

## Research Article

# The Moderating Role of Entrepreneurship Education at the Diploma Level: Predicting Entrepreneurial Intention

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**Abstract.**

This research focuses on the entrepreneurial intentions of diploma students in Indonesia, drawing data from respondents from several selected universities in Indonesia. These intentions are encouraged by entrepreneurship education, which plays an important role in developing students' entrepreneurial behaviour. In recent years, Indonesia has emphasized the integration of innovative entrepreneurial concepts into university curricula. Entrepreneurship education can also contribute to sustainable business development. In the context of mass entrepreneurship and innovation, entrepreneurship education is important for promoting the restructuring of economic and business models, increasing development momentum, and following an innovation-driven development path. It is used as a moderator in this research to examine its contribution to the relationship between the independent variables used, because previous research exploring its moderating role in higher education circles have not fully confirmed said relationship. This study used a quantitative approach, with a sample size of 582 students consisting of selected universities on the islands of Java and Sumatra, because they have an entrepreneurship curriculum with the largest number of students in Indonesia. This study used an online questionnaire as a data collection medium. Questionnaires were distributed and filled in by respondents from August 2022 to March 2023. The results of the study reveal interesting findings regarding the moderating role of entrepreneurship education in strengthening and weakening the relationship between predictors of entrepreneurial intention. This study then used the theory of planned behaviour to form a research model.

**Keywords:** entrepreneurial education, entrepreneurial intention, theory of planned behavior

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## 1. Introduction

Indonesia currently has one of the world's largest youth populations with 68 million people between the ages of 10 and 24, which is 28 percent of its 260 million population. About 45.8 million youth are between the ages of 10 and 19. this number or 13.3% of the total population. Young people in Indonesia foster a healthy social atmosphere, provide young people with access to high-quality education, and provide them with opportunities to engage in their communities and develop valuable life skills [1]. To provide jobs and employment for a sizable population, the government introduced one of the Independent Campus Learning Policy (MBKM) programs with the Entrepreneurship program. The program requires universities to provide curriculum, syllabus, and assessment rubrics to measure the success of learning outcomes, mentor student mentors, business incubation, outside collaboration with partner institutions and develop technical guidelines for learning activities through entrepreneurship. One of the problems that arise in implementing and optimizing the MBKM entrepreneurship program in tertiary institutions is the alignment of Indonesian ministry programs with students' views on entrepreneurship. Alignment needs to be done because there is a possibility that there will be different views on entrepreneurship between students as the millennial generation and stakeholders who are generally Generation X (baby boomers). Theoretically, each generation can have a different view of a particular object caused by social moods and turning points [2].

The shift in the educational paradigm from traditional to entrepreneurial university is due to the importance of education as one of the main drivers of Sustainable Development [3]. The importance of entrepreneurs and entrepreneurship in influencing overall human well-being has attracted the attention of governments, and they have taken proactive actions to develop and inculcate entrepreneurial thinking, especially through education [4,5]. This interest can be seen from the rapid development of curriculum and entrepreneurship education programs since the early 80s. In the case of Indonesia, which is the focus of this study, the government has included in the 2015–2025 Indonesian Education Program a requirement for academic programs in tertiary institutions to include entrepreneurship courses or education as part of the curriculum. The goal is to produce graduates who can create jobs, not graduates who can only find jobs.

Entrepreneurship education is considered one of the most innovative and influential forces determining the health of a competitive economy in any country. There

has been much debate and discussion regarding the structure and design aspects of entrepreneurship courses in Indonesia. Ignoring the controversy about whether entrepreneurship can be taught, most of the leading business schools in Indonesia offer entrepreneurship education with elective courses tailored to promote an entrepreneurial culture in Indonesia. The main aim of this course is to impart a wide range of skills which include a multi-disciplinary approach among Diploma students. On the other hand, Indonesia has a pioneering status among developing countries because it started various entrepreneurship education programs from the start. Entrepreneurship education in post-independence Indonesia has focused on entrepreneurship and the establishment of Small and Medium Enterprises (SMEs). An entrepreneur has high motivation or dreams, dares to try, and is innovative and independent. They are required to be able to make changes and produce something new. With this capability, it will make the business more valuable so that it will attract consumers. There are still many Diploma graduates in Indonesia who become job seekers [6]. This research uses subjects from Diploma students to provide opportunities to increase entrepreneurship education among Diploma students to change their mindset from Job seeker to Job creator.

At a broader level, entrepreneurship education can be placed in a broader context than business preparation not only “an entrepreneur” who can become an entrepreneur and owner of a company, but also someone who is capable of pursuing entrepreneurship and innovation as an employee and/or being a person who exhibits “entrepreneurial behaviour” [7]. In this sense, entrepreneurship is of relevance to modern career concepts such as traditional careers, borderless careers, post-enterprise careers, and employability [8] which emphasize flexibility and various possibilities to cope with the modern labour market. Furthermore, the content of entrepreneurship education must respond to growing interest and demand. Currently, the program seems to focus on creating new ventures backed by options for developing businesses, financing self-employment, legal, networking, family businesses and social enterprises with business plans playing a central role [7].

It has been suggested that an action-oriented teaching mix that encourages experiential learning, problem-solving, project-based learning, and creativity, and supports peer evaluation is best for imparting enterprising skills and behaviours [9]. In terms of entrepreneurial intention, it has been argued that there is no clear and consistent definition of the term. The entrepreneurial intention has been used in previous research as a reference to owning a business or becoming self-employed (either by setting up

one's own company or taking over an existing one), as a set of broader personal orientations, dispositions, desires, or interests that might lead to the creation of a business, and also as nascent entrepreneurship includes those who are only thinking of setting up their own business and those who have already taken more specific steps towards it [10]. The impact of changes in students' intentions to become entrepreneurs has been researched in developed countries and is considered important for policymakers in these developed countries [11-13]. Therefore, it is necessary to implement research for developing countries, in this case Indonesia, to assess students' entrepreneurial intentions and the factors that influence their decisions.

Entrepreneurship education also receives great attention in Indonesia. Various national, regional or international pilot projects and programs have been implemented to promote entrepreneurship and provide entrepreneurship education, especially among youth, students and the unemployed. In Indonesia, many vocational training centres and technology colleges support entrepreneurship education to improve the entrepreneurial skills of graduating students. Two series of higher education institutions, namely Academic Colleges (under the Ministry of Higher Education) and Colleges of Applied Sciences (under the Ministry of Vocational Higher Education) strive to foster an entrepreneurial culture in Developing Countries. New courses have been offered to all students in all specialties and special training programs on entrepreneurial skills are included in the vocational higher education curriculum. However, the impact of changes in students' intentions to become entrepreneurs in vocational higher education has never been assessed and this is important for policymakers. Therefore, there is a need for research to assess students' intentions to become entrepreneurs and the factors that influence their decisions. For this purpose, this research adapts the Theory of Planned Behavior (TPB) model and adds demographic factors (independent variables) as additional variables and entrepreneurship education as a moderating variable by proposing a conceptual framework to determine the impact of intervening factors (entrepreneurship education) on the relationship of the dependent variable (intention) and independent variables (personal attitude, self-efficacy and perceived behavioral control).

The main objective of this paper is to explore how entrepreneurship education in developing countries influences entrepreneurial intentions that contribute to future entrepreneurial growth. A more specific aim is to find out how and to what extent entrepreneurship education changes entrepreneurial attitudes, abilities, skills, knowledge, and intentions, to record students' willingness and ability to start their businesses

and to find out factors that hinder and arise because of entrepreneurship education. Do students have doubts about starting their own business and looking for ways to stimulate and encourage students to start their own business? This paper is structured as follows: a brief description of the background that raises the topic of this research. In Section 2 the existing literature related to the topic is presented followed by an explanation of the conceptual framework in Sect. 3. Section 4 explains the methodology adopted in the paper while the results and discussion are carried out in Sect. 5. The paper is concluded in Sect. 6 with several policy implications.

## 2. Literature Review

This research uses planning behavior theory as a framework for understanding the influence of entrepreneurial attitudes on diploma students at a university. This research applies two popular models of entrepreneurial intentions, namely the entrepreneurial event theory (EET) [14] and the Theory of Planned Behavior [15] which are widely used in the literature to analyze entrepreneurial intentions. According to the EET model, entrepreneurial intentions are influenced by perceptions of personal desires (attractiveness), feasibility (capabilities), and the tendency to act based on opportunities (willingness). Meanwhile, in the TPB model, behavioral intentions are determined by three main antecedents: personal attitudes, self-efficacy or perceived behavioral control, and personal norms [13]. In this research, the variables used include entrepreneurial attitudes, entrepreneurial self-efficacy, and perceived behavior. This research shows that these three elements of planning behavior make it possible to encourage entrepreneurial intentions, especially among diploma students in Indonesia who have taken entrepreneurship courses. According to Conner & Armitage, the theory of planned behavior is in principle open to the inclusion of additional predictors if it can be shown that they capture a significant proportion of the variance in intentions or behavior once the theory's current variables are considered [16]. Therefore, entrepreneurship education is used as a moderator of the three antecedents related to the theory of planned behavior with their relationship to entrepreneurial intentions. Other studies also confirm that entrepreneurship education is one of the factors encouraging students to make entrepreneurship a career and provide students with the skills needed for entrepreneurship [17].

Entrepreneurial intention is described as the process of seeking knowledge necessary for business creation [18]. This is also a cognitive process that has a goal and

leads to action [19]. Therefore, entrepreneurial intentions are determined by motivational factors and willingness towards entrepreneurial behavior [20]. Research conducted by and Entrialgo & Iglesias added that entrepreneurial intentions also imply a state of mind that is open to entrepreneurship [21]. Ruiz et al. stated that entrepreneurial readiness reflects an individual's ability to observe and analyze the environment in such a way that they can channel creativity and high productive potential into achievement [22]. Several studies have been conducted on students' entrepreneurial intentions [23-25]. Understanding, studying, and exploring intentions is very useful provides good insight and helps in determining the level of entrepreneurial activity. Assessing the orientation of entrepreneurial intentions and interest in students towards entrepreneurship is important for educational institutions and policymakers because entrepreneurial intentions are the best predictor of entrepreneurial behavior or the act of creating a new business [13].

Entrepreneurial behavior consists of attitudes that may be learned throughout life with the main requirement involving a creative and innovative approach [26]. Research that has been conducted observes that young people are more interested in launching new businesses and achieving individuality than in the desire to gain more money [27,19]. An entrepreneur tends to be more confident and independent. Several previous studies show that past failures influence entrepreneurial self-confidence and enthusiasm [28]. More precisely, attitudes are related to behavioral factors which consist of behavioral tendencies and goals to act in a certain way towards something [29]. These intentions and attitudes play an important role in understanding entrepreneurial procedures [30]. Attitudes are associated with entrepreneurial intentions [31]. An entrepreneur's attitude is derived from experience and in-depth analysis of previous activities. Entrepreneurial characteristics and attitudes are largely based on personal features and situations [32].

Self-efficacy plays a role in identifying an individual's ability to control thoughts, feelings, motivation, and actions [33]. Higher self-efficacy is also associated with the attitude of starting a business [26]. Therefore, by providing information or experience related to entrepreneurship, a person develops entrepreneurial self-efficacy with a more positive attitude in carrying out entrepreneurial behavior. The third determinant is perceived behavioral control (PBC) (i.e., perceived ease or difficulty in managing behavior). This concept is like self-perceived capacity. According to Ajzen & Fishbein, the stated antecedents (attitudes and behaviors) are sufficient to explain intentions, but their relative importance varies from one context to another (i.e., in some contexts, only one or two of the stated determinants may be used). need to explain its meaning)

[34]. In the field of entrepreneurship, PBC is also an important variable because it reflects an individual's perception of his or her ability to control behavior that supports intentions [35]. Several empirical studies have confirmed the relationship between attitudes and entrepreneurial intentions as well as between PBC and entrepreneurial intentions [21,36].

## 2.1. Hypotheses

To determine students' entrepreneurial intentions (dependent variable), three independent variables were selected, namely personal attitude, self-efficacy, and perceived behavioral control as independent variables, while entrepreneurship education was a moderating variable. These five independent variables were chosen because of the potential impact of entrepreneurship education in changing students' intentions to become entrepreneurs. A simple slope analysis was carried out to test the moderation of entrepreneurship education used in this research. Data was collected from a group of diploma students, namely a group of students who had completed entrepreneurship education. The role of entrepreneurship education in assessing students' intentions towards entrepreneurship is explained in the conceptual framework (Figure 1). The following hypothesis is developed.

*H1 Entrepreneurial Attitude has a significant impact on Entrepreneurial Intention.*

*H2 Entrepreneurial Self-Efficacy has a significant impact on Entrepreneurial Intention*

*H3 Perceived Behavior Control has a significant impact on Entrepreneurial Intention*

*H4 Entrepreneurial education has a significant positive impact on the relationship of Entrepreneurial Attitude and Entrepreneurial Intention*

*H5 Entrepreneurial education has a significant positive impact on the relationship between Entrepreneurial Self-Efficacy and Entrepreneurial Intention*

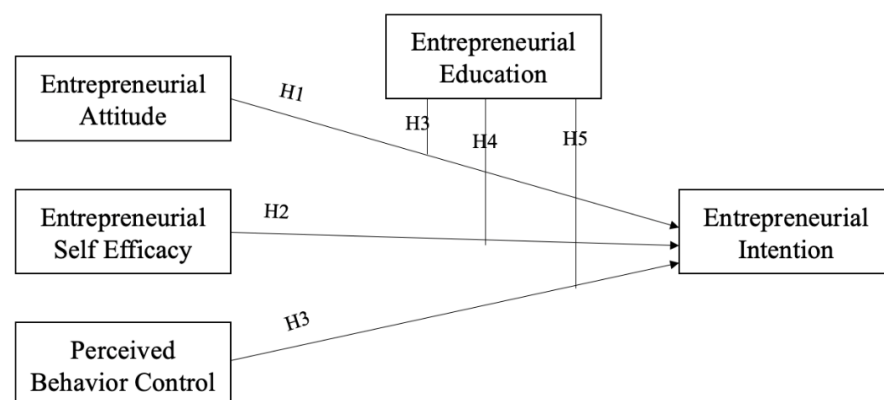
*H6 Entrepreneurial education has a significant positive impact on the relationship of Perceived Behavior Control and Entrepreneurial Intention*

## 3. Methodology Research

This research uses a quantitative method and a descriptive approach and is based on partial least square structure modelling (PLS-SEM) analysis to determine the relationship between entrepreneurial attitudes, entrepreneurial self-efficacy, perceived behaviour,

entrepreneurial education, and entrepreneurial intentions. The population of this study consisted of vocational students from tertiary institutions in Indonesia with the top 8 categories of universities having the largest number of students in Indonesia. The sample used the purposive sampling method. Respondents were collected through online questionnaires with two inclusion criteria, namely: (i) respondents were vocational students from the 8 universities, and (ii) respondents have attended and completed entrepreneurship education.

Informed consent was obtained from all participants before the survey, and the confidentiality and anonymity of the responses were ensured. A question was also added to the questionnaire to ask whether participants had studied entrepreneurship courses or not. More than 500 questionnaires were distributed directly to students at various universities offering entrepreneurship courses in Indonesia. A purposive sampling approach was used to get responses from subjects. A total of 602 completed questionnaires were collected privately where 30 questionnaires could not be used, so a total of 582 questionnaires could be processed. Overall, the response rate was 41.4%. About 36% of the respondents are women and 64% are men. The average age of the respondents was 23 years. Regarding the entrepreneurship course, 55% of students in our sample have completed it while 35% have not finished following the course. All variables in this study were measured using a five-point Likert scale with a range from strongly disagree (1) to strongly agree (5). The criteria for each point used are STS (strongly disagree), TS (disagree), N (neutral), S (agree), and SS (strongly agree). A pilot study was conducted using a sample of 30 respondents who determined the internal consistency of the measurement scale.



**Figure 1:** Conceptual Framework. Source: Adoption from Shah et al. [13].



## 4. Results and Discussion

### 4.1. Measurement Model

The measurement model was validated through confirmatory factor analysis (CFA). CFA results along with evidence of reliability, discriminant and convergent validity are presented in Tables 1 and 2. Factor loadings for all constructs averaged above 0.7 with an average variance extracted (AVE) above 0.5 providing evidence of a convergent validity [28]. The alpha coefficients for all constructs are above 0.7 indicating an appropriate level of reliability for all constructs. We established discriminant validity through the comparison of bi-variate correlations with the square root of AVE [28]. Table 2 shows that the correlation between all pairs of constructs was found to be smaller than the corresponding AVE indicating an appropriate and acceptable level of discriminant validity.

TABLE 1: Validity and Reliability.

Variable	Entrepreneurial Attitude	Entrepreneurial Self Efficacy	Perceived Behavior Control	Entrepreneurial Education	Entrepreneurial Intentions
AVE	0,570	0,552	0,604	0,535	0,555
Composite Reliability	0,902	0,830	0,884	0,888	0,918

Source: (Data processing)

TABLE 2: Discriminant Validity.

	Entrepreneurial Attitude	Entrepreneurial Education	Entrepreneurial Intentions	Entrepreneurial Self Efficacy	Perceived Behavioral Control
Entrepreneurial Attitude	<b>0,755</b>				
Entrepreneurial Education	0,627	<b>0,731</b>			
Entrepreneurial Intentions	0,337	0,354	<b>0,745</b>		
Entrepreneurial Self Efficacy	0,288	0,452	0,566	<b>0,743</b>	
Perceived Behaviour	0,298	0,334	0,624	0,536	<b>0,777</b>

Source: (Data processing)

## 4.2. Hypotheses Testing

Representation of moderator analysis results usually uses a simple slope plot. SmartPLS provides a simple slope plot in the results report [37] to test whether the relationship between entrepreneurship education and the independent variables in this study can have an effect (Table 3). In SmartPLS, path model variables can be entered as single-item constructs. When a variable is based on multiple indicators, they are given equal weight to obtain a construct score. In principle, only structural relationships between observed variables (or equally weighted constructs) with or without control variables are modeled [38]. The results of total Entrepreneurial Attitudes (US) on Entrepreneurial Intentions (EI) were significant ( $b = 0.14$ ,  $p < 0.05$ ), supporting H1. The total direct effect of Entrepreneurial Self-Efficacy (ESE) on Entrepreneurial Intentions (EI) without the influence of mediators was also significant ( $b = 0.293$ ,  $p < 0.01$ ), supporting H2. In line with H1 and H2, perceived behavioral control (PBC) on Entrepreneurial Intentions (EI) ( $b = 0.414$ ,  $p < 0.01$ ), this result supports H3.

TABLE 3: Hypothesis Testing.

Hypothesis	Path	Path Coefficient	p-value	Result
H1	US -> EI	0,14	0,001	Supported
H2	ESE -> EI	0,293	0,000	Supported
H3	PBC -> EI	0,414	0,000	Supported

Source: (Data processing)

The moderating role of entrepreneurship education in this study is only one hypothesis that succeeds in explaining the strong relationship between the independent variable and the dependent variable in this study, the results are presented in Table 4. The moderating effect of entrepreneurship education on entrepreneurial attitudes towards entrepreneurial intentions is significant ( $\beta=0.044$ ,  $p < 0.05$ ) supporting H4. Furthermore, the moderating effect of entrepreneurship education on entrepreneurial self-efficacy on entrepreneurial intentions which is significantly negative ( $\beta= -0.139$ ,  $p > 0.01$ ) does not support H5. Likewise, the moderating effect of entrepreneurship education on perceived behavioral control on entrepreneurial intentions is significantly negative ( $\beta= -0.009$ ,  $p > 0.01$ ) and does not support H6. The graph of moderation results using simple slope analysis can also be seen in Figure 2.

TABLE 4: Moderating Hypothesis.

Hypothesis	Moderating Path	Path Coefficient	p-value	Result
H4	Moderating Effect EE (US -> EI)	0,044	0,014	Strongly
H5	Moderating Effect EE (ESE -> EI)	-0,139	0,000	Weakened
H6	Moderating Effect EE (PBC -> EI)	-0,009	0,793	Weakened

Source: (Data processing)

## 5. Discussion

The main objective of this research is to determine the independent influence consisting of the dimensions of attitudes towards entrepreneurship, perceived behavioral control, as well as entrepreneurial self-efficacy and the moderation of entrepreneurship education on entrepreneurial intentions. Regarding the dimensions of the constructs examined in this study, our results are consistent with theoretical speculation and previous empirical research and indicate that the TPB constructs investigated are multi-dimensional. Although TPB predictors of intention are traditionally conceptualized and measured as one-dimensional constructs, Ajzen [39], who developed the TPB, suggested that each predictor of intention in his model consists of two dimensions that should be treated and measured separately [40].

The results of this study indicate that the independent variables explained by the dimensions of the theory of planned behavior have a significant relationship with entrepreneurial intentions. This means that the use of the theory of planned behavior can be validated to explain entrepreneurial intentions among vocational students in Indonesia. Research in developing countries can also be proven and the results are the same as previous research conducted in developed countries [21,41,13,40].

In addition, we observe the important role of Entrepreneurship Education (EE) in the formation of entrepreneurial intentions. In contrast to previous research, we focus on the moderating effects of these variables on the intention generation process. We observed that EE had a significant moderating effect on some of the relationships analyzed. On the one hand, the relationship between US and EI is stronger in individuals with EE than in those without. In this case, the knowledge, competencies and contacts generated by entrepreneurship education act as a substitute for confirmation of the entrepreneurial attitude felt by the individual to give rise to entrepreneurial intentions. Those who have received entrepreneurship education appear to be less dependent

on developing their skills regarding control over entrepreneurial behavior. On the other hand, the relationship between self-efficacy and perceived behavioral control on entrepreneurial intentions is weaker for individuals with entrepreneurship education than for those without. Individuals feel that without the entrepreneurship education they receive, they have their perceptions of ease or difficulty in confirming their behavior to determine entrepreneurial intentions. This is in line with research by Entrialgo & Iglesias which analyzed the relationship between task difficulty and overconfidence in entrepreneurship [21].

EE seems to compensate for students' lack of confidence in unfavorable environments (in providing knowledge and abilities) and, to a lesser extent, seems to compensate for students' sense of overconfidence (in their behavioral control) in the case of students in favorable environments. On the other hand, EE also moderates the relationship between PBC and entrepreneurial intention, although this is opposite to the previous case. The relationship between US and EI to business is stronger among those with EE than among those without EE. Therefore, EE does not act as a substitute stimulus in the development of positive attitudes towards business, but EE strengthens the perceived relevance of entrepreneurial attitudes. Attitude formation is related to the interaction between entrepreneurship education and a supportive surrounding environment. Each factor reinforces the other in producing attitudes. This is because the PBC variable is more cognitive in nature, while the attitude variable contains emotional and non-rational components which can make it more dependent on environmental issues. Attitude formation is associated not only with the competencies that education can provide, but also with the dispositions and values associated with a supportive immediate environment [42,40].

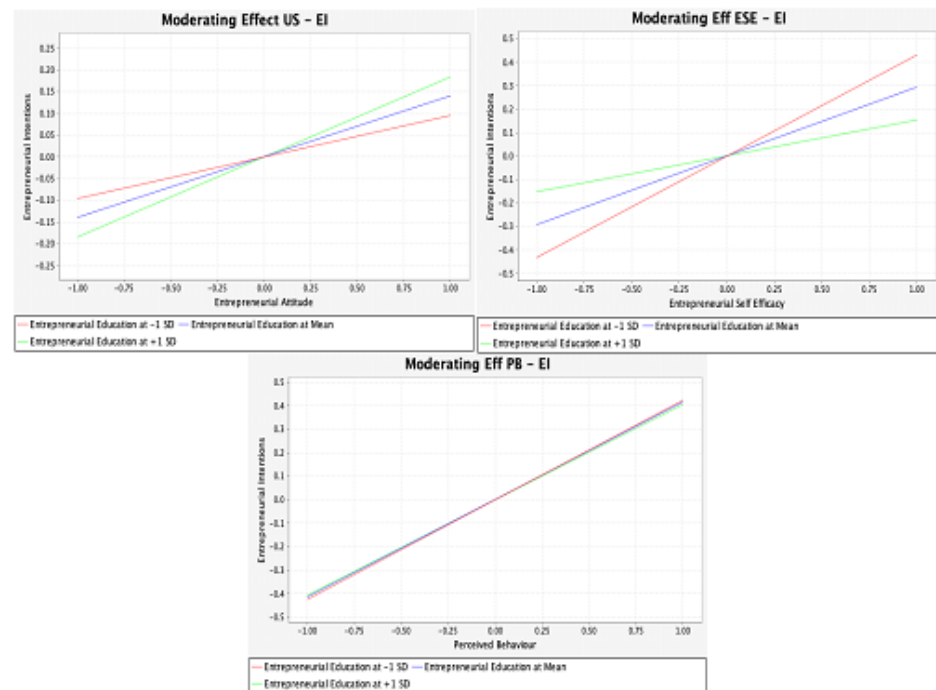
In this research, we did not use the subjective norm variable because there has been no previous research which states that subjective norms have a positive effect on entrepreneurial intentions. There is evidence of research findings conducted by Sharma et al. [43] stated that subjective norms have the smallest impact among the three main constructs of the TPB, this illustrates that the younger generation from backgrounds who have not taken entrepreneurship courses or who have taken them do not rely on SN to start entrepreneurship shortly.

## 6. Conclusion

This research aims to determine the influence of entrepreneurial attitudes, entrepreneurial self-efficacy and perceived behavioral control on entrepreneurial intentions and the moderating role of entrepreneurship education on the relationship between these things. The target population for this research is vocational students at universities in Indonesia. We found the results to be robust to meet the recommended minimum standards for instrument measurement quality. SEM results show that entrepreneurial attitude, entrepreneurial self-efficacy, and perceived behavioral control are significant predictors of entrepreneurial intention. The results are consistent with the suggested relationships between variables modelled by the theory of planned behavior and entrepreneurial event theory. In addition, we also find evidence that confirms that entrepreneurship education plays a moderating role in strengthening the relationship between entrepreneurial attitudes and entrepreneurial intentions. However, entrepreneurship education weakens the relationship between entrepreneurial self-efficacy and entrepreneurial intention, as well as perceived behavioral control and entrepreneurial intention. From the empirical results, it is concluded that entrepreneurship education effectively contributes to the development of entrepreneurial intentions in Indonesia. Entrepreneurship education contributes positively in strengthening and channelling entrepreneurial attitudes towards entrepreneurial intentions. The research results show that entrepreneurship education weakens the relationship between entrepreneurial self-efficacy and perceived behavioral control on entrepreneurial intentions, indicating that education increases student independence by reducing the influence of one's self-efficacy and behavioral control.

The results of this research are very important for policy makers because entrepreneurship education in Indonesia has only become a topic of discussion again after the phenomenon of unemployment is still widespread in Indonesia. Entrepreneurship education which has been started in recent years at all higher education institutions along with several other supporting facilities can effectively influence students' intentions in a positive direction. Policymakers should focus on strengthening entrepreneurship education, research and development, and technological infrastructure. This research is limited to three variables, namely entrepreneurial attitude, entrepreneurial self-efficacy and perceived behavioral control. These three variables were chosen because of their suitability to local culture, student characteristics and improvement of entrepreneurship education. In addition, only vocational universities in Indonesia

were considered in this research. A separate research study could further enhance our understanding that how entrepreneurship education negatively alters the relationship between self-efficacy and perceived behavioral control on entrepreneurial intentions. Cultural factors and informal institutions can provide better insight into this very important research problem.



**Figure 2:** Moderating Testing using Simple Slope Analysis. **Source:** (Data processing).

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