



## Research article

## Does entrepreneurship education promote vocational students' entrepreneurial mindset?

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## ABSTRACT

This paper aims to explore how entrepreneurship education determines students' entrepreneurial intentions as well as examine the emerging role of the entrepreneurial mindset in supporting this relationship. A quantitative method was applied to gain a better understanding of the relationship between variables utilizing Structural Equation Modeling (SEM) based variance Partial Least Square (PLS). The participants of this study were recruited from several vocational students in East Java of Indonesia by using an online survey. The findings indicate that entrepreneurship education positively influences both students' entrepreneurial intentions and an entrepreneurial mindset. It also reveals a robust correlation between entrepreneurship mindset and students' entrepreneurship intentions. Lastly, this study's finding shows that the entrepreneurship mindset has successfully mediated the relationship between entrepreneurial education and students' entrepreneurial intention.

## 1. Introduction

The topic of entrepreneurship has received considerable critical attention among scholars over the past decade (Wiklund et al., 2019; Krueger and Brazeal, 2018; Ferreira et al., 2015). Entrepreneurship has become a central issue in both developed and emerging nations as attempts in enhancing the economic welfare of the nation (Wardana et al., 2020; Mathias et al., 2015). Additionally, Doran et al. (2018); Kumar and Raj (2019) revealed that entrepreneurship stimulates the economic growth of countries. It implies that an enhancement of entrepreneurs in a country will drive to the greater of the society welfare and poverty alleviation (Rantanen and Toikko, 2014; Halvarsson et al., 2018; Sutter et al., 2019).

The desirable entrepreneurship has also been felt by such new developed countries as Indonesia. However, compared to other countries, the innumerable entrepreneur in Indonesia is insufficient. Based on the Global Entrepreneurship Index by Acs et al. (2017), Indonesia posits in the rank of 94 from a total of 137 surveyed nations. This achievement is far from neighborhood countries such as Singapore, Brunei Darussalam, and Malaysia. To increase the number of entrepreneurs, the Indonesian government attempts several innovations such as by

revitalizing existing curriculum, particularly in the vocational school (Saptono et al., 2020).

The enhancement of entrepreneurship education in vocational school started since implementing the 2013 curriculum and has shown an insignificant result. This is proven by the highest unemployment in Indonesia was dominated by vocational school graduates (Statistics Indonesia, 2020). In more detail, it was lies about 11.4 percent then followed by senior high school with the amount of 8.29 percent. Meanwhile, from the university sides and junior high school, it provided for about 5.18 per cent and 5.54 percent, respectively. Data were taken from the amount released from vocational school graduates, one of which was excluded because of the ineffectiveness of entrepreneurship education (Statistics Indonesia, 2019). Specifically, entrepreneurship education has not shaped the mindset of students for entrepreneurship. In fact, entrepreneurship education is carried out effectively, having an influence on the vocational students' intention of being entrepreneurs (Ghina et al., 2017; Walter and Block, 2016).

Numerous previous studies on the importance of entrepreneurship have been conducted in Indonesia. For instance, Saptono and Wibowo (2018); Ghina et al. (2017) focused on the features which determine the vocational students' entrepreneurial intention. Moreover, the prior works concerned of the influence of gender and culture towards intention

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in entrepreneurship (Ana et al., 2016; Buli and Yesuf, 2015). Additionally, some studies have concerned with several factors that are influencing intention, such as family environment (Malach & Kristova, 2017; Wang et al., 2018), big five personality traits (Murugesan and Jayavelu, 2017; Butz et al., 2018), and self-efficacy (Farrukh et al., 2017; Nowinski et al., 2019).

Despite the elevating studies on entrepreneurial research, however, the emerging role of an entrepreneurial mindset associated with entrepreneurship education and entrepreneurship has overlooked by scholars. The existing studies, for instance, Solesvik et al. (2013), revealed that an entrepreneurial mindset could increase student motivation in entrepreneurship. This study provides three contributions. First, this study gives an insight into this growing area by examining the influence of entrepreneurship education and students' intention to be entrepreneurs. This research also concerns deeply investigating the mediating role of the entrepreneurial mindset. Second, this study focuses on the level of vocational school, while major studies recognize the level of university students. Lastly, the focus study in Indonesia is reasonable since the increasing trend of unemployment from vocational graduates that genuinely proposes being an entrepreneur.

## 2. Theoretical review

### 2.1. Entrepreneurship education and entrepreneurial mindset

The entrepreneurial mindset is defined as a feeling or tendency to provide a critical and creative thinking ability (Nabi et al., 2017). The notion of the importance of the entrepreneurial mindset was conveyed by scholars and discussed the idea of an entrepreneurial mindset that is linked to self-competence (Haynie et al., 2010). Additionally, many researchers, for instance, Pfeifer et al. (2016); Zupan et al. (2018), have associated with an entrepreneurial mindset that not only focuses on self-capability but also several factors such as knowledge, experience, creative thinking, problem-solving, seeking opportunities, attitudes, and beliefs.

The entrepreneurial mindset is closely related to the field of psychology, particularly on personality psychology. Solesvik et al. (2013); Westhead and Solesvik (2016) explicitly detail the emergence of an entrepreneurial mindset rooted in personality psychology. The entrepreneurial mindset is linked with the individual's thinking ability, looking for opportunities instead of obstacles, and offering ideas in overcoming solutions rather than complaints (Naumann, 2017; Davis et al., 2016). Furthermore, Lindberg et al. (2017) underlined that the mindset of entrepreneurship is acquaintance with individual behavior and entrepreneurial activities.

The growing body of literature believes that an entrepreneurial mindset can be boosted by providing entrepreneurship programs through educational perspectives (Cui et al., 2019; Daniel, 2016). The fundamental rationale is that entrepreneurial education allows students to have the capability, understanding, attitude, and motivation related to entrepreneurship. Additionally, Fayolle and Gailly (2015) remarked that entrepreneurship education from all level education promotes two prominent entrepreneurial mindset roles. First, education enables students to create a culture and deeply understand entrepreneurship. Second, entrepreneurial education promotes students to obtain experience to become entrepreneurs. Preliminary studies have also successfully demonstrated the significant influence of entrepreneurship education toward intention of being entrepreneurs. For example, Westhead and Solesvik (2016); Maresch et al. (2016); Fayolle and Gailly (2015); Shinnar et al. (2018) prove that there is a robust correlation between entrepreneurship education and entrepreneurial intentions.

**H1. Entrepreneurial education can influence students' entrepreneurial intention**

**H2. Entrepreneurial education can influence students' entrepreneurial mindset**

### 2.2. Entrepreneurship education and entrepreneurial intention

Education has a vital role in enhancing students' abilities that promotes business activities. Kim and Park (2019); Nabi et al. (2018) demonstrated that entrepreneurship education has primary functions. First, through entrepreneurship learning activities, it enables a transfer knowledge, information, and experience from learning sources to students. Second, entrepreneurship education through field studies will inspire students to be success person in the future. Westhead and Solesvik (2016); Hasan et al. (2017) revealed that entrepreneurship education can explain students' intention being entrepreneurs through motivation, skills, social network, and experience.

The entrepreneurship education also exponentially helps individuals to acquire resources through knowledge and information transfer. For instance, when taking entrepreneurial learning, students will have the experience to build an engagement with peers to promote a business (Zeng and Honig, 2016). In addition to have a good experience in entrepreneurship, students will also obtain critical suggestions regarding business activities. Lastly, motivation from peers, business actors, and teachers will help and support entrepreneurial activities. However, entrepreneurial education faces a challenge in its development.

The theory of Ajzen (1991); Shapero (1982) is a basis for explaining how entrepreneurial education affects entrepreneurial intention. The distinguishing element of educational activities will increase the intention to carry out entrepreneurial behavior, or one of the variables that determine that intention (Krueger et al., 2000; Fayolle and Gailly, 2015). Also, Saptono et al. (2020) affirmed that the connectivity between entrepreneurship education and its impact entrepreneurial intentions can be explained by entrepreneurial human capital theory (EHC). Human capital is a subject that plays a crucial role in determining individual entrepreneurial intentions (Khoshmaram et al., 2020). Prasetyo and Kistanti (2020) noted a strong impact between entrepreneurial education and human capital accomplishment.

The role of entrepreneurship education for entrepreneurial intentions can be illustrated by understanding business education. Entrepreneurship education enables students to enhance the awareness and intention of entrepreneurship for a career path to work (Higgins and Refai, 2017), while business education allows students to be a worker in a business firm (White, 2019). The fundamental rationale is that entrepreneurship education focuses on the enhancement of skills, knowledge, and experience toward entrepreneurship. A preliminary study by Davidsson (1995) revealed that even though business education is linked with perceived knowledge, however, it not directly affects entrepreneurial intentions. Based on a number of works of literature, we propose a hypothesis that entrepreneurship education has a positive influence on the entrepreneurial intention of vocational students.

**H3. Entrepreneurial mindset can influence students' entrepreneurial intention**

**H4. Entrepreneurial education can impact entrepreneurial intention through entrepreneurial mindset**

## 3. Materials and method

This study applied a cross-sectional method to comprehensively recognize the impact of the entrepreneurial mindset and entrepreneurship education toward the entrepreneurial intention of vocational students in Indonesia. In more detail, the research framework is illustrated in Figure 1.

### 3.1. Sample and data collection

The unit analysis of this research was enlisted from several vocational students (SMK) in East Java who have registered in the entrepreneurship education course. The focused study in East Java of Indonesia is reasonable due to the fact that the vocational schools in East Java have more adequate in terms of educational facilities and infrastructure

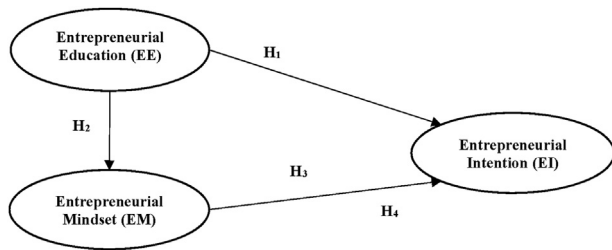


Figure 1. The conceptual framework.

instead of other regions in Indonesia. A convenience sample was adopted in this study that frequently applied in the entrepreneurship study (Nowinski et al., 2019). The survey was conducted from January to March 2020, using online forms. A total of 470 questionnaires were received, and after the validating action, approximately 450 questionnaires were verified applicable (see Table 1). The participants in this study were voluntary, and students who engaged in this survey were announced for their anonymity. Ethical approval was established from the Institutional Research Committee of Universitas Negeri Malang for all fact of this study.

Table 1 informs the demographic characteristic of participants Referring to the table, it could be seen that the participant of this survey was vocational students in East Java of Indonesia which ranging in the age of 15–17 years old and it was prevailed by female students. Additionally, the participants have different major field study from office administration, business program and marketing. The preeminent percentage of parents' occupation was entrepreneur which reach almost 51.11 percent, while the lowest was Soldier and Teacher/Lecturer, with the percentage of approximately, 1.57 percent and 5.55 percent, respectively.

### 3.2. Instrument development and data analysis

To calculate respondent reaction toward entrepreneurial intention, we followed seven instruments scale from Robledo et al. (2015); Mahfud et al. (2020), while to obtain data on entrepreneurship education, this paper expanded the questionnaires from Denanyoh et al. (2015); Buli and Yesuf (2015) that consisting of six item questions. Lastly, the entrepreneurial mindset was measured using seven items of instruments from Mathisen and Arnulf (2013); Cui et al. (2019). In more precisely, the instruments to measure all variables were provided in Table 2. Each construct of variable was calculated undergoing the five-point Likert Scale arranging from “strongly disagree” (1) to “strongly agree” (5). The data were calculated utilizing Partial Least Square (PLS) approach to Structural Equation Modelling (SEM). The calculation and judgment of a Partial Least Square (PLS) model in this study was provided in two stages: First, the assessment of validity and reliability of the construct to determine the goodness of measures. Second, the evaluation of structural model to evaluate the hypotheses under research.

## 4. Results and discussion

### 4.1. Assessment of outer model

First, we calculated the outer model evaluation using four component: convergent validity, discriminant validity, composite reliability, and construct reliability. Table 2 provides information about the result of the outer model assessment. From Table 2, it can be presented that all variables, which consisting of entrepreneurship education (EE), entrepreneurial mindset (EM), and entrepreneurial intention (EI), have a loading score ranging between 0.712 to 0.904. These results showed that

Table 1. The demographic data for participants.

S/No.	Characteristic	Total	Percentage
1.	Age		
	15 years old	125	27.8
	16 years old	201	44.67
	17 years old	124	27.53
2.	Gender		
	Female	287	63.78
	Male	163	36.22
3.	Education subject		
	Office administration	57	12.67
	Business program	205	45.56
	Marketing	188	41.77
4.	Parents' occupation		
	Entrepreneur	230	51.11
	Teacher/Lecturer	25	5.55
	Farmers	98	21.77
	Civil Servants	90	20
	Soldier	7	1.57

the variables had met the criteria of convergent validity (loading factor  $\geq 0.70$ ) (Chin, 2009; Hair et al., 2013). However, the convergent validity test results of the entrepreneurial mindset variable show that we found one item (EM7) has to be discarded from the seven indicators provided since it has a loading factor value below 0.70. Furthermore, from the table, it can be seen that the AVE score for all construct is greater than 0.5, which implies that these variables have satisfied the discriminant validity criteria.

Table 2 also illustrates that all variables, including entrepreneurial education, entrepreneurial mindset, and entrepreneurial intention have the CR value of 0.950, 0.920, and 0.936, respectively ( $\geq 0.70$ ), meaning that the variables have confirmed the composite reliability formula (Chin, 2009; Hair et al., 2013). Accordingly, Cronbach Alpha ( $\alpha$ ) value of entrepreneurial education, entrepreneurial mindset, and entrepreneurial intention were 0.937, 0.895, 0.915 ( $\geq 0.70$ ), which means that these variables have satisfied the composite reliability. Furthermore, the AVE score from the variables is ranging from 0.658 to 0.7589 ( $\geq 0.50$ ), which has fulfilled the discriminant validity test (Chin, 2009; Hair et al., 2013).

The discriminant calculation is also reinforced in Table 3. From the table, it can be illustrated that the value of cross-loading for entrepreneurial education, entrepreneurial mindset, and entrepreneurial intention is upper 0.70, which indicated that the variables had satisfied the convergent validity criteria (Chin, 2009; Hair et al., 2013).

Apart from using the Fornell and Larcker (1981) model and cross-loading (Chin, 2009), we also applied a heterotrait-monotrait ratio procedure by Henseler et al. (2015) to estimate the discriminant validity. The test results for each variable (see Table 4) showed that the heterotrait-monotrait ratio is less than 0.90, which implies that the variables have satisfied the discriminant validity (Henseler et al., 2015).

### 4.2. Assessment of inner model

After evaluating the outer model assessment, we further calculate the inner model assessment for the structural model evaluation. In this study, we followed five stages of the test, including testing of collinearity, path coefficient, the level of R-Square, the effect size, and the relevant predictions (Q2).

#### 4.2.1. Collinearity test

Collinearity test is conducted to see whether high collinearity occurs between variables or not. The collinearity test is determined undergoing

**Table 2.** Results of outer model measurement.

Code	Variable/Indicator	Loading	CR	$\alpha$	AVE
<b>1.</b>	<b>Entrepreneurial Education (EE)</b>		0.950	0.937	0.759
EE1	The entrepreneurial education model in the formal setting promotes the creative ideas	0.849			
EE2	The learning model in the classroom provides the required knowledge toward entrepreneurship.	0.896			
EE3	The education in school drives skill and ability related to entrepreneurship	0.858			
EE4	The education activities incorporate entrepreneurship matter and allow opportunities to students to begin a business	0.904			
EE5	I think that entrepreneurship occasion could be enlarge through education activities.	0.856			
EE6	I believe that entrepreneurial education in school drives vocational students to be entrepreneurs	0.865			
<b>2.</b>	<b>Entrepreneurial Mindset (EM)</b>		0.920	0.895	0.658
EM1	I have thought from both sides (opportunities or challenges) reactions incorporating with the entrepreneurial activities.	0.847			
EM2	I have seen time allocation for entrepreneurial matters.	0.791			
EM3	I have deliberated the financial chances to be engaged in the entrepreneurial activities.	0.826			
EM4	I have evaluated for both opportunities and challenges linked with entrepreneurial activities.	0.855			
EM5	I have decided toward ideas for business opportunity in the entrepreneurial activities.	0.826			
EM6	I have disserted whether it is beneficial for me to be engaged in the entrepreneurial activities.	0.712			
<b>3.</b>	<b>Entrepreneurial Intention (EI)</b>		0.936	0.915	0.745
EI1	I will be ready to do my best to be an entrepreneur in the near future	0.861			
EI2	I will do every attempt to begin and manage my own venture	0.871			
EI4	I will initiate to open a business in the near future	0.865			
EI5	My final objective is to be an entrepreneur	0.860			
EI6	I will do my best to achieve my goal to be an entrepreneur	0.859			

Note: EE = entrepreneurial education; EM = entrepreneurial mindset; EI = entrepreneurial intention.

Variance Inflation Factor (VIF) coefficient with the criteria of VIF value should be lower than 5.00 (Hair et al., 2013). Based on the previous calculation, all variables under study has a VIF coefficient value in the range 1.675–3.396 (<5.00), so there is no collinearity for this construct. Thus, all indicators of the constructs tested are valid.

**4.2.2. R-square (R<sup>2</sup>)**

R-Square (R<sup>2</sup>) test is aimed at understanding the endogenous latent variable has predictive power to the model or not. In summary, the R<sup>2</sup> value shows the strength of the prediction accuracy (Hair et al., 2013). As for the rule of R<sup>2</sup>, the values of 0.67, 0.33, and 0.19 disclose that the model is strong, moderate, and weak (Chin, 2009). The test results showed that the R-square of entrepreneurial mindset variable is 0.583, which means that the entrepreneurial education variable can explain 58.3 percent of the entrepreneurial mindset's variant with a moderate predictive level. Furthermore, the R<sup>2</sup> value of the entrepreneurial intention variable is 0.676, which means that 60.6 percent of entrepreneurial intention variants could be described by the entrepreneurial education and entrepreneurial mindset variables with a solid predictive level.

**4.2.3. The size effect test (f<sup>2</sup>)**

The size effect test (f<sup>2</sup>) aims to evaluate the extent of the correlation of the latent predictor variable (exogenous latent variable) on the structural model (Hair et al., 2013). Accordingly, there are three main criteria, which are 0.02 (small), 0.15 (medium, and 0.35 (large) The prior calculation shows that the entrepreneurial mindset's f<sup>2</sup> value on an entrepreneurial mindset is 1.34, which indicates a large effect size. Furthermore, the value of f<sup>2</sup> entrepreneurial education and entrepreneurial mindset on entrepreneurial intention is 0.39, which shows a large effect size.

**Table 3.** Discriminant validity.

	EE	EM	EI
EE	0.871		
EM	0.754	0.811	
EI	0.760	0.702	0.811

**4.2.4. Relevant prediction test (Q<sup>2</sup>)**

The relevant prediction test aims to determine how degree the model's noticed value and its parameter estimates. The score of Q<sup>2</sup> > 0 (zero) reveals that the model has a good predictive relevance value and vice versa. The formula used is as follows: Q<sup>2</sup> = 1 - (1 - R<sup>2</sup>). Following the preliminary test, it can be seen that the Q<sup>2</sup> score of each variable is greater than zero, thus illustrating that the model of this study has a predictive relevance value.

**4.2.5. Path analysis**

Path coefficients aim to evaluate structural models. Furthermore, in PLS-SEM, to obtain the t-statistic or t-value, a bootstrap resampling procedure is used. The bootstrapping criteria is a non-parametric approach to testing PLS-SEM testing's accuracy/precision (Henseler et al., 2009). The results of the bootstrapping show the stability of the PLS-SEM test. The data were processed in this research used 500 bootstrapped samples. Table 5 and Figure 2 indicate that the path coefficient (p-value) of the four relationships among variables is 0.000 < 0.05.

**5. Discussion**

This study proposed four hypotheses, and this paper attempts to elucidate the relationship between variables in detail. The initial project of this study aims to confirm that entrepreneurship education in the vocational school can explain students' entrepreneurial intention. The statistical calculation indicated that the first hypothesis has the t-value of 9.410, which implies that entrepreneurship education successfully drives students' intention of being entrepreneurs. The fundamental rationale of this finding is that the entrepreneurship education model has provided inspiration, transfer knowledge, and resource availability for students. Additionally, entrepreneurship education enables students to obtain

**Table 4.** Heterotrait-monotrait ratio.

	EE	EI	EM
EE			
EI	0.807		
EM	0.824	0.766	

**Table 5.** The summary of calculation results.

Hypothesis	Relationship	Beta	T-value	P-value	Decision
H <sub>1</sub>	EE → EI	0.523	9.042	0.000	Confirmed
H <sub>2</sub>	EE → EM	0.764	28.752	0.000	Confirmed
H <sub>3</sub>	EM → EI	0.302	5.915	0.000	Confirmed
H <sub>4</sub>	EE→EM→EI		5.793	0.000	Confirmed

Note: **EE** = entrepreneurial education; **EM** = entrepreneurial mindset; **EI** = entrepreneurial intention.

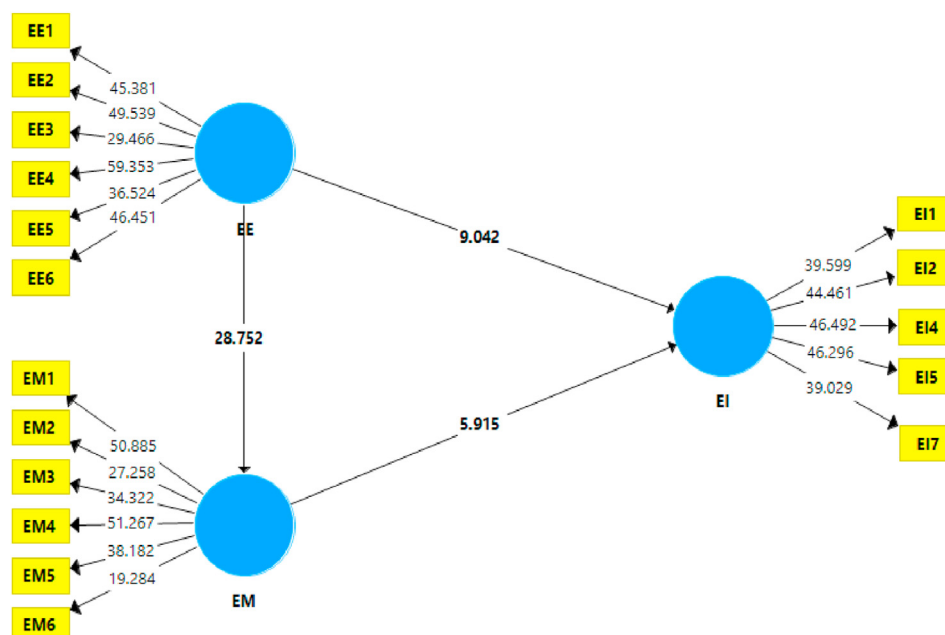
information and experience on how to initiate and run a new venture. In more specific, the entrepreneurial education provided answers several provided questions such as what motivations for being entrepreneurs, what should students do and effort for being an entrepreneur, what skills or capability that students need to become entrepreneurs, and how to elaborate related to marketing the business. In addition to entrepreneurship education, it allows students to have a great experience that help them for being entrepreneurs in the future. The entrepreneurship education in the school authorizes students to interact with either peers or successful figures in solving issues in the entrepreneurial studies. Additionally, students can also receive comments regarding to their entrepreneurial activities whilst joining in the entrepreneurship course. Motivation from peers and teachers also support for their intention to be entrepreneurs. This finding reinforces the prior findings by [Westhead and Solesvik \(2016\)](#); [Maresch et al. \(2016\)](#); [Shinnar et al. \(2018\)](#); on the importance of entrepreneurship education and its role in driving intention of being entrepreneurs.

In addition to entrepreneurial intention, this study confirmed that entrepreneurship education acts a fundamental role in determining students' mindset on entrepreneurship. Based on the prior analysis, it can be informed that the t-value is about 29.555, which implies that this second hypothesis is accepted. This finding supports a strong correlation within entrepreneurship education and entrepreneurial mindset that has been reported by [Solesvik et al. \(2013\)](#); [Westhead and Solesvik \(2016\)](#). This has proven that entrepreneurship education promotes students to have greater knowledge, experience, capability and motivation in supporting their entrepreneurial mindset. Similarly, a previous study by [Haynie et al. \(2010\)](#) noted that entrepreneurial mindset enables students to have a better insight into several outcome and circumstances that essential for

entrepreneurial studies. [Fayolle and Gailly \(2015\)](#) asserted that entrepreneurship education will affect to individual mindset and recognize students to obtain knowledge related to entrepreneurship as well as guide them into a good career choice. Additionally, [Naumann et al. \(2017\)](#); [Cui et al. \(2019\)](#) showed a robust connection between entrepreneurial mindset, knowledge and students' capability to acquire valuable resources for business success.

With respect to the first and second research questions, the third hypothesis indicated that the entrepreneurial mindset can explain the entrepreneurial intentions of vocational students with a t-value of 6.088, which implies that the hypothesis is confirmed. The finding of this work reinforces the social cognitive theory by [Bandura \(2001\)](#), which revealed that the interaction between cognitive variables, including mindset and environmental factors, will contribute to the individual intentions. Additionally, [Winkler \(2014\)](#) and [Cui et al. \(2019\)](#) have elaborated the social cognitive theory for entrepreneurship education and developing a dynamic foundation for research related to the impact of entrepreneurship education that contributes to investigating how factors in entrepreneurship education drives cognitive of students and subsequent entrepreneurial intentions. These results also support several prior studies by [Béchar and Grégoire \(2005\)](#) and [Gibb \(2002\)](#), which stated that the mindset is formed from entrepreneurship education and its activities in the school, which in turn affects to their behavior.

The last finding of this study indicated that entrepreneurial mindset mediates the correlation between entrepreneurship education and entrepreneurial intention and also corresponds to that if there are positive and direct relationship within these variables, one of them might have the potential to mediate among variables ([Baron and Kenny \(1986\)](#)). Learning activities or experiences influence cognitive factors such as entrepreneurial mindset, entrepreneurial inspiration, motivation, self-efficacy, and entrepreneurial intentions. According to [Cui \(2020\)](#), the entrepreneurial mindset can be determined and learned through individual initial knowledge and interactions with the current environment. The entrepreneurial mindset is linked with the individual's thinking ability, looking for opportunities instead of obstacles, and offering ideas in overcoming solutions rather than complaints ([Naumann, 2017](#); [Davis et al., 2016](#)). This result supports some previous studies by [Hussain and Norashidah \(2015\)](#); [Walter and Block \(2016\)](#) that the entrepreneurial mindset mediates the influence of entrepreneurship education on the entrepreneurial intentions of vocational school students.



**Figure 2.** Results of the structural equation research model.

## 6. Conclusion and recommendation

This study is purposed to evaluate the influence of entrepreneurial education and entrepreneurial mindset on vocational students' entrepreneurship intentions in Indonesia. From this research, it could be concluded that entrepreneurship education positively leads to students' entrepreneurship intention and an entrepreneurial mindset. Indeed, this study confirmed a vigorous connectivity between entrepreneurial mindset and vocational students' entrepreneurial intentions. Lastly, it can be known that entrepreneurship education positively drives vocational students' entrepreneurial intentions through the entrepreneurial mindset. This study highlighted that teacher should enhance their competence, particularly related to entrepreneurship, such as entrepreneurship webinars, in-house training, and certification program. Additionally, schools' principals can boost teachers to continue their studies for greater performance. The entrepreneurship curriculum in Indonesia should also need to be enhanced so that it can form entrepreneurial competencies and foster student enthusiasm for entrepreneurship. Furthermore, entrepreneurship education in schools should encourage students to develop creative ideas to become entrepreneurs. Entrepreneurship education should also provide the needed knowledge about entrepreneurship, continuing to encourage and develop students to be ready to become entrepreneurs. The limitation of this work is that the participants of this study were generated solely from the state vocational schools in East Java of Indonesia using convenience sampling. Therefore, further researchers that are concerned about entrepreneurship education is suggested to elaborate also both private and state vocational schools across the country and enlarge the sample area employing stratified random sampling that make this finding could be generalized. Further investigation also needs to engage a mixed method to gain in detail the dominant and distinctive factors that affect the students' entrepreneurial mindset of vocational schools in East Java in particular, and Indonesia as well.

## Declarations

### Author contribution statement

P. Handayati: Conceived and designed the experiments; Wrote the paper.

B. E. Soetjpto: Conceived and designed the experiments; Analyzed and interpreted the data.

A. Wibowo: Performed the experiments; Analyzed and interpreted the data.

D. Wulandari: Performed the experiments; Contributed reagents, materials, analysis tools or data.

B. S. Narmaditya: Contributed reagents, materials, analysis tools or data; Wrote the paper.

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### Declaration of interests statement

The authors declare no conflict of interest.

### Additional information

No additional information is available for this paper.

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