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ANALYZING THE MODERATING ROLE OF ENTREPRENEURSHIP EDUCATION ON ENTREPRENEURIAL BEHAVIOR : A THEORY OF PLANNED BEHAVIOR (TPB) – BASED STUDY OF MSMEs IN MEDAN, INDONESIA

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ABSTRACT

This study aims to analyze the moderating role of entrepreneurship education on entrepreneurial behavior based on the Theory of Planned Behavior (TPB) among 400 MSME actors in Medan City. The data were analyzed using Structural Equation Modeling (SEM) with a Partial Least Squares (PLS) approach via SmartPLS version 4. The results show that entrepreneurship education significantly moderates the influence of attitude and perceived behavioral control on entrepreneurial behavior, but does not moderate subjective norms and entrepreneurial intention. These findings highlight the importance of entrepreneurship education programs that focus on shaping positive attitudes and enhancing self-control perceptions to foster entrepreneurial behavior among MSMEs. The government and related institutions are advised to develop sustainable mentoring programs and access to capital as tangible support for MSME actors, while the entrepreneurs themselves are encouraged to actively participate in entrepreneurship training to enhance business capacity and competitiveness amid market dynamics. This study is limited to the Medan City area and relies on subjective perception data; therefore, future research is recommended to expand the geographical scope and adopt qualitative methods for deeper understanding.

Keywords: Entrepreneurship Education, Theory of Planned Behavior, Entrepreneurial Behavior

Introduction

Indonesia faces a structural challenge with a high unemployment rate that has the potential to hinder the nation's economic growth. According to official data from the Central Statistics Agency (BPS) and various government reports, developing the entrepreneurship sector is viewed as a key strategy to address this issue. Entrepreneurship not only has the capacity to create new jobs but also to drive innovation and strengthen an economy based on self-reliance. However, the level of entrepreneurial participation in Indonesia has yet to meet the targets set by the government, necessitating more serious efforts to enhance the role of entrepreneurs in economic development.

Data on Indonesia's entrepreneurship ratio and comparisons with ASEAN countries are reported by various official sources and media outlets. Beritasatu.com noted that in November 2021, Indonesia's entrepreneurship ratio stood at 3.47%, significantly lower than Singapore's 8.76%, Malaysia's 4.74%, and Thailand's 4.26%. Liputan6.com confirmed similar figures in April 2021, citing Minister of Cooperatives and SMEs Teten Masduki who highlighted Indonesia's low entrepreneurship ratio relative to neighboring countries. In March 2025, Kontan.co.id reported that Trade Minister Budi Santoso stated Indonesia's entrepreneurship ratio was 3.57%, while Malaysia and Thailand had surpassed 4%, and Singapore was around 8.6%. Detik.com, in July 2023, quoted Deputy Speaker of the Indonesian People's Consultative Assembly (MPR) Lestari Moerdijat confirming Indonesia's entrepreneurship ratio of only 3.47%, far behind other ASEAN nations. Collectively, these data indicate that Indonesia still faces significant challenges in increasing its number of entrepreneurs, which could hinder economic growth if not promptly addressed.

According to the Global Entrepreneurship Index (GEI), Indonesia ranks 75th out of 137 countries with a score of 26, indicating a relatively low entrepreneurial capacity on a

global scale. This ranking lags behind other ASEAN countries, suggesting that Indonesia's entrepreneurial potential remains underutilized. Such conditions obstruct inclusive and sustainable economic growth due to the limited number of quality entrepreneurs and an underdeveloped supporting ecosystem. Therefore, enhancing support through education programs, training, and improved financing access is crucial to strengthening entrepreneurship and accelerating Indonesia's economic growth (source: https://katadata.co.id/analisisdata/6464b3d3c584e/jumlah-wirausahawan-di-indonesia-ganjal-pertumbuhan-ekonomi). This reality underscores the urgent need for more effective interventions to foster entrepreneurial spirit, especially among youth and MSME actors in promising areas such as Medan.

Entrepreneurship education is considered a primary approach in shaping entrepreneurial intention, which refers to an individual's psychological inclination to start a business (Lubis et al., 2024). This intention is influenced by various internal and external factors. One relevant conceptual framework to explain this dynamic is the Theory of Planned Behavior (TPB) developed by Ajzen (2005). TPB posits that an individual's intention to perform a behavior—including entrepreneurship—is influenced by three main constructs: attitude toward the behavior, subjective norm, and perceived behavioral control. These constructs play a critical role in forming intentions that may lead to actual entrepreneurial behavior.

Previous studies have demonstrated that TPB is an appropriate model for understanding entrepreneurial intentions. Martin-Navarro et al. (2023) found that attitude and perceived behavioral control mediate the relationship between subjective norm and entrepreneurial intention. Other studies by Nengseh and Kurniawan (2021) and Praswati et al. (2022) showed that self-efficacy acts as an important link between entrepreneurship education and entrepreneurial intention. Additionally, Yesmin et al. (2024) and Hartono et al. (2022) emphasized the mediating role of the three TPB constructs in connecting external factors—such as education and social support with entrepreneurial intention.

However, most previous research has focused on the mediating role within the TPB framework, with less attention given to entrepreneurship education as a moderating variable. In fact, entrepreneurship education has the potential to strengthen the relationships between TPB constructs (attitude, subjective norm, perceived behavioral control, and intention) and entrepreneurial behavior. This is particularly relevant for MSME actors in Medan, who still face challenges such as low entrepreneurship literacy and weak orientation toward new business creation (Ferine et al., 2017).

Based on this literature gap, the present study poses the main research question: Does entrepreneurship education moderate the influence of attitude, subjective norm, perceived behavioral control, and entrepreneurial intention on entrepreneurial behavior? The objective of this study is to analyze the moderating role of entrepreneurship education within the relationships among TPB constructs and entrepreneurial behavior among MSMEs in Medan.

This research employs a quantitative approach using a modified Theory of Planned Behavior framework along with moderation analysis to examine the effect of entrepreneurship education. Academically, this study aims to enrich the theoretical understanding of entrepreneurial intention and behavior formation, especially within a local context that has been underexplored. Practically, the findings are expected to serve as a basis for formulating more targeted policies in designing entrepreneurship curricula, training, and contextual MSME empowerment programs in Medan and similar regions.

Literature Review

Development of the Theory of Planned Behavior

The Theory of Planned Behavior (TPB) was first introduced by Icek Ajzen in 1985 through his article titled "From Intentions to Actions: A Theory of Planned Behavior." This theory is an extension of the Theory of Reasoned Action (TRA), which was initially proposed by Martin Fishbein and Icek Ajzen in 1975. TRA itself is rooted in various attitude theories such as learning theories, expectancy–value theories, consistency theories, and attribution theory. According to TRA, if a person evaluates a behavior positively (attitude), and believes that significant others expect them to perform that behavior (subjective norm), this will increase their intention (motivation) to act, thereby making it more likely that the behavior will occur. The strong relationship between attitudes and subjective norms toward behavioral intention, as well as between intention and actual behavior, has been confirmed in many studies.

However, there is a counterargument stating that the relationship between behavioral intention and actual behavior is not always strong. Some studies show that intention does not always lead to actual action due to situational limitations. Because intention alone cannot be the sole determinant of behavior when individuals do not have full control over it, Ajzen introduced the Theory of Planned Behavior by adding a new component called "perceived behavioral control" (PBC). This addition expanded TRA to include behaviors that are not entirely volitional, aiming to predict behavioral intention and actual behavior more accurately.

The development of TPB began with TRA, which explains that a person's behavior is influenced by intention formed from two main factors: attitude toward the behavior and subjective norm (social pressure). However, TRA has limitations in explaining behaviors that are not fully under individual control. Therefore, in 1985, Ajzen developed TPB by adding the Perceived Behavioral Control (PBC) construct, which reflects the extent to which an individual feels capable of and has control over performing the behavior.

The Theory of Planned Behavior is a widely used social psychology theory to understand individual intentions and behaviors. TPB states that a person's intention to perform a behavior is influenced by three main constructs: attitude toward the behavior, subjective norm, and perceived behavioral control (PBC).

In the context of entrepreneurship, attitude reflects an individual's positive or negative evaluation of entrepreneurial activities; subjective norm refers to social pressure from environments such as family, friends, or community; and PBC relates to the individual's perception of their ability to control and execute entrepreneurial behavior. Various studies have shown that these three factors significantly influence entrepreneurial intention (Che Nawi et al., 2022; Maydiantoro et al., 2021; Muda et al., 2025).

Subjective norm tends to be more dominant in developing countries with collectivist cultures, where social pressure and group support are key factors in decision-making (Urban, 2017; Maslakci et al., 2024; Maydiantoro et al., 2021). However, a meta-analysis by La Barbera & Ajzen (2020) revealed that the influence of subjective norm on intention can weaken when PBC is high, indicating that the role of subjective norm may vary depending on context and individual control perceptions.

Perceived Behavioral Control (PBC) not only influences intention but also directly affects behavior, especially when individuals feel capable of overcoming obstacles and have the necessary resources (Ajzen, 2020; Conner & Norman, 2021). The variable of self-efficacy—belief in one's own ability—is often associated with PBC and has been shown to strengthen the prediction of entrepreneurial intention and behavior (Praswati et al., 2022; Setiaji, 2019; Yesmin et al., 2024).

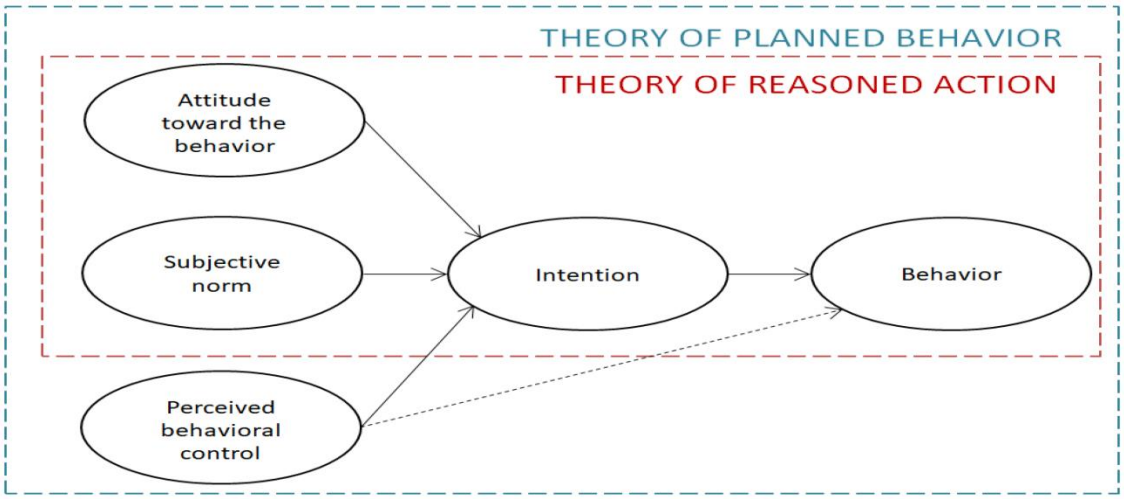
Entrepreneurship education plays a crucial role in shaping and reinforcing the three TPB constructs, particularly by enhancing positive attitudes, perceived behavioral control, and self-efficacy (Juyanto & David, 2022; Sutrisno et al., 2023; Huang & Kee, 2024). However, the influence of education can be direct or indirect, with mediating variables such as opportunity recognition, entrepreneurial mindset, and motivation also affecting these relationships (Mukhtar et al., 2021; Tahan, 2025; Nengseh & Kurniawan, 2021).

Additionally, social and environmental factors such as institutional support, social norms, and social media contribute to the formation of entrepreneurial intentions, with education and social support acting as mediators or moderators that strengthen the TPB-intention relationship (Yesmin et al., 2024; Anjum et al., 2024; Maslakci et al., 2024; Sutrisno et al., 2023).

Several studies show that personal factors like proactive personality also play an important role in influencing entrepreneurial intentions through entrepreneurial attitude and educational support pathways (Chen, 2024; Nguyen et al., 2025). Furthermore, contextual factors such as sociocultural fit, gender, and fear of failure may moderate TPB's influence on entrepreneurial intention and behavior (Karimi et al., 2016; Shah et al., 2020; Tahan, 2025).

Overall, TPB provides a strong and flexible conceptual framework for understanding entrepreneurial intentions and behavior. This theory can be adapted by incorporating additional variables according to context, such as entrepreneurship education, social support, practical experience, and individual characteristics. Recent research indicates that integrating these variables can improve the accuracy of predicting entrepreneurial intention and provide a solid foundation for developing effective entrepreneurship policies and educational programs (Leong et al., 2023; Anjum et al., 2024; Ripollés & Blesa, 2023).

The Theory of Planned Behavior can be illustrated as follows:



Sumber: Ajzen, I. (1991). Organizational Behavior and Human Decision Processes, 50, p. 179-211.

Figure 1. The Expanded Theory of Planned Behavior (TPB)

Description:

1. **Attitude toward the behavior**

   Attitude toward the behavior refers to an individual's positive or negative evaluation of a specific action. This evaluation is formed based on beliefs about the expected consequences of the behavior and an assessment of the value or benefit gained—whether considered advantageous or detrimental. A positive attitude toward an action

increases the likelihood that the individual intends to perform the behavior, while a negative attitude reduces the probability of such intention. For example, a person who believes that regular exercise brings health benefits and regards it positively tends to have a supportive attitude toward exercising. Within the Theory of Planned Behavior framework, attitude is a primary predictor of behavioral intention, which acts as a direct motivator in decision-making. Numerous empirical studies confirm that consistent and strong attitudes toward a behavior significantly contribute to intention formation and the actual enactment of the behavior, making attitude change a common focus in behavioral interventions.

2. **Subjective norm**
   Subjective norm is defined as an individual's perception of social pressure or expectations from important people in their environment—such as family, friends, or colleagues—to perform or avoid a behavior. This component reflects social influence affecting the individual's intention by urging them to comply with social expectations or norms prevailing in the reference group. If a person feels that significant others expect them to perform a certain behavior, the subjective norm will strengthen their intention to do so. Subjective norm plays a crucial role in social contexts, especially for individuals who highly value social acceptance and opinion. Research also shows that the influence of subjective norm may vary depending on cultural context and type of behavior, yet it remains an integral factor in the Theory of Planned Behavior model.
3. **Perceived behavioral control (PBC)**
   Perceived behavioral control refers to the extent to which individuals feel they have the ability, resources, and opportunities to perform a particular action, including their perception of the difficulty or ease of performing that behavior. This concept closely relates to self-efficacy in psychology, which is a person's belief in their capability to control actions and situations they face. Perceived control directly influences intention—the higher the perceived control, the greater the likelihood of intending to perform the behavior. Furthermore, perceived behavioral control can also directly affect behavior without mediation by intention, especially when this control reflects real barriers or significant ease of execution. Thus, even if an individual has strong intention, if they feel incapable or lacking control, the behavior might not materialize. This component adds an important dimension that distinguishes the Theory of Planned Behavior from the Theory of Reasoned Action.
4. **Behavioral intention (Intention)**
   Behavioral intention, or simply intention, is the main indicator of an individual's motivation to carry out a specific action. Intention reflects readiness and commitment to act, serving as a direct predictor of the behavior that will be performed. The formation of intention is influenced by attitude toward the behavior, subjective norm, and perceived behavioral control, representing the integration of internal and external factors in the decision-making process. As a key mediator between psychological factors and actual behavior, intention is a necessary condition for behavior to occur; although a person may have positive attitudes, social pressure, and feel capable, the behavior will not occur without a strong intention. Therefore, in behavioral studies, intention measurement is often used as an early indicator to predict behavior.
5. **Behavior**
   Behavior is the actual action performed by an individual as a manifestation of their intention and perceived behavioral control. In the Theory of Planned Behavior framework, behavior is the final outcome predicted by the interaction between

attitude, subjective norm, and perceived behavioral control that shape intention. Behavior can be a direct action, habit, or response to a particular situation. However, performing behavior does not always occur automatically even if intention has formed, due to external constraints such as time limitations, resources, or other situational barriers. Therefore, understanding behavior requires consideration not only of internal motivation but also the capacity and opportunity available to the individual. This model is very useful in designing effective intervention strategies by addressing both motivational and barrier aspects in behavior change.

Limitations of the Theory of Reasoned Action and the Theory of Planned Behavior

The Theory of Reasoned Action (TRA) and the Theory of Planned Behavior (TPB) are widely used in psychology to predict behavior through intention, but both have fundamental limitations. TRA only considers attitude and subjective norm as predictors of intention, without accounting for external factors or the individual's ability to realize the behavior. This makes the theory less relevant in explaining technical or situational behaviors, especially when individuals face real constraints in executing actions—as noted by Oduro-Appiah, Afful, & Osei-Tutu (2023), who state that TRA does not include emotional aspects and individual character.

TPB was introduced as a solution by adding the Perceived Behavioral Control (PBC) construct to bridge TRA's limitations. However, TPB is not without criticism; the PBC component is subjective and may not reflect an individual's actual control over the behavior. Additionally, the model is often considered to overemphasize cognitive rationality and neglects basic individual needs (such as physical or emotional conditions) that influence intention and decisions (Ajzen, 1991; Wikipedia, 2025). Moreover, TPB insufficiently incorporates the influence of affective factors such as habits, personal identity, or situational dynamics, limiting its effectiveness in explaining complex or impulsive behaviors.

According to Werner (2004), the Theory of Reasoned Action and Theory of Planned Behavior have several limitations in predicting behavior:

1. Desire factors are not limited to attitude, subjective norm, and perceived behavioral control.
2. Empirical studies show that only about 40% of behavioral variance can be explained by these theories.
3. There may be a substantial time gap between intention assessment and actual behavior, during which individual intentions may change.
4. Both theories are predictive models that anticipate individual actions based on certain criteria, but individuals do not always behave as predicted by these criteria.

Entrepreneurship Education

Numerous studies have confirmed that entrepreneurship education plays a fundamental role in shaping entrepreneurial interest, intention, and capability—both among university students and the general population. This form of education not only delivers conceptual knowledge but also builds practical competencies and adaptive mindsets necessary to navigate dynamic and uncertain business environments.

Research by Sutrisno, Prabowo, and Kurniawan (2023) demonstrates that entrepreneurship education, when combined with the use of social media, significantly enhances students' entrepreneurial interest. This approach is grounded in the integration of the Theory of Planned Behavior (TPB) and Social Media Use Theory, highlighting the importance of cognitive and social dimensions in forming entrepreneurial intentions. In this context, education provides the conceptual foundation and technical skills, while social

media functions as a social ecosystem that amplifies exposure to entrepreneurial norms and role models.

Furthermore, a study by Nengseh and Kurniawan (2021) underscores the role of self-efficacy as a key mediating variable in the relationship between entrepreneurship education and entrepreneurial interest. This finding aligns with research by Praswati, Purnama Sari, and Murwanti (2022), who identified self-efficacy as the psychological bridge linking entrepreneurial learning experiences to the formation of entrepreneurial intentions. Thus, education not only directly enhances interest, but also indirectly strengthens individuals' belief in their own entrepreneurial abilities.

Social and personal environmental factors are also recognized as critical determinants in the effectiveness of entrepreneurship education. Maslakci, Sürücü, and Harun (2024) emphasize that institutional support and social norms significantly influence entrepreneurial intentions. Meanwhile, Yesmin et al. (2024) add that educational and social support positively correlate with the components of TPB, including attitudes, subjective norms, and perceived behavioral control, and further contribute to the enhancement of self-efficacy.

The application of TPB as a theoretical framework has been widely adopted in entrepreneurship research due to its explanatory power in linking psychological constructs to actual behavior. Setiaji (2019) and Prabandari & Sholihah (2015) argue that attitudes toward entrepreneurship, subjective norms, and perceived behavioral control are variables that can be effectively shaped through educational interventions to foster entrepreneurial intentions.

On a broader scale, entrepreneurship education has also been shown to impact business performance. A study by Liu, Yang, and Singhdong (2024) indicates that entrepreneurship education contributes to improved entrepreneurial performance indirectly through enhanced entrepreneurial competencies, with the dynamics of the business environment acting as a moderating factor.

Anjum et al. (2024) and Chen (2024) highlight that the effectiveness of entrepreneurship education is significantly improved when complemented by supportive interventions such as business incubators and reinforced by personal characteristics such as a proactive personality. These findings illustrate that the success of entrepreneurship education depends on the synergy among instructional, environmental, and psychological factors.

Entrepreneurship Education within the TPB Framework

Within the TPB framework, entrepreneurship education can be understood as an external determinant influencing the model’s three core components: attitude toward the behavior, subjective norms, and perceived behavioral control. Several studies have found that entrepreneurship education strengthens positive attitudes toward entrepreneurship, increases perceived behavioral control, and enhances self-efficacy (Sutrisno et al., 2023; Nengseh & Kurniawan, 2021; Juyanto & David, 2022; Setiawan et al., 2024).

In addition, studies by Anjum et al. (2024) and Shah et al. (2020) suggest that entrepreneurship education may act as a moderating variable, reinforcing the relationship between TPB components and entrepreneurial intention. However, findings from Hartono et al. (2022) indicate that the effect of education is not direct and becomes significant only when mediated by attitude, subjective norms, and perceived behavioral control. This suggests that entrepreneurship education should not focus solely on cognitive aspects but must also address the affective and conative domains of learners.

Overall, empirical literature supports the argument that entrepreneurship education serves as more than a vehicle for knowledge transfer; it is a strategic instrument in shaping intention, motivation, self-efficacy, and practical entrepreneurial competence. Educational approaches integrated with the TPB framework—and which account for personal and environmental dynamics—have proven effective in cultivating individuals ready to face entrepreneurial challenges. Consequently, the development of entrepreneurship curricula and educational policies must be designed holistically, contextually, and applicatively to yield tangible impacts on entrepreneurial behavior.

Based on theoretical concepts and previous research findings supporting the development of the Theory of Planned Behavior (TPB) model—by incorporating entrepreneurship education as a moderating variable—the conceptual framework of this study can be illustrated as follows:

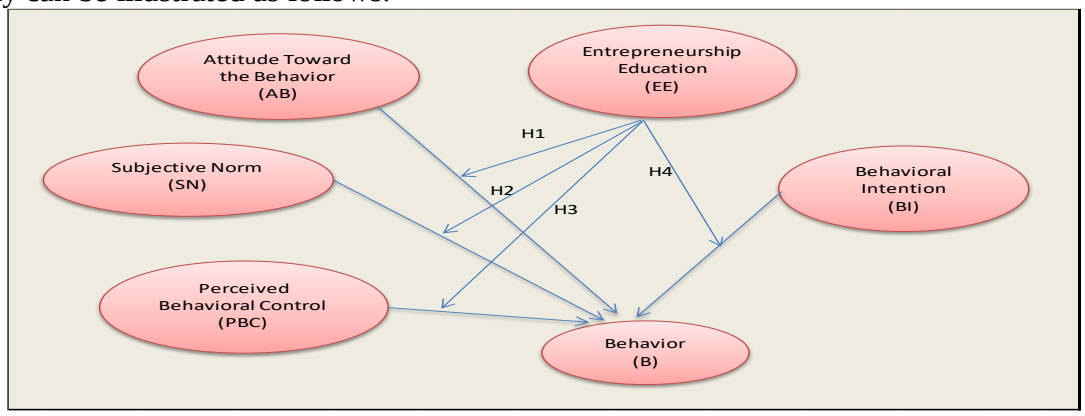


Figure 2. Conceptual Framework

Method

This study employs a quantitative method as it enables the statistical and objective testing of relationships between variables. This approach is particularly suitable for measuring the moderating effect of entrepreneurship education within the Theory of Planned Behavior (TPB) model. Additionally, the method supports the use of Structural Equation Modeling Partial Least Squares (SEM-PLS) techniques to comprehensively test the structural model.

The research sample consisted of 400 Micro, Small, and Medium Enterprises (MSMEs) operators in Medan City. Respondents included active entrepreneurs from various business sectors, characterized by productive age, entrepreneurial experience, and diverse educational backgrounds. The study assumes that respondents understand the survey questions well and answer honestly, and that the entrepreneurship education they have received varies in intensity sufficiently to moderate the relationships among variables within the TPB model.

Results and Discussion

Overview of Medan City

Medan City, located on the eastern coast of Sumatra Island near the Strait of Malacca, holds a strategic position as a hub for both national and international trade. With a lowland topography approximately 25 meters above sea level and a tropical climate, Medan supports agricultural activities, although it is prone to flooding during the rainy season. The Deli and Babura Rivers serve as main water sources and have traditionally functioned as important transportation routes.

As the capital of North Sumatra Province, Medan has experienced rapid growth, with a population of approximately 2.5 million people, driven by urbanization and ethnic

diversity—including Batak, Javanese, Malay, and Chinese communities. Population growth is uneven, with certain districts expanding quickly while the city center tends to stagnate.

The Open Unemployment Rate (OUR) significantly decreased from 10.74% in 2020 to 8.13% in 2024, thanks to economic recovery, investment, infrastructure development, and job training programs. Micro, Small, and Medium Enterprises (MSMEs) remain the backbone of the local economy, with 38,343 business units recorded in 2022, mainly in the sectors of trade, culinary, fashion, automotive, and agriculture.

Medan holds strong potential for sustainable economic development, supported by its geographic location and rapid urban growth. However, the city also faces challenges such as infrastructure limitations, structural unemployment, and spatial planning pressures, requiring adaptive policies and long-term planning.

Respondent Characteristics

Business actors in Medan come from diverse backgrounds in terms of age, gender, education, and experience, reflecting cross-generational entrepreneurship. The majority of business owners are between 50–59 years old, with extensive business experience, followed by those aged 40–49 who possess managerial skills, and younger entrepreneurs aged 30–39 who tend to be more innovative. Female participation is more prominent in flexible sectors such as culinary and digital businesses, while males dominate traditional, large-scale enterprises.

Respondents' educational levels vary, with most having completed high school or vocational school and relying on practical skills. Meanwhile, university graduates are more active in the service and technology sectors. Business experience generally ranges from 5 to 10 years, with a significant proportion of beginner entrepreneurs. Those with more than 10 years of experience demonstrate greater business resilience.

The main business sectors include trade, culinary, and services, followed by processed food, workshops, handicrafts, and digital technology. Most businesses are micro-scale, operating with limited capital and labor, and are often family-run with informal management structures.

Most business locations are situated in the city center to facilitate market access, although suburban areas offer lower operating costs. Funding is mainly sourced from financial institutions and personal capital, while the use of grants remains minimal. Many businesses still operate informally without a Business Identification Number (NIB), limiting their access to government programs and assistance. Direct cash assistance from the government has also not yet optimally reached these entrepreneurs.

In terms of income, most business owners earn more than IDR 100 million per year, although there are still some earning below that figure. While not all have prior entrepreneurial experience, several respondents have participated in training or mentoring programs, indicating strong entrepreneurial growth potential in Medan City.

Model Measurement Results (Outer Model)

1. Validity Testing

a) Outer Loading Test (Content Validity)

All indicators for the variables of attitude, subjective norms, behavioral control, intention, entrepreneurial behavior, and entrepreneurship education have outer loading values greater than 0.7. This indicates that all indicators are valid and strongly measure their respective variables.

Table 1. Cross Loading Values

	AB	B	BI	EE	PBC	SN	EE x AB	EE x SN	EE x BI	EE x PBC
AB1	0.764									
AB10	0.809									
AB2	0.813									
AB3	0.751									
AB4	0.762									
AB5	0.787									
AB6	0.773									
AB8	0.760									
AB9	0.754									
B1		0.806								
B10		0.794								
B2		0.775								
B3		0.794								
B4		0.783								
B5		0.823								
B6		0.811								
B7		0.824								
B8		0.827								
B9		0.825								
BI1			0.796							
BI10			0.763							
BI2			0.766							
BI3			0.777							
BI4			0.813							
BI6			0.777							
BI7			0.805							
BI8			0.790							
BI9			0.780							
EE1				0.754						
EE10				0.819						
EE2				0.801						
EE3				0.766						
EE4				0.773						
EE5				0.790						
EE6				0.764						
EE7				0.753						
EE8				0.766						
EE9				0.756						
PBC1					0.856					
PBC10					0.816					
PBC3					0.888					
PBC4					0.851					

PBC5					0.838					
PBC6					0.894					
PBC7					0.857					
PBC8					0.870					
PBC9					0.868					
SN1						0.760				
SN10						0.754				
SN2						0.778				
SN3						0.828				
SN4						0.726				
SN5						0.750				
SN6						0.795				
SN7						0.780				
SN8						0.837				
SN9						0.759				
EE x SN								1.000		
EE x PBC										1.000
EE x BI									1.000	
EE x AB							1.000			

Source: Data processed using SEM-PLS

In the attitude variable, the indicator AB2 (0.813) has the greatest influence, related to the belief in the opportunity for success. Subjective norms are influenced by SN8 (0.837), which reflects support from superiors. Behavioral control is dominated by PBC6 (0.894) concerning time management. Entrepreneurial intention is influenced by BI4 (0.813), related to environmental support. Entrepreneurial behavior is affected by B8 (0.827) regarding market adaptability, and entrepreneurship education is driven by EE10 (0.819) in developing business skills. All indicators have Outer Loading values greater than 0.7, thus are valid for the study.

b) Convergent Validity Test

Convergent validity means that indicators within one construct are highly correlated (Ghozali & Latan, 2015). The evaluation is conducted using the Average Variance Extracted (AVE) with an ideal value of ≥ 0.5, indicating that the construct can explain at least 50% of the variance of its indicators (Wong, 2013; Sarstedt et al., 2017).

Table 2. Average Variance Extracted (AVE)

Konstruk	Cronbach's alpha	Composite reliability (rho_a)	Composite reliability (rho_c)	Average variance extracted (AVE)
AB	0.917	0.918	0.931	0.601
B	0.940	0.940	0.949	0.650
BI	0.922	0.923	0.935	0.617
EE	0.926	0.929	0.937	0.600
PBC	0.956	0.957	0.962	0.739
SN	0.927	0.928	0.938	0.605

Source: Data processed using SEM-PLS

Based on the table, the AVE values for all variables—attitude toward behavior, subjective norm, perceived behavioral control, entrepreneurship education, behavioral intention, and behavior—are all above 0.5, indicating good convergent validity and the latent variables' ability to explain more than 50% of the variance in their indicators.

2. Discriminant Validity Test

a) Cross Loading Test

Cross loading values are evaluated to ensure that the correlation between a construct and its indicators is higher than with other constructs, with an ideal value above 0.7 (Ghozali and Latan, 2015).

Table 3. Cross Loading Value

	AB	B	BI	EE	PBC	SN	EE x AB	EE x SN	EE x BI	EE x PBC
AB1	**0.764**	0.245	0.297	0.618	0.158	0.384	-0.249	-0.215	-0.055	-0.013
AB10	**0.809**	0.349	0.355	0.666	0.153	0.408	-0.249	-0.227	-0.128	-0.047
AB2	**.813**	0.294	0.350	0.637	0.118	0.380	-0.223	-0.257	-0.062	0.016
AB3	**.751**	0.302	0.364	0.586	0.141	0.369	-0.193	-0.215	-0.136	-0.034
AB4	**.762**	0.293	0.334	0.581	0.164	0.351	-0.199	-0.204	-0.117	-0.017
AB5	**.787**	0.291	0.364	0.655	0.105	0.361	-0.248	-0.216	-0.122	0.003
AB6	**.773**	0.268	0.391	0.611	0.122	0.403	-0.197	-0.202	-0.099	-0.005
AB8	**.760**	0.265	0.332	0.595	0.136	0.393	-0.211	-0.212	-0.101	-0.003
AB9	**.754**	0.262	0.317	0.575	0.105	0.356	-0.173	-0.153	-0.057	0.025
B1	.306	**0.806**	0.343	0.260	0.449	0.250	-0.033	-0.141	-0.207	-0.066
B10	.327	**0.794**	0.349	0.355	0.428	0.288	-0.090	-0.216	-0.239	-0.063

B2	.264	**0.775**	0.333	0.243	0.444	0.235	-0.035	-0.132	-0.159	-0.058
B3	.303	**0.794**	0.338	0.283	0.443	0.262	-0.088	-0.186	-0.221	-0.069
B4	.263	**0.783**	0.314	0.265	0.431	0.287	-0.038	-0.148	-0.193	-0.050
B5	.346	**0.823**	0.394	0.339	0.434	0.334	-0.078	-0.182	-0.231	-0.076
B6	.299	**0.811**	0.381	0.300	0.431	0.295	-0.039	-0.170	-0.188	-0.043
B7	.305	**0.824**	0.376	0.293	0.418	0.280	-0.032	-0.138	-0.216	-0.044
B8	.272	**0.827**	0.323	0.275	0.459	0.272	-0.061	-0.184	-0.198	-0.032
B9	.298	**0.825**	0.322	0.277	0.430	0.288	-0.068	-0.169	-0.242	-0.074
BI1	.360	0.357	**0.796**	0.425	0.208	0.372	-0.125	-0.195	-0.222	-0.154
BI10	.323	0.299	**0.763**	0.338	0.244	0.301	-0.063	-0.182	-0.169	-0.108
BI2	.342	0.323	**0.766**	0.345	0.167	0.367	-0.143	-0.229	-0.185	-0.073
BI3	.363	0.329	**0.777**	0.349	0.165	0.345	-0.075	-0.208	-0.142	-0.027
BI4	.339	0.340	**0.813**	0.376	0.221	0.332	-0.066	-0.185	-0.183	-0.105
BI6	.336	0.364	**0.777**	0.372	0.193	0.359	-0.046	-0.181	-0.158	-0.085
BI7	.364	0.359	**0.805**	0.360	0.239	0.347	-0.104	-0.222	-0.197	-0.116
BI8	.385	0.339	**0.790**	0.394	0.178	0.341	-0.152	-0.248	-0.211	-0.096

BI9	.344	0.335	**0.780**	0.366	0.202	0.301	-0.108	-0.209	-0.168	-0.062
EE1	.592	0.242	0.306	**0.754**	0.131	0.385	-0.225	-0.249	-0.103	-0.091
EE10	.641	0.327	0.387	**0.819**	0.150	0.425	-0.223	-0.264	-0.160	-0.111
EE2	.648	0.279	0.337	**0.801**	0.085	0.420	-0.232	-0.284	-0.128	-0.079
EE3	.603	0.302	0.400	**0.766**	0.098	0.410	-0.199	-0.254	-0.180	-0.108
EE4	.601	0.304	0.354	**0.773**	0.149	0.388	-0.221	-0.258	-0.158	-0.125
EE5	.658	0.294	0.388	**0.790**	0.078	0.383	-0.261	-0.258	-0.175	-0.075
EE6	.607	0.260	0.387	**0.764**	0.094	0.398	-0.188	-0.231	-0.146	-0.077
EE7	.541	0.261	0.342	**0.753**	0.063	0.392	-0.179	-0.254	-0.138	-0.069
EE8	.645	0.248	0.368	**0.766**	0.067	0.408	-0.248	-0.271	-0.143	-0.070
EE9	.604	0.242	0.374	**0.756**	0.087	0.405	-0.219	-0.238	-0.137	-0.087
PBC1	.172	0.492	0.228	0.130	**0.856**	0.110	-0.013	-0.077	-0.097	-0.179
PBC10	.197	0.453	0.195	0.123	**0.816**	0.123	-0.033	-0.078	-0.129	-0.169
PBC3	.136	0.472	0.255	0.080	**0.888**	0.115	-0.026	-0.100	-0.099	-0.122
PBC4	.114	0.418	0.185	0.113	**0.851**	0.104	0.007	-0.065	-0.068	-0.133
PBC5	.107	0.463	0.217	0.103	**0.838**	0.142	-0.029	-0.077	-0.121	-0.127

PBC6	.156	0.493	0.221	0.136	**0.894**	0.138	0.006	-0.061	-0.103	-0.166
PBC7	.136	0.461	0.222	0.120	**0.857**	0.132	-0.003	-0.068	-0.131	-0.148
PBC8	.163	0.475	0.222	0.097	**0.870**	0.075	-0.032	-0.111	-0.091	-0.134
PBC9	.147	0.456	0.235	0.112	**0.868**	0.161	0.033	-0.068	-0.110	-0.139
SN1	.375	0.322	0.332	0.417	0.141	**0.760**	-0.192	-0.153	-0.193	-0.125
SN10	.399	0.261	0.312	0.442	0.060	**0.754**	-0.244	-0.180	-0.190	-0.025
SN2	.345	0.248	0.311	0.382	0.150	**0.778**	-0.181	-0.155	-0.181	-0.080
SN3	.381	0.278	0.344	0.400	0.093	**0.828**	-0.217	-0.194	-0.196	-0.042
SN4	.359	0.266	0.327	0.354	0.143	**0.726**	-0.192	-0.134	-0.213	-0.052
SN5	.386	0.246	0.353	0.394	0.129	**0.750**	-0.197	-0.142	-0.225	-0.115
SN6	.413	0.278	0.353	0.417	0.155	**0.795**	-0.221	-0.155	-0.223	-0.101
SN7	.356	0.246	0.337	0.401	0.042	**0.780**	-0.236	-0.201	-0.248	-0.047
SN8	.390	0.279	0.350	0.412	0.094	**0.837**	-0.216	-0.186	-0.197	-0.042
SN9	.386	0.265	0.352	0.404	0.093	**0.759**	-0.234	-0.205	-0.220	-0.062
EE x SN	0.273	-0.207	-0.263	-0.331	-0.091	-0.219	0.585	**1.000**	0.486	0.384
EE x ES	0.197	-0.060	-0.142	-0.251	-0.039	-0.221	0.395	0.546	0.222	0.126

EE x PBC	0.012	-0.071	-0.118	-0.116	-0.170	-0.090	0.260	0.384	0.503	**1.000**
EE x BI	0.128	-0.260	-0.232	-0.191	-0.123	-0.268	0.388	0.486	**1.000**	0.503
EE x AB	0.278	-0.070	-0.125	-0.283	-0.012	-0.274	**1.000**	0.585	0.388	0.260

Source: Data processed using SEM-PLS

Explanation:
AB = Attitude Toward the Behavior, SN = Subjective Norm,, PBC = Perceived Behavioral Control, EE = Entrepreneurship Education, BI = Behavioral Intention, B = Behavior

Discriminant validity testing using Cross Loading shows that all indicators of the variables—attitude toward the behavior, subjective norm, perceived behavioral control, self-efficacy, entrepreneurship education, behavioral intention, and behavior—have the highest correlation with their original constructs (values > 0.7) compared to other constructs. For example, the indicator AB1 has a Cross Loading value of 0.764, which is higher than its correlation with other variables, as is the case with the other indicators. Therefore, all items are valid in terms of discriminant validity and are able to distinguish their respective constructs.

b) Fornell-Larcker Criterion

According to Hair et al. (as cited by Rohmatulloh & Nugraha, 2022), under the Fornell-Larcker Criterion, a construct is considered valid if the square root of its AVE is greater than its correlation with other constructs. AVE measures how much of the variance of the indicators is explained by the construct.

Table 4. The square root of AVE Value

Konstruk	AB	B	BI	EE	PBC	SN
AB	**0.775**					
B	0.370	**0.806**				
BI	0.447	0.431	**0.786**			
EE	0.793	0.359	0.471	**0.774**		
PBC	0.172	0.542	0.257	0.131	**0.860**	
SN	0.488	0.347	0.434	0.518	0.142	**0.778**

Source: Data processed using SEM-PLS

Based on the table, the square root of the AVE for each variable is greater than its correlation with other variables. For example, the variable attitude toward the behavior has a square root AVE of 0.775, which is higher than its correlation with behavior (0.370), behavioral intention (0.447), entrepreneurship education (0.793), self-efficacy (0.368), perceived behavioral control (0.172), and subjective norm (0.488).

c) Heterotrait Monotrait (HTMT)

Some experts argue that cross loading and the Fornell-Larcker criterion are not sufficiently sensitive for assessing discriminant validity. As an alternative, the Heterotrait-

Monotrait ratio (HTMT) is recommended, which is based on the multitrait-multimethod matrix. The HTMT value should be below 0.90 to confirm discriminant validity between reflective constructs (Henseler et al., 2015).

Tabel 5. Heterotrait-Monotrait (HTMT) ratio value

Konstruk	Heterotrait-monotrait ratio (HTMT)
B <-> AB	0.396
BI <-> AB	0.483
BI <-> B	0.462
EE <-> AB	0.860
EE <-> B	0.381
EE <-> BI	0.508
PBC <-> AB	0.184
PBC <-> B	0.571
PBC <-> BI	0.273
PBC <-> EE	0.138
SN <-> AB	0.529
SN <-> B	0.370
SN <-> BI	0.469
SN <-> EE	0.559
SN <-> PBC	0.151

Source: Data processed using SEM-PLS

Based on the table above, all HTMT values for each variable are below 0.90, indicating that all constructs meet the criteria for discriminant validity according to the HTMT calculation.

3. Reliability Testing

a) Cronbach's Alpha

Reliability testing was conducted using Cronbach's Alpha, which reflects the internal consistency of all indicators within the model. A minimum value of 0.7 is considered acceptable, while ideal values are 0.8 or 0.9 (Ghozali, 2016).

Table 6. Cronbach's Alpha and Composite Reliability Values

Konstruk	Cronbach's alpha	Composite reliability (rho_a)	Composite reliability (rho_c)	Average variance extracted (AVE)
AB	0.917	0.918	0.931	0.601
B	0.940	0.940	0.949	0.650
BI	0.922	0.923	0.935	0.617
EE	0.926	0.929	0.937	0.600
PBC	0.956	0.957	0.962	0.739
SN	0.927	0.928	0.938	0.605

Source: Data processed using SEM-PLS

Based on the table above, the Cronbach's Alpha values for the variables attitude toward the behavior, subjective norm, perceived behavioral control, entrepreneurship education, behavioral intention, and behavior are all above 0.7, indicating that all constructs are reliable.

b) Composite Reliability

Some experts argue that cross loading and the Fornell-Larcker criterion are not sufficiently sensitive in assessing discriminant validity. As an alternative, the HTMT (Heterotrait-Monotrait ratio), which is based on the multitrait-multimethod matrix, is recommended. A value below 0.90 is required to confirm discriminant validity between reflective constructs (Henseler et al., 2015).

4. Multicollinearity Testing

a) Inner VIF

Multicollinearity occurs when two or more independent variables are highly correlated, which can weaken the predictive power of the model (Sekaran & Bougie, 2016). A VIF value below 5 indicates that there is no multicollinearity among the constructs (Sarstedt et al., 2017).

Table 7. VIF Value

Konstruk	VIF
AB -> B	2.938
BI -> B	1.513
PBC -> B	1.121
SN -> B	1.676
EE x AB -> B	1.676
EE x SN -> B	2.299
EE x BI -> B	1.661
EE x PBC -> B	1.465

Source: Data processed using SEM-PLS

The VIF values for all variables—such as attitude, subjective norm, perceived behavioral control, and entrepreneurship education—are all below 5, indicating that there is no multicollinearity issue.

b) R Square

The coefficient of determination (R^2) is used to measure how much of the variance in the endogenous construct is explained by the exogenous constructs. R^2 values range from 0 to 1, with the following criteria: 0.75 = substantial, 0.50 = moderate, 0.25 = weak (Sarstedt et al., 2017), and 0.67 = substantial, 0.33 = moderate, 0.19 = weak (Chin, as cited in Ghozali & Latan, 2015).

Table 8. R-Square and Adjusted R-Square Values

Konstruk	R-square	R-square adjusted
B	0.468	0.452
BI	0.297	0.290

Source: Data processed using SEM-PLS

The Adjusted R Square value indicates that 45.2% of the variation in entrepreneurial behavior can be explained by attitude, subjective norm, perceived behavioral control, self-efficacy, and entrepreneurial intention, while the remaining 54.8% is influenced by other factors outside the scope of this study.

Meanwhile, 29% of the variation in entrepreneurial intention is explained by attitude, subjective norm, and perceived behavioral control, with the remaining 71% accounted for by other unexamined variables.

5. Hypothesis Testing

Hypothesis testing is a crucial step in quantitative research to determine whether the assumed relationships between variables (hypotheses) are statistically supported. The goal is to assess whether the effects observed in the sample can also be generalized to the population.

Table 9. Original Sample (O) Values and T Statistics

Konstruk	Original sample (O)	Sample mean (M)	Standard deviation (STDEV)	T statistics (|O/STDEV|)	P values	Keterangan
EE x AB -> B	0.086	0.085	0.037	2.311	0.021	H1 DITERIMA
EE x SN -> B	-0.104	-0.109	0.042	2.493	0.013	H2 DITOLAK
EE x BI -> B	-0.154	-0.156	0.042	3.701	0.000	H4 DITOLAK
EE x PBC -> B	0.120	0.124	0.053	2.253	0.024	H3 DITERIMA

Source: Data processed using SEM-PLS

Explanation:
AB = Attitude Toward the Behavior, SN = Subjective Norm,, PBC = Perceived Behavioral Control, EE = Entrepreneurship Education, BI = Behavioral Intention, B = Behavior

Based on the analysis results, it was found that entrepreneurship education plays a significant moderating role on the influence of attitude (AB), subjective norm (SN), behavioral intention (BI), and perceived behavioral control (PBC) on entrepreneurial behavior.

1) **Hypothesis Test 1: Entrepreneurship education can moderate the influence of attitude on entrepreneurial behavior in the community of Medan City.** Based on the table above, entrepreneurship education is proven to moderate (strengthen) the influence of attitude on entrepreneurial behavior, with a coefficient of 0.086. This indicates that the presence of entrepreneurship education increases the impact of an individual's positive attitude on the realization of entrepreneurial actions. The t-statistic value = 2.311 > 1.96 and p-value = 0.021 < 0.05, so Ho is rejected and H1 is accepted. This means entrepreneurship education can positively and significantly moderate (strengthen) the influence of attitude on entrepreneurial behavior in the community of Medan City. Thus, Hypothesis 1 is accepted.

2) **Hypothesis Test 2: Entrepreneurship education can moderate the influence of subjective norm on entrepreneurial behavior in the community of Medan City.**

Based on the table above, entrepreneurship education is not proven to moderate the influence of subjective norm on entrepreneurial behavior, with a coefficient of -0.109. This means the presence of entrepreneurship education weakens the impact of subjective norm on entrepreneurial behavior. The t-statistic value = 2.493 > 1.96 and p-value = 0.013 < 0.05, so Ho is accepted and H1 is rejected. This means entrepreneurship education cannot positively moderate the influence of subjective norm on entrepreneurial behavior in the community of Medan City. Thus, Hypothesis 2 is rejected.

3) **Hypothesis Test 3: Entrepreneurship education can moderate the influence of perceived behavioral control on entrepreneurial behavior in the community of Medan City.**
Based on the table above, entrepreneurship education is proven to moderate (strengthen) the influence of perceived behavioral control on entrepreneurial behavior, with a coefficient of 0.120. This means the presence of entrepreneurship education strengthens the influence of perceived behavioral control on entrepreneurial behavior. The t-statistic value = 2.253 > 1.96 and p-value = 0.024 < 0.05, so Ho is rejected and H1 is accepted. This means entrepreneurship education can positively and significantly moderate (strengthen) the influence of perceived behavioral control on entrepreneurial behavior in the community of Medan City. Thus, Hypothesis 3 is accepted.

4) **Hypothesis Test 4: Entrepreneurship education can moderate the influence of behavioral intention on entrepreneurial behavior in the community of Medan City.**
Based on the table above, entrepreneurship education is not proven to moderate (strengthen) the influence of behavioral intention on entrepreneurial behavior, with a coefficient of -0.154. This means the presence of entrepreneurship education weakens the influence of behavioral intention on entrepreneurial behavior. The t-statistic value = 3.701 > 1.96 and p-value = 0.000 < 0.05, so Ho is accepted and H1 is rejected. This means entrepreneurship education cannot positively and significantly moderate (strengthen) the influence of behavioral intention on entrepreneurial behavior in the community of Medan City. Thus, Hypothesis 4 is rejected.

Discussion

The Moderating Effect of Entrepreneurship Education (EE) on the Influence of Attitude Toward Behavior (AB) on Entrepreneurial Behavior (B) in the Community of Medan City

The research results indicate that entrepreneurship education significantly moderates (strengthens) the influence of attitude on entrepreneurial behavior. This finding aligns with previous studies highlighting the important role of entrepreneurship education as a moderating variable that strengthens the relationship between attitude and entrepreneurial behavior. As noted by Shah, Amjed, and Jaboob (2020), entrepreneurship education plays a significant role in moderating the relationship between attitude and entrepreneurial intention based on the Theory of Planned Behavior (TPB) framework. This is further supported by Heuer and Kolvereid (2014), who confirm that entrepreneurship education directly enhances the influence of attitude on entrepreneurial behavior through the TPB approach.

Moreover, Amofah and Saladrigues (2022) emphasize that a positive attitude towards entrepreneurship education, supported by the presence of role models, helps form entrepreneurial intention and strengthens the attitude-behavior relationship. Martin-Navarro et al. (2023) also support this finding by demonstrating the role of entrepreneurship education and attitude as cognitive factors that motivate entrepreneurial actions. Karimi et al. (2016) provide further evidence that entrepreneurship education enhances students' positive attitudes toward entrepreneurship, which ultimately strengthens the relationship between attitude, intention, and entrepreneurial behavior. Lastly, Tahan (2025) adds a perspective highlighting the importance of entrepreneurship education in fostering innovation and psychological aspects that facilitate the transition from attitude to actual entrepreneurial action.

Thus, this study supports and reinforces the consistency of previous findings, collectively showing that entrepreneurship education not only shapes positive attitudes but also significantly increases the strength of the influence of these attitudes on entrepreneurial behavior through cognitive and psychological mechanisms within the learning process.

The Moderating Effect of Entrepreneurship Education (EE) on the Influence of Subjective Norms (SN) on Entrepreneurial Behavior (B) in the Community of Medan City

The research results indicate that entrepreneurship education does not significantly moderate the influence of subjective norms on entrepreneurial behavior. This finding contradicts various previous studies that emphasize the important role of entrepreneurship education as a moderating variable strengthening the relationship between subjective norms and entrepreneurial behavior. Shah, Amjed, and Jaboob (2020) explicitly examined how entrepreneurship education moderates the relationships between variables in the Theory of Planned Behavior (TPB), including subjective norms, thereby strengthening entrepreneurial intention and behavior. This is reinforced by Heuer and Kolvereid's (2014) detailed explanation that entrepreneurship education plays a role in enhancing the influence of subjective norms on entrepreneurial behavior through TPB mechanisms.

Additionally, Amofah and Saladrigues (2022) argue that entrepreneurship education, supported by role models and social support closely related to subjective norms, contributes significantly to forming entrepreneurial intentions and behavior. A more comprehensive approach is offered by Yesmin et al. (2024), who examined how entrepreneurship education and social support simultaneously strengthen TPB variables, particularly subjective norms, to encourage entrepreneurial intention and behavior.

In line with this, Anjum et al. (2024) highlight the interaction between entrepreneurship education programs and cognitive factors in TPB, including subjective norms, in influencing entrepreneurial intention and actions. Collectively, these findings consistently support the argument that entrepreneurship education plays a key role as a reinforcing factor that increases the influence of subjective norms on entrepreneurial behavior, especially in urban contexts such as Medan City.

The Moderating Effect of Entrepreneurship Education (EE) on the Influence of Perceived Behavioral Control (PBC) on Entrepreneurial Behavior (B) in the Community of Medan City

The research results indicate that entrepreneurship education can moderate (strengthen) the influence of perceived behavioral control on entrepreneurial behavior. This finding is consistent with previous studies that highlight the important role of entrepreneurship education as a moderating variable in strengthening the influence of

perceived behavioral control (PBC) on entrepreneurial behavior. Shah, Amjed, and Jaboob (2020) explicitly demonstrate that entrepreneurship education strengthens the relationship of PBC within the Theory of Planned Behavior (TPB), thereby positively impacting entrepreneurial intention and behavior. This is supported by Heuer and Kolvereid (2014), who affirm how EE influences TPB variables, particularly PBC, in encouraging entrepreneurial action.

Similarly, Sutrisno, Prabowo, and Kurniawan (2023) found that entrepreneurship education and PBC together contribute significantly to students' entrepreneurial intention and behavior, reinforcing the concept of EE as a moderator in this relationship. Additionally, Yesmin et al. (2024) emphasize the importance of EE and social support in influencing TPB variables such as PBC, which act as drivers of entrepreneurial intention and behavior through increased self-efficacy.

Furthermore, Anjum, Díaz Tautiva, Zaheer, and Heidler (2024) support these findings by highlighting the interaction between entrepreneurship education programs and TPB cognitive factors, including PBC, in shaping entrepreneurial intention and behavior. Thus, all empirical evidence provides a strong theoretical and practical foundation that entrepreneurship education effectively moderates the influence of perceived behavioral control on entrepreneurial behavior, especially in urban communities like Medan City.

Entrepreneurship Education (EE) Moderates the Influence of Behavioral Intention (BI) on Entrepreneurial Behavior (B) in the Community of Medan City

Based on the research results, entrepreneurship education does not significantly moderate the relationship between behavioral intention and entrepreneurial behavior. This finding contradicts several previous studies that emphasize the important role of entrepreneurship education (EE) as a moderating variable in strengthening the relationship between entrepreneurial intention (BI) and entrepreneurial behavior (B).

Shah, Amjed, and Jaboob (2020) explicitly highlight how EE can enhance the influence of BI on entrepreneurial behavior, while Heuer and Kolvereid (2014) explain that entrepreneurship education not only directly affects intention and behavior but also acts as a booster in the link between these two variables within the framework of the Theory of Planned Behavior. Furthermore, Sutrisno, Prabowo, and Kurniawan (2023) provide empirical evidence that EE significantly contributes to strengthening the relationship between entrepreneurial intention and behavior, especially among university students.

Similar support is found in the study by Yesmin et al. (2024), which asserts that EE, together with social support and self-efficacy, effectively moderates the influence of intention on entrepreneurial behavior. Additionally, Anjum et al. (2024) show that entrepreneurship education programs interact with cognitive factors in the Theory of Planned Behavior to strengthen entrepreneurial intention and behavior. Therefore, these five studies provide a strong theoretical and empirical foundation for this research, particularly in the context of urban communities such as Medan City.

Conclusion

Based on the research results and hypothesis testing conducted, several key findings are concluded as follows:

1. Entrepreneurship education has been proven to significantly moderate the relationship between attitude and entrepreneurial behavior. This finding indicates that the higher the level of entrepreneurship education an individual possesses, the stronger the influence of attitude on the tendency to engage in entrepreneurial behavior. This confirms that entrepreneurship education acts as a moderating variable that strengthens this relationship.

2. Entrepreneurship education does not positively moderate the relationship between subjective norms and entrepreneurial behavior. In fact, the presence of entrepreneurship education tends to weaken the influence of subjective norms on entrepreneurial behavior. This suggests that the educational approach used has not yet effectively facilitated the internalization of social norms into entrepreneurial actions.
3. Entrepreneurship education plays a significant moderating role in the relationship between perceived behavioral control and entrepreneurial behavior. In other words, entrepreneurship education can strengthen individuals' confidence in their ability to perform entrepreneurial actions.
4. Entrepreneurship education is not proven to strengthen the relationship between entrepreneurial intention and entrepreneurial behavior. This may be due to an educational approach that is theoretical and lacks direct practical experience, making it less effective in translating intention into real entrepreneurial actions, especially in the context of Medan City.

Limitations

1. This study was conducted only in Medan City, so the findings may be contextual and cannot be generalized to other regions with different social, economic, and cultural characteristics. Therefore, further research in various regions is needed to test the consistency of the findings.
2. The finding that entrepreneurship education weakens the influence of subjective norms indicates limitations in understanding the role of social norms within the context of entrepreneurship education. Factors such as local culture, social dynamics, and the influence of family and community environments have not been explored in depth.
3. The insignificant moderating role of education on the relationship between intention and entrepreneurial behavior may indicate limitations in the learning approach used. This study has not examined the effectiveness of experiential and application-based learning models, which might be more appropriate for encouraging real entrepreneurial behavior.
4. This study focused solely on entrepreneurship education as a moderator, without considering other external variables such as financial support, access to business networks, mentorship roles, or government policies that could significantly affect entrepreneurial behavior.
5. The quantitative approach used in this study limits a deeper understanding of individual dynamics and social contexts influencing entrepreneurial behavior. Qualitative or mixed-method studies could be an alternative to enrich perspectives and explain phenomena not revealed in this research.

References

Ajzen, I. (1985). From intentions to actions: A theory of planned behavior. In J. Kuhl & J. Beckmann (Eds.), ***Action control: From cognition to behavior*** (pp. 11–39). Springer Verlag.

Ajzen, I. (1991). The theory of planned behavior. ***Organizational Behavior and Human Decision Processes, 50***(2), 179–211. https://doi.org/10.1016/0749-5978(91)90020-T

Amofah, K., & Saladrigues, R. (2022). Entrepreneurship education, role models and intention: A cognitive and social learning perspective. ***Journal of Entrepreneurship Education, 25***(6), 1–15.

Anjum, T., Díaz Tautiva, J. A., Zaheer, A., & Heidler, P. (2024). Entrepreneurship education and cognitive factors: Moderating effects on entrepreneurial intentions and behaviors. ***Journal of Innovation and Entrepreneurship, 13***(1), 1–19.

Chen, H. X. (2024). Exploring the influence of proactive personality on entrepreneurial intention: The mediating role of entrepreneurial attitude and moderating effect of perceived educational support among university students. ***SAGE Open, 14***(1), Article 21582440241233379. https://doi.org/10.1177/21582440241233379

Ferine, K.F.; Ermiaty, C. (2017). The Impact of Entrepreneurship and Competence On Small Medium Enterprises Tangan Di Atas (TDA) Medan Entrepreneurs' Work Performance. *International Journal of Economic Research*. 14(16). 380-393. https://serialsjournals.com/abstract/12144_31.pdf

Fayolle, A., & Gailly, B. (2015). The impact of entrepreneurship education on entrepreneurial attitudes and intention: Hysteresis and persistence. ***Journal of Small Business Management, 53***(1), 75–93. https://doi.org/10.1111/jsbm.12065

Ghozali, I., & Latan, H. (2015). ***Partial least squares: Concept, technique, and application using SmartPLS 3.0 for empirical research*** [in Indonesian]. Badan Penerbit Universitas Diponegoro.

Heuer, A., & Kolvereid, L. (2014). Education in entrepreneurship and the theory of planned behaviour. ***European Journal of Training and Development, 38***(6), 506–523. https://doi.org/10.1108/EJTD-02-2013-0019

Henseler, J., Ringle, C. M., & Sarstedt, M. (2015). A new criterion for assessing discriminant validity in variance-based structural equation modeling. ***Journal of the Academy of Marketing Science, 43***(1), 115–135. https://doi.org/10.1007/s11747-014-0403-8

Iakovleva, T., Kolvereid, L., & Stephan, U. (2011). Entrepreneurial intentions in developing and developed countries. ***Education + Training, 53***(5), 353–370. https://doi.org/10.1108/00400911111147686

Karimi, S., Biemans, H. J. A., Lans, T., Chizari, M., & Mulder, M. (2016). The impact of entrepreneurship education: A study of Iranian students' entrepreneurial intentions and opportunity identification. ***Journal of Small Business Management, 54***(1), 187–209.

Krueger, N. F., Reilly, M. D., & Carsrud, A. L. (2000). Competing models of entrepreneurial intentions. ***Journal of Business Venturing, 15***(5–6), 411–432. https://doi.org/10.1016/S0883-9026(98)00033-0

Lubis DS, Hutagalung MWR, Irawan H, Soemitra A (2024). The Influence of E-Commerce and Information Technology on Alumni Entrepreneurial Interest with Entrepreneurship Education as a Moderating Variable. *Journal of Economic and Business Studies*. 7(4). 1-6. https://doi.org/10.36266/JEBS/229

Liñán, F., & Chen, Y.-W. (2009). Development and cross-cultural application of a specific instrument to measure entrepreneurial intentions. ***Entrepreneurship Theory and Practice, 33***(3), 593–617. https://doi.org/10.1111/j.1540-6520.2009.00318.x

Martin-Navarro, A., Peña-García, F., & Sánchez-Cañizares, S. (2023). Cognitive antecedents of entrepreneurship: The role of attitude and education. ***International Entrepreneurship and Management Journal***. https://doi.org/10.1007/s11365-023-00862-0

Nabi, G., Liñán, F., Fayolle, A., Krueger, N., & Walmsley, A. (2017). The impact of entrepreneurship education in higher education: A systematic review and research agenda. ***Academy of Management Learning & Education, 16***(2), 277–299. https://doi.org/10.5465/amle.2015.0026

Nguyen, T. H., Nguyen, D. P., & Nguyen, T. H. (2017). The application of Theory of Planned Behavior to entrepreneurial intentions of Vietnamese students. ***Journal of Asian Business Strategy, 7***(3), 113–123.

Sarstedt, M., Hair, J. F., Cheah, J.-H., Becker, J. M., & Ringle, C. M. (2017). How to specify, estimate, and validate higher-order constructs in PLS-SEM. ***Australasian Marketing Journal, 25***(3), 197–211. https://doi.org/10.1016/j.ausmj.2017.07.001

Sarstedt, M., Hair, J. F., Ringle, C. M., Thiele, K. O., & Gudergan, S. P. (2017). Estimation issues with PLS and CBSEM: Where the bias lies! ***Journal of Business Research, 69***(10), 3998–4010. https://doi.org/10.1016/j.jbusres.2016.06.007

Sekaran, U., & Bougie, R. (2016). ***Research methods for business: A skill-building approach*** (7th ed.). Wiley.

Shah, N., Amjed, S., & Jaboob, S. (2020). Moderating role of entrepreneurship education on the theory of planned behaviour: Evidence from developing country. ***Journal of Entrepreneurship Education, 23***(3), 1–10.

Shi, J., Zhao, H., & Zhang, X. (2020). Creativity as a moderator in entrepreneurial intention: The role of perceived behavioral control and subjective norms. ***Journal of Business Research, 115***, 237–246. https://doi.org/10.1016/j.jbusres.2020.05.030

Sutrisno, A., Prabowo, H., & Kurniawan, R. (2023). The role of entrepreneurship education and perceived behavioral control on entrepreneurial intention and behavior among university students. ***Journal of Entrepreneurship Development, 25***(2), 134–148.

Tahan, M. (2025). Psychological enablers of entrepreneurship: Innovation, education, and cognitive mechanisms in action. ***Journal of Business Psychology and Innovation, 8***(1), 22–35.

Utami, H. N. (2020). Entrepreneurship education and its impact on entrepreneurial self-efficacy and entrepreneurial intentions among university students. ***International Journal of Innovation, Creativity and Change, 14***(3), 620–635. Retrieved from www.ijicc.net

Yesmin, N., Rahman, M., & Alam, S. S. (2024). The synergy of entrepreneurship education and social support in enhancing entrepreneurial intentions: A TPB-based study. ***International Journal of Entrepreneurial Behavior & Research, 30***(2), 225–244.

Wu, S., & Wu, L. (2008). The impact of higher education on entrepreneurial intentions of university students in China. ***Journal of Small Business and Enterprise Development, 15***(4), 752–774. https://doi.org/10.1108/14626000810917843