

A Comprehensive Entrepreneurship Education Model Based on Social Cognitive Theory

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Abstract

Objective: This study examines entrepreneurship education's effect on entrepreneurial mindset, competencies, and intention.

Design/Methods/Approach: This study uses a quantitative approach, applying structural equation modeling using PLS to verify the hypothesis relationship. Data is collected from 281 college students who have finished at least one semester of any entrepreneurship subject.

Findings: The findings indicate that entrepreneurship education significantly affects entrepreneurial mindset, competencies, and intention. Entrepreneurial competencies significantly affect entrepreneurial intention. Meanwhile, an entrepreneurial mindset insignificantly affects entrepreneurial intention.

Originality: This research offers a comprehensive model using a new perspective of the social cognitive theory that investigates the impact of entrepreneurship education on entrepreneurial mindset, competencies, and intention, whereas most research on entrepreneurship education and intention use the theory of planned behavior. This study is expected to fill the gaps in understanding the connection between entrepreneurship education and entrepreneurial intention from a different angle.

Practical/Policy implication: Given the results, entrepreneurship education should build entrepreneurial competencies that drive students' entrepreneurial intentions.

Keywords: Entrepreneurial competencies, Entrepreneurship education, Entrepreneurial mindset, Entrepreneurial intention, Social cognitive theory.

JEL Classification: A22, I20



I. Introduction

Entrepreneurship plays a vital role as a contributor to economic advancement and economic engine to create new jobs and sustain its competitiveness in facing trends of globalization (Fazira et al., 2017; Maheshwari et al., 2022). Globally, research and publication in entrepreneurship education have been increasing since 1993 (Thomassen et al., 2020), and a similar trend is also occurring in Southeast Asia (Othman & Othman, 2019). Therefore, entrepreneurship education is crucial for creating jobs and promoting economic growth. Moreover, entrepreneurship education inspires students to become entrepreneurs as their career after graduation (Gervase Iwu et al., 2021; Nelson, 1977). Entrepreneurship education affects entrepreneurial intention (Patricia & Silangen, 2016). It gives students the necessary knowledge, skills, and strategies for starting a business venture (Mohamed & Sheikh Ali, 2021).

Previous study related to the impact of entrepreneurship education is still partially discussing the impact of entrepreneurship education on mindset (Cui et al., 2021; Mukhtar et al., 2021; Jiatong et al., 2021; Saadat et al., 2021), competencies, and entrepreneurial intention (Patricia & Silangen, 2016), yet there is no comprehensive model that investigates the impact of entrepreneurship education and its relations with entrepreneurial mindset, competencies, and intention. Most previous research, especially in Indonesia, still focuses on the impact of entrepreneurship education on entrepreneurial intention (Astiana et al., 2022; Mawardi & Sahputri, 2022; Patricia & Silangen, 2016). However, individuals with high entrepreneurial intention levels do not necessarily engage in entrepreneurial behavior. The lack of adequate entrepreneurial competencies could be the missing link between entrepreneurial intention and action (Sartori et al., 2021). Therefore, an investigation is needed regarding entrepreneurial competencies. In addition, opportunity recognition is strongly tied to an entrepreneurial mindset which might determine entrepreneurial success (Cui et al., 2021). Manafe et al. (2023) found a positive relationship between entrepreneurial mindset and business success. Entrepreneurs with a robust entrepreneurial mindset are more likely to succeed in their businesses (Asenge et al., 2018; Manafe et al., 2023). By examining entrepreneurial mindset and competencies, it is intended that specific knowledge, skills, and attitudes that need to be developed can be identified and used to design the entrepreneurship curriculum relevant to the Indonesian context.

This study aims to examine the effect of entrepreneurship education on entrepreneurial intention, mindset, and competencies and give a comprehensive model related to the impact of entrepreneurship education. This research is expected to provide new insight for the government and universities, especially in entrepreneurship theory and education. Furthermore, by knowing the impact of entrepreneurship education as a comprehensive model, it is expected that the government and universities can design policies and curricula to enhance students' entrepreneurial mindset, entrepreneurship competencies, and entrepreneurial intention.

This study's results are expected to contribute to the extent of entrepreneurship education literature and social cognitive theory. Social Cognitive Theory (SCT) is used in this study since it may provide a coherent framework to understand entrepreneurship education holistically from the view of cognitive psychology (Cui et al., 2021). Based on the analysis of Biraglia & Kadile (2017), Nwosu et al. (2022), and Cui et al. (2021), SCT can reveal the interaction between entrepreneurial mindset and competencies as personal cognitive variables, entrepreneurship education as the environmental factor and entrepreneurial intention as the behaviors factor. This study contributes to the social cognitive theory by understanding the interaction between entrepreneurship education as the environmental factor in shaping entrepreneurial mindset and competencies as the personal cognitive aspect and entrepreneurial intention. The present study adds to the expanding body of knowledge on entrepreneurship education by addressing the significant inconsistencies between entrepreneurship education and entrepreneurial intention that has been highlighted in several previous studies.

This paper begins with the introduction, which describes the research gap, novelty, and contribution to theory and practice. The following section includes a literature review, hypotheses development, and model. Then, the method section explains the quantitative approach used in this research and presents the result and discussion. The last section contains the conclusion, theoretical contributions, practical implications, study limitations, and suggestions for future research.

2. Literature Review and Hypotheses Development

2.1 Social Cognitive Theory (SCT)

SCT provides a clear framework to understand students' entrepreneurial intentions, which could be influenced by the interaction of environmental input, personal factors, and behavioral outcomes (Biraglia & Kadile, 2017; Nwosu et al., 2022). Environmental input is indicated by entrepreneurship education (Cui et al., 2021; Winkler, 2014), personal factors are shown by entrepreneurial mindset and competencies (Cui et al., 2021), and behavioral outcomes are expressed by student's entrepreneurial intention (Jiatong et al., 2021). In order to get a better understanding of how the environment of entrepreneurship education affects student cognition and subsequent entrepreneurial behavior, Winkler (2014) adapted SCT to entrepreneurship education and created a dynamic framework for entrepreneurship

education impact (Cui et al., 2021). This study uses social cognitive theory to evaluate how students with a high level of entrepreneurship education, entrepreneurial mindset, and competencies improve their entrepreneurial intention.

2.2 *Entrepreneurship Education and Entrepreneurial Mindset*

The development of entrepreneurship education has been contributing to an increasing impact over the last decades in influencing current behavior, including developing an entrepreneurial mindset (Cui et al., 2021; Cui & Bell, 2022; Handayati et al., 2020; Mukhtar et al., 2021; Jiatong et al., 2021; Saadat et al., 2021). Fayolle et al. (2006) define entrepreneurship education as "any pedagogical program or process of education for entrepreneurial attitudes and skills, which involves developing certain personal qualities."

Mindsets are assumptions, beliefs, and methods held by people or groups (Sahagun et al., 2021). The concept of mindset is frequently used in education and learning (Caniëls et al., 2018). Mindset is not inherited. It can be influenced by an individual's prior knowledge and interaction with the current environment (Cui et al., 2021). The entrepreneurial mindset is defined as "the ability to rapidly sense, act and mobilize, even under uncertain conditions" by McGrath & MacMillan (2000). The entrepreneurial mindset is an individual's capacity and readiness to quickly perceive, act and mobilize in response to a judicial decision under uncertainty about a potential opportunity for gain (Shepherd et al., 2010). The entrepreneurial mindset distinguishes entrepreneurs from non-entrepreneurs and is defined as the combination of motivations, abilities, and thought patterns that help them succeed in business (Davis et al., 2016). McMullen & Kier (2016) defined an entrepreneurial mindset as the ability to see and seize opportunities regardless of the resources already in their possession. It implies that entrepreneurial activity involves some risk. Although various definitions of entrepreneurial mindset are found in the literature, the keyword related to entrepreneurial mindset is the ability to recognize entrepreneurial opportunities under uncertain conditions. Cui & Bell (2022) identified four components of an entrepreneurial mindset: alertness to opportunity, risk propensity, ambiguity tolerance, and dispositional optimism.

According to Pollard & Wilson (2014), an entrepreneurial mindset can be developed through exercises including collaboration, reflection, business acumen, creative practice, and the development of specific skills. An entrepreneurial mindset may be developed through training and is a mental habit that needs to be formed (Schmidt & Ford, 2006). Handayati et al. (2020), Jiatong et al. (2021), and Wardana et al. (2020) found that entrepreneurship education positively impacts entrepreneurial intentions and entrepreneurial mindset. Therefore, an entrepreneurial mindset can be strengthened through entrepreneurship education. Developing an entrepreneurial mindset is crucial to entrepreneurship education's effectiveness (Cui et al., 2021; Handayati et al., 2020). Therefore, we proposed the following hypothesis: Hypothesis 1: Entrepreneurship education positively impacts the entrepreneurial mindset.

2.3 *Entrepreneurship Education and Entrepreneurial Intentions*

Entrepreneurial intention is commonly used to assess the impact of entrepreneurship education (Joensuu-Salo et al., 2019; Longva & Foss, 2018). The concept of intention has drawn increasing attention in entrepreneurship research due to its effectiveness in predicting entrepreneurial behavior (Ajzen, 1991, 2005). Entrepreneurial intention is critical in explaining behavior and denotes an individual's effort to engage in entrepreneurial behavior (Liñán et al., 2011). According to Thompson (2009), entrepreneurial intent is a person's self-acknowledged conviction to launch a new business endeavor and actively plan to do so. Instead of referring to entrepreneurial intentions as a particular attitude or passion, this term describes plans to launch one's firm in the future (van Gelderen et al., 2008).

Previous research discussing entrepreneurship education's effect on entrepreneurial intention shows inconsistent results. Adu et al. (2020), Izedonmi (2010), Mukhtar et al. (2021), and Yildirim et al. (2016) found that entrepreneurship education did not influence entrepreneurial intention directly, yet it influenced entrepreneurial intention indirectly. On the contrary, Anjum et al. (2022), Lv et al. (2021), and Jiatong et al. (2021) found that entrepreneurship education positively and directly influenced students' intent to be an entrepreneur. Entrepreneurship education provides students with the necessary knowledge, abilities, and methods for starting a business venture, motivates them to engage in entrepreneurship, and encourages entrepreneurial intention (Fayolle et al., 2006). Therefore, the hypothesis test should be carried out to determine how these two variables relate, primarily in Indonesia. The hypothesis formulation is as follows:

Hypothesis 2: Entrepreneurship education positively impacts entrepreneurial intention.

2.4 *Entrepreneurship Education and Entrepreneurial Competencies*

Competencies have the opposite character with personality. Competencies are not permanent attributes but can be developed and taught through training and experience (Kyndt & Baert, 2015). According to Brophy & Kiely (2002), competency refers to knowledge, skills, attitude, beliefs, and behaviors required to complete a specific activity or task. Entrepreneurial competencies are all traits (e.g., skills, knowledge, abilities, attitudes, and beliefs) essential for

creating a company (Silveyra et al., 2020). According to Morris et al. (2013), entrepreneurial competencies are knowledge, skills, abilities, beliefs, attitudes, personality, and expertise necessary for entrepreneurial action.

Education in entrepreneurship imparts theoretical information and successful experiences that foster students' development as entrepreneurs (Duong, 2021; Le et al., 2023; Nowiński et al., 2019). Even if students are not planning to launch a business, entrepreneurship education should nevertheless seek to increase students' entrepreneurial competence (Lv et al., 2021). Entrepreneurship education promotes entrepreneurial skills and competencies (Lilleväli & Täks, 2017; Nabi et al., 2018; van Gelderen, 2022). The research result conducted by Sánchez (2013) shows that the mean value of entrepreneurial competencies post-test was significantly higher than the pretest, meaning that entrepreneurship education successfully improves students' competencies for undertaking a business venture. Li et al. (2022) also found that entrepreneurship education positively influenced entrepreneurial competencies. Therefore, we proposed the following hypothesis:

Hypothesis 3: Entrepreneurship education positively impacts entrepreneurial competencies.

2.5 Entrepreneurial Mindset and Entrepreneurial Intention

Some previous studies have investigated the relationship between entrepreneurial mindset and entrepreneurial intention and found that entrepreneurial mindset has a positive and significant effect on entrepreneurial intention (Handayati et al., 2020; Mukhtar et al., 2021; Jiatong et al., 2021). Meanwhile, Furthermore, Jiatong et al. (2021) found that entrepreneurial mindset substantially influences entrepreneurial intention more than entrepreneurial education. An individual with an entrepreneurial mindset prefers uncertainty, views things more simply, and takes risks. The entrepreneurial intention needs to be driven by a mindset that will define a person's success in business using numerous opportunities (Timotius, 2022). This is aligned with Jiatong et al. (2021), that an individual with a strong mindset is more actively participating in entrepreneurial activities and are more likely to start their business. Therefore, the hypothesis of this study is as follows:

Hypothesis 4: Entrepreneurial mindset positively impacts entrepreneurial intention.

2.6 Entrepreneurial Competencies and Entrepreneurial Intention

A little in-depth study has been done on entrepreneurial competencies and their complex relationship with entrepreneurial intention (Sartori et al., 2021). It has been determined that a certain set of skills is necessary for implementing successful entrepreneurship, known as entrepreneurial competencies. These competencies are frequently associated with the intention and action of developing a business (Bird, 1995; Mitchelmore & Rowley, 2010). Al Mamun et al. (2016) found that entrepreneurial competencies, including students' ability to recognize income-generating opportunities, entrepreneurial training and skills, innovativeness, and information-seeking competencies, significantly affect entrepreneurial intention. Students who are able to recognize the opportunities in entrepreneurial activities are more likely to be an entrepreneur. So, the hypothesis formulation is as follows:

Hypothesis 5: Entrepreneurship competencies positively impact entrepreneurial intention.

2.7 Entrepreneurial Mindset as the Mediating of Entrepreneurship Education and Entrepreneurial Intentions

According to Saadat et al. (2021), achieving the expected results in entrepreneurship activities is determined by developing an entrepreneurial mindset that educational programs can enhance, as it can be regarded as a cognitive inclination that necessitates deliberate cultivation to develop. Entrepreneurship education can shape the mindset which predicts entrepreneurial intention (Sun et al., 2023). This is also supported by Mukhtar et al. (2021), entrepreneurship education has been found to stimulate mindset, hence establishing an essential impact on students' entrepreneurial intentions. Handayati et al. (2020) and Sun et al. (2023) found that entrepreneurship mindset mediated the relationship between entrepreneurship education and students' entrepreneurial intention. So, the hypothesis formulation is as follows:

Hypothesis 6: Entrepreneurial mindset will mediate the relationship between entrepreneurship education and entrepreneurial intention

2.8 Entrepreneurial Competencies as the Mediating of Entrepreneurship Education and Entrepreneurial Intentions

Implementing entrepreneurship education within the university curriculum enhances students' entrepreneurial competence (Bismala, 2021). According to a study conducted by Wasilczuk et al. (2021), a positive correlation exists between students who place importance on their entrepreneurial competencies and their intention to initiate their ventures. This aligns with the findings of Vinogradova et al. (2022); the majority of students had a positive perception of the usefulness of entrepreneurship studies, indicating that these studies have a notable impact on the development of their entrepreneurial competencies. Students who have previously demonstrated their entrepreneurial competencies in the context of entrepreneurship studies had a stronger inclination toward initiating a venture. It is also strengthened by

Lv et al. (2021), who stated that entrepreneurial competence obtained through entrepreneurship education continuously affects entrepreneurial intention and plays an intermediary in the relationship between entrepreneurial education and entrepreneurial intention. Entrepreneurship education not only strengthens entrepreneurial competence by providing opportunities for students to practice and strengthen the knowledge and skills acquired in education but also provides additional motivation for entrepreneurial intentions (Vinogradova et al., 2022). Previous studies have shown that entrepreneurship education improves the intention to be an entrepreneur, behavior, and attitude through improving entrepreneurial attention and competency (Bae et al., 2014; Kuratko et al., 2021; Martin et al., 2013; Mohamed & Sheikh Ali, 2021). So, the hypothesis formulation is as follows:

Hypothesis 7: Entrepreneurial competencies will mediate the relationship between entrepreneurship education and entrepreneurial intention.

3. Method

This research uses a quantitative method. The population of this study is Indonesian higher education students who have received and finished entrepreneurship education. It is essential to investigate entrepreneurship education in higher education in Indonesia since the field of entrepreneurship education, which is predominantly the purview of higher education institutions, is still in its early stages (Maritz et al., 2022). Even though Indonesia has over 4500 higher education institutions, entrepreneurship courses are still only moderately low (Amalia & von Korfflesch, 2021). In addition, only a few higher education institutions have made a significant effort to produce more entrepreneurial graduates (Maritz et al., 2022). This study was carried out in Jakarta and Surabaya since these cities are two major cities in Indonesia, and both are home to several universities that actively promote entrepreneurship education. According to Hair et al. (2006), the sample size requires at least five times the number of indicators. There are 43 indicators used in this study. Therefore, the minimum sample size for this study is at least 215 respondents. The respondents are chosen by purposive sampling technique from higher education institutions that offer at least three credits of any related entrepreneurship education subject. The data was collected through an online survey using Google Forms.

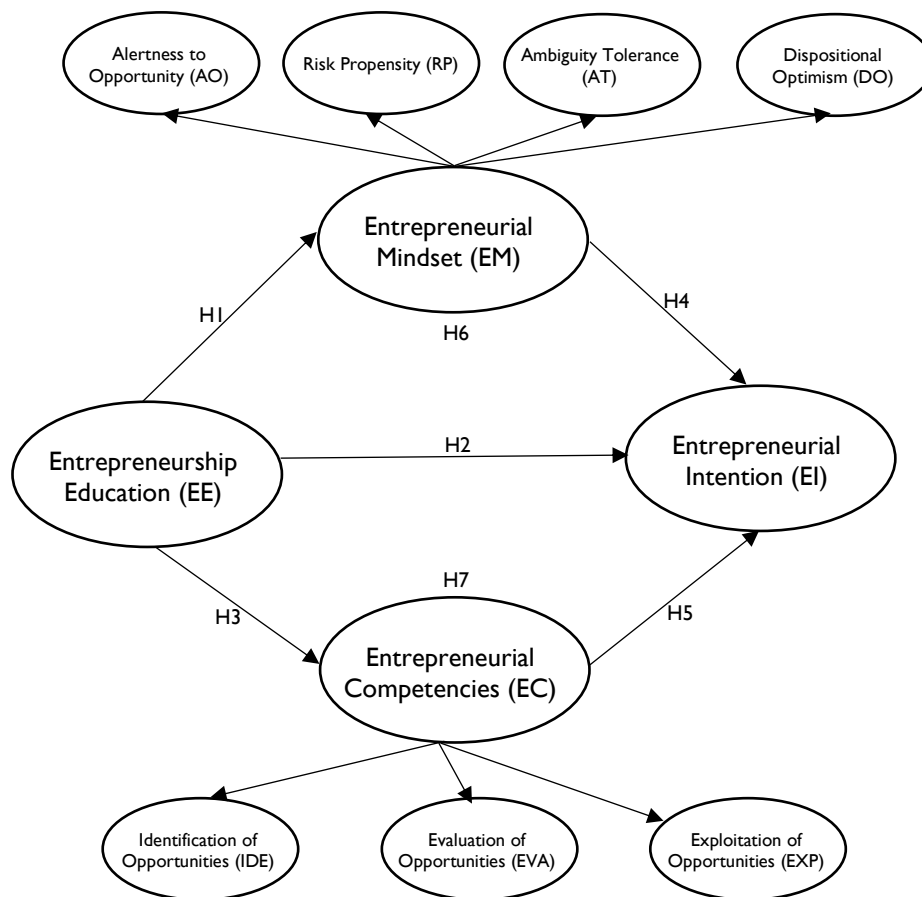


Figure 1. Research Model

This study used a 5-point Likert scale rating from "1=totally disagree" to "5=totally agree". The variable of entrepreneurship education is measured by adopting five-item measurement instruments based on Duong (2021), which assess the perceived effectiveness of entrepreneurial education. The entrepreneurial mindset was measured using the constructs and scales from Cui et al. (2021); it consists of components, which are alertness to opportunity (AO), risk propensity (RP), ambiguity tolerance (AT), and dispositional optimism (DO). Alertness to opportunity is the capacity to have great insight into identifying entrepreneurial opportunities. Risk propensity is an individual's tendency or willingness to take or avoid risks. Ambiguity tolerance is the ability to perceive, absorb, and react to information regarding ambiguous situations. Entrepreneurs need to have a high level of ambiguity tolerance since entrepreneurial operations are very unpredictable. Dispositional optimism is the tendency to believe that one will experience good versus unpleasant results in life. It is needed by entrepreneurs to motivate themselves and achieve their goals. This study used nine measurement constructs from Silveyra et al. (2020) to measure entrepreneurship competencies. It consists of three dimensions which are identification (IDE), evaluation (EVA), and exploration (EXP) of opportunities. In addition, the entrepreneurial intention construct was adopted from Liñán et al. (2011) and used six measurement constructs.

Table 1. Research Instrument

Construct	Definition	Indicators	Source
Alertness to Opportunity (AO)	The capacity to have great insight to identify entrepreneurial opportunities.	I have frequent interactions with others to acquire new information (AO1) I am keen on looking for information (AO2) I can recognize links between seemingly unrelated pieces of information (AO3) I can hardly see connections between previously unconnected domains of information (AO4) I can distinguish between profitable opportunities and non-profitable opportunities (AO5) When facing multiple opportunities, I am difficult to select the good ones (AO6)	Cui et al. (2021)
Risk Propensity (RP)	Willingness of an individual to take or avoid risks	I like to take chances, although I may fail (RP1) I like waiting until things has been tested before I try it (RP2) To earn greater rewards, I am willing to take higher risks (RP3) I only like to implement a plan if its outcome is very certain (RP4) I seek new experiences even if their outcomes may be risky (RP5)	
Ambiguity Tolerance (AT)	The ability to perceive, absorb, and react to information regarding ambiguous situations	If I am uncertain about the responsibilities involved in a task, I get very anxious (AT1) It really disturbs me when I am unable to follow another person's train of thought (AT2) I can tolerate ambiguous conditions and unpredictable results (AT3) Before any important task, I must know how long it will take (AT4) A good task is one in which what is to be done is always clear (AT5) A good task is one in which how it is to be done is always clear (AT6)	
Dispositional Optimism (DO)	Tendency that one will encounter pleasant versus unpleasant results in life	In uncertain times, I would expect the best (DO1) If something can go wrong with me, it will (DO2) I am always optimistic about my future (DO3)	

Construct	Definition	Indicators	Source
Identification of Opportunities (IDE)	The ability to recognize and envision taking advantage of the opportunity	I hardly ever expect things to go my way (DO4) I rarely count on good things happening to me (DO5) Overall, I expect more good things to happen to me than bad (DO6) I accurately perceive unmet consumer Needs (IDE1) I spend considerable time and energy looking for products or services that will provide real benefits for my customers (IDE2) One of my greatest strengths is identifying goods and services people want (IDE3) I can distinguish between profitable opportunities and not-so-profitable opportunities (EVA1)	Silveyra et al. (2020)
Evaluation of Opportunities (EVA)	The ability to evaluate and decide on a business opportunity with profit potential	I have a knack for telling high-value opportunities apart from low-value opportunities (EVA2) When facing multiple opportunities, I am able to select the good ones (EVA3) I am capable of generating creative business ideas (EXP1)	
Exploitation of Opportunities (EXP)	The ability to create a business idea	I envision taking advantage of Opportunities (EXP2) I am capable of formulating and implementing strategies (EXP3) My school education helped me develop my sense of initiative (EE1) My school education helped me to understand better the role of entrepreneurs in society (EE2) My school education made me interested in becoming an entrepreneur (EE3) My school education gave me skills and know-how that enabled me to run a business (EE4) My school education has equipped me with the necessary abilities and expertise to start my own business (EE5)	(Duong, 2021)
Entrepreneurship Education (EE)	Effectiveness of entrepreneurial education	I am ready to make anything to be an entrepreneur (EI1) My professional goal is to become an entrepreneur (EI2) I will make every effort to start and run my own firm (EI3) I am determined to create a firm in the future (EI4) I have very seriously thought about starting a firm (EI5) I have got the firm intention to start a firm someday (EI6)	
Entrepreneurial Intention (EI)	The key component that indicates the level of effort required to engage in entrepreneurial behavior		Liñán et al. (2011)

4. Result and Discussion

4.1 Result

There were 281 data responses used for the final data analysis. The sample consisted of 140 males (49.8 percent) and 141 females (50.2 percent); 251 students were from business majors (89.3 percent), and 30 students were from non-business majors (10.7 percent). Most of the students are in the third year of study (41.6 percent), 56 students are in the first year of study (19.9%), 79 students are in the second year of study (28.1%), 25 students are in the fourth year of study (8.9%), and four students are above fourth year of study (1.4%). According to Chin et al. (1997) and Hair et al. (2006), items displaying factor loading below 0.6 must be eliminated from the measurement model. This led to 11 items of entrepreneurial mindset being eliminated. In addition, one item from entrepreneurial intention was eliminated since it will significantly increase the Composite Reliability (CR) value. The indicator factor loading and composite reliability are presented in Table 1.

Table 2. Indicator Loadings and Composite Reliability

Construct and Indicator	Standardized Factor Loadings	Composite Reliability (CR)
Alertness to Opportunity (AO)		0.805
AO1	0.736	
AO2	0.781	
AO3	0.648	
AO5	0.683	
Risk Propensity (RP)		0.867
RPI	0.847	
RP3	0.846	
RP5	0.789	
Ambiguity Tolerance (AT)		0.832
AT4	0.738	
AT5	0.818	
AT6	0.809	
Dispositional Optimism (DO)		0.773
DO3	0.828	
DO6	0.758	
Identification of Opportunities (IDE)		0.854
IDE1	0.867	
IDE2	0.850	
IDE3	0.847	
Evaluation of Opportunities (EVA)		0.876
EVA1	0.827	
EVA2	0.818	
EVA3	0.685	
Exploitation of Opportunities (EXP)		0.870
EXP1	0.786	
EXP2	0.847	
EXP3	0.814	
Entrepreneurship Education (EE)		0.887
EE1	0.768	
EE2	0.795	
EE3	0.736	
EE4	0.811	
EE5	0.795	
Entrepreneurial Mindset (EM)		0.504
AO	0.816	
RP	0.611	
AT	-0.720	
DO	0.702	
Entrepreneurial Competencies (EC)		0.904
IDE	0.863	
EVA	0.853	

Construct and Indicator	Standardized Factor Loadings	Composite Reliability (CR)
EXP	0.897	0.954
Entrepreneurial Intention (EI)		
EI2	0.883	
EI3	0.886	
EI4	0.904	
EI5	0.903	
EI6	0.908	

The CR value of the dimensions and variables was higher than 0.6, except for entrepreneurial mindset (EM). The low CR value for the entrepreneurial mindset can be caused by the low mean value of Ambiguity Tolerance (AT) as one dimension of the entrepreneurial mindset (refer to Table 4). According to Ismail & Hussin (2017), composite reliability needs to achieve at least 0.5 and above, and the range of 0.5-0.7 shows moderate reliability (Hinton et al., 2014). Convergent validity was demonstrated by the Average Variance Extracted (AVE). The AVE value for EE is 0.610, EM 0.513, EC 0.759, and EI 0.804.

The discriminant validity was assessed by comparing the square root of the AVE of each variable with the amount of correlation among the constructs. The result of the discriminant validity of variables is presented in Table 3. The AVE value for all the variables is above 0.5, and the AVE square root of each variable was higher than the correlation coefficient of the variable (Fornell & Larcker, 1981). Therefore, all the variables depicted good discriminant validity.

Table 3. Discriminant Validity of Variables

	EC	EE	EI	EM
EC	0.871			
EE	0.368	0.781		
EI	0.469	0.556	0.897	
EM	0.699	0.520	0.497	0.716

Descriptive analysis was conducted to measure the scales of entrepreneurship education, entrepreneurial mindset and its dimensions, entrepreneurial competencies and its dimensions, and entrepreneurial intention. The descriptive analysis of the variables is presented in Table 4. The mean value of entrepreneurship education is 4.552 showing that most of the students agree on the effectiveness of entrepreneurship education. The mean value of the entrepreneurial mindset is 3.551. Dispositional optimism as the dimension of entrepreneurial mindset has the highest mean value, 4.393, and ambiguity tolerance has the lowest mean value, 1.688. The high value of dispositional optimism showed that students tend to believe they will experience good outcomes in life. The low score of ambiguity tolerance shows that students have a low tolerance toward ambiguous situations. The mean value of entrepreneurial competencies is 4.039. The exploitation of opportunities as the dimension of entrepreneurial competencies has the highest mean value, 4.125, while the evaluation of opportunities has the lowest mean value, 3.993. Finally, the mean value of entrepreneurial intention is 4.382, showing that most students have high intentions to become an entrepreneur.

Table 4. Descriptive Analysis of Variables

Variables	Mean	SD
Entrepreneurship Education (EE)	4.552	0.489
Entrepreneurial Mindset (EM)	3.551	0.682
Alertness to Opportunity (AO)	4.252	0.561
Risk Propensity (RP)	3.917	0.732
Ambiguity Tolerance (AT)	1.688	0.586
Dispositional Optimism (DO)	4.393	0.607
Entrepreneurial Competencies (EC)	4.039	0.561
Identification of Opportunities (IDE)	3.999	0.635
Evaluation of Opportunities (EVA)	3.993	0.677
Exploitation of Opportunities (EXP)	4.125	0.614
Entrepreneurial Intention (EI)	4.382	0.682

The result of the hypotheses test conducted using SmartPLS 3.0 is shown in Table 5. The results show that Entrepreneurship education significantly influences entrepreneurial mindset (p -value < 0.05, path coefficient = 0.520). Therefore, this finding supports H1. Entrepreneurship education significantly influences entrepreneurial intention (p -value < 0.05, path coefficient value = 0.406). Therefore, this finding supports H2. Entrepreneurship education significantly influences entrepreneurial competencies (p -value < 0.05, path coefficient value = 0.368). Therefore, this finding supports

H3. Entrepreneurial mindset insignificantly affects entrepreneurial intention (p -value > 0.05). The direction of the relationship between entrepreneurial mindset and entrepreneurial intention is positive, with a path coefficient value is 0.123. Therefore, H4, which states that an entrepreneurial mindset positively affects entrepreneurial intention, is not supported. Entrepreneurial competencies significantly and positively influence entrepreneurial intention (p -value < 0.05, path coefficient value = 0.234). Therefore, H5 can be accepted. Entrepreneurial mindset insignificantly mediates entrepreneurial intention (p -value > 0.05, path coefficient value = 0.064). Therefore, H6, which states that an entrepreneurial mindset will mediate the relationship between entrepreneurship education and entrepreneurial intention, is not supported. Entrepreneurial competencies significantly and positively mediate entrepreneurial intention (p -value < 0.05, path coefficients value = 0.086). Therefore, H7 is supported.

Table 5. Summary of Hypotheses tests

	Path	Path Coefficient	P value	Remarks
H1	EE → EM	0.520	0.000	Supported
H2	EE → EI	0.406	0.000	Supported
H3	EE → EC	0.368	0.000	Supported
H4	EM → EI	0.123	0.128	Not Supported
H5	EC → EI	0.234	0.003	Supported
H6	EE → EM → EI	0.064	0.154	Not Supported
H7	EE → EC → EI	0.086	0.008	Supported

4.2 Discussion

This research aims to investigate the effect of entrepreneurship education on entrepreneurial intention, mindset, and competencies. The findings confirmed that four out of the five hypotheses proposed were accepted. The instruments generally represent all dimensions and variables used in this study, except for Ambiguity Tolerance (AT) which differs from previous research. In this study, AT has a low mean score value and showed a negative relationship with an entrepreneurial mindset, while previous research done by Cui et al. (2021) has a high mean value and positive relationship on all dimensions of the entrepreneurial mindset, including AT.

This study shows that entrepreneurship education positively and significantly impacts the entrepreneurial mindset. This result is consistent with previous research conducted by Handayati et al. (2020), Jiatong et al. (2021), and Wardana et al. (2020), which highlighted the critical role of entrepreneurship education in developing an entrepreneurial mindset. Table 5 shows that students are perceived highly on alertness to opportunity, risk propensity, and dispositional optimism yet have a relatively low perception of ambiguity tolerance. This finding showed that the entrepreneurial mindset needs to be developed further by providing comprehensive entrepreneurship education.

The finding of this study presents that entrepreneurship education has a positive and significant impact on entrepreneurial intention. This result is similar to previous research in Malaysia and China conducted by Anjum et al. (2022), Lv et al. (2021), Jiatong et al. (2021), and previous research conducted in Indonesia by Handayati et al. (2020) and Patricia & Silangen (2016) who found that entrepreneurship education effectively influences student's entrepreneurial intention to become entrepreneurs. The result contrasts with the finding of Mukhtar et al. (2021), although this research was also conducted in Indonesia. Several things that can cause this difference are the characteristics of the respondents. The respondents in Mukhtar et al. (2021) are public university students in Malang, while the respondents in this research are primarily from private universities (92.88%) located in Jakarta and Surabaya.

This study shows that entrepreneurship education positively and significantly impacts entrepreneurial competencies. This result is consistent with previous Li et al. (2022) and Sánchez (2013) research. Entrepreneurship education provides students with relevant knowledge and skills that may improve student's entrepreneurial competencies. Regarding the Indonesian context, Ardyan & Wijaya (2018) and Bismala (2021) also found similar results: entrepreneurship education effectiveness positively and significantly influenced entrepreneurial competency. In this study, students who are able to learn effectively will improve their entrepreneurial competencies and acquire the competencies to identify, evaluate and exploit opportunities.

We also identified the impact of an entrepreneurial mindset on entrepreneurial intention. However, the finding showed that an entrepreneurial mindset insignificantly impacts entrepreneurial intention. The result of this study has been unable to explain the relationship between variables. This finding is in contrast with previous research done by Handayati et al. (2020), Mukhtar et al. (2021), and Jiatong et al. (2021). A possible explanation for this result is the low level of ambiguity tolerance that can be seen from the mean value in Table 4. Ambiguity tolerance is an essential element of an entrepreneurial mindset, and entrepreneurs need to have a high level of ambiguity tolerance since entrepreneurial activities are unpredictable (Cui et al., 2021). The low level of ambiguity tolerance showed that students still cannot tolerate ambiguity and uncertain situations and prefer structured and well-organized tasks and situations. Sarasvathy (2001) found that effectuation would be better for exploiting contingencies that arose unexpectedly over time. The low

level of ambiguity tolerance may be caused by the causation approach used by the universities, where lectures are structured by references and followed in order (Mirzanti et al., 2021).

The result of this study shows that entrepreneurial competencies positively and significantly impact entrepreneurial intention. This result is consistent with previous Lv et al. (2021) research. Entrepreneurial competencies have been identified as a set of competencies relevant to the success of entrepreneurship, which is often correlated to developing a business (Bird, 1995; Mitchelmore & Rowley, 2010). Individuals with higher levels of entrepreneurial competencies will have higher intentions in developing a new business

We investigate the role of entrepreneurial mindset as the mediating variable between entrepreneurship education and entrepreneurial intention. In contrast, the finding showed that an entrepreneurial mindset insignificantly mediates entrepreneurship education and entrepreneurial intention. The results of previous research conducted by Handayati et al. (2020) and Sun et al. (2023) contradict this study's findings. The entrepreneurship education received by the students has not been able to form the entrepreneurial mindset properly, especially in the aspect of ambiguity tolerance, so the entrepreneurial mindset that is formed has not been able to have an impact on entrepreneurial intention so the entrepreneurial mindset failed to mediate the relationship between entrepreneurship education and entrepreneurial intention.

The finding of this study shows that entrepreneurial competencies significantly mediate entrepreneurship education and entrepreneurial intention. The finding of this study is consistent with previous research conducted by Lv et al. (2021); entrepreneurship education not only affects entrepreneurial intention directly but also mediates the relation between entrepreneurship education and entrepreneurial intention. Entrepreneurship education promotes students' entrepreneurial intention by improving their entrepreneurial competencies.

5. Conclusion

This study examined the impact of entrepreneurship education on students' entrepreneurial intention, mindset, and competencies. It can be concluded that entrepreneurship education positively impacts students' entrepreneurial mindset, competencies, and intentions. This study's findings also show an indirect effect of entrepreneurship education on entrepreneurial intention through entrepreneurial competencies as the mediating variable. Entrepreneurial mindset insignificantly affects entrepreneurial intention and insignificantly mediates entrepreneurship education and entrepreneurial intention.

The results of this study make several contributions to the extent of entrepreneurship education literature and social cognitive theory. The present study adds to the expanding body of knowledge on entrepreneurship education by addressing the significant inconsistencies between entrepreneurship education and entrepreneurial intention that has been highlighted in several previous studies. Mukhtar et al. (2021) found that entrepreneurship education insignificantly influenced Indonesian students' entrepreneurial intention. This may be caused by the failure of entrepreneurship education to encourage students' interest in entrepreneurship as a career option. Contrary to Mukhtar et al. (2021) previous research, Patricia & Silangen (2016) found that entrepreneurship education significantly shapes students' entrepreneurial intention. Students who have taken entrepreneurship courses are more likely to be interested in starting their own business. Higher education needs to pay attention to issues related to entrepreneurship curricula, instructional methodologies, university supports, and teaching materials to implement entrepreneurship education effectively (Maritz et al., 2022).

There are some practical implications for educators and higher education policymakers. First, the findings of this study indicated that entrepreneurship education has a more substantial influence on entrepreneurial mindset than entrepreneurial competence and entrepreneurial intention. Nevertheless, the entrepreneurial mindset still needs further development since students have a low perception of ambiguity tolerance. In order to enhance students' ambiguity tolerance, higher education needs to consider not only using the causation approach in entrepreneurship education but also the effectuation approach since effectuation is a better approach for exploiting unexpected situations (Mirzanti et al., 2021). The effectuation process enables the entrepreneur to develop one or more potential effects regardless of the goal he started. It enables the decision-maker to modify his objectives and create them over time while considering changing circumstances (Sarasvathy, 2001). Second, even if students have low intention to start a business, they still need entrepreneurship education. Entrepreneurship education is not necessarily directly focused on starting new businesses but also develops particular character traits (Egerová et al., 2016). The effectiveness of entrepreneurship education will enable students to improve their entrepreneurial mindset (Handayati et al., 2020; Jiatong et al., 2021; Mukhtar et al., 2021; Wardana et al., 2020), entrepreneurial competencies (Li et al., 2022; Lv et al., 2021), entrepreneurial intention (Handayati et al., 2020; Jiatong et al., 2021; Mukhtar et al., 2021; Patricia & Silangen, 2016) and even more it may improve the student's business performance (Ardyan & Wijaya, 2018; Mahmood et al., 2020). Entrepreneurship education should aim to improve entrepreneurial intention, mindset, and competencies. University curricula should be improved to create a comprehensive system of entrepreneurship education courses. Experiential learning and challenge-based learning need to be implemented to support the development of an entrepreneurial mindset (Hözlner & Halberstadt, 2023; Prashanthi & Sreenivas, 2023). It is also essential to intensify fieldwork rather than focus on theory and classroom teaching and enhance project-based learning to enhance student's entrepreneurial competencies (Lv et al., 2021; Morris et al., 2013;

Mukhtar et al., 2021; Wardana et al., 2020). Third, universities should consider the development of entrepreneurship educators by providing entrepreneurship training for them (Lv et al., 2021; Miço & Cungu, 2023) and involve entrepreneurs or practitioners regularly for better entrepreneurial practices for students (Lv et al., 2021; Wardana et al., 2020) since in Indonesia, most of the lecturers and professors came from the academic world and not the professional fields (Patricia & Silangen, 2016).

Even though the study significantly and usefully improved the understanding of entrepreneurship education, there are still some limitations and recommendations for future research. First, data were collected from several private and public universities in Surabaya and Jakarta. Future research can extend the sample area across the city and country. Second, this study is based on cross-sectional survey data, and a longitudinal study design may offer new insight into entrepreneurship. Third, future research may do pre and post-test of entrepreneurial mindset, competencies, and intention and compare the results to measure the effectiveness of entrepreneurship.

Author Contribution

Author 1: conceptualization, writing original draft, data curation and analysis, methodology.

Author 2: Reviewing, correcting, editing, supervising

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Conflict of Interest

The authors declare that the research was conducted without any commercial or financial relationships that could be construed as a potential conflict of interest.

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