of the sixth hypothesis test in Table 8 show a significant relationship with the original sample of 0.138, a t-statistic value of $3.475 > 1.96$, and a p-value of $0.001 < 0.05$. This indicates that entrepreneurial self-efficacy can mediate entrepreneurship education on entrepreneurial intention. Meanwhile, the seventh hypothesis shows an original sample of 0.166, a t-statistic of $3.187 > 1.97$, and a p-value of $0.001 < 0.05$, which does not exceed the maximum limit. This indicates that entrepreneurial self-efficacy can mediate digital literacy on entrepreneurial intention.

DISCUSSION

Based on this research, entrepreneurship education is defined as a learning process that aims to equip students with the knowledge, skills, and attitudes that support them in identifying business opportunities, managing risks, and starting and running a business independently. Entrepreneurship education is a learning process designed to equip students

with the knowledge, skills, and entrepreneurial attitudes necessary to create and run a business independently, as well as an innovative and critical mindset. Digital literacy as the second variable not only involves the ability to access and utilize digital information, but also covers aspects of media and information literacy as a whole in the broader digital realm. It emphasizes that for educators, digital literacy includes an understanding of the use of technology in the learning process and the development of digital competencies to support adaptive teaching in line with technological developments. *Entrepreneurial intention* is an internal drive or individual intention to start an entrepreneurial activity. This intention is formed through a mental process influenced by attitudes towards entrepreneurship, social pressure (subjective norms), and belief in one's ability to control these actions.

This intention reflects a person's level of motivation, readiness, and willingness to choose entrepreneurship as a career and their involvement in actual business activities. Finally, the mediating variable of *self-efficacy* is an individual's belief in their ability to utilize motivation, cognitive resources, and behavior to control life situations and achieve goals. Specifically, *entrepreneurial self-efficacy (ESE)* refers to the extent to which individuals believe they have the skills and abilities needed to start and run a business. *Self-efficacy* refers to an individual's belief in their ability to plan and carry out the actions necessary to achieve a specific goal, including in the field of entrepreneurship. A number of studies show that *self-efficacy* plays a significant role in shaping a person's intention to become an entrepreneur. Therefore, *self-efficacy* is a person's belief in their capacity to design, organize, and carry out the actions needed to achieve a goal. This concept focuses on the extent of an individual's confidence in facing challenges, making decisions, and directing their behavior optimally in various conditions. Through the description of the variables, a comprehensive overview of the factors that can influence the entrepreneurial intentions of vocational high school students majoring in Digital Business in Malang City was obtained.

Entrepreneurship education encourages students to think innovatively. Based on the data processing results, the first hypothesis ($H_{(1)}$) shows that the data processing results do not meet the significance requirements. Thus, the first hypothesis of this study can be rejected. The indicators in this study include entrepreneurial practices, entrepreneurial education objectives, and critical thinking to test entrepreneurial intention. In the study by Shinnar et al. (2014), it was shown that entrepreneurial education has a positive influence in increasing entrepreneurial self-efficacy, which is positively related to entrepreneurial intention but has a different influence on entrepreneurial self-efficacy based on gender, where women tend to show weaker self-efficacy in entrepreneurial intention compared to men. In other words, although entrepreneurship education may succeed in increasing

confidence in entrepreneurial ability, if the increase is not strong enough, the direct effect will not be significant (Shinnar et al., 2014).

The results of the second hypothesis (H_2) prove that the second hypothesis ($H_{2\text{accepted}}$), so it can be concluded that digital literacy has a positive and significant effect on students' entrepreneurial intentions. The results of the second hypothesis are consistent with the findings of Mugiono, M et al., (2021), who found a significant effect of digital literacy on entrepreneurial intention. Mastery of practical skills such as content creation, video editing, and social media utilization are stronger drivers for students to see opportunities and intend to start a business.

The third hypothesis (H_3) explains that entrepreneurship education on entrepreneurial self-efficacy shows that ($H_{3\text{is accepted}}$), so it can be concluded that entrepreneurship education on entrepreneurial self-efficacy has a positive and significant effect on entrepreneurial self-efficacy. Entrepreneurship education teaches students to create and promote products and services in order to profit from entrepreneurship (Rigtering et al., 2024). Self-efficacy is defined as students' belief in obtaining entrepreneurship education (Junaidi et al., 2023b). Entrepreneurship education will shape students' attitudes, mindsets, and behaviors to be highly self-efficacious (Saptono et al., 2021).

The fourth hypothesis (H_4) explains digital literacy in relation to entrepreneurial self-efficacy. The fourth hypothesis (H_4) was accepted, so it can be concluded that digital literacy has a positive and significant effect on entrepreneurial self-efficacy. Digital literacy is one of the essential skills that vocational high school students must possess, according to Luo and Zeng (2020). Specifically, digital literacy refers to the ability of individuals or households to manage and utilize services, including the necessary technology and knowledge. Yano and Kim argue that digital literacy consists of three main factors, namely digital knowledge, digital application, and positive attitude towards digital, which together reflect a person's level of ability in using digital technology for educational purposes (Yao, Ni et al., 2024).

The fifth hypothesis (H_5) states that entrepreneurial self-efficacy has a positive and significant effect on entrepreneurial intention. The fifth hypothesis (H_5) is accepted, so it can be concluded that entrepreneurial self-efficacy has a positive and significant effect on entrepreneurial intention. Entrepreneurial intention is a very important initial stage in the entrepreneurial process, where the level of intention determines the likelihood of a person engaging in entrepreneurial activities. They emphasize that this intention is the main driving force in starting a new business (Wang et al., 2025). Self-efficacy is the most important element in increasing students' entrepreneurial activities (Kakouris et al., 2024).

The results of testing the sixth hypothesis show a significant relationship with this, indicating the hypothesis (H_6) that entrepreneurial self-efficacy can mediate

entrepreneurial education on entrepreneurial intention. According to Bird (1988), entrepreneurial intention is a psychological state that focuses an individual's actions on achieving a specific goal through entrepreneurial activities. Wang, S et al., (2025) High self-efficacy can encourage students to be confident. Entrepreneurial self-efficacy supports entrepreneurial aspirations and further motivates students to pursue entrepreneurial intentions. Self-efficacy is influenced by TPB, which helps shape students' intentions and behavior towards entrepreneurial intention. High self-efficacy will encourage students to be more active in starting a business. Research by Gorgievski (2018) and Xu (2023) suggests that entrepreneurship education not only shares insights but also supports students to take action by becoming entrepreneurs.

The seventh hypothesis shows that entrepreneurial self-efficacy (H_7 accepted) from the results of research on the role of self-efficacy in driving success means that digital literacy can significantly increase their entrepreneurial intention in the field of digital literacy.

This can be attributed to the "question item on the digital literacy variable" I am able to share digital content on social media platforms," meaning that students have digital skills. Lang & Liu (2019) explain that entrepreneurial self-efficacy is one of the mediating factors for realizing entrepreneurial actions to realize entrepreneurial actions or intentions. In the context of entrepreneurship, digital literacy is an important factor that helps individuals find opportunities, innovate, and develop technology-based businesses (Ainin et al., 2015). This ability can increase entrepreneurial self-efficacy, which is a person's belief in their ability to start and run a business (Bandura, 1997; Zhao et al., 2005). Research shows that digital literacy can contribute to increased self-efficacy (Nika et al., 2022) and strong self-efficacy can mediate this relationship with entrepreneurial intention.

Theoretical Implications

The results of this study provide knowledge related to entrepreneurship education for the development of science, particularly in the field of entrepreneurship. First, the results of the study support the Theory of Planned Behavior (TPB) by confirming the position of entrepreneurial self-efficacy on entrepreneurial intention, showing that an individual's belief in their own abilities is an essential psychological factor in the formation of entrepreneurial intention. Second, this study provides new insights into the relationship between entrepreneurship education and entrepreneurial intention. The fact that entrepreneurship education does not have a direct, non- t effect indicates that knowledge transfer alone is not sufficient; it must be accompanied by the strengthening of psychological aspects in the form of self-efficacy to generate entrepreneurial intention.

This study expands the TPB framework by including the significant influence of digital literacy on entrepreneurial intention, which indicates that digital skills are not merely a technical aspect, but also capable of shaping attitudes and confidence in doing business. From a methodological perspective, this study also contributes through the application of SEMPls in testing the relationship between variables in the context of vocational high school students in Indonesia, thereby adding to the body of knowledge on entrepreneurship research in developing countries and serving as a reference for future research.

Practical Implications

Based on this research, there are also practical implications for schools, educators, policymakers, and students as prospective entrepreneurs and the business or industrial world.

1. For Schools and Educators

The results of this study indicate the need to develop a more practical entrepreneurship curriculum. Learning should not only focus on theory, but must also be accompanied by real-world practice through practical exercises, business simulations, and field activities. This approach is believed to strengthen students' entrepreneurial self-efficacy while increasing their intention to become entrepreneurs. Additionally, teachers also need training in applying innovative learning methods, such as business plans, hands-on practice, or teaching factories that can foster students' self-confidence.

2. For the government and education policymakers

This study shows the urgency of strengthening digital literacy in vocational schools. Therefore, digital skills need to be integrated more deeply into entrepreneurship subjects to meet the needs. Educational programs should not only prepare graduates for work but also equip students with entrepreneurial skills through the use of digital technology and online platforms so that students can learn anywhere to broaden their knowledge.

3. For Vocational School Students

This study provides insight that entrepreneurial knowledge is not enough to build entrepreneurial intent. Another important factor that needs to be developed is student self-confidence. Therefore, students are expected to actively participate in various practical activities, entrepreneurial competitions, or internship programs to increase their self-efficacy so that they can hone their skills. Improving digital literacy must also be a primary focus so that students can utilize social media such as e-commerce and other technologies to develop businesses in the future.

4. For the Business World and Industry

This study emphasizes the importance of involvement in the entrepreneurship education process. The business world can make a real contribution through internship programs, training, and collaboration with other schools. This collaboration not only strengthens the relevance of education to the needs of the world of work but also helps students build entrepreneurial experience from an early age.

CONCLUSION

The results of research using Structural Modeling-partial least Squares (SEM-PLS) show that entrepreneurship education and digital literacy have a positive and significant influence on entrepreneurial self-efficacy among vocational high school students in Malang. However, entrepreneurship education does not have a significant direct effect on entrepreneurial intention, indicating that the entrepreneurship learning process in schools still emphasizes theoretical aspects over practical application. Conversely, digital literacy contributes significantly to increasing entrepreneurial intention, both directly and through entrepreneurial self-efficacy. Students' ability to utilize digital technology has been proven to encourage them to be more confident and able to recognize various technology-based business opportunities. In addition, entrepreneurial self-efficacy acts as a mediating variable that strengthens the relationship between entrepreneurship education, digital literacy, and entrepreneurial intention. Therefore, increasing self-efficacy through practical experience, project-based learning, and the integration of digital technology into the entrepreneurship curriculum are important strategies for fostering enthusiasm and entrepreneurial intention among vocational high school students.

There is a need to increase student awareness by providing practical understanding of entrepreneurship education and digital literacy and adding insight into the positive impact of entrepreneurship on vocational school students. This can be done by holding seminars, educational programs, or showing videos of successful businesspeople. Schools can also collaborate with successful entrepreneurs to provide motivation and practical lessons on how entrepreneurship can have a positive impact on students' welfare and independence in the future. Future researchers can expand the population and sample size to broaden the scope of the research and use other variables as supporting factors and to enhance the relevance of the findings. Other researchers can use other variables that are not positive from this study to enrich the research model and understand other factors that influence students' entrepreneurial intentions. For policymakers and the industrial world, local governments and industry are expected to collaborate with educational institutions to create an entrepreneurial ecosystem at the school level by providing internship programs and digital

marketing for students who have the potential to become entrepreneurs. In this way, vocational schools can play a more active role in producing young, independent, creative, and highly competitive entrepreneurs.

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