



Determining Factors Influencing Entrepreneurial Intention: Integrating Self-determination Theory and Theory of Planned Behaviour

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ABSTRACT

This study aims to investigate several determinants of student entrepreneurial intention in Indonesia by integrating the theoretical framework of self-determination theory (SDT) and the theory of planned behaviour (TPB). The variables comprise entrepreneurial motivation, attitude, subjective norm, and perceived behaviour control. It further examines the consistency of the entrepreneurial intention model with PLS-SEM multi-group analysis (MGA). The current study employs a positivism approach, in which integrated SDT and TPB are assessed. It uses a self-reported questionnaire to collect the data randomly. There were 362 pieces of data collected from Indonesian university students. Partial least square structural equation modelling (PLS-SEM) is utilized to test the research hypothesis. This study also employs multi-group analysis (MGA) to assess the model robustness of the student group characteristics. The study results reveal that three predictors - attitude, subjective norm, and perceived behaviour control - affect entrepreneurial intention. Meanwhile, entrepreneurial motivation affects entrepreneurial intention. Furthermore, attitude, subjective norms, and perceived behaviour control significantly mediate the effect of entrepreneurial motivation on entrepreneurial intention. However, after examining the consistency of the model, further discussion is needed. The results of this study carry considerable theoretical and practical implications for the education system and higher education policymakers.

Keywords: Entrepreneurship Education, Human Resource Management, Multi-group Analysis, Self-determination Theory, Quantitative Methods

JEL Classifications: L26, M13, I23, D91

1. INTRODUCTION

Indonesia has been estimated to have a large number of universities, with a total of 8,848,482 students by August 2021 (PDDIKTI, 2021). However, there is a huge gap in the number of university graduates who have not been absorbed in employment. The number of university graduates who have not been unemployed by 2020 is 15.70% (BPS-Statistics, 2021). The high number was triggered by the weakening of national and global economic conditions due to the COVID-19 pandemic. Although educated unemployment decreased to 6.90% in February 2021, unemployment for educated

workers is a serious problem in Indonesia (Yunitasari et al., 2021). The Indonesian government continues to improve the academic system and culture to increase independence, creativity, entrepreneurial intention, and motivation through the Ministry of Education and Culture. The availability of a supportive educational system and culture can indeed increase entrepreneurial activity and behaviour (Backman et al., 2021). Furthermore, Hou et al. (2021) also show that there is a close relationship between universities, the business world, entrepreneurship, and the economy. In addition to improving knowledge and skills, educational institutions can also increase entrepreneurial intention (Shah et al., 2020; Tomy and

Pardede, 2020). Pérez-Macías et al. (2022), under their systematic literature review, reveal that institutions providing education play the most significant role in entrepreneurial intention.

Entrepreneurship activities have become an interesting study because of their profound impact on individuals, organizations, and the economy. Several scholars argue that (Stough, 2017; Zaidi et al., 2023), economic growth (Gamidullaeva et al., 2020; Hou et al., 2021; Stoica et al., 2020), and individual well-being (Amorós et al., 2021; Atalay and Tanova, 2021; Shir et al., 2019). Some researchers pay serious attention to entrepreneurial intention because of its positive contribution to entrepreneurial behaviour (Saeed et al., 2015; Vodã and Florea, 2019). The outstanding contribution of entrepreneurial activity and behaviour encourages researchers to improve entrepreneurial intention by investigating its relationship and determinants.

Entrepreneurial intention is a severe concern of researchers and scholars (Otache, 2020), as it is the best predictor of future entrepreneurship (Pérez-Macías et al., 2022). Scholars understand the conceptual framework of entrepreneurial intention to obtain information about entrepreneurial behaviour because intention can shape certain behaviours (Mahfud et al., 2020; Zhang and Cain, 2017). Yangailo and Qutieshat (2022) recommend identifying the dominant characteristics of entrepreneurial intention in the twenty-first century. Therefore, studies on the determinants of entrepreneurial intention within several approaches still require exploration (Harima et al., 2021; Karim et al., 2022; Pérez-Macías et al., 2022). Maheshwari et al. (2022) conducted a systematic review to identify studies on factors that influence students' entrepreneurial intention in 2005-2022. They demonstrated that the TPB model dominates the entrepreneurial intention research area. Furthermore, they recommended that future research combine other factors to understand entrepreneurial intention holistically, including family background and other situational factors.

Anjum et al. (2022) also emphasized following research on student entrepreneurial intentions through different approaches. Hence, the study integrated the self-determination theory and theory of planned behaviour among university students to determine factors influencing students' entrepreneurial intention in Indonesia. The factors comprise entrepreneurial motivation, subjective norm, attitude, and perceived behaviour control, which are the determinants of entrepreneurial intention by integrating the self-determination theory (SDT) and TPB model. Combining SDT and TPB is an approach relevant to the aims of this study, as also suggested by Ong et al. (2022), to comprehend students' (entrepreneurial) intentions holistically. The role of student characteristics, such as gender, family background, department/faculty, and age, in the integration of the model is also analyzed. The entrepreneurial intention determinants are examined for model consistency with PLS-SEM Multi-Group Analysis (MGA) on the students' characteristics. Differences in gender and parental background may also suggest different results in entrepreneurial motivation and intentions. Entrepreneurial motivation is a pathway of intention and action (Amorós et al., 2021; Martínez-Cañas et al., 2023). However, the impact of entrepreneurial motivation on specific intentions still needs to be explored (Al-Jubari et al., 2023; Murnieks et al., 2020).

2. LITERATURE REVIEW

2.1. Entrepreneurial Motivation, Entrepreneurial Intention, and the Predictors

Several dimensions of entrepreneurial motivation show different contributions to entrepreneurial intention (Al-Jubari et al., 2019). Furthermore, exploring entrepreneurial motivation and its contribution to entrepreneurial intention requires critical study (Al-Jubari et al., 2023; Lladós-Masllorrens and Ruiz-Dotras, 2021). A critical study of entrepreneurial motivation is vital to complement the previous studies (Troise and Tani, 2020). Besides, Maheshwari et al. (2022) recommend combining other factors to better understand the entrepreneurial intention in the following research that adopts the TPB. Also, Anjum et al. (2022) emphasize different approaches to further research on student entrepreneurial intention. Further, Ong et al. (2022) recommend understanding student entrepreneurial intention by integrating TPB with self-determination theory (SDT).

One of the criticisms of the entrepreneurial intention study is the need for more understanding of the intention-action relationship (Blank and Gabay-Mariani, 2023; Roos and Botha, 2022). A critical study of entrepreneurial motivation is essential for the development of this concept (Troise and Tani, 2020). Hence, there is still an unexplored space for relevant knowledge to study the implications of entrepreneurial motivation on entrepreneurial intention. The factors comprise entrepreneurial motivation, subjective norm, attitude, and perceived behaviour control, which are the determinants of entrepreneurial intention through integrating the SDT and TPB model. Mishra et al. (2020) suggest that motivation influences intention. Several other studies have also shown that entrepreneurial motivation influences entrepreneurial intention (Hassan et al., 2022; Paliwal et al., 2022). Based on the arguments above, the author posits the following hypothesis:

- H_{1a} : Entrepreneurial motivation affects the students' entrepreneurial intention.

García-Cabrera et al. (2020) explain a close relationship between entrepreneurial motivation and three predictors of intention: attitude, subjective norm, and perceived behaviour control. This is based on the motivational theory of entrepreneurship, Fayolle et al. (2014) contend that motivating internal pressure pushes a person towards higher entrepreneurial intention. Based on this perspective, entrepreneurial motivation is predicted to affect the three antecedents of entrepreneurial intention (García-Cabrera et al., 2020). Mahendra et al. (2017) show that entrepreneurial motivation affects attitude and entrepreneurial intention. In addition, García-Cabrera et al. (2020) also prove that entrepreneurial motivation affects attitude and perceived behaviour control. Miao et al. (2023) show that motivation affects attitude. Besides, Solesvik (2013) affirms that entrepreneurial motivation affects attitudes, subjective norms, and perceived behaviour. Hui-Chen et al. (2014) also denote that entrepreneurial motivation affects the three predictors of intention.

- H_{1b} : Entrepreneurial motivation affects attitude;
- H_{1c} : Entrepreneurial motivation affects subjective norms;
- H_{1d} : Entrepreneurial motivation affects perceived behaviour control.

2.2. Predictors of Intention and Entrepreneurial Intention

Self-realization in planning and starting entrepreneurial activities is entrepreneurial intention (Shrivastava and Acharya, 2020). Intention is an essential predictor of specific behaviour; for example, entrepreneurial intention predicts entrepreneurial behaviour. Therefore, to better understand specific behaviour, it is necessary to understand the determinants of intention. This study uses the TPB framework, which promotes three predictors of intention: personal factors, social influence, and control over the behaviour (Ajzen, 2005). Furthermore, she explains that personal characteristics result from evaluating the projected specific behaviour, either positive or negative perceptions. The result of the evaluation of this particular behaviour is called attitude.

Several research results prove the high consistency of attitude effect on entrepreneurial intention (Alam et al., 2019; Karim et al., 2022; Sulung et al., 2020; Wardana et al., 2021). Attitude affects specific behaviour through its influence on intention (Krueger et al., 2000). Kautonen et al. (2015) also suggest that TPB is relevant and robust in predicting business start-up intentions in Austria and Finland. Moreover, attitude positively affects business start-up intentions in both countries. Tiwari et al. (2017) also denote that attitude, subjective norm, and perceived behaviour control affect the social entrepreneurial intention of students in India. The second predictor of intention is social influence. The social influence factor in the context of TPB explains that a person will consider social pressure to do or not to do a specific intention or action. The norms within society are predictors of intentions. The norm of social pressure that predicts this intention is called the subjective norm (Ajzen, 2005).

Several researchers have shown the effect of subjective norms on entrepreneurial intention (Moriano et al., 2012; Zhang et al., 2015). The third predictor of intention is a feeling of confidence to perform a particular behaviour. This predictor is called perceived behaviour control (Ajzen, 2005). Several studies assert the consistency of the effect of perceived behaviour on entrepreneurial intention (Vracheva et al., 2019; Zhang et al., 2015). Several other researchers also show that the three predictors consistently affect entrepreneurial intention (Al-Jubari et al., 2019; Farrukh et al., 2019; Otache, 2020; Purwana et al., 2019). To that end, the author proposes the following hypotheses:

- H_{2a}: Attitude affects the students' entrepreneurial intention;
- H_{2b}: Subjective norm affects the students' entrepreneurial intention;
- H_{2c}: Perceived behaviour control affects the students' entrepreneurial intention.

2.3. Integrating TSD and TPB

Integrating SDT and TPB is a relevant approach for investigating the mediating role of intention predictors in the effect of entrepreneurial motivation on entrepreneurial intention. It aligns with the recommendation of Ong et al. (2022) that integrating SDT and TPB is novel for holistically understanding students' (entrepreneurial) intentions. SDT and TPB exhibit a complementary relationship in explaining entrepreneurial behaviour. Al-Jubari et al. (2019) found and confirmed that SDT

and TPB provide complementary explanations of the motivational processes of entrepreneurial behaviour. Besides, Al-Jubari et al. (2019) explained that SDT is a human motivation, development, and wellness theory. Further, Deci and Ryan (2000) stated that SDT views motivation as the core of biological, cognitive, and social regulation and pertains to energy, direction, and persistence of activation and intention. Miao et al. (2023) demonstrated that motivation affects attitude, and attitude affects intention. In addition, Mishra et al. (2020) showed that motivation affects intention and recommends further study regarding this relationship by reviewing the consistency based on respondent groups. Therefore, the authors propose the following hypotheses:

- H₃: Entrepreneurial motivation indirectly affects the students' entrepreneurial intention through attitude;
- H₄: Entrepreneurial motivation indirectly affects the students' entrepreneurial intention through subjective norms;
- H₅: Entrepreneurial motivation indirectly affects the students' entrepreneurial intention through perceived behaviour control.

3. RESEARCH METHODS

This study uses a positivist approach to develop the hypotheses. This approach emphasizes causal relationship findings and empirical observations through quantitative data using statistics (Sallis et al., 2021). The theoretical framework employs TPB and SDT. The research data were obtained through a questionnaire with university students in Indonesia as the unit of analysis. Pandey and Pandey (2021) stated that the data collection method using a questionnaire is the most flexible means to obtain quantitative data in a wide geographical area. After collecting the data, a data validity and reliability test was carried out. Afterward, it followed with the research model test by using PLS-SEM multi-group analysis. PLS multi-group analysis (MGA) is useful to reveal whether the PLS model has different significance between each group (Garson, 2016). After the measurement model testing and model fit criteria were met, data analysis, structural model testing, and discussion were conducted.

3.1. Sampling and Data Collection

The population of this study is Indonesian university students from either the business department or non-business department. Questionnaires were distributed to students through online media. The number of samples collected are 362 respondents. The characteristics of the respondents are provided in Table 1. A simple random sampling technique was used to obtain student respondents who had filled out the questionnaire online from several universities in Indonesia. The samples consisted of 322 business students (89%) and 40 non-business students (11%). The number of male respondents was 119 students (33%), and the female ones were 243 students (67%). Meanwhile, respondents aged <20 years were 60 people (16%), and the rest, 302 people (84%), were more than 20 years old. The number of respondents from entrepreneurial families was 110 (30%). Three methods were used to obtain the random data. First, the researcher provided the questionnaire directly to the student's class group. Second, the researcher asked the lecturers' colleges to present it to their student class groups. And third, the researcher asked for help from university leaders who handle student affairs to deliver the form to their students

3.2. Measurement

Six question items measured the entrepreneurial intention variable. The items used an instrument developed by Liñan and Chen (2009). The six instruments met the criteria for testing the construct validity and reliability measurement model. Table 2 shows the convergent validity value measured by the average variance extracted (AVE) from the entrepreneurial intention variable of 0.58. An AVE value of more than 0.50 indicated that the entrepreneurial intention variable construct was valid (Hair Jr et al., 2017). Meanwhile, composite reliability (CR) was used to determine the reliability of internal consistency. All constructs were recommended for PLS-SEM with more than 0.70 (Hair Jr et al., 2017). The entrepreneurial intention construct was 0.89, meeting the internal reliability criteria.

Table 1: Descriptive respondent context

No	Item	Frequency	Percentage	Cumulative (%)
1	Faculty/department			
	Business student	322	89	89
	Non-business student	40	11	100
2	Gender			
	Male	119	33	33
	Female	243	67	100
3	Age			
	Less than 20 years	60	16	16
	20 years and more	302	84	100
4	Family background			
	Entrepreneur	110	30	30
	No entrepreneur	252	70	100

Table 2: Convergent, discriminant, and reliability measurement

Construct	Indicators	Loadings	AVE	CR	α
E_Inten	E_Inten1	0.76***	0.58	0.89	0.85
	E_Inten2	0.81***			
	E_Inten3	0.83***			
	E_Inten4	0.80***			
	E_Inten5	0.82***			
	E_Inten6	0.53***			
E_Motiv	E_Motiv1	0.66***	0.62	0.89	0.85
	E_Motiv2	0.84***			
	E_Motiv3	0.83***			
	E_Motiv4	0.79***			
	E_Motiv5	0.81***			
S_Norm	S_Norm1	0.72***	0.65	0.92	0.89
	S_Norm2	0.80***			
	S_Norm3	0.84***			
	S_Norm4	0.85***			
	S_Norm5	0.82***			
	S_Norm6	0.81***			
Att	Att1	0.71***	0.66	0.91	0.87
	Att2	0.88***			
	Att3	0.80***			
	Att4	0.85***			
	Att5	0.82***			
PBC	PBC1	0.75***	0.52	0.81	0.69
	PBC2	0.75***			
	PBC3	0.66***			
	PBC4	0.71***			

***P<0.001; AVE: Average variance extracted, CR: Composite reliability, α : Cronbach's alpha, E_Motiv: Entrepreneurial motivation, Att: Attitude, S_Norm: Subjective norm, PBC: Perceived behaviour control, E_Inten: Entrepreneurial intention

The five-item statement developed by Solesvik (2013) measured the entrepreneurial motivation variable. The AVE value of the entrepreneurial motivation construct was more than 0.50, which was 0.62. Meanwhile, the CR value of the entrepreneurial motivation construct was 0.89, more than 0.70. The value of Cronbach's alpha (α) of the entrepreneurial motivation construct and all other variable constructs listed in Table 3 was more than 0.70. The subjective norm variable construct comprising six statement items was developed by Kolvereid and Isaksen (2006). The AVE value of the subjective norm construct was 0.65. The CR value of the construct was 0.92. The subjective norm construct also met the criteria for convergent validity and internal reliability (Hair Jr et al., 2017). Five statement items measured the attitude variable construct. The AVE value was 0.66, and the CR was 0.91. These two values indicated that the convergent validity and internal reliability standards were fulfilled. The perceived behaviour control (PBC) construct consisted of four statement items. The construct had an AVE value of 0.52 and a CR of 0.81.

3.3. Data Analysis Technique

There were 376 data collected from the questionnaire, but 14 of them were incomplete and unfit for analysis. Therefore, a total of 362 questionnaire data were worth further analysis. The initial process of coding and data entry employed Excel. Then, the data was converted into a comma-delimited format and transferred into the WarpPLS software for analysis. In addition, the researcher also used SPSS software to perform descriptive analysis. The hypothesis was tested by PLS-SEM using WarpPLS version 7.0. To test the consistency of the model, the researcher conducted a multi-group analysis (MGA) as suggested by Garson (2016). Furthermore, MGA could also be used to analyse the context of differences in each group and to compare the results of model testing in different groups.

4. RESULTS

4.1. Validity, Reliability, and Model Fit

The correlation matrix between variables is provided in Table 3. This table also shows the mean, standard deviation, and Cronbach's alpha value. The average value of the attitude variable is 4.15, with a standard deviation of 0.87, while entrepreneurial motivation has an average value of 4.21 and a standard deviation of 0.79 (Table 3). Therefore, entrepreneurial motivation has the highest average value after attitude. The lowest average value is the perceived behaviour variable (3.67) with a standard deviation of 0.94, followed by the subjective norm variable (mean = 3.73; SD = 0.94), and the entrepreneurial intention variable (mean = 4.05; SD = 0.89). All average values remain above the middle value, with a Likert scale of 1-5.

Table 3 shows that all latent variables have higher Cronbach's alpha values than 0.70, and only one variable has a value of 0.69 (PBC), so it has met the internal reliability test criteria (Hair Jr et al., 2017). The correlation of the variables also has a very close relationship, indicated by the value of the relationship between them, which lies at the high and significant probability of <0.001. The variables of attitude and entrepreneurial intention have the highest correlation among other correlations. It shows

Table 3: Mean, SD, correlation, Cronbach's alpha

Variable	Mean	SD	α	1	2	3	4	5
1. E_Inten	4.05	0.89	0.85	(0.76)				
2. E_Motiv	4.21	0.79	0.85	0.58***	(0.79)			
3. S_Norm	3.73	0.94	0.89	0.65***	0.50***	(0.81)		
4. Att	4.15	0.83	0.87	0.76***	0.67***	0.63***	(0.81)	
5. PBC	3.67	0.94	0.69	0.58***	0.51***	0.53***	0.55***	(0.72)

***P<0.001; Square roots average variance extracted shown on diagonal (parentheses); E_Inten: Entrepreneurial intention, E_Motiv: Entrepreneurial motivation, S_Norm: Subjective norm, Att: Attitude, PBC: Perceived behaviour control

that a positive attitude towards entrepreneurial behaviour will significantly boost entrepreneurial intention. Table 3 also shows the square AVE value in brackets. The output square AVE is used to evaluate the discriminant validity of the research instrument. The criterion is that the Square AVE value is greater than the correlation value (Hair Jr et al., 2017). The results of the analysis in Table 3 show that all AVE square values are greater than the correlation so that the criteria for discriminant validity of the research instrument are fulfilled.

Table 4 shows the model fit, which describes the size and quality of the model. Model fit indices are needed in PLS-SEM analysis. Several criteria are recommended when assessing model fit. The P value of average path coefficient (APC) and average R-squared (ARS) is <0.05. Meanwhile, the average block value is <5, which is ideal if it is <3.3 (Kock, 2011). The results of PLS-SEM data analysis with the WarpPLS 7.0 version program showed that the quality of this research model has met the recommended value criteria. Therefore, the following process is to analyse the inner model.

4.2. Analysis of Model

In this section, the author presents the analysis results of the models. The first model is the result of the analysis without including the group context. This model is further tested with a group context through multi-group analysis to show consistency (Maes et al., 2014). The results of the analysis of the model are provided in Table 5 and Figure 1. Based on the results of the analysis, the entrepreneurial motivation variable significantly influences the three entrepreneurial intention predictors: subjective norm, attitude, and perceived behaviour control. Entrepreneurial motivation has a positive effect on subjective norms (coefficient: 0.51; P < 0.001), attitude (coefficient: 0.67; P < 0.001), and perceived behaviour control (coefficient: 0.53; P < 0.001). This study proved the direct effect of entrepreneurial motivation on entrepreneurial intention (coefficient: 0.60; P < 0.048) (Cheah et al., 2020).

Based on the results of the analysis, H_{1a}, H_{1b}, H_{1c}, and H_{1d} are accepted (Table 5). The three predictors of entrepreneurial intention are also consistent with the TPB theoretical framework, as they all have a significant effect on entrepreneurial intention. Subjective norm positively affects entrepreneurial intention (coefficient: 0.22; P < 0.001). Attitude also significantly affects entrepreneurial intention (coefficient: 0.49; P < 0.001). Likewise, perceived behaviour control positively affects entrepreneurial intention (coefficient: 0.14; P < 0.001). Based on the results of the PLS-SEM analysis, H_{2a}, H_{2b}, and H_{2c} are accepted.

Table 6 shows the results of the indirect effect test to determine hypotheses H₃, H₄, and H₅. The analysis results demonstrated

Table 4: Model fit

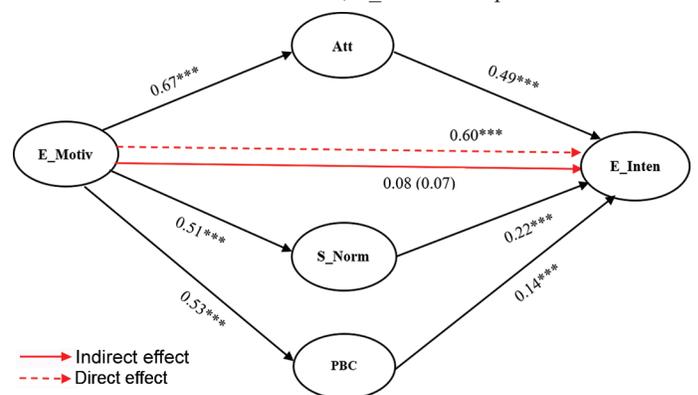
Index	Model values	Recommended value
Average path coefficient (APC)	0.38; P<0.001	P<0.05
Average R-squared (ARS)	0.41; P<0.001	P<0.05
Average adjusted R-squared (AARS)	0.41; P<0.001	P<0.05
Average block collinearity VIF (AVIF)	2.03	Acceptable if ≤5, ideally ≤3.3
Average full collinearity VIF (AFVIF)	2.28	Acceptable if ≤5, ideally ≤3.3

Table 5: Hypothesis testing

Hypotheses	Path	Coefficients	SE	P-value	Decision
H _{1a}	E_Motiv>E_Inten	0.60***	0.048	<0.001	Supported
H _{1b}	E_Motiv>Att	0.67***	0.048	<0.001	Supported
H _{1c}	E_Motiv>S_Norm	0.51***	0.049	<0.001	Supported
H _{1d}	E_Motiv>PBC	0.53***	0.049	<0.001	Supported
H _{2a}	Att>E_Inten	0.49***	0.049	<0.001	Supported
H _{2b}	S_Norm>E_Inten	0.22***	0.051	<0.001	Supported
H _{2c}	PBC>E_Inten	0.14**	0.052	0.004	Supported

P<0.01; *P<0.001; E_Motiv: Entrepreneurial motivation, Att: Attitude, S_Norm: Subjective norm, PBC: Perceived behaviour control, E_Inten: Entrepreneurial intention

Figure 1: Full model result of PLS analysis. ***P<0.001; E_Motiv: Entrepreneurial motivation, Att: Attitude, S_Norm: Subjective norm, PBC: Perceived behavior control, E_Inten: Entrepreneurial intention



that entrepreneurial motivation indirectly affects students' entrepreneurial intention through attitude (coefficient: 0.33; P < 0.001), so hypothesis H₃ is accepted. Entrepreneurial motivation also indirectly affects students' entrepreneurial intention through subjective norms (coefficient: 0.11; P < 0.001),

so hypothesis H₄ is also accepted. Entrepreneurial motivation also indirectly affects students' entrepreneurial intention through perceived behaviour control (coefficient: 0.07; P < 0.001), so hypothesis H₅ is accepted.

Table 7 shows the mediating role of three predictors of intention on the effect of entrepreneurial motivation on entrepreneurial intention. There are four types of mediation roles: full mediation, partial mediation, only direct effect, and no effect (Nitzl et al., 2016). Two stages are suggested to examine the mediating role of three intention predictor variables (attitude, subjective norm, and perceived behaviour control) in the transmission path of the effect of entrepreneurial motivation on student's entrepreneurial intention (Kock, 2020; Nitzl et al., 2016). The first stage is determining the significance of the indirect effect of entrepreneurial motivation on student's entrepreneurial intention through three predictors of intention. The analysis results in Tables 6 and 7 show that there is a significant indirect effect of entrepreneurial motivation on students' entrepreneurial intention through the variables attitude (coefficient: 0.33; P < 0.001), subjective norm (coefficient: 0.11; P < 0.001), and perceived behaviour control (coefficient: 0.07; P < 0.001). The second stage is determining the type of mediating effects. The result of the direct effect analysis in the full model showed that the direct effect of entrepreneurial motivation on students' entrepreneurial intention is insignificant (coefficient: 0.08; P = 0.07). Full mediation occurs when the indirect effect of entrepreneurial motivation on a student's entrepreneurial intention is significant while the direct effect is insignificant. Furthermore, Nitzl et al. (2016) explained that partial mediation occurs when both indirect and direct effects bring about effects. Meanwhile, only direct effect and no effect types occur when the indirect effect is not found. Hence, the two stages of analysis of the mediation role show that attitude, subjective norms, and perceived behaviour control exhibit a full mediation role.

Table 6: Indirect effect testing

Hypotheses	Path	Indirect effect	P-value	Decision
H ₃	E_Motiv>Att>E_Inten	0.33***	<0.001	Supported
H ₄	E_Motiv>S_Norm>E_Inten	0.11***	<0.001	Supported
H ₅	E_Motiv>PBC>E_Inten	0.07***	<0.001	Supported

***P<0.001

Table 7: PLS path coefficients and mediations

Path	Coefficients and mediations			
	Direct effect model	Full model	Indirect effect	Mediation type
E_Motiv>E_Inten	0.60***	0.08	-	-
E_Motiv>Att	-	0.67***	-	-
E_Motiv>S_Norm	-	0.51***	-	-
E_Motiv>PBC	-	0.53***	-	-
Att>E_Inten	-	0.49***	-	-
S_Norm>E_Inten	-	0.22***	-	-
PBC>E_Inten	-	0.14***	-	-
E_Motiv>Att>E_Inten	-	-	0.33***	Full mediation
E_Motiv>S_Norm>E_Inten	-	-	0.11***	Full mediation
E_Motiv>PBC>E_Inten	-	-	0.07***	Full mediation

***P<0.001

In the next section, the authors present the analysis results of the PLS-SEM multi-group analysis (MGA) based on the context of the characteristics of Indonesian higher education student groups (Table 8). The context of the characteristics of this group includes faculty/department, gender, parental background, and age. These group contexts can determine whether model I has a model consistency. Hair Jr et al. (2014) explained that multi-group analysis is a type of moderator analysis in which the moderator variables are categories (usually two categories) and are assumed to affect all relationships in the inner model potentially. The results of the MGA analysis are shown in models 2 to 5 in Table 8.

Table 8: PLS-SEM and multi-group analysis (MGA) results

Model 2 results from the inner model test for the context of student characteristic groups based on department/faculty. The group is categorized as students from business and non-business departments. The results of MGA model 2 show that the entrepreneurial motivation of business students (coefficient: 0.09; P = 0.06) and non-business students (coefficient: -0.21; P = 0.08) does not affect entrepreneurial intention. This result is consistent with model 1, which also indicates the absence of entrepreneurial motivation effect on entrepreneurial intention (coefficient: 0.08; P = 0.07) at a significance level of 5%. In the inner model, the non-business student group has a negative coefficient, although insignificant. The negative influence of entrepreneurial motivation on entrepreneurial intention in non-business students means their attitude towards entrepreneurial interest still needs to be improved. This result is reinforced by the impact of attitude on entrepreneurial intention in the second model. There is a significant difference in the effect of attitude on entrepreneurial intention in the group of students from the business department compared to those from the non-business department. The predictor of entrepreneurial intention, which is the attitude of the business department student group, has a significant positive effect (coefficient: 0.50; P < 0.001), with a standard error (SE) of 0.05. Meanwhile, the attitude of the non-business department student group does not significantly affect entrepreneurial intention (coefficient: -0.09; P = 0.26), with an SE of 0.15. The relationship between attitude and entrepreneurial intention of the non-business department student group is also negatively correlated. This MGA difference test uses the comparative method Kock (2011) suggested. Concurrently, the

Table 8. PLS-SEM and multi-group analysis (MGA) results

Latent variables	Coefficient								
	Model 1 All groups n=362	Model 2 Business student n=322	Model 2 Non-business student n=40	Model 3 Male group n=119	Model 3 Female group n=243	Model 4 Entrepreneur Parent n=110	Model 4 Non Entrepreneur Parent n=252	Model 5 5<20 year age n: 60	Model 5 >=20 year age n=302
E_Motiv>E_Inten	0.08	0.09	-0.21	0.24**	0.03	0.05	0.06	0.02	0.09
E_Motiv>Att	0.67***	0.66***	0.73***	0.75***	0.64***	0.65***	0.69***	0.82***	0.64***
E_Motiv>S_Norm	0.51***	0.53***	0.43**	0.53***	0.52***	0.46***	0.53***	0.50***	0.50***
E_Motiv>PBC	0.53***	0.49***	0.62***	0.55***	0.53***	0.57***	0.53***	0.62***	0.50***
Att>E_Inten	0.49***	0.50***	-0.09	0.34***	0.53***	0.43***	0.52***	0.51***	0.50***
S_Norm>E_Inten	0.22***	0.16**	0.73***	0.13	0.25***	0.20*	0.21***	0.35**	0.18***
PBC>E_Inten	0.14***	0.19***	0.19	0.22**	0.12**	0.24**	0.15	0.05	0.16**

* p<0.05; ** p<0.01; *** p<0.001; E_Motiv: Entrepreneurial motivation; Att: Attitude; S_Norm: Subjective norm; PBC: Perceived behaviour control; E_Inten: Entrepreneurial intention

effect of PBC on entrepreneurial intention in model 2 shows that only the business department student group has a significant impact (coefficient: 0.19; P < 0.001), with a standard error of 0.05. The effect of PBC on entrepreneurial intention in the non-business department student group proves to be insignificant (coefficient: 0.19; P = 0.10) with an SE of 0.146.

Model 3 results from the inner group model of students based on gender with MGA. The results of the analysis prove a significant difference between the male and female groups in terms of the influence of entrepreneurial motivation on entrepreneurial intention. For the male group, entrepreneurial motivation significantly affects entrepreneurial intention (coefficient: 0.24; P < 0.01; SE = 0.09). However, it does not affect female students' entrepreneurial intentions (coefficient: 0.03; P = 0.40; SE = 0.06). The results of the MGA comparative test suggested by Kock (2011) showed significant differences in the inner model for the sex groups (Tvalue = 1.98; P = 0.049). It is different from the results of the inner model 1 for all groups, which does not indicate any influence of entrepreneurial motivation on entrepreneurial intention even though MGA supports the results of model 1 among all groups for parental background as entrepreneurial or not (model 4) and based on age (model 5). In model 3, the subjective norm significantly affects entrepreneurial intention among the female group only (coefficient: 0.25; P < 0.001; SE = 0.06). Meanwhile, the subjective norm does not affect entrepreneurial intention in the male group (coefficient: 0.13; P = 0.07; SE = 0.09). However, the two groups' comparative test results are similar. Also, the results of the other inner models support model 1.

Model 4 results from MGA among the students based on their parents' entrepreneurship background. The results of the inner model support model 1 for all groups. Meanwhile, model 5 results from MGA in a group of students based on age. The analysis supports the analysis of model 1 among all groups. Only one result of the inner model does not support the model, which is the effect of perceived behaviour control on entrepreneurial intention from both groups based on age. The MGA group aged under 20 years shows that perceived behaviour control does not affect entrepreneurial intention (coefficient: 0.05; P = 0.35; SE = 0.13). And, in the age group over 20 years, the perceived behaviour control affects entrepreneurial intention (coefficient: 0.16; P < 0.01; SE = 0.06).

5. DISCUSSION

This research was conducted with the recommendation of previous studies. Maheshwari et al. (2022) recommended entrepreneurial intention studies that the TPB model has dominated through the integration of other factors to dive into it holistically. Besides, Anjum et al. (2022) also suggested a different approach for further research on entrepreneurial intention. Therefore, this study integrates TPB and SDT to determine the factors that affect students' entrepreneurial intention in Indonesia. Several factors that affect entrepreneurial intention based on the integration of TPB and SDT in this study include entrepreneurial motivation, subjective norms, attitude, and perceived behaviour control. Ong et al. (2022) emphasized that integrating TPB and SDT in an approach could help better understand entrepreneurial intention

holistically. Further, this study contributes to the relationship between entrepreneurial motivation and intention.

Integrating TPB and SDT is a relevant approach to the role of entrepreneurial motivation on intention. Therefore, the study about the effect of entrepreneurial motivation on entrepreneurial intention is prominent. The result of the PLS-SEM direct effect model showed that entrepreneurial motivation affects entrepreneurial intention (Table 7). The results of this study also show the relationship between SDT and TPB, which is the prominent role of motivation on intention. However, to test the consistency of the PLS-SEM model, the author includes the characteristics of the group context using multi-group analysis (MGA), as suggested by Garson (2016). Likewise, Maes et al. (2014) stated that MGA can be used to test models based on the characteristics of the group context. Mishra et al. (2020) recommended further studies regarding the consistency of the relationship and the role of motivation in intention by reviewing differences in respondent groups.

Several determinants of entrepreneurial intention play as predictors of intention. This study employs the TPB framework to examine three predictors of entrepreneurial intention: subjective norm, attitude, and perceived behaviour control, according to Ajzen (1991). The analysis of the PLS-SEM inner model for all groups (model 1) shows that the three predictors significantly affect entrepreneurial intention. The TPB assessment in Indonesia was also carried out by Astuti and Martdianty (2012), which shows that the three predictors significantly affect the entrepreneurial intention of students from six universities in Indonesia. The study result is consistent with several other studies (Alam et al., 2019; Kaijun and Sholihah, 2015; Kautonen et al., 2015; Otache, 2020; Purwana et al., 2019; Schlaegel and Koenig, 2014; Tiwari et al., 2017). However, the consistency of the TPB model based on the MGA analysis in this study shows slightly different results.

The result of the analysis on the PLS-SEM inner model of the entrepreneurial motivation effect on entrepreneurial intention in model 1 (all groups) proves consistency with MGA in the context group based on department/faculty (model 2), parental background (model 4), and age (model 4) and models 5). However, there is a significant difference in the results of the inner MGA model based on gender (model 3). The inner MGA model shows that entrepreneurial motivation significantly affects entrepreneurial intention among the male group. The finding is in line with several previous studies showing that gender differences affect entrepreneurial motivation and entrepreneurial intention (Amorós et al., 2021). Gender has a close relationship with entrepreneurial intention and motivation (Maes et al., 2014; Nguyen and Phan, 2014; Vodă and Florea, 2019), and men have a higher tendency to have entrepreneurial intention (Costa and Pita, 2020). Margaça et al. (2021) suggested differences in entrepreneurial intention, subjective norms, and perceived behaviour control among Portuguese students based on gender. Female students exhibit higher entrepreneurial intentions than male students do.

This study theoretically implies that gender differences determine the effect of entrepreneurial motivation on entrepreneurial

intention. Entrepreneurial motivation increases entrepreneurial intention among male students. Wahdiniwaty and Rustam (2019) shows that the patriarchal system in Indonesia is an obstacle to the development of women entrepreneurs. The results of this study also confirm the finding of Shastri et al. (2021), which suggests that women entrepreneurs face gender stereotypes and lack of social support in patriarchal societies in India. As a patriarchal society affects the intention to be an entrepreneur, it becomes an obstacle to the behaviour and activities of women entrepreneurs in Indonesia. However, Lim (2018) shows that these obstacles can be overcome by combining dual roles (masculine and feminine), acting creatively, and generating innovative products. The results of this study do not support the research of Patricia and Silangen (2016), which shows that there is no difference in the entrepreneurial intention of male and female students in Indonesia, whose society mostly holds patriarchal beliefs.

Under the MGA analysis, the attitude toward being an entrepreneur among business department students significantly affects entrepreneurial intention. Meanwhile, non-business department students show the other way around. Business department students in Indonesia study entrepreneurship, while those from non-business departments are not required to take entrepreneurship courses. Therefore, business students' knowledge of entrepreneurship is more structured. Knowledge will encourage interest. Hendrawan and Sirine (2017) show that the understanding of business students affects entrepreneurial intention. This knowledge factor is the driving force behind the difference in the influence of students' attitudes on entrepreneurial intention.

Ajzen (2005) explains that knowledge is a background factor of the informational category that plays a role in the theory of planned behaviour. The study by Uswaturrasul and Sisilia (2015) suggests that 95.4% of business students at one of the universities in Indonesia have entrepreneurial intentions. Shrivastava and Acharya (2020) also show that entrepreneurship education significantly influences entrepreneurial intention. Several other scholars also show a significant effect of entrepreneurship education on entrepreneurial intention (Bosma et al., 2008; Gelaidan and Abdullateef, 2017; Peterman and Kennedy, 2003). Besides, Kusumojanto et al. (2021) state that family education and entrepreneurial education do not affect entrepreneurial intention. However, many studies conducted in Indonesia show that giving entrepreneurship courses affects students' entrepreneurial intention (Mukaramah, 2019; Wardana et al., 2021; Widnyana et al., 2019). Moreover, entrepreneurship education is compulsory in several business departments of universities in Indonesia (Sari, 2014).

In the context of the educational background group (model 2), perceived behaviour control affects entrepreneurial intention in the business student group, yet MGA results for non-business department students have different results. Ajzen (2005) explains that perceived behaviour control is the ability to form the desired behaviour. In general, a person will show particular behaviour when he evaluates it as a positive thing, when there is social pressure to do so, and when he believes there is an opportunity to do so. TPB is a theory that is built on the perception that humans usually have a reasonable way. Based on the TPB, intention

is a function of three determinants, one of which is perceived behaviour control.

Perceived behaviour control in TPB is closely related to perceived self-efficacy, which postulates that a person can perform specific actions. Perceived behaviour control has a general rule that people try to shape behaviour to what extent they are confident to do. The confidence level of business students to go into entrepreneurship is higher than that of non-business students because they gain knowledge about businesses and are equipped with entrepreneurial skills. Confidence to perform an entrepreneurial activity can increase entrepreneurial intention. Some researchers show that confidence can increase entrepreneurial intention (Dabic et al., 2012; Ferreira et al., 2012).

The effect of subjective norms on entrepreneurial intention in Model 3 is also worth further discussion. In the inner model, subjective norms affect entrepreneurial intentions only among the female group. A subjective norm is a social pressure that causes someone to intend to do something (Ajzen, 2005). Even though Wahdiniwati and Rustam (2019) show that the patriarchal system is an obstacle for women entrepreneurs in Indonesia, the PLS-SEM MGA inner model indicates different results. Social encouragement in the form of subjective norms affects the entrepreneurial intention of women's groups. Accordingly, Lim (2018) shows that even though the patriarchal culture affects women entrepreneurs' resistance, it does not reduce their intention to become entrepreneurs. Further, she affirms that women entrepreneurs have succeeded in entrepreneurship by compromising the roles of feminist and masculine and continuing to innovate.

The effect of perceived behaviour control on entrepreneurial intention based on the parents' background in model 4 shows slightly different results. The inner model of the students coming from the entrepreneur family shows that perceived behaviour control affects entrepreneurial intention. Perceived behaviour control, according to Ajzen (2005), is the belief of being capable of taking action. Students whose parents are entrepreneurs gain experience in managing and understanding entrepreneurial activities. This experience makes them more confident that they can run a business. Santiago and Einarson (1998) argued that the experience factor determines one's belief in doing a job. Model 5, the result of the PLS-SEM MGA inner model, also shows a difference in the effect of perceived behaviour control on entrepreneurial intention based on age. The analysis of the group of students aged over 20 years proves that perceived behaviour control affects entrepreneurial intention. Meanwhile, it only happens to those aged at least 20 years. Knowledge and experience factors need consideration in assessing entrepreneurial intention. Ajzen (2005) explained several predictors of perceived behaviour control in TPB covering knowledge and experience. Therefore, the difference in MGA results in models 4 and 5 supports TPB in the context of student characteristics.

6. CONCLUSION

This research has several different contributions to the determinants of entrepreneurial intention. Integrating self-determination theory

(SDT) and the theory of planned behaviour (TPB) is a relevant approach to understanding student (entrepreneurial) intention more holistically. Hence, the study integrated SDT and TPB among university students to acknowledge the factors affecting students' entrepreneurial intention in Indonesia. The factors include entrepreneurial motivation, subjective norms, attitude, and perceived behaviour control, which determine entrepreneurial intention. SDT and TPB provide complementary explanations of the motivational processes of entrepreneurial behaviour. Furthermore, SDT views motivation as the core of biological, cognitive, and social regulation. It also has energy, direction, and persistence of activation and intention. This study shows the prominent role of entrepreneurial motivation in student entrepreneurial intention. The PLS-SEM inner model concludes that three predictors of entrepreneurial intention have a significant effect on the entrepreneurial intention of university students in Indonesia. The three predictors are attitude, subjective norm, and perceived behaviour control. The result of this analysis supports the theory of planned behaviour (TPB).

Further, the current study result is surprising when the determinants of student entrepreneurial intention exhibit miscellaneous effects while PLS-SEM multi-group analysis (MGA) is based on student contexts executed. It increasingly opens opportunities to complete the recommendations of entrepreneurial motivation studies as predictors of student entrepreneurial intention. Some researchers recommend the examination of other predictors of entrepreneurial intention (Karim et al., 2022; Maheshwari et al., 2022; Yangailo and Qutieshat, 2022) and suggest to include entrepreneurial motivation as a predictor (Miao et al., 2023; Mishra et al., 2020; Ong et al., 2022). However, the consistency analysis of the model with MGA shows some contradictory results, which can ideally be the subject of further discussion. The characteristics of student groups based on educational background, gender, parental background, and age pose different contributions to the determinants of entrepreneurial intention. The contradictions of the subsequent research findings contribute to the theory development.

7. IMPLICATION

7.1. Theoretical Implications

This study investigated several determinants of student entrepreneurial intention in Indonesia by integrating SDT and TPB. They cover entrepreneurial motivation and three predictors of intention. Some previous studies have proven the significant effect of entrepreneurial motivation on student entrepreneurial intention. However, this study provides miscellaneous results in the inner PLS-SEM MGA. Educational background, family background, age, and gender have exciting results in the PLS-SEM MGA. The context of gender shows that entrepreneurial motivation significantly positively affects student entrepreneurial intention for the male group. The result develops the theory of entrepreneurial motivation and intention with contradictory findings while integrating SDT and TPB. This study confirms the finding of Shastri et al. (2021) that women entrepreneurs face gender stereotypes and a lack of social capital in patriarchal societies. However, Lim (2018), who studies successful women entrepreneurs in Indonesia, suggests that the patriarchal system can

be overcome by combining dual roles (feminine and masculine), acting creatively, and innovating products.

7.2. Practical Implications

This study suggested that one of the intention predictors, attitude, has a distinct contribution from entrepreneurial intention based on the context of student group according to educational background. Attitude toward entrepreneurship has a significant positive effect on the entrepreneurial intention of college students from the business department, and it only happens in the non-business department. Business department students in Indonesia receive several compulsory entrepreneurship courses, while non-business students are provided with limited voluntary courses. Furthermore, it was found that entrepreneurial motivation significantly affects entrepreneurial intention in the male student group. However, it is not found in the female one. Based on these recommendations and findings, this research promotes the following practical implications for the education system in Indonesia and higher education policymakers.

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