




## The impact of personality traits on entrepreneurial self-efficacy and intention among private university students: Gender as a moderating variable

 Lei Pan<sup>1</sup>

 Teetut  
Tresrichod<sup>2\*</sup>

<sup>1,2</sup>Faculty of Business Administration, Rajamangala University of Technology, Thanyaburi, Thailand.

<sup>1</sup>Email: [teetut\\_t@rmutt.ac.th](mailto:teetut_t@rmutt.ac.th)

<sup>2</sup>Email: [lei\\_p@mail.rmutt.ac.th](mailto:lei_p@mail.rmutt.ac.th)



(+ Corresponding author)

### ABSTRACT

#### Article History

Received: 2 October 2024

Revised: 27 December 2024

Accepted: 10 January 2025

Published: 23 January 2025

#### Keywords

Entrepreneurial intention  
Entrepreneurial self-efficacy  
Gender regulation  
Personality traits  
Private university students.

This study aims to explore the impact of different personality traits among students in private universities on the relationship between their Entrepreneurial Self-efficacy (ESE) and Entrepreneurial Intentions (EI) with gender as the moderating variable. This quantitative research collects data from six private comprehensive universities' undergraduate students in Chengdu through a questionnaire survey and analyzes it using structural equation modeling (SEM). Personality traits play a significant role in the relationship between ESE and EI with conscientiousness and neuroticism having the most significant impact. Gender shows significant differences in the moderating effect of different personality traits on the relationship between ESE and EI with women showing a more significant enhancement of entrepreneurial intention in the context of high entrepreneurial self-efficacy. The findings provide a theoretical basis and empirical support for improving the effectiveness of entrepreneurship education in private universities and propose targeted educational strategies.

**Contribution/Originality:** This study contributes original insights by identifying how specific personality traits, particularly conscientiousness and neuroticism, influence entrepreneurial self-efficacy and intention among private university students while revealing gender differences in these relationships. It provides empirical support for tailored entrepreneurship education strategies that enhance student outcomes based on personality and gender dynamics.

### 1. INTRODUCTION

In China, entrepreneurial activities have received extensive support from the government and society. The government has introduced a series of policies to encourage entrepreneurship such as "mass entrepreneurship and mass innovation" providing a favorable environment and support for entrepreneurs (Li, 2014). Universities play a crucial role in cultivating innovative and entrepreneurial talents by offering entrepreneurship courses and practice bases aimed at enhancing students' entrepreneurial abilities and intentions (Hahn, Minola, Bosio, & Cassia, 2020). Private universities prioritize the development of students' practical skills and entrepreneurial spirit more than public universities with their flexible management structures and market-oriented focus (Guo, Huang, & Zhang, 2019). However, significant disparities in entrepreneurial self-efficacy and intention persist among students despite the widespread implementation of entrepreneurship education in private institutions (Zhao & Seibert, 2006). These

differences may not only stem from variations in educational resources and teaching quality but also be closely tied to students' distinct personality traits.

Universities play a crucial role in cultivating innovative and entrepreneurial talents by offering entrepreneurship courses and practice bases aimed at enhancing students' entrepreneurial abilities and intentions (Hahn et al., 2020). Private universities prioritize the development of students' practical skills and entrepreneurial spirit more than public universities with their flexible management structures and market-oriented focus (Guo et al., 2019). However, significant disparities in entrepreneurial self-efficacy and intention persist among students despite the widespread implementation of entrepreneurship education in private institutions (Zhao & Seibert, 2006). These differences may not only stem from variations in educational resources and teaching quality but also be closely tied to students' distinct personality traits. Additionally, exploring the moderating role of gender in this relationship could offer valuable insights into how entrepreneurship education can be tailored to meet the specific needs of male and female students.

This study seeks to address the gap in understanding how personality traits influence entrepreneurial self-efficacy and intention focusing on gender as a moderating variable in the context of private university students. The findings provide evidence-based recommendations for developing more effective, personalized entrepreneurship education programs.

The main research questions of this study are as follows:

- (1) To determine the entrepreneurial intention of college students enrolled in private comprehensive universities in Chengdu, Sichuan Province, including whether they intend to start their own business. At the same time, we will also examine which factors significantly impact the establishment of their entrepreneurial intention.
- 2) Whether the effect of the big five personality traits on the relationship between entrepreneurial self-efficacy and entrepreneurial intention is significant.
- (3) Whether the effects of the big five personality traits on the relationship between entrepreneurial self-efficacy and entrepreneurial intention differ across demographic groups (gender and major).

This study provides four dimensions of contribution. Theoretical contribution: This study can provide new perspectives for theory building in entrepreneurship research and education. Examining how the personality traits of undergraduate students enrolled in private comprehensive universities affect the relationship between entrepreneurial self-efficacy and entrepreneurial intention can help deepen the understanding of the psychological mechanisms of the entrepreneurial process, thus complementing and improving relevant theories.

Practical contribution: The study can provide empirical evidence for designing and implementing entrepreneurship education in higher education institutions. The findings will help teachers and policymakers to understand which personality traits and self-efficacy factors promote entrepreneurial intention so that entrepreneurship education programs can be designed and implemented in a targeted manner.

Policy contribution: The study can also inform policymakers. Globally, policymakers increasingly focus on entrepreneurial activities as an economic development and innovation driver. The study can provide new theoretical underpinnings and empirical evidence to help policymakers formulate more effective policies to promote entrepreneurship.

Social contribution: The study can further enhance the importance of entrepreneurship in society by increasing public understanding and awareness of entrepreneurship. The findings help students, parents and teachers understand the elements of the entrepreneurial process which will encourage more students to choose entrepreneurship as a career.

This research aims to investigate how various personality traits influence the relationship between entrepreneurial self-efficacy and entrepreneurial intention. It will also examine the role of gender as a moderating variable and identify key personality traits that can enhance students' entrepreneurial self-efficacy. Additionally, the

study seeks to propose tailored entrepreneurship education strategies for students of different genders to improve the overall effectiveness of entrepreneurship education.

## 2. LITERATURE REVIEWS

Entrepreneurial Self-Efficacy (ESE) is defined as an individual's confidence in their ability to perform specific tasks within entrepreneurial activities (Chen, Greene, & Crick, 1998). It serves as a crucial psychological factor that influences both entrepreneurial intention and behavior (Boyd & Vozikis, 1994). Research indicates that ESE can predict an individual's entrepreneurial intention and significantly affect the execution and success rates of entrepreneurial endeavors (Zhao, Seibert, & Hills, 2005). Krueger Jr and Dickson (1994) noted that ESE can enhance an individual's risk tolerance, fostering greater confidence when confronted with entrepreneurial challenges. This increased self-assurance leads individuals with high ESE to be more willing to invest time and resources in exploring entrepreneurial opportunities (Zhao et al., 2005). Personality traits significantly shape individual behavior and decision-making. Studies have shown that traits such as extraversion, openness to experience and conscientiousness notably impact ESE (Zhao & Seibert, 2006). This research aims to validate and expand upon these findings specifically examining how these personality traits affect the relationship between students' ESE and entrepreneurial intention within the context of private universities in China. ESE is typically measured through questionnaire surveys with common instruments including the entrepreneurial self-efficacy scale developed by Chen et al. (1998). These scales assess key entrepreneurial tasks such as opportunity identification, resource acquisition, market entry strategies and business management (McGee, Peterson, Mueller, & Sequeira, 2009). The reliability and validity of these measurement tools have been confirmed in numerous studies (Kickul, Gundry, Barbosa, & Whitcanack, 2009).

The big five personality traits model comprising extraversion, neuroticism, openness to experience, agreeableness, and conscientiousness is frequently used to analyze differences in individual behavior and decision-making (McCrae & Costa Jr, 1997). Research has demonstrated that these traits significantly influence ESE and entrepreneurial intention (Zhao & Seibert, 2006). Individuals with high levels of extraversion typically exhibit superior social skills and risk tolerance making them more likely to pursue entrepreneurship (Brandstätter, 2011). This trait facilitates the establishment and maintenance of business networks, thereby enhancing ESE (Zhao, Seibert, & Lumpkin, 2010). Furthermore, extroverted individuals tend to experience greater levels of positive emotions and motivation which further boost entrepreneurial intention (Ciavarella, Buchholtz, Riordan, Gatewood, & Stokes, 2004). Those with a high openness to experience possess a positive outlook toward new ideas and exhibit a greater receptiveness to innovation and change (McCrae & Costa Jr, 1997). This trait fosters creativity and adaptability in the entrepreneurial process allowing individuals to navigate rapidly changing market conditions (Zhao et al., 2010). Openness to experience also correlates with the ability to identify new opportunities and innovate business models both critical components of ESE (Shane, Locke, & Collins, 2003). Individuals characterized by conscientiousness marked by a strong sense of responsibility and self-discipline are vital for effective planning and execution in entrepreneurship (Rauch & Frese, 2007). Studies further suggest that conscientiousness positively correlates with long-term entrepreneurial success rates (Zhao et al., 2010).

Gender as a significant moderating variable may influence how personality traits affect the relationship between ESE and entrepreneurial intention. Prior research has identified differences in entrepreneurial motivation and self-efficacy between men and women (Mueller & Conway Dato-on, 2013). Men typically exhibit higher risk tolerance and competitiveness while women place greater emphasis on social support and emotional needs (Langowitz & Minniti, 2007). This gender difference may lead to different entrepreneurial self-efficacy and intention patterns between males and females with the same personality traits.

### 3. METHODOLOGY

**Research Design:** This is quantitative research that employed a cross-sectional design.

**Research Population:** There were 1281 undergraduate students from six private comprehensive universities in Chengdu, including 627 males (48.95%) and 654 females (51.05%). This study adopted a stratified random sampling method. Firstly, the researchers classify the student groups of different universities according to the research scope. Then, participants are randomly selected from each university to form a diverse and inclusive sample.

**Instrument:** Structured questionnaire.

**Validity and Reliability Tests:** This study used multiple metrics to evaluate the reliability and convergence reliability of these tools, including Cronbach's Alpha, Dijkstra Hessler's rho ( $\rho_a$ ), composite reliability ( $\rho_c$ ), and average variance extraction (AVE). Meanwhile, this study also employed structural equation modeling (SEM) to analyze the data specifically using the partial least squares method (PLS-SEM).

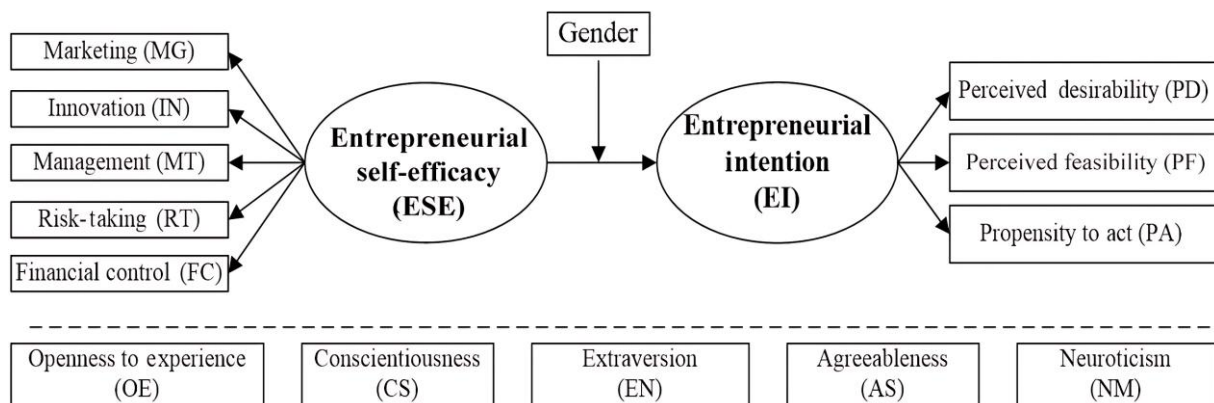


Figure 1. Conceptual framework.

Figure 1 illustrates a research framework that mainly focuses on personality traits' direct and indirect effects on entrepreneurial intention. At the same time, this study innovatively takes various dimensions of personality traits (including openness to experience, conscientiousness, extroversion, agreeableness, and neuroticism) as sample variables focusing on how these dimensions play a role in the process of ESE affecting EI. This study further refines the understanding of this relationship aiming to reveal how gender affects the moderating effect of personality traits on the relationship between ESE and EI by introducing gender as a moderating variable.

The following hypotheses are proposed based on the research framework:

*Hypothesis 1: The personality trait agreeableness has a significant influence on the relationship between ESE and EI, and this influence varies by gender.*

*Hypothesis 2: Conscientiousness has a significant influence on the relationship between ESE and EI, and this influence varies according to gender.*

*Hypothesis 3: Extraversion has a significant influence on the relationship between ESE and EI and this influence varies by gender.*

*Hypothesis 4: Neuroticism has a significant influence on the relationship between ESE and EI, and this influence varies according to gender.*

*Hypothesis 5: Openness to experience has a significant influence on the relationship between ESE and EI, and this influence varies by gender.*

### 4. RESULTS

#### 4.1. Model Diagram for Hypothesis

Figure 2 shows the relationship between Entrepreneurial Self-Efficacy (ESE), Entrepreneurial Intention (EI), and gender in the sample groups of this study's big five personality traits. Five observation variables (FC, IN, MG,

MT, and RT) measure Entrepreneurial Self-Efficacy (ESE). In comparison, three observation variables (PA, PD, and PF) are used to measure Entrepreneurial Intention (EI) on how to use gender as a moderating variable to regulate the impact of different personality traits on Entrepreneurial Self-Efficacy (ESE) and Entrepreneurial Intention (EI) under the grouping of the big five personality traits.

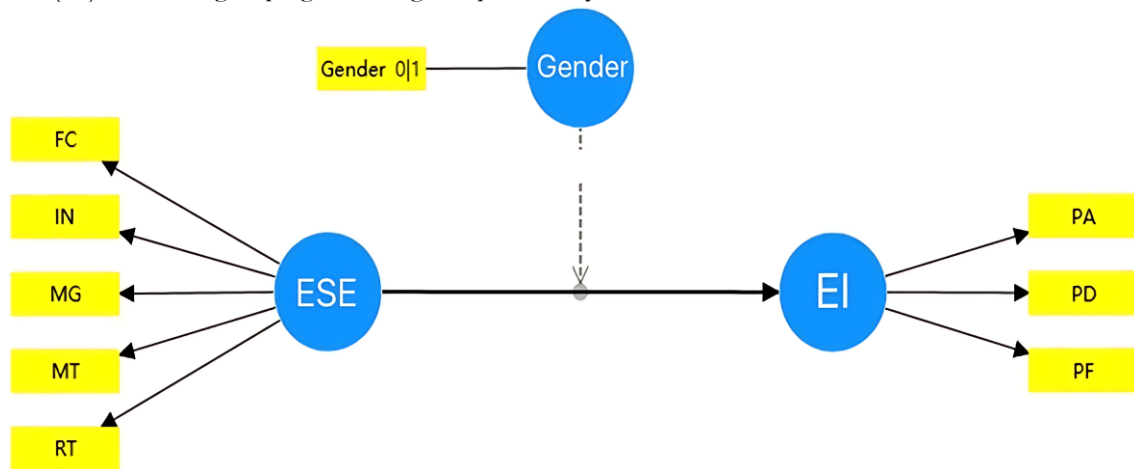


Figure 2. Measurement model diagram for hypothesis.

This model helps to understand the moderating role of gender in the relationship between entrepreneurial self-efficacy and entrepreneurial intention in the sample group of the big five personality traits, revealing potential differences in the formation of entrepreneurial intention between different genders under different personality traits. The big five Personality Traits (PT) were included as a sample group in the SmartPLS 4 calculation. They were not directly displayed in the model diagram which is also the innovation of this study.

#### 4.2. Reliability and Convergent Validity of the Model

The researchers evaluate both reliability and convergent validity to assess the robustness of the proposed model examining the relationship between Entrepreneurial Self-Efficacy (ESE) and Entrepreneurial Intention (EI) across different personality traits as defined by the big five framework (openness, conscientiousness, extraversion, agreeableness, and emotional stability). Reliability ensures that the constructs are measured consistently, while convergent validity confirms that the indicators associated with each construct are indeed related. In this study, multiple reliability measures were employed, including Cronbach's alpha ( $\alpha$ ), Dijkstra-Henseler's rho ( $\rho_a$ ), and Composite Reliability ( $\rho_c$ ) to ensure internal consistency. Additionally, the Average Variance Extracted (AVE) was calculated to assess the convergent validity of the constructs. The following results outline these key metrics for each construct, ensuring the model's appropriateness for further analysis as shown in Table 1.

Table 1. Reliability and convergent validity.

Items	AS		CS		EN		NM		OE	
	EI	ESE	EI	ESE	EI	ESE	EI	ESE	EI	ESE
$\alpha$	0.667	0.771	0.693	0.808	0.657	0.758	0.667	0.773	0.595	0.736
$\rho_c$	0.818	0.845	0.830	0.867	0.814	0.838	0.819	0.846	0.787	0.826
$\rho_a$	0.672	0.780	0.697	0.812	0.667	0.765	0.672	0.777	0.602	0.751
AVE	0.601	0.523	0.621	0.568	0.595	0.511	0.602	0.525	0.554	0.490

Note:  $\alpha$ =Cronbach's alpha,  $\rho_a$ =Dijkstra-Henseler's rho (rho\_a),  $\rho_c$ =Composite reliability (rho\_c), AVE=Average variance extracted.

Table 1 shows that Cronbach's alpha values for Entrepreneurial Intention (EI) range from 0.595 to 0.693, while Cronbach's alpha values for Entrepreneurial Self-Efficacy (ESE) range from 0.736 to 0.808. These results indicate that ESE's internal consistency is generally higher than EI's. Usually, an alpha value above 0.7 is considered ideal but lower values are also acceptable in some cases such as in newly developed or adjusted scales.

The range of  $\rho_c$  values for EI is 0.787 to 0.830, and for ESE, it is 0.826 to 0.867. These results indicate that the composite reliability of both variables is high, and the reliability performance of ESE is significantly better.

The  $\rho_a$  value of EI ranges from 0.602 to 0.697 while the  $\rho_a$  value of ESE ranges from 0.751 to 0.812. These results indicate that the  $\rho$  values of ESE are generally high, further supporting its good internal consistency.

According to Table 1, the AVE values of EI are between 0.554 and 0.621 while the AVE values of ESE are between 0.490 and 0.568. Although the AVE values of ESE are slightly lower than 0.5 in certain factors, the AVE values of EI and ESE are close to or exceed 0.5 indicating that the scale has good convergent validity.

The results of this study indicate that Entrepreneurial Self-Efficacy (ESE) outperforms Entrepreneurial Intention (EI) in terms of internal consistency and reliability. Although some ESE AVE values are lower than EI, the scales for both variables show good reliability and convergent validity. These results strongly support ESE's reliability as a measurement tool while also pointing out directions for further optimization and improvement.

#### 4.3. Model Effect Size

Effect size analysis is critical in understanding the strength of relationships between variables in the proposed model, specifically between Entrepreneurial Self-Efficacy (ESE) and Entrepreneurial Intention (EI) across the big five personality traits. The effect size, quantified by the  $f^2$  value indicates the extent to which the independent variables (personality traits and ESE) contribute to the dependent variable (entrepreneurial intention, or EI) within the model. Specifically,  $f^2$  value of 0.02 indicates a small effect, 0.15 signifies a medium effect, and 0.35 represents a large effect. This analysis is essential for assessing the practical significance of the relationships, providing insights into the magnitude of personality traits' influence on entrepreneurial outcomes. The following results detail the calculated  $f^2$  values which clarify the effect size within the model.

Table 2 shows the  $f^2$  values of Entrepreneurial Self-Efficacy (ESE) on Entrepreneurial Intention (EI) and gender as moderating variables in different personality traits (agreeableness (AS), conscientiousness (CS), extroversion (EN), neuroticism (NM), and openness to experience (OE)) sample groups. The  $f^2$  value is used to measure the effect of each path in the model. Cohen (1992) mentioned that the evaluation of effect size ( $f^2$ ) should follow the following criteria: a value  $< 0.02$  indicates no effect, a value between 0.02 and  $< 0.15$  indicates minimal effect, a value between 0.15 and  $< 0.35$  indicates moderate effect, and a value of 0.35 or greater indicates significant effect on exogenous latent variables.

In different personality trait sample groups, the effect size of ESE on EI is relatively large and statistically significant, especially in conscientiousness, extroversion, and neuroticism personality traits where the effect size is particularly significant ( $f^2 > 0.2$ ). The moderating effect of gender on the relationship between ESE and EI is relatively small in most personality traits ( $f^2 < 0.05$ ) and most are insignificant. The only exception is the openness to experience personality trait; although the effect size is still tiny ( $f^2 = 0.055$ ), it is statistically significant (P value of 0.021).

These results indicate that entrepreneurial self-efficacy (ESE) significantly and strongly impacts entrepreneurial intention (EI) across all personality traits. The role of gender as a moderating variable is relatively tiny, only significant under openness to experience personality traits. The above findings support ESE as an essential variable for predicting EI, but the moderating effect of gender may need further research and validation.

Table 2.  $f^2$  values of the model.

Items	AS		CS		EN		NM		OE	
	ESE→EI	Gender x ESE→EI	ESE→EI	Gender x ESE→EI	ESE→EI	Gender x ESE→EI	ESE→EI	Gender x ESE→EI	ESE→EI	Gender x ESE→EI
O	0.151	0.038	0.280	0.037	0.231	0.027	0.302	0.023	0.203	0.055
M	0.164	0.041	0.302	0.042	0.249	0.030	0.319	0.026	0.219	0.056
STDEV	0.058	0.025	0.092	0.028	0.076	0.020	0.079	0.017	0.064	0.027
O/STDEV	2.625	1.536	3.041	1.316	3.023	1.320	3.815	1.311	3.160	2.035
P	0.004	0.062	0.001	0.094	0.001	0.093	0.000	0.095	0.001	0.021



#### 4.4. Predictive Relevance of the Model

Predictive relevance ( $Q^2$ ) is an essential criterion for assessing the predictive accuracy of the structural model. In the context of Entrepreneurial Self-Efficacy (ESE), Entrepreneurial Intention (EI), and the big five personality traits,  $Q^2$  values indicate how well the model predicts the endogenous constructs (such as EI). This measure is beneficial for evaluating the model's out-of-sample predictive power. A  $Q^2$  value greater than 0 suggests the model has predictive relevance while values closer to 1 indicate more robust predictive accuracy. The following analysis presents the  $Q^2$  values providing insight into the model's ability to predict entrepreneurial intentions based on self-efficacy and personality traits.

**Table 3.**  $Q^2$  values of the model.

Items	AS	CS	EN	NM	OE
	$Q^2$	$Q^2$	$Q^2$	$Q^2$	$Q^2$
EI	0.393	0.531	0.484	0.569	0.452

Table 3 shows that in the sample groups of conscientiousness (CS) and neuroticism (NM) personality traits, the  $Q^2$  values are the highest at 0.531 and 0.569, respectively indicating that the model has the most potent predictive ability for entrepreneurial intention (EI) under these two personality traits. The  $Q^2$  values in the sample groups of extraversion (EN) and openness to experience (OE) personality traits were 0.484 and 0.452, respectively indicating that the model also has a strong predictive ability for EI under these two personality traits. The  $Q^2$  value in the adaptive personality traits (AS) sample group is 0.393. It is relatively low in different personality trait sample groups although the predictive ability is strong.

These results indicate that different personality traits have varying degrees of impact on the model's ability to predict entrepreneurial intention (EI). The traits of conscientiousness and neuroticism play the most important role in improving the model's predictive ability. This finding supports the importance of personality traits particularly conscientiousness and neuroticism in predicting entrepreneurial intentions.

#### 4.5. Model Explanation Power

The explanatory power of a model is typically assessed through  $R^2$  and adjusted  $R^2$  values. These values represent the proportion of variance in the dependent variable (in this case, entrepreneurial intention) explained by the independent variables (such as entrepreneurial self-efficacy and the big five personality traits).  $R^2$  (coefficient of determination) shows the raw percentage of variance the model explains. Adjusted  $R^2$  accounts for the number of predictors in the model providing a more accurate measure especially when multiple variables are involved. Higher  $R^2$  and adjusted  $R^2$  values indicate a greater explanatory power of the model, signifying that the model effectively captures the relationship between personality traits, self-efficacy, and entrepreneurial intention. The following results present the  $R^2$  and adjusted  $R^2$  values for this model.



Table 4. R<sup>2</sup> values and adjusted R<sup>2</sup> values.

Items	AS		CS		EN		NM		OE	
	R <sup>2</sup>	R <sup>2</sup> adjusted	R <sup>2</sup>	R <sup>2</sup> adjusted	R <sup>2</sup>	R <sup>2</sup> adjusted	R <sup>2</sup>	R <sup>2</sup> adjusted	R <sup>2</sup>	R <sup>2</sup> adjusted
O	0.470	0.464	0.603	0.597	0.518	0.513	0.596	0.592	0.479	0.473
M	0.481	0.475	0.612	0.607	0.528	0.522	0.603	0.599	0.489	0.483
STDEV	0.038	0.039	0.042	0.043	0.039	0.039	0.034	0.034	0.039	0.040
O/STDEV	12.218	11.907	14.385	14.055	13.293	12.988	17.608	17.311	12.146	11.851
P	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
O	0.470	0.464	0.603	0.597	0.518	0.513	0.596	0.592	0.479	0.473
M	0.481	0.475	0.612	0.607	0.528	0.522	0.603	0.599	0.489	0.483

**Note:** O=Original sample, M=Sample mean, STDEV=Standard deviation, |O/STDEV|=T statistics, P=P values.

Table 4 shows the  $R^2$  and  $R^2$  adjusted entrepreneurial intention (EI) results under different personality traits (agreeableness, conscientiousness, extroversion, neuroticism, and openness to experience). In sample groups with different personality traits, both the  $R^2$  and  $R^2$  adjusted results of EI indicate that these personality traits have significant explanatory power for entrepreneurial intention. The explanatory power of conscientiousness and neuroticism personality traits for EI is the highest reaching 60.3% and 59.6%, respectively indicating that these personality traits are essential in predicting entrepreneurial intentions. The personality traits of agreeableness, extroversion, and openness to experience also have high explanatory power for EI accounting for 47%, 51.8%, and 47.9%, respectively.

This study analyzed a sample group of private university students with different personality traits (agreeableness, conscientiousness, extroversion, neuroticism, and openness to experience) to explore the impact of entrepreneurial self-efficacy (ESE) on entrepreneurial intention (EI). It examined the role of gender as a moderating variable. The research results indicate that ESE has a significant impact on EI across all personality traits, especially in the responsible (CS), neurotic (NM), and extroverted (EN) personality traits with larger effect sizes ( $f^2$  of 0.280, 0.302, and 0.231, respectively) and vital significance (P values all less than 0.05).

In addition, the model had the most potent predictive ability with  $Q^2$  values of 0.531 and 0.569, respectively indicating that the model has high predictive power for EI under these personality traits among the sample groups of conscientiousness and neuroticism personality traits. In the sample group of extraversion and openness to experience personality traits, the  $Q^2$  values were 0.484 and 0.452, respectively indicating predictive solid ability. In contrast, in the pleasant personality traits sample group, the  $Q^2$  value was 0.393 indicating a weaker predictive ability.

The adjusted  $R^2$  values further confirmed the above conclusion. Among the sample groups of conscientiousness and neuroticism personality traits, ESE had the highest explanatory power for EI, at 59.7% and 59.2%, respectively. In the sample group of extraversion and openness to experience personality traits, the explanatory power was 51.3% and 47.3%, respectively. The explanatory power in the sample group of pleasant personality traits was 46.4%.

In a nutshell, there are significant differences in the ability of different personality traits to predict entrepreneurial intention (EI) in the model. Conscientiousness and neuroticism personality traits play an important role in enhancing the model's predictive ability which supports the crucial role of personality traits particularly conscientiousness and neuroticism in predicting entrepreneurial intentions.

#### 4.6. Hypothesis Model Validation

Hypothesis model validation is crucial for determining the significance and strength of relationships between variables in the proposed model. In this study, path coefficients represent the direct effects of the independent variables (such as the big five personality traits and entrepreneurial self-efficacy) on the dependent variable (entrepreneurial intention). These coefficients along with their corresponding significance levels allow for testing the validity of the formulated hypotheses. Each hypothesis (H1-H5) is assessed through its path coefficient with a positive or negative value indicating the direction of the relationship. Significance is determined using t-values or p-values where a p-value less than 0.05 typically indicates statistical significance. The following analysis presents the path coefficients and the significance of each hypothesis (H1-H5) within the model, validating the proposed relationships between personality traits, self-efficacy, and entrepreneurial intention.

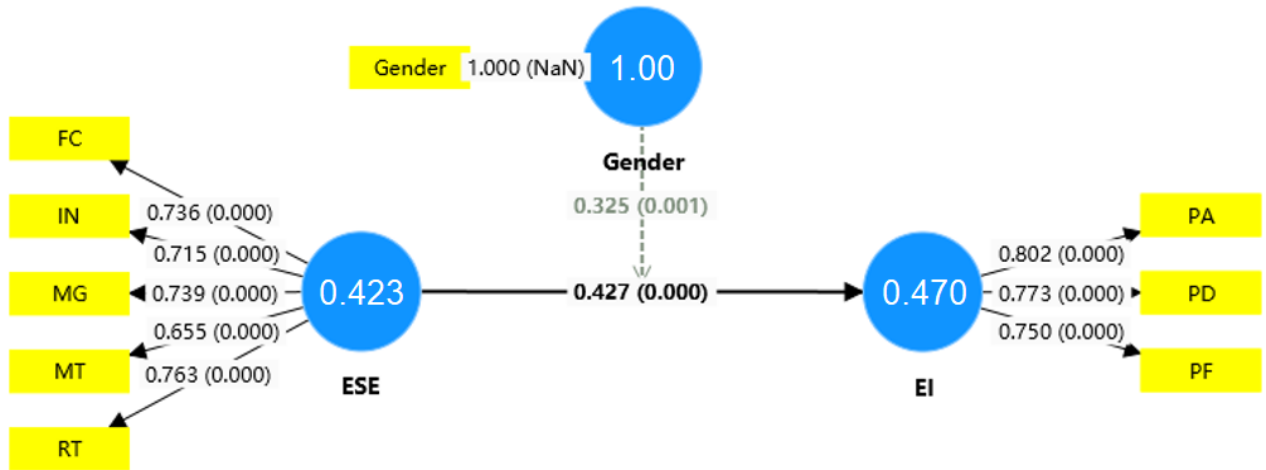


Figure 3. Path coefficients and significance of hypothesis 1 model.

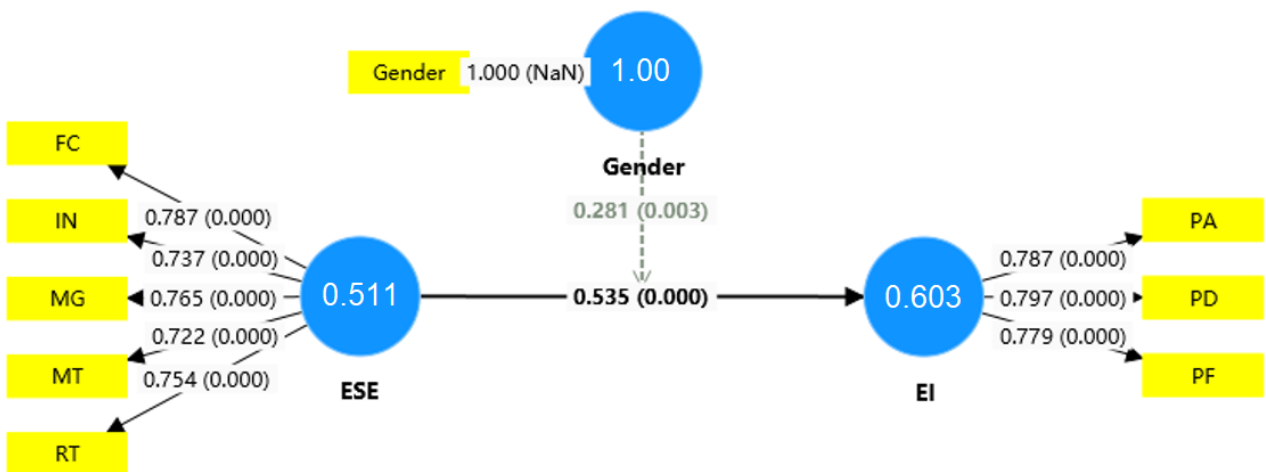


Figure 4. Path coefficients and significance of hypothesis 2 model.

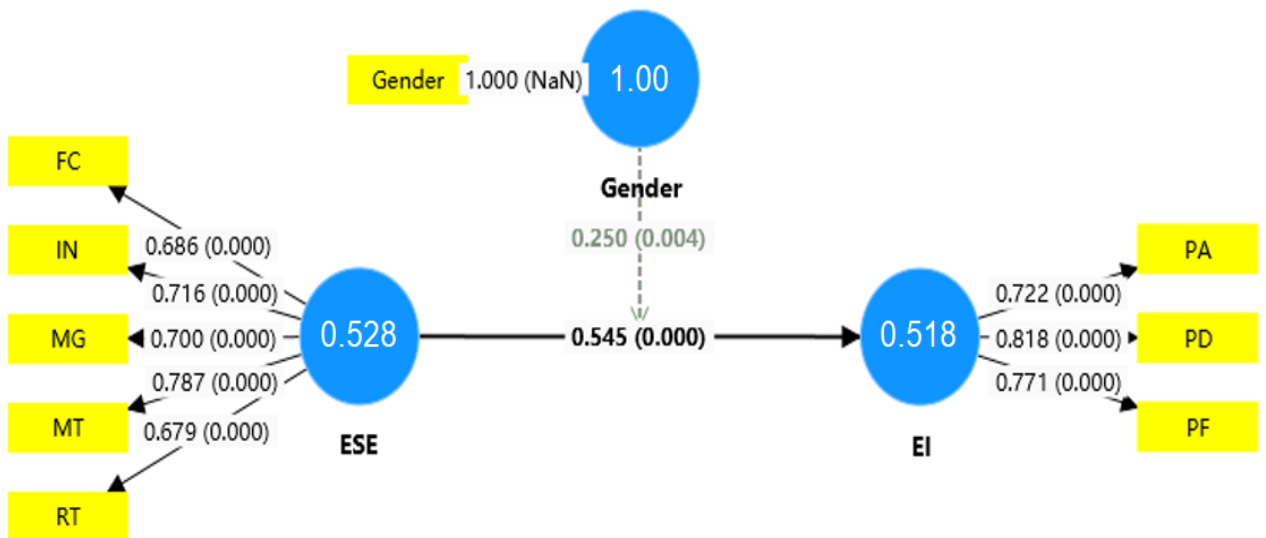


Figure 5. Path coefficients and significance of hypothesis 3 model.

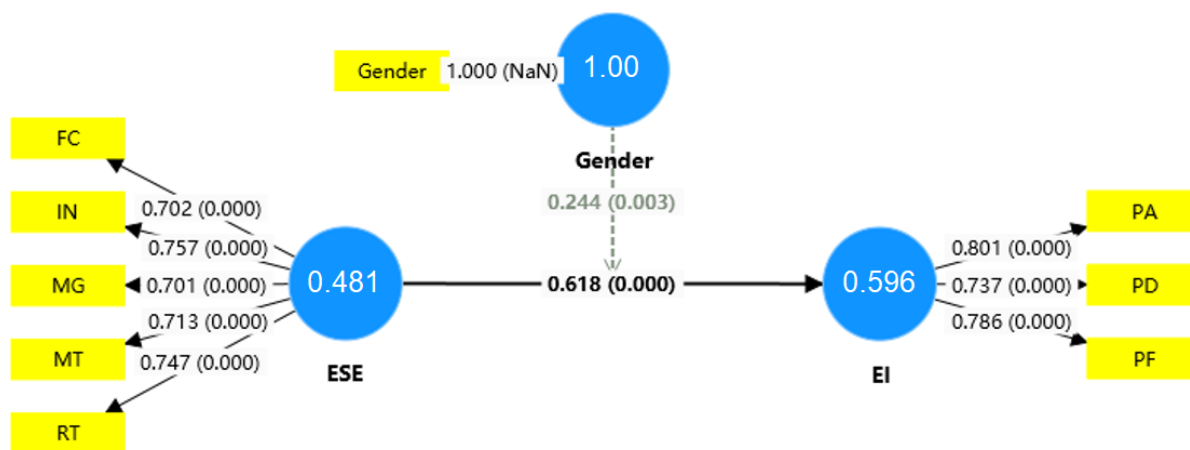


Figure 6. Path coefficients and significance of hypothesis 4 model.

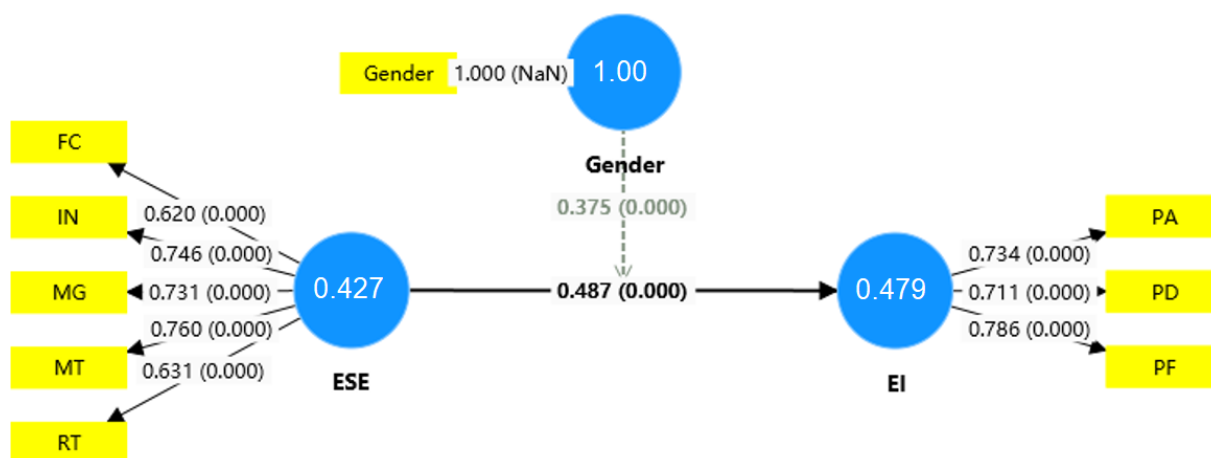


Figure 7. Path coefficients and significance of hypothesis 5 model.

Figure 3 shows that the path coefficient of ESE on EI under the agreeableness personality trait is 0.427 with a p-value of 0.000 indicating a significant impact of ESE on EI. The path coefficient of gender on ESE is 0.325 with a p-value of 0.001 indicating that gender significantly affects ESE under the appropriate personality traits. Therefore, hypothesis 1 is supported by the significant impact of agreeable personality traits on the relationship between ESE and EI and this impact varies by gender.

Figure 4 shows that the path coefficient of ESE on EI under the responsible personality trait is 0.535 with a p-value of 0.000 indicating a significant impact of ESE on EI. The path coefficient of gender on ESE is 0.281 with a p-value of 0.003 indicating that gender significantly affects ESE under responsible personality traits. Therefore, hypothesis 2 is supported by the significant impact of responsible personality traits on the relationship between ESE and EI and this impact varies by gender.

Figure 5 shows that under the extraversion personality trait, the path coefficient of ESE on EI is 0.545 with a p-value of 0.000 indicating a significant impact of ESE on EI. The path coefficient of gender on ESE is 0.250 with a p-value of 0.004 indicating that gender significantly affects ESE under extroverted personality traits. Therefore, hypothesis 3 is supported by the significant impact of extraversion personality traits on the relationship between ESE and EI and this impact varies by gender.

Figure 6 shows that the path coefficient of ESE on EI under neurotic personality traits is 0.618 with a p-value of 0.000 indicating a significant impact of ESE on EI. The path coefficient of gender on ESE is 0.244 with a p-value of 0.003 indicating that gender significantly affects ESE under neurotic personality traits. Therefore, hypothesis 4 is supported by the significant impact of neurotic personality traits on the relationship between ESE and EI, and this impact varies by gender.

Figure 7 shows that under the openness to experience personality trait, the path coefficient of ESE on EI is 0.487 with a p-value of 0.000 indicating a significant impact of ESE on EI. The path coefficient of gender on ESE is 0.375 with a p-value of 0.000 indicating that gender significantly affects ESE under openness to experience personality traits. Therefore, hypothesis 5 is supported by the significant impact of openness to experience personality traits on the relationship between ESE and EI, and this impact varies by gender.

The research results indicate that different personality traits (agreeableness, conscientiousness, extroversion, neuroticism, and openness to experience) significantly impact the relationship between entrepreneurial self-efficacy (ESE) and entrepreneurial intention (EI), and this impact varies by gender. This indicates that gender, as an important moderating variable significantly moderates the relationship between ESE and EI under different personality traits.

#### 4.7. Simple Slope Analysis of the Model

Simple slope analysis is used to explore the interaction effects in the model, mainly to understand how the relationship between an independent variable (entrepreneurial self-efficacy or a specific personality trait) and the dependent variable (entrepreneurial intention) changes at different levels of a moderating variable such as gender. This analysis helps interpret the moderation effect by examining the slope of the relationship under different conditions (high vs. low levels of the moderator). This study uses simple slope analysis to investigate. Furthermore, the interactions hypothesized in H1-H5 provide a more detailed understanding of how these relationships vary by gender or other moderators. The following results show the simple slope analysis for each hypothesis, offering insights into the conditional effects present in the model.

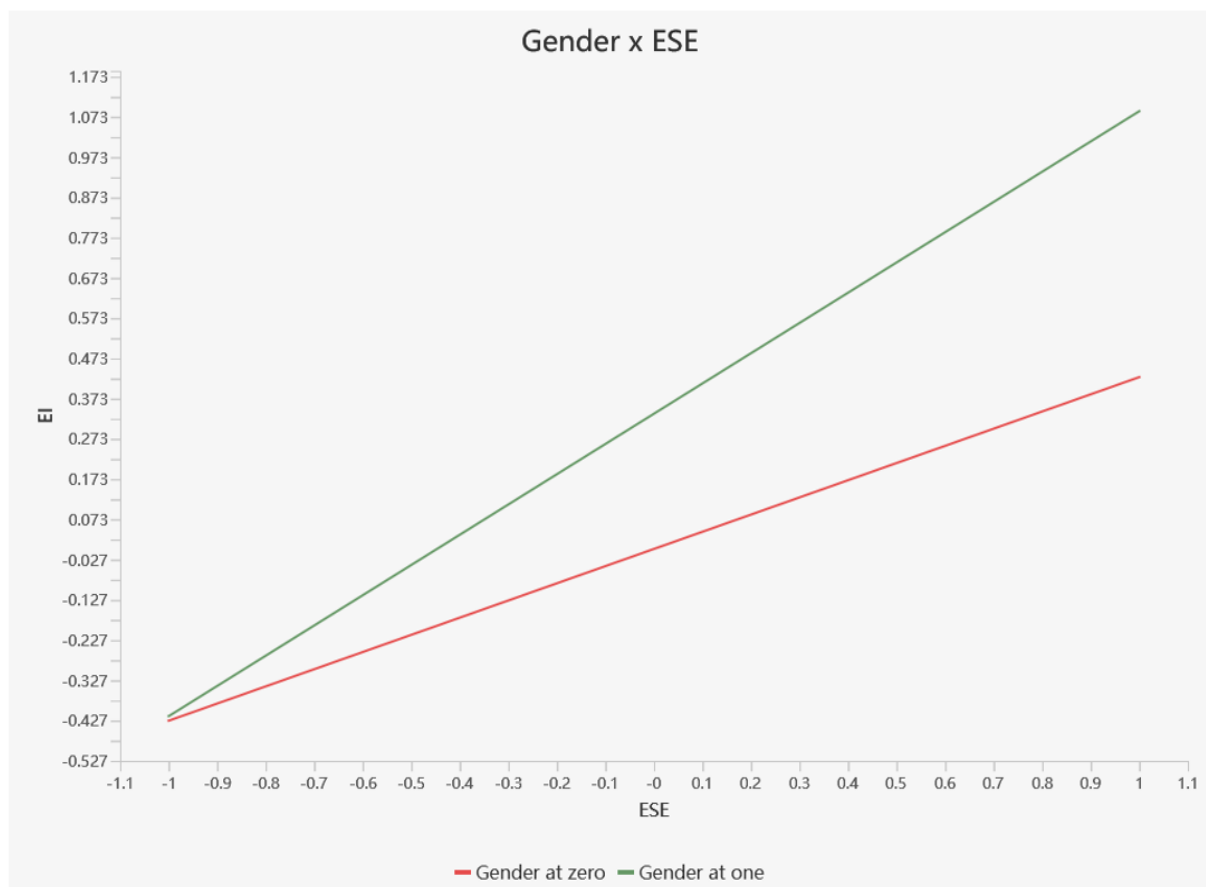


Figure 8. Simple slope analysis of hypothesis 1.

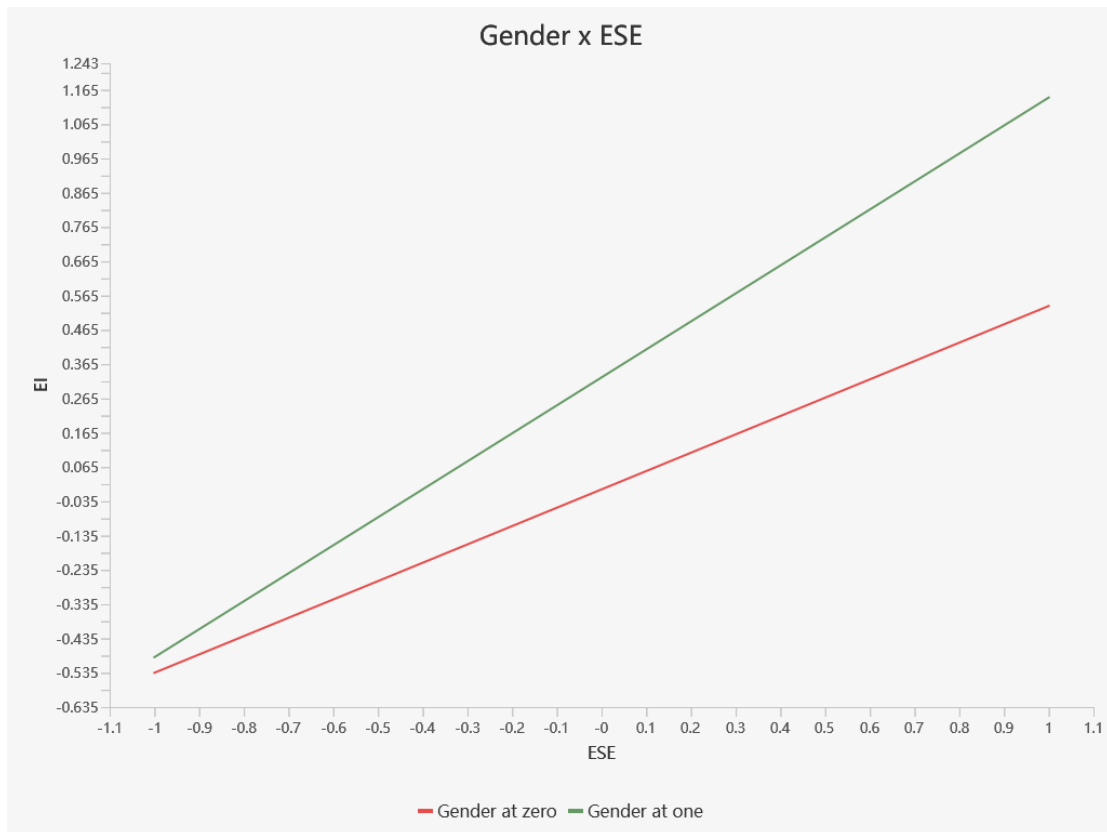


Figure 9. Simple slope analysis of hypothesis 2.

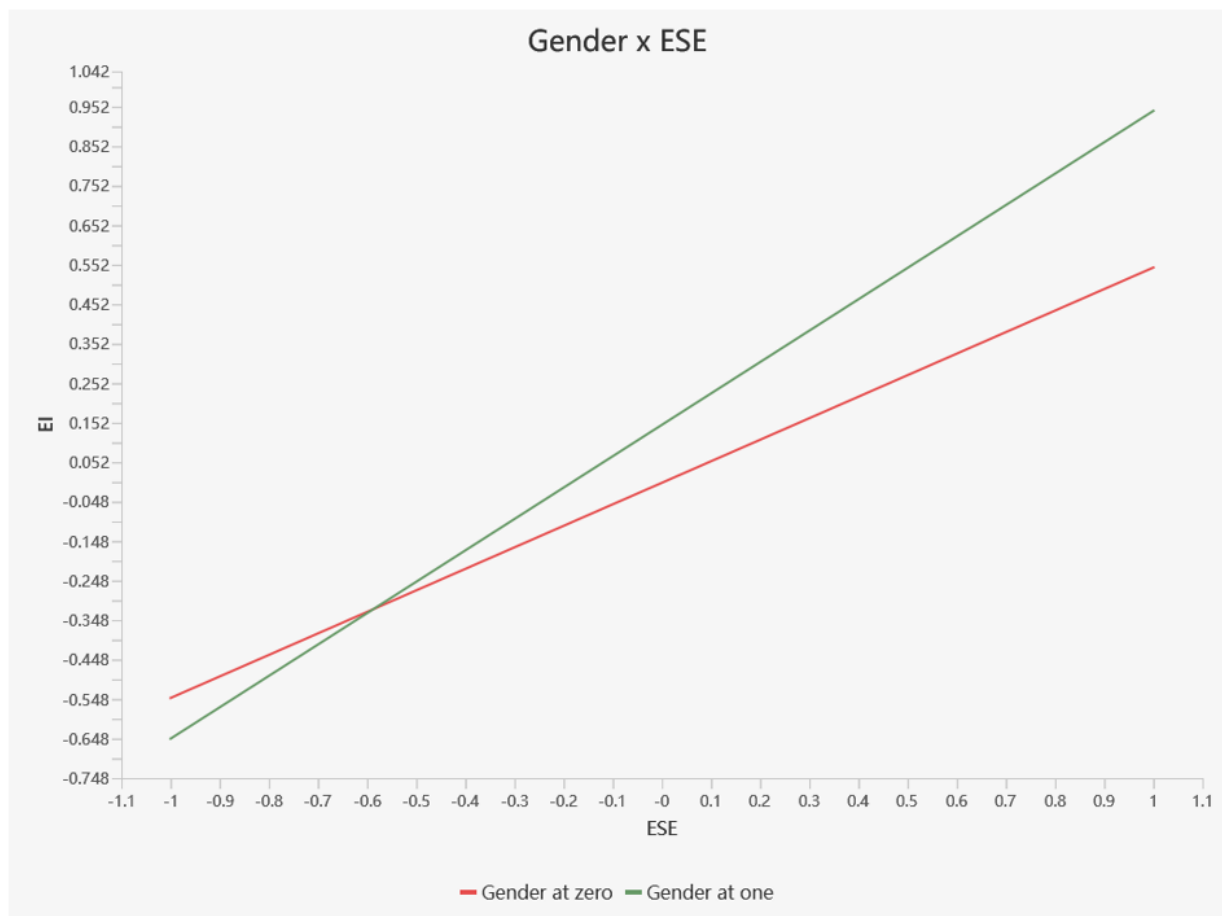


Figure 10. Simple slope analysis of hypothesis 3.

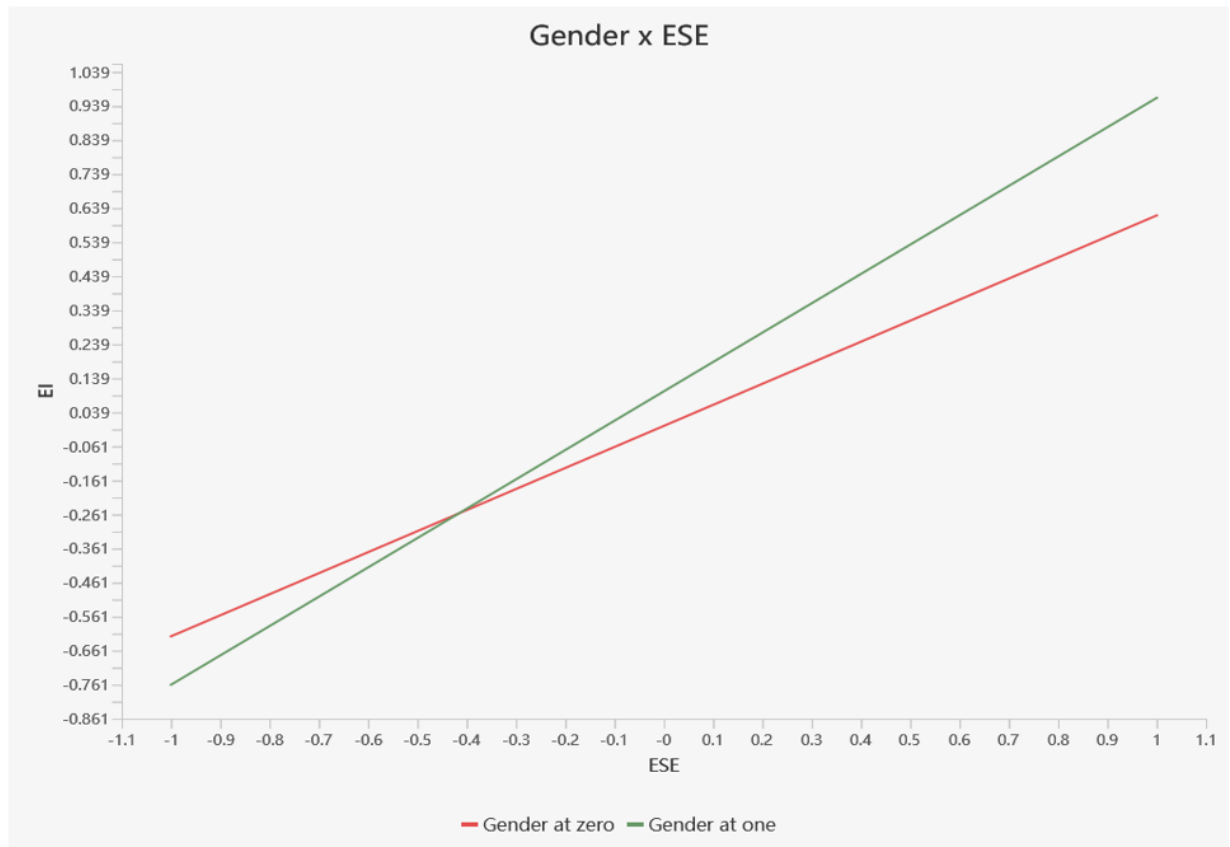


Figure 11. Simple slope analysis of hypothesis 4.

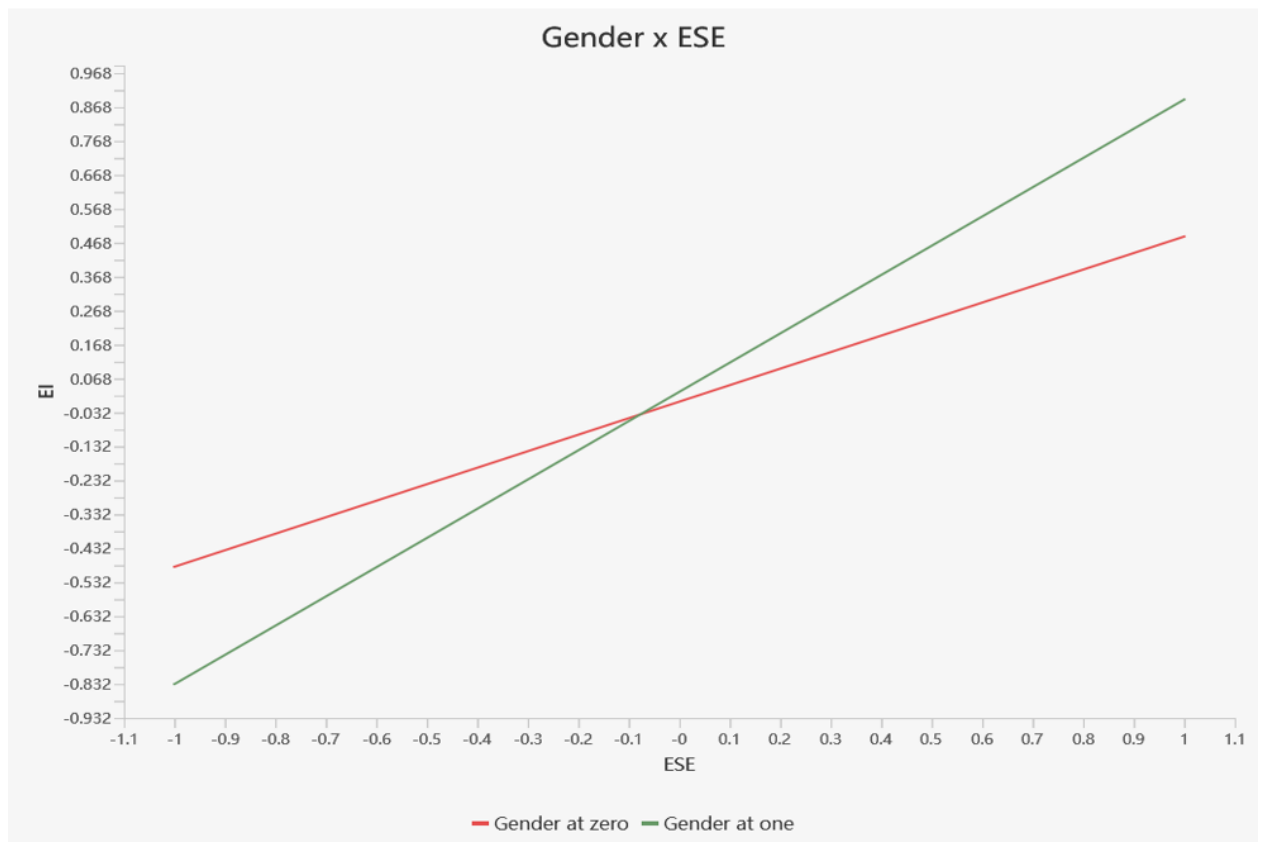


Figure 12. Simple slope analysis of hypothesis 5.



Figure 8 shows that ESE has a stronger impact on EI in the female (green line) sample than in the male (red line) sample. This indicates that under the appropriate personality traits, women's entrepreneurial self-efficacy has a more significant effect on enhancing entrepreneurial intention.

Figure 9 shows that ESE has a stronger impact on EI in the female (green line) sample than in the male (red line) sample. This indicates that under the responsible personality trait, women's entrepreneurial self-efficacy has a more significant effect on enhancing entrepreneurial intention.

Figure 10 shows that ESE has a stronger impact on EI. ESE has a more substantial impact on EI than ESE has a weaker impact on EI. This indicates that under extraverted personality traits, women's entrepreneurial self-efficacy has a more significant effect on enhancing entrepreneurial intention.

Figure 11 shows that ESE has a stronger impact on EI. ESE has a more substantial impact on EI than ESE has a weaker impact on EI. This indicates that under neurotic personality traits, women's entrepreneurial self-efficacy has a more significant effect on enhancing entrepreneurial intention.

Figure 12 shows that ESE has a more substantial impact on EI in the female (green line) sample while ESE has a weaker impact on EI in the male (red line) sample. This indicates that women's entrepreneurial self-efficacy significantly enhances entrepreneurial intention with openness to experience personality traits.

Among all personality trait sample groups, the impact of entrepreneurial self-efficacy (ESE) on entrepreneurial intention (EI) was significantly more substantial in female samples (green line) than in male samples (red line). This result indicates that women are more likely to increase their entrepreneurial intentions when they have high entrepreneurial self-efficacy.

In a nutshell, there are slight differences in the moderating effect of gender on the impact of ESE on EI among different personality trait sample groups, but the overall trend is consistent: Women have a more significant promoting effect of ESE on EI. This gender difference is particularly evident in the conscientiousness (CS) and neuroticism (NM) personality traits, possibly due to the more prominent role of these personality traits in individual confidence and motivation.

## 5. DISCUSSION

The research results indicate that different personality traits play a significant role in the relationship between ESE and EI, and this role varies by gender.

Firstly, the influence of conscientiousness and neuroticism personality traits on the relationship between ESE and EI is most significant indicating that these personality traits play a key role in enhancing entrepreneurial intention. Students with a strong sense of responsibility usually have a high sense of responsibility and self-discipline, enabling them to develop detailed plans and consistently execute them during the entrepreneurial process, enhancing their entrepreneurial self-efficacy and intention. Students exhibiting high levels of neuroticism are more prone to experiencing stress and anxiety which may drive them to work harder to overcome entrepreneurial challenges, thus enhancing their Entrepreneurial Self-Efficacy (ESE) and Entrepreneurial Intention (EI). The findings of this study indicate that the personality traits of conscientiousness and neuroticism significantly influence the relationship between ESE and EI. This aligns with existing literature that underscores the importance of personality traits in shaping entrepreneurial behavior. Conscientiousness, characterized by diligence, organization and a strong sense of responsibility is consistently linked to entrepreneurial success. Research by Zhao et al. (2010) suggests that conscientious individuals are more inclined to engage in entrepreneurial activities due to their goal-oriented nature and perseverance. This study reinforces the idea that conscientiousness enhances the relationship between ESE and EI indicating that students with high conscientiousness are better equipped to transform their entrepreneurial confidence into intention.

Conversely, the study also highlights the role of neuroticism which is often associated with emotional instability and anxiety. While neuroticism has traditionally been viewed as a negative predictor of entrepreneurial success, some research suggests it can motivate entrepreneurial intentions in specific contexts. For example, [Ciavarella et al. \(2004\)](#) found that individuals with moderate neuroticism may pursue entrepreneurial ventures to gain control over their environment and mitigate uncertainty. The current findings suggest that neuroticism may encourage certain individuals to act on their entrepreneurial self-efficacy, possibly serving as a coping mechanism for their anxiety or stress despite its negative connotations. These insights contribute to a growing body of evidence demonstrating that both conscientiousness and neuroticism play crucial roles in enhancing entrepreneurial intention through their influence on self-efficacy. Future entrepreneurship education programs should consider these personality traits when designing interventions to foster entrepreneurial intentions among students.

Furthermore, the study found that the personality traits of extraversion and openness to experience also have a significant positive impact on the relationship between ESE and EI. Students with high extraversion typically possess strong social skills and risk tolerance, which facilitate their ability to garner support and resources during the entrepreneurial process, thereby enhancing both their self-efficacy and intention. Similarly, students exhibiting high openness to experience demonstrate a positive attitude towards new ideas and readily embrace innovation and change. These traits promote creativity and flexibility in the entrepreneurial process, further enhancing ESE and EI.

The research confirms that extraversion and openness to experience significantly strengthen the relationship between ESE and EI in addition to conscientiousness and neuroticism. These traits are critical for entrepreneurial success associated with sociability, energy, creativity, and a willingness to explore new ideas. Extraversion, characterized by assertiveness, enthusiasm, and a propensity for social interaction is linked to entrepreneurial success due to its facilitative role in networking and leadership. According to [Zhao et al. \(2010\)](#) extroverted individuals tend to have greater confidence in their abilities and excel at building social networks which are essential for entrepreneurship. Their high level of self-efficacy enables them to translate their confidence and social skills into entrepreneurial intentions. The study reinforces that extraversion significantly enhances the ESE-EI relationship, underscoring the importance of interpersonal skills and confidence in fostering entrepreneurial ambitions.

Openness to experience encompassing traits such as creativity, curiosity and a willingness to engage in novel experiences is also vital in promoting entrepreneurial intentions. Individuals with high openness are more likely to pursue entrepreneurial ventures because they are drawn to innovation and change. [Brandstätter \(2011\)](#) found a positive relationship between openness and entrepreneurial intention as these individuals are more receptive to opportunities and more willing to take risks. This aligns with the current findings which indicate that openness significantly enhances the relationship between ESE and EI suggesting that those open to new experiences can effectively channel their creativity and self-efficacy into entrepreneurial pursuits. Supporting this view, [Leutner, Ahmetoglu, Akhtar, and Chamorro-Premuzic \(2014\)](#) found that openness strongly predicts entrepreneurial orientation, particularly in terms of innovation and risk-taking. Entrepreneurs who score high on openness are more likely to engage in creative problem-solving, which strengthens their self-efficacy and, consequently, their entrepreneurial intentions. The significant positive impact of extraversion and openness to experience on the ESE-EI relationship emphasizes the importance of these traits in entrepreneurship. Both sociability and creativity are crucial for transforming self-efficacy into entrepreneurial action, highlighting the need for entrepreneurship education programs to foster skills and personality-driven factors like openness and extraversion to enhance students' entrepreneurial potential.

Finally, gender differences were observed in the moderating effect of various personality traits on the relationship between ESE and EI. Specifically, women with high entrepreneurial self-efficacy demonstrated a more pronounced enhancement in their entrepreneurial intention indicating the necessity of focusing on cultivating

female students' self-efficacy in entrepreneurship education. This study revealed that gender moderates the relationship between personality traits and the connection between ESE and EI. The moderating effect of gender suggests that the influence of certain personality traits on entrepreneurial outcomes varies between male and female students. This finding aligns with prior research indicating that gender differences shape how personality traits affect entrepreneurial behaviors and self-efficacy. Mueller and Conway Dato-on (2013) found that gender significantly moderates the relationship between self-efficacy and entrepreneurial intentions with men typically displaying higher entrepreneurial intentions linked to traits such as extraversion and openness while women show stronger relationships between conscientiousness and ESE. This implies that men may leverage social and creative traits in their entrepreneurial ventures while women may rely more on discipline and persistence, accounting for the differing impacts of personality traits across genders. Furthermore, research by Yordanova and Tarrazon (2010) explored gender differences in entrepreneurial intention and self-efficacy among university students, revealing that female students were more strongly influenced by conscientiousness and agreeableness, whereas male students were driven more by extraversion and openness. These findings indicate that men and women may engage with entrepreneurial self-efficacy differently based on their personality traits. This study reinforces the notion that gender influences the interaction between personality traits and self-efficacy, particularly in shaping entrepreneurial intentions. The observed differences in the moderating effect of gender suggest that men and women may require distinct approaches in entrepreneurship education tailored to how their personality traits impact self-efficacy and intention. Thus, entrepreneurship programs should consider these gender-based differences to nurture students' entrepreneurial potential more effectively.

## 6. CONCLUSION

The research results show that :

1. Different personality traits (agreeableness, conscientiousness, extroversion, neuroticism, and openness to experience) significantly impact the relationship between entrepreneurial self-efficacy and entrepreneurial intention.
2. The traits of conscientiousness and neuroticism play a crucial role in enhancing entrepreneurial intentions.
3. Gender has a significant moderating effect on the relationship between entrepreneurial self-efficacy and entrepreneurial intention, varying across different personality traits. Specifically, women exhibit a stronger enhancement of entrepreneurial intention when they possess high levels of entrepreneurial self-efficacy.

## 7. POLICY SUGGESTION

The researchers propose several policy suggestions to enhance entrepreneurship education and support for university students based on the findings of this study regarding the influence of personality traits on Entrepreneurial Self-Efficacy (ESE) and Entrepreneurial Intention (EI) as well as the moderating effects of gender.

1. Tailored Entrepreneurship Education Programs: Develop customized entrepreneurship curricula that take into account students' unique personality traits. Programs should emphasize the cultivation of conscientiousness and openness to experience for all students while implementing gender-specific strategies that address the different ways personality traits influence self-efficacy and entrepreneurial intentions in male and female students.
2. Mentorship and Role Models: Establish mentorship programs connecting students with successful entrepreneurs who share similar personality traits or gender backgrounds. Such relationships can provide students with insights and encouragement, especially for female students who may encounter additional barriers in entrepreneurship. Mentors can offer tailored guidance on leveraging their personality strengths to enhance self-efficacy and intention.

3. Workshops and Training on Soft Skills: Organize workshops focused on developing soft skills related to personality traits, such as communication, networking, and resilience. For example, training aimed at enhancing extraversion-related skills can boost students' confidence in social interactions which are crucial for entrepreneurial success. Workshops should be inclusive, catering to both male and female students to help them effectively harness their personality traits.
4. Assessment Tools for Personality Traits: Implement assessment tools that allow students to identify their personality traits and understand how these traits impact their entrepreneurial capabilities. Providing feedback on their personality profiles can help students leverage their strengths and address weaknesses in ESE and EI. Institutions can incorporate these assessments into entrepreneurship courses and counseling services.
5. Supportive Ecosystems for Diverse Entrepreneurs: Foster an entrepreneurial ecosystem that promotes diversity and inclusion. Policymakers and educational institutions should collaborate to create networks that support women and underrepresented groups in entrepreneurship, ensuring equal access to resources, funding opportunities, and training. Initiatives that celebrate and showcase the achievements of diverse entrepreneurs should be promoted to inspire students from various backgrounds.

## 8. RESEARCH IMPLICATIONS

**Influence of various personality traits on the relationship between entrepreneurial self-efficacy and entrepreneurial intentions:** This study confirms and extends the significant influence of personality traits such as extraversion, openness to experience, and conscientiousness on entrepreneurial self-efficacy through empirical research.

**The role of gender as a moderating variable:** The study shows that gender significantly moderates the relationship between different personality traits, entrepreneurial self-efficacy, and entrepreneurial intentions. In particular, it shows that entrepreneurial intentions are more pronounced in women with high entrepreneurial self-efficacy.

**Empirical support for targeted educational strategies:** The results provide theoretical and empirical support for introducing personalized educational strategies in entrepreneurial education at private universities. This includes adapting programs to individual personality traits and considering gender-specific needs.

**Funding:** This study received no specific financial support.

**Institutional Review Board Statement:** The Ethical Committee of the Rajapruk University, Thailand has granted approval for this study on 19 August 2024 (Ref. No. IRB/RUC093/2567).

**Transparency:** The authors state that the manuscript is honest, truthful, and transparent, that no key aspects of the investigation have been omitted, and that any differences from the study as planned have been clarified. This study followed all writing ethics.

**Competing Interests:** The authors declare that they have no competing interests.

**Authors' Contributions:** All authors contributed equally to the conception and design of the study. All authors have read and agreed to the published version of the manuscript.

## REFERENCES

- Boyd, N. G., & Vozikis, G. S. (1994). The influence of self-efficacy on the development of entrepreneurial intentions and actions. *Entrepreneurship Theory and Practice*, 18(4), 63-77. <https://doi.org/10.1177/104225879401800404>
- Brandstätter, H. (2011). Personality aspects of entrepreneurship: A look at five meta-analyses. *Personality and Individual Differences*, 51(3), 222-230.
- Chen, C. C., Greene, P. G., & Crick, A. (1998). Does entrepreneurial self-efficacy distinguish entrepreneurs from managers? *Journal of Business Venturing*, 13(4), 295-316. [https://doi.org/10.1016/S0883-9026\(97\)00029-3](https://doi.org/10.1016/S0883-9026(97)00029-3)
- Ciavarella, M. A., Buchholtz, A. K., Riordan, C. M., Gatewood, R. D., & Stokes, G. S. (2004). The big five and venture survival: Is there a linkage? *Journal of Business Venturing*, 19(4), 465-483. <https://doi.org/10.1016/j.jbusvent.2003.03.001>

- Cohen, J. (1992). Statistical power analysis. *Current Directions in Psychological Science*, 1(3), 98–101.
- Guo, L., Huang, J., & Zhang, Y. (2019). Education development in China: Education return, quality, and equity education development in China: Education return, quality, and equity. *Sustainability*, 11(13), 3750.
- Hahn, D., Minola, T., Bosio, G., & Cassia, L. (2020). The impact of entrepreneurship education on university students' entrepreneurial skills: A family embeddedness perspective. *Small Business Economics*, 55, 257–282.
- Kickul, J., Gundry, L. K., Barbosa, S. D., & Whitcanack, L. (2009). Intuition versus analysis? Testing differential models of cognitive style on entrepreneurial self-efficacy and the new venture creation process. *Entrepreneurship Theory and Practice*, 33(2), 439–453.
- Krueger Jr, N., & Dickson, P. R. (1994). How believing in ourselves increases risk taking: Perceived self-efficacy and opportunity recognition. *Decision Sciences*, 25(3), 385–400.
- Langowitz, N., & Minniti, M. (2007). The entrepreneurial propensity of women. *Entrepreneurship Theory and Practice*, 31(3), 341–364.
- Leutner, F., Ahmetoglu, G., Akhtar, R., & Chamorro-Premuzic, T. (2014). The relationship between the entrepreneurial personality and the big five personality traits. *Personality and Individual Differences*, 63, 58–63.
- Li, K. (2014). *Opening up a new era of mass entrepreneurship and innovation*. Retrieved from [https://www.gov.cn/xinwen/2014-09/11/content\\_2748721.htm](https://www.gov.cn/xinwen/2014-09/11/content_2748721.htm)
- McCrae, R. R., & Costa Jr, P. T. (1997). Personality trait structure as a human universal. *American Psychologist*, 52(5), 509. <https://doi.org/10.1037/0003-066X.52.5.509>
- McGee, J. E., Peterson, M., Mueller, S. L., & Sequeira, J. M. (2009). Entrepreneurial self-efficacy: Refining the measure. *Entrepreneurship Theory and Practice*, 33(4), 965–988. <https://doi.org/10.1111/j.1540-6520.2009.00304.x>
- Mueller, S. L., & Conway Dato-on, M. (2013). A cross cultural study of gender-role orientation and entrepreneurial self-efficacy. *International Entrepreneurship and Management Journal*, 9, 1–20. <https://doi.org/10.1007/s11365-011-0187-y>
- Rauch, A., & Frese, M. (2007). Let's put the person back into entrepreneurship research: A meta-analysis on the relationship between business owners' personality traits, business creation, and success. *European Journal of Work and Organizational Psychology*, 16(4), 353–385. <https://doi.org/10.1080/13594320701595438>
- Shane, S., Locke, E. A., & Collins, C. J. (2003). Entrepreneurial motivation. *Human Resource Management Review*, 13(2), 257–279.
- Yordanova, D. I., & Tarrazon, M.-A. (2010). Gender differences in entrepreneurial intentions: Evidence from Bulgaria. *Journal of Developmental Entrepreneurship*, 15(3), 245–261.
- Zhao, H., & Seibert, S. E. (2006). The big five personality dimensions and entrepreneurial status: A meta-analytical review. *Journal of Applied Psychology*, 91(2), 259. <https://doi.org/10.1037/0021-9010.91.2.259>
- Zhao, H., Seibert, S. E., & Hills, G. E. (2005). The mediating role of self-efficacy in the development of entrepreneurial intentions. *Journal of Applied Psychology*, 90(6), 1265.
- Zhao, H., Seibert, S. E., & Lumpkin, G. T. (2010). The relationship of personality to entrepreneurial intentions and performance: A meta-analytic review. *Journal of Management*, 36(2), 381–404.

*Views and opinions expressed in this article are the views and opinions of the author(s), Humanities and Social Sciences Letters shall not be responsible or answerable for any loss, damage or liability etc. caused in relation to/arising out of the use of the content.*