

Digital Literacy and Entrepreneurial Attitudes: A Study of Indonesian University Students

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Abstract

Technological advancements have created many opportunities for young entrepreneurs to develop and expand their business operations. Therefore, the internet has encouraged the emergence of digital entrepreneurship as a growing form of entrepreneurship among many young entrepreneurs and even university students, who are indeed the digital native generation. This study examines the extent to which the personal characteristics of digital natives among university students in Indonesia impact their digital entrepreneurship intention. This study examines the direct impact of five personal traits adopted from the big five personal traits, namely openness to experience, conscientiousness, extraversion, agreeableness, and neuroticism, on personal attitude and digital entrepreneurship intention. For this purpose, the respondents were 254 Indonesian university students using simple random sampling technique. Structural equation modelling using SEM SmartPLS 4.0. The results of this study reveal that all hypotheses are proven to have a significant positive effect, namely the five personal characteristics of college students (agreeableness, conscientiousness, extraversion, neuroticism, and openness to experience) have a positive effect on personal attitude. Furthermore, the attitude variable also has a positive effect on digital entrepreneurship intention. The results of this study contribute to the research gap on the big five personal traits, personal attitude and digital entrepreneurship intention. Theoretical and practical implications have been discussed and become important recommendations for the future projections of students, teaching lecturers, and also for management policies in higher education.

Keywords:

Digital Entrepreneurship, personal character, personal attitude, the big five personal traits, entrepreneurship.



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INTRODUCTION

The concept of digitalization has changed the world economic constellation with the digital economy emerging as the second most important economic development after the industrial revolution. The adoption of digital technology is considered an important motivator of entrepreneurship. Technological advances have created many opportunities for young entrepreneurs in particular to develop and expand their business operations. The internet and technology have dramatically changed the structure and way businesses are established. This has led to the emergence of a type of entrepreneurship known as "digital entrepreneurship". The relationship between the internet and entrepreneurship has been associated with several concepts such as e-entrepreneurship, digital entrepreneurship, ship or internet entrepreneurship. There is a large body of academic literature published on traditional entrepreneurship. However, new literature addressing the topic of digital entrepreneurship in Indonesia and in the context of university students, is still in its infancy and requires further understanding and wider investigation.

In general, digital entrepreneurship has been considered important and crucial because it is important for the following reasons: (1) Innovation and Flexibility: Digital entrepreneurship drives innovation and flexibility in business by utilizing digital technologies to create new solutions, products

and services that can change the way business is done. (2) Global Market Access: With digital entrepreneurship, businesses can access global markets more easily through online platforms, expanding their business reach without being limited by geographical boundaries. (3) Operational Efficiency: The use of digital technology in entrepreneurship can improve operational efficiency, reduce costs, and speed up business processes, thus enabling companies to compete better in the market. (4) Increased Competitiveness: Digital entrepreneurship enables companies to stay relevant and competitive in the ever-evolving digital age, by leveraging technology to improve products, services and customer experience. (5) Adaptability: Businesses that embrace digital entrepreneurship tend to be better able to adapt to market and technological changes, thereby surviving and thriving in a dynamic business environment. Thus, digital entrepreneurship becomes essential in facing the challenges and opportunities offered by today's digital age, enabling companies to thrive and succeed in an ever-changing business environment.

The rationale for discussing the Big Five personality traits in this study, particularly in the context of university students, is due to the importance of understanding how individual personal characteristics can influence attitudes and intentions towards digital entrepreneurship. The Big Five Personality Traits, which consist of openness to experience, conscientiousness, extraversion, agreeableness, and neuroticism, have become a commonly used framework for understanding individual differences in behavior and preferences. In the context of digital entrepreneurship, previous research has shown that individual personal traits can play an important role in influencing attitudes and intentions towards digital entrepreneurship. By considering the Big Five Personality Traits, this study can identify the relationship between individual personal characteristics and digital entrepreneurial behavior, as well as how these factors interact with each other in the context of entrepreneurial decision-making. Thus, the use of the Big Five Personality Traits framework in this study provides a strong basis for analyzing the influence of personal traits on attitudes and intentions towards digital entrepreneurship, and provides a deeper understanding of how individual personal characteristics can influence success in entrepreneurship in the digital age.

Meanwhile, linking personal traits with attitudes and digital entrepreneurship is important because: First, the Influence of Personal Traits: Personal traits such as courage, perseverance, creativity and adaptability can influence one's attitude towards digital entrepreneurship. Individuals with favorable personal traits tend to have a positive attitude towards challenges and innovation in the digital world. Second, Attitude Influence: An individual's attitude towards digital entrepreneurship can be influenced by their personal traits. For example, individuals who possess personal traits such as openness, extroversion and self-awareness are likely to have attitudes that favor exploration and engagement in digital entrepreneurship. Third, Predictors of Digital Entrepreneurship: Personal traits can act as predictors in determining how much an individual is interested and committed to digital entrepreneurship. The linkages between personal traits, attitudes and digital entrepreneurial intentions can help in understanding the factors that influence individual success in entrepreneurship in the digital age. Fourth, Potential Development: By linking personal traits with attitudes and digital entrepreneurship, individuals can better understand their personal strengths and weaknesses in the context of digital entrepreneurship. This can aid in self-development, skill enhancement and increased success in entrepreneurship in a competitive digital world. Thus, linking personal traits with attitudes and digital entrepreneurship is important to understand the relationship between individual personal factors and success in entrepreneurship in the digital age, as well as to identify potential and opportunities that can be utilized in developing digital businesses.

The current research has defined college students' interrelated personal traits for their digital entrepreneurship intentions. It examines the extent to which attitude toward behavior, as an important factor in the dimensions of the theory of planned behavior (TPB), influences college students' intentions toward digital entrepreneurship. The current study adopts a comprehensive model that investigates the direct impact of personal traits, specifically a taxonomy of five major traits "namely, openness, extroversion, conscientiousness, friendliness, and neuroticism" on personal attitudes (attitude) and their influence (attitude) on digital entrepreneurship intentions among college students. Thus, based on the above arguments, there are two research questions as follows:

RQ 1: What is the effect of The Big Five Personality Traits taxonomy on students' attitude?

RQ 2: What is the effect of attitude on students' digital entrepreneurship intention?

To achieve the objectives and answer the research questions above, the researcher narrated them in a sequence of steps as follows: Step one, by highlighting the research gap and the purpose of conducting the research. The second step, presenting the conceptual framework of the study. The

researcher builds research hypotheses and develops a theoretical model based on a review of the Big Five Personality Traits and their relationship with students' personal attitudes, as well as the relationship of personal attitudes to digital entrepreneurship intention. In the third step, the researchers present the research design and methods used for data collection and analysis. Next, the researchers present the research findings using the SmartPLS 4.0 SEM structural equation modeling analysis in the fourth step. In the fifth step, the researchers discussed the results of the study in comparison with previous research results to determine some of the implications for students, academic educators and policy makers in higher education. Finally, the researcher highlighted the limitations of this study in step six, and future research directions.

Literature Review and Hypothesis Development

Digital Entrepreneurship Concept

Digital entrepreneurship refers to the practice of pursuing new business opportunities that arise from internet technologies and new media. It involves developing new value with digital services or products, in digital work environments, digital markets, through digital distribution channels, or a mix of all these factors. Digital entrepreneurship leverages digital technologies in various business value chain activities, such as idea generation, opportunity identification, and product/service commercialization. While it shares similarities with traditional entrepreneurship in terms of idea generation and commercialization, digital entrepreneurship differentiates itself by the use of digital technologies in its business activities (Park, 2020).

Some forms of digital entrepreneurship include simple e-commerce websites, complex multimedia platforms and cloud computing spaces. Digital entrepreneurship can also be classified in three technology-related forms: technology entrepreneurship, digital technology entrepreneurship, and digital entrepreneurship (Al-Hammadi et al., 2021). Understanding digital entrepreneurship is important as this phenomenon is increasingly considered a desirable career path, especially by the current digital generation.

The digital entrepreneurship intention variable in this study refers to the intention of students to carry out digital entrepreneurship activities. This variable is very important to understand students' willingness and motivation for entrepreneurship in the digital realm. The indicator items used to measure this variable include statements that reflect students' attitudes and intentions towards digital entrepreneurship. For example, indicator items may include statements such as: "I am resistant to inconvenience caused by digital projects." or "I will continue to invest in digital projects." These indicator items are designed to assess students' level of commitment, interest and readiness to participate in digital entrepreneurship activities. (Sobaih & Elshaer, 2022).

Personal Traits and Personal Attitudes towards Digital Entrepreneurship

The following is the definition of each of the Big Five Personality Traits described by Sobaih and Elshaer (2022): First, Agreeableness: Agreeableness refers to the extent to which a person is friendly, cooperative, and willing to work with others. Individuals who are high in agreeableness tend to have traits of empathy, tolerance, and a desire to help others. Second, Conscientiousness: Conscientiousness reflects a person's level of orderliness, discipline, and responsibility in living daily life. Individuals who are high in conscientiousness tend to be meticulous, organized, and highly motivated to achieve goals. Third, Extraversion: Extraversion describes the extent to which a person is extroverted, friendly, and energetic in social interactions. Individuals high in extraversion tend to enjoy social interactions, take risks, and have high energy levels. Fourth, Neuroticism: Neuroticism refers to the degree of one's tendency to feel negative emotions such as anxiety, fear, and depression. Individuals high in neuroticism tend to be prone to stress, easily anxious, and find it difficult to cope with emotional distress. Fifth, Openness to Experience: Openness to Experience reflects the extent to which a person is open to new ideas, experiences, and creative concepts. Individuals high in openness to experience tend to have a strong imagination, openness to change, and interest in the exploration of new ideas. These definitions provide an overview of the characteristics of each of the Big Five Personality Traits and how they can influence individual behaviors and preferences in various contexts, including in digital entrepreneurship.

According to Rahman et al. (2018) According to Rahman et al. (2018), the motivator of human behavior is personality. Several studies have confirmed that individuals' decisions to engage in entrepreneurial activities are influenced by personality traits (Hamza et al., 2023; Judge & Zapata, 2015;

Rahman et al., 2018a). (Hamza et al., 2023; Judge & Zapata, 2015; Rahman et al., 2018b, 2018a).. According to (Judge & Zapata, 2015)(Judge & Zapata, 2015), personality traits distinguish a person's entrepreneurial potential and these personal characteristics have a significant impact on entrepreneurial intentions. Personal character explains variations in behavior and choices in different areas of life, providing insight into common ways of feeling, thinking, and acting.

The influence of The Big Five Traits on college students' personal attitudes is an interesting topic to research (Wang et al., 2023). Various studies have been conducted to explore the relationship between The Big Five Traits and college students' personal attitudes. One of the relevant studies is a study conducted by two hundred and ninety college students (Muhid et al., 2021). The study showed that the five personality factors in The Big Five Traits, namely emotional stability (low agreeableness), extraversion, openness to newness, politeness, and perseverance/durability (samenghang/defense) have a significant influence on students' personal attitudes.

The results showed that students who have a high level of emotional stability tend to have positive personal attitudes, such as the ability to manage emotions well and tend to be calm and patient individuals (Wardani et al., 2019). In addition, students who have a high level of extraversion tend to have extroverted personal attitudes, namely being active, socializing easily, and being confident in interacting with others. On the other hand, students who have a high level of new openness tend to have an innovative personal attitude and are able to adapt to change better (Lounsbury et al., 2019). Furthermore, students who have a high level of politeness tend to have a polite personal attitude and respect for others, and have the ability to communicate effectively. In addition, students who have a high level of perseverance tend to have a personal attitude that is unyielding and dedicated in achieving their goals. This research provides a deeper understanding of how The Big Five Traits can influence students' personal attitudes. Based on the theoretical review and previous research findings mentioned above, the researcher proposes the following hypothesis:

Hypothesis 1 (H1). Agreeableness has a positive effect on students' personal attitudes in responding to digital entrepreneurship.

Hypothesis 2 (H2). Conscientiousness has a positive effect on students' personal attitudes in responding to digital entrepreneurship.

Hypothesis 3 (H3). Extraversion has a positive effect on students' personal attitudes in responding to digital entrepreneurship.

Hypothesis 4 (H4). Neuroticism has a positive effect on students' personal attitudes in responding to digital entrepreneurship.

Hypothesis 5 (H5). Openness to Experience has a positive effect on students' personal attitudes in responding to digital entrepreneurship.

Attitude towards Digital Entrepreneurship Intention

According to the theory of reasoned action (TRA) proposed by (Ajzen, 1991)(Ajzen, 1991), behavioral intentions are perceptive and serve as a sign of a person's tendency to engage in a particular behavior. In addition, TPB suggests that behavior is determined by intention, which is the incentive to perform certain behaviors. (Ajzen, 1991). Students' personal attitudes (attitude) can have a significant influence on their digital entrepreneurial intentions. The following are some explanations of the influence of students' personal attitudes on digital entrepreneurship intentions (Sobaih & Elshaer, 2022): (1) Positive Influence: Positive attitudes towards digital entrepreneurship, such as belief in success, interest in innovation, and motivation to develop digital businesses, can increase students' intention to engage in digital entrepreneurship. Positive attitudes tend to strengthen individuals' belief in their ability to succeed in a competitive digital business environment. (2) Motivational Influence: Personal attitudes based on intrinsic motivations, such as the desire to create added value, develop creative ideas, and achieve personal goals, can encourage students to have a strong intention to engage in digital entrepreneurship. This motivation can be a key driver in overcoming challenges and taking risks in starting a digital business. (3) Effect of Perceived Ease and Benefits: Personal attitudes can also influence students' perceptions of the ease and benefits of engaging in digital entrepreneurship. If students have a positive attitude towards the ease of access to technology, potential financial benefits, and career development opportunities through digital entrepreneurship, they are likely to have a higher intention to start a digital business. (4) Influence of Engagement and Commitment: Personal attitudes that reflect students' engagement and commitment to digital entrepreneurship can also influence their intentions. Students who have a proactive, diligent and committed attitude towards digital business

development usually have a stronger intention to take concrete steps to realize their entrepreneurial ideas.

Several studies mention that student attitudes have a positive effect on digital entrepreneurship intention and intention to engage in digital entrepreneurship. (Aloulou et al., 2023; Vasileva et al., 2022; Yu et al., 2022).. Research conducted by several researchers shows that students' personal attitudes have a positive influence on digital entrepreneurship intention and intention to engage in digital entrepreneurship. Research conducted by Almi & Rahmi (2020) found that students' personal attitudes, such as creativity, optimism, and risk resistance, have a positive effect on students' intention to engage in digital entrepreneurship. Meanwhile, research conducted by Carvalho et al. (2023) also found that students' personal attitudes, such as achievement orientation, problem solving ability, and self-confidence, have a positive effect on digital entrepreneurship intention.

However, some critics say that students' personal attitudes do not necessarily guarantee success in digital entrepreneurship. They argue that external factors such as market competition, government regulations and technological changes also play a significant role in determining the success of digital ventures. Moreover, they assert that one can have a positive attitude but without sufficient knowledge and skills, success in digital entrepreneurship remains difficult to realize. Previous research found that students' attitudes did not positively influence digital entrepreneurship intentions in some cases. However, these studies also showed that factors such as prior experience in digital entrepreneurship and university environmental support can influence the relationship between student attitudes and digital entrepreneurship intentions. Based on the theoretical review and previous research findings mentioned above, the researcher proposes the following hypothesis:

Hypothesis 6 (H6). Personal attitudes have a positive effect on students' digital entrepreneurial intentions.

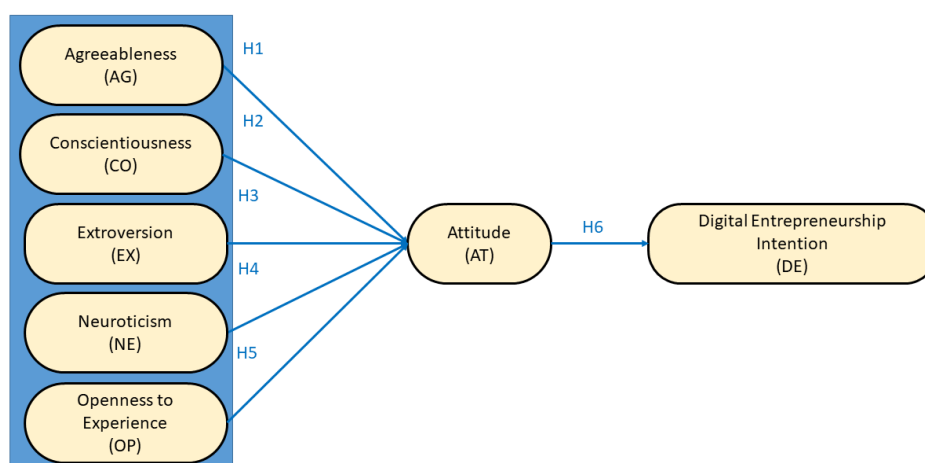


Figure 1. Research Model

METHOD

The first section of the survey introduced the purpose of the study and provided instructions for completing the questionnaire. The second section asked respondents to provide information about themselves, including their demographics. The third section represented the main research questions using a five-point Likert scale (1-5), with 1 being "strongly disagree" and 5 being "strongly agree". Digital entrepreneurship intention was measured with three items (DE1-DE3), students' personal attitudes were measured with four items (AT1-AT4), followed by agreeableness (AG1-AG3), conscientiousness (CO1-CO4), extraversion (EX1-EX3), neuroticism (NE1-NE3), and openness to experience (OP1-OP3). All of these items were adapted from Sobaih & Elshaer (2022)..

The most popular statistical techniques under Structural Equation Model SEM are covariance-based approach (CB-SEM) and variance-based partial least squares technique (PLS-SEM). (Sarstedt et al., 2014).. However, PLS-SEM has recently received wide attention in many disciplines such as marketing, strategic management, management information systems, and other branches of science. (Hair et al., 2012). The ability of PLS-SEM to handle problematic modeling issues common in social

science environments such as unusual data characteristics (e.g. non-normal data) and highly complex models is an important reason behind the increased use of this approach. Given the advantages of this approach, this study utilized PLS-SEM to test the overall hypotheses proposed. SmartPLS 4.0 software was used to evaluate the outer model and inner model respectively. The outer model testing was conducted to ensure the reliability and validity of the measurements, while the introduced hypotheses were examined through the inner model.

According to Creswell & Creswell (2017) According to Creswell & Creswell (2017), if the purpose of this research is to determine the relationship of influence between the variables under study, then a quantitative approach is best. Quantitative research methods are suitable in testing theories and hypotheses through the use of a set of statistical tools. (Agus Purwanto et al., 2019; Purwanto et al., 2021b, 2021a; Purwanto, Asbari, Santoso, & ..., 2020a; Purwanto, Asbari, Santoso, Paramarta, et al., 2020).. Therefore, this study used a survey method to test the formulated hypotheses. Therefore, a questionnaire was adopted as an instrument to collect the required data. The study population consisted of 351 students at a private university in Tangerang, Indonesia. Using simple random sampling, questionnaires were sent online to the population. A total of 254 questionnaires were returned and valid, which formed a response rate of 72.3%. Therefore, according to Roscoe et al. (1975) the sample size obtained is very adequate.

RESULTS AND DISCUSSION

Results

A total of 254 students from private universities in Tangerang participated, consisting of men (61%) and women (39%). Almost all respondents have a uniform age group, namely 17-24 years. The measurement model testing stage includes testing convergent validity, discriminant validity. Meanwhile, to test construct reliability, Cronbach's alpha and composite reliability values are used. The results of PLS analysis can be used to test the research hypothesis if all indicators in the PLS model have met the requirements of convergent validity, discriminant validity and reliability tests. The convergent validity test is carried out by looking at the loading factor value of each indicator on its construct. In most references, a factor weight of 0.7 or more is considered to have a strong enough validation to explain the latent construct (Chin W, 1998; Fletcher, 1998). (Chin W, 1998; Flury et al., 1988; Ghozali, 2017).. In this study, the minimum limit of the accepted loading factor is 0.7, and provided that the AVE value of each construct is > 0.5 . (Imam Ghozali, 2017). After going through SmartPLS 4.0 processing, all indicators have a loading factor value above 0.7 and an AVE value above 0.5. The fit or valid model of this study can be seen in Figure 2. So thus, the convergent validity of this research model has met the requirements. (Purwanto et al., 2021b, 2021a; Purwanto, Asbari, Santoso, & ..., 2020a, 2020b; Purwanto, Asbari, Santoso, Paramarta, et al., 2020). The loadings, Cronbach's alpha, composite reliability and AVE values for each construct can be seen in Figure 2 and Table 1.

Discriminant validity is carried out to ensure that each concept of each latent variable is different from other latent variables. The model has good discriminant validity if the AVE square value of each exogenous construct (the value on the diagonal) exceeds the correlation between the construct and other constructs (the value below the diagonal). (Ghozali, 2017). The results of discriminant validity testing are using the AVE square value, namely by looking at the Fornell-Larcker Criterion Value obtained as shown in Table 2. The results of the discriminant validity test in Table 2 show that all constructs already have an AVE square root value above the correlation value with other latent constructs (through the Fornell-Larcker criterion), so it can be concluded that the model has met discriminant validity. (Fornell & Larcker, 1981).

Furthermore, a collinearity evaluation is carried out to determine whether there is a collinearity problem in the model. To find the collinearity, the VIF collinearity statistic of each construct is required. If VIF is more than 5, then the model has collinearity (Hair et al., 2014). As shown in Table 3, all VIF scores are less than 5, i.e. the results of the structural model collinearity reveal VIF values below 2. This indicates that this research model has no multicollinearity problem.

Construct reliability can be assessed from the Cronbach's alpha and composite reliability values of each construct. The recommended composite reliability and Cronbach's alpha values are more than 0.7 (Ghozali, 2017). The reliability test results in Table 1 show that all constructs have composite reliability and Cronbach's alpha values greater than 0.7 (> 0.7). In conclusion, all constructs have met the required reliability.

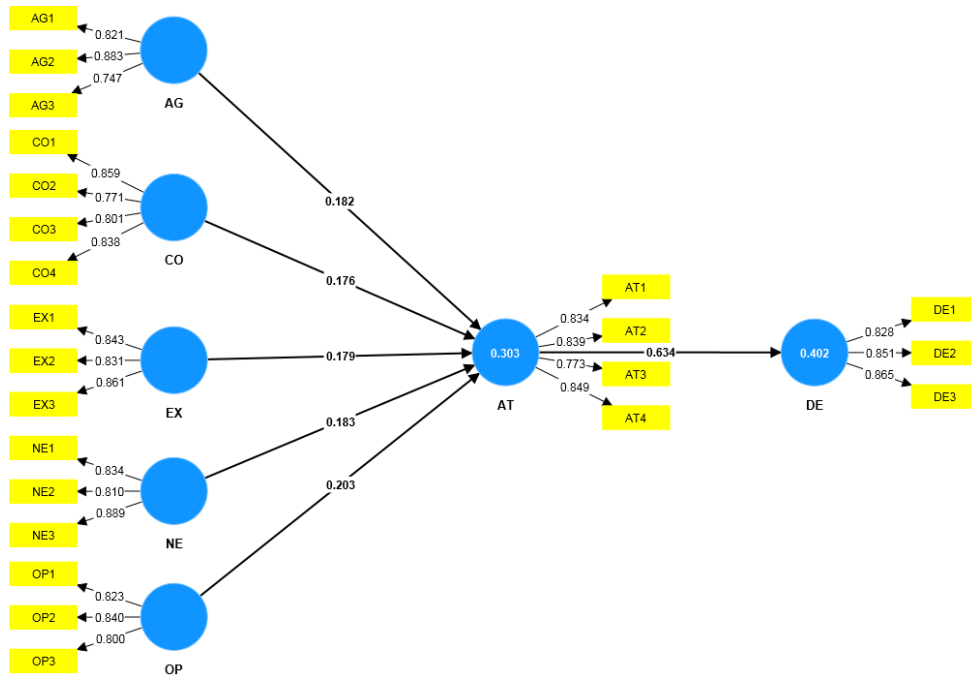


Figure 2. Valid Research Model
Source: SmartPLS 4.0 Processing Results (2024)

Table 1. Items Loadings, Cronbach's Alpha, Composite Reliability, and Average Variance Extracted (AVE)

Variables & Items	Items Loadings	Cronbach's Alpha	Rho_A	Composite Reliability	AVE
AG		0.758	0.808	0.859	0.671
AG1	0.821				
AG2	0.883				
AG3	0.747				
AT		0.842	0.846	0.894	0.679
AT1	0.834				
AT2	0.839				
AT3	0.773				
AT4	0.849				
CO		0.836	0.853	0.890	0.669
CO1	0.859				
CO2	0.771				
CO3	0.801				
CO4	0.838				
DE		0.805	0.805	0.885	0.719
DE1	0.828				
DE2	0.851				
DE3	0.865				
EX		0.800	0.800	0.882	0.714
EX1	0.843				
EX2	0.831				
EX3	0.861				
NE		0.800	0.813	0.882	0.714
NE1	0.834				
NE2	0.810				
NE3	0.889				
OP		0.758	0.759	0.861	0.674
OP1	0.823				
OP2	0.840				
OP3	0.800				

Source: SmartPLS 4.0 Processing Results (2024)

Table 2. Discriminant Validity

Variables	AG	AT	CO	DE	EX	NE	OP
AG	0.819						
AT	0.375	0.824					
CO	0.571	0.376	0.818				
DE	0.503	0.634	0.492	0.848			
EX	0.578	0.336	0.519	0.444	0.845		
NE	-0.024	0.278	-0.004	0.505	-0.091	0.845	
OP	-0.036	0.284	0.016	0.538	-0.116	0.575	0.821

Source: SmartPLS 4.0 Processing Results (2024)

Table 3. Collinearity (VIF)

Variables	AG	AT	CO	DE	EX	NE	OP
AG		1.770					
AT				1.000			
CO		1.622					
DE							
EX		1.662					
NE		1.496					
OP		1.511					

Source: SmartPLS 4.0 Processing Results (2024)

Table 4. *R Square* Value

Variables	R Square	R Square Adjusted
AT	0.303	0.289
DE	0.402	0.400

Source: SmartPLS 4.0 Processing Results (2024)

Table 5. Hypotheses Testing

Hypotheses		Original Sample (O)	Sample Mean (M)	Standard Deviation (STDEV)	T Statistics (O/STDEV)	P Values	Decision
H1	AG -> AT	0.182	0.184	0.073	2.494	0.013	Supported
H2	CO -> AT	0.176	0.182	0.083	2.129	0.033	Supported
H3	EX -> AT	0.179	0.177	0.072	2.483	0.013	Supported
H4	NE -> AT	0.183	0.180	0.065	2.815	0.005	Supported
H5	OP -> AT	0.203	0.208	0.062	3.260	0.001	Supported
H6	AT -> DE	0.634	0.635	0.042	15.180	0.000	Supported

Source: SmartPLS 4.0 Processing Results (2024)

Hypothesis testing in PLS is also known as the inner model test. This test includes testing the significance of direct and indirect effects and measuring the magnitude of the influence of exogenous variables on endogenous variables. To determine the effect of personal characteristics in The Big Five Traits on students' personal attitudes (*attitude*), and the effect of students' personal attitudes on *digital entrepreneurship intention*, a direct effect test is needed. The influence test is carried out using the t-statistic test in the *partial least squared* (PLS) analysis model using the SmartPLS 4.0 *software*. With the *bootstrapping* technique, the *R Square* value and the significance test value are obtained as Table 4 and Table 5. The result is that all hypotheses of this study (H1, H2, H3, H4, H5, and H6) are supported.

Discussion

Based on Table 4, the Adjusted R Square value of students' personal attitude (*attitude*) (AT) is 0.303, which means that the students' personal attitude variable (*attitude*) can be explained by the five

personal character variables from The Big Five Traits, namely agreeableness (AG), conscientiousness (CO), extraversion (EX), neuroticism (NE), and openness to experience (OP) by 30.3%, while the remaining 69.7% is explained by other variables not discussed in this study. Likewise, the Adjusted R Square value of digital entrepreneurship intention (DE) is 0.402, meaning that the digital entrepreneurship intention (DE) variable can be explained by the student's personal attitude (attitude) variable (AT) by 40.2%, and the remaining 59.8% is explained by other variables not discussed in this study. While Table 5 displays t-statistics and p-values that show the influence between the research variables that have been mentioned. The magnitude of the influence of the independent variable on the dependent variable is explained by the Original Sample (O) value. An example is as follows: The magnitude of the influence of the variable agreeableness (AG) on the personal attitude of students (attitude) (AT) is 0.182, meaning that every one unit addition to the AG variable will have a positive influence on AT by 0.182 one unit or 18.2%. And so on.

The main objective of this study is to investigate the influence of the five personal characteristics (agreeableness, conscientiousness, extraversion, neuroticism, and openness to experience) on students' attitude. Also to investigate the influence of personal attitude (attitude) on digital entrepreneurship intention. This research is relatively new, applied to the unit of analysis of university students in Indonesia. The results of this study confirm that all personal character variables of The Big Five Personality Traits are found to have a positive and significant effect on students' personal attitude (attitude). Likewise, it confirms that the personal attitude variable (attitude) has a positive and significant effect on digital entrepreneurship intention.

This finding amplifies previous research that the personal traits of The Big Five Personality Traits were found to have a positive and significant effect on attitude (Elshaer & Sobaih, 2023; Sobaih & Elshaer, 2022).. Although there are studies whose results contradict the results of this study (Çekici, 2019; Lynn, 2021).. The Big Five Personality Traits (openness, conscientiousness, extraversion, friendliness, and neuroticism) can influence attitudes due to their impact on individual perceptions, beliefs, and behaviors. Here is how each trait can influence attitudes: first, Openness to experience: Individuals with high openness tend to be curious, imaginative, and open to new experiences. This trait can lead to a positive attitude towards new ideas, including digital entrepreneurship, as open individuals are more likely to embrace change and innovation. Second, Conscientiousness: People with high conscientiousness are organized, responsible and goal-oriented. This trait can lead to a positive attitude towards digital entrepreneurship, as conscientious individuals tend to perform tasks diligently and strive for success in entrepreneurial ventures. Third, Extraversion: Extroverts are sociable, friendly and energetic people. This trait can influence positive attitudes towards digital entrepreneurship by facilitating networking, communication and collaboration with others in a digital business environment. Fourth, Agreeableness: Individuals high in agreement are cooperative, empathetic, and friendly. This trait can lead to positive attitudes towards digital entrepreneurship by fostering harmonious relationships with partners, customers and stakeholders in entrepreneurial ventures. Fifth, Neuroticism: Neuroticism is characterized by emotional instability, anxiety, and moodiness. While high neuroticism may not directly lead to a positive attitude, managing and reducing neurotic tendencies can be important for maintaining a positive mindset towards digital entrepreneurship. Overall, The Big Five Personality Traits can shape individuals' attitudes by influencing perceptions, emotional responses and behavioral tendencies towards digital entrepreneurship.

This study also strengthens the results of previous studies which state that the attitude variable has a positive and significant effect on digital entrepreneurship intention. (Sahrah et al., 2023; Sobaih & Elshaer, 2022; Vasileva et al., 2022).. Attitude plays an important role in influencing digital entrepreneurship intention for the following reasons (Sobaih & Elshaer, 2022): First, positive attitudes encourage motivation: Positive attitudes towards digital entrepreneurship can increase motivation and encourage individuals to actively pursue entrepreneurial opportunities in the digital realm. When individuals have a positive attitude towards digital entrepreneurship, they will be more motivated to take action and work towards achieving their entrepreneurial goals. Second, it influences decision-making: Attitudes shape individuals' decision-making processes. Positive attitudes towards digital entrepreneurship can lead individuals to make decisions that are in line with their entrepreneurial aspirations, such as investing time, resources and effort in digital business ventures. Third, it influences perceived behavioral control: Attitudes can influence an individual's perceived behavioral control in undertaking digital entrepreneurship. A positive attitude can increase an individual's confidence in his or her ability to succeed in a digital venture, leading to a higher intention to pursue entrepreneurial activities in the digital realm. Fourth, the impact of risk perception: Attitudes towards digital

entrepreneurship can also affect an individual's perception of risk. Positive attitudes can lead individuals to view entrepreneurial risks as challenges to be overcome rather than obstacles to success, thereby increasing their intention to engage in digital entrepreneurship despite potential risks. Fifth, the form of goal setting: Attitudes influence goal setting and goal achievement. Individuals who have positive attitudes towards digital entrepreneurship tend to set ambitious entrepreneurial goals and work hard to achieve them, ultimately driving their intention to establish and grow digital ventures. In summary, positive attitudes towards digital entrepreneurship can enhance motivation, decision-making, perceived control, perceived risk and goal setting, all of which contribute to higher intentions to engage in entrepreneurial activities in the digital domain.

CONCLUSION

This study was conducted to examine the direct influence of personal characteristics developed from the concept of The Big Five Personality Traits. The five personal traits were tested for their influence on students' personal attitudes, and then the influence of these personal attitudes on digital entrepreneurship intention was tested. As hypothesized, the results of structural equation modeling using Smart PLS4 4.0 analysis support all direct paths and the impact of the big five personal traits on personal attitudes towards technology utilization in entrepreneurship as all paths are positive and significant.

Personal characteristics such as agreeableness, conscientiousness, extroversion, neuroticism, and openness to experience have a significant positive influence on students' personal attitudes towards digital entrepreneurship. This shows the importance of personal characteristics in shaping individual attitudes towards digital entrepreneurship. Students' personal attitude towards digital entrepreneurship has a significant positive influence on their digital entrepreneurship intention. This confirms that an individual's attitude towards digital entrepreneurship can be an important predictor in determining the intention to engage in digital entrepreneurship activities. Thus, this study provides a deeper understanding of the relationship between personal characteristics, personal attitudes, and digital entrepreneurship intentions among university students. The implications of these findings can be used to improve approaches to entrepreneurship education and development in higher education to support the growth of digital entrepreneurship in the future.

Theoretical Implications

The theoretical implications of the results of this study are as follows: First, Contributions to the Big Five Personality Traits Theory: This study makes an important contribution in expanding the understanding of how the Big Five Personality Traits (agreeableness, conscientiousness, extraversion, neuroticism, and openness to experience) can influence the personal attitudes and digital entrepreneurial intentions of university students. This can enrich the literature on the relationship between personal characteristics and digital entrepreneurial behavior. Second, Theoretical Model Development: The results of this study can assist in the development of a more comprehensive theoretical model of the factors that influence digital entrepreneurial intentions. By incorporating the concept of personal attitude as a mediator between personal traits and digital entrepreneurial intention, the theoretical model can become more holistic and take into account the psychological aspects of individuals in more depth. Third, Validation of the Theory of Planned Behavior (TPB): This study can also provide validation to the Theory of Planned Behavior (TPB) which states that behavior is influenced by intention, attitude, behavioral control, and subjective norms. By showing that personal attitudes have a positive influence on digital entrepreneurship intentions, this study can strengthen the TPB concept in the context of digital entrepreneurship. Fourth, New Knowledge Development: The results of this study can assist in the development of new knowledge about the psychological factors that influence college students' intentions towards digital entrepreneurship. By understanding more deeply the relationship between personal traits, personal attitudes, and digital entrepreneurship intentions, this study can provide new insights that are beneficial to the development of education and training programs in the field of digital entrepreneurship. Thus, the results of this study have important theoretical implications in expanding the understanding of the psychological factors that influence college students' intention towards digital entrepreneurship and can serve as a foundation for further research in this area.

Practical Implications

The practical implications of the findings of this study are as follows: First, Educational Program Development: The results of this study can be used as a basis for the development of educational programs that aim to increase students' intention towards digital entrepreneurship. Educational institutions can pay attention to the importance of building positive attitudes towards digital entrepreneurship through a curriculum that supports the development of relevant personal traits. Second, Training and Skills Development: Education and training institutions can use the findings of this study to design training and skills development programs that focus on strengthening students' positive attitudes towards digital entrepreneurship. This training can assist students in developing the confidence, motivation and skills needed to succeed in the world of digital entrepreneurship. Third, Student Entrepreneurship Development: The findings of this study can serve as a guide for institutions or organizations that want to encourage student entrepreneurship, especially in the context of digital entrepreneurship. By understanding the relationship between personal traits, personal attitudes, and digital entrepreneurial intentions, they can provide more effective support in facilitating students to start their own digital businesses. Fourth, Education Policy Formulation: The government and related institutions can use the findings of this study to formulate educational policies that support the development of digital entrepreneurship among university students. By taking into account the psychological factors that influence digital entrepreneurial intentions, educational policies can be designed to create a supportive environment for entrepreneurial growth among university students. Thus, the findings of this study have practical implications that can be used to inform the development of education, training, entrepreneurship development and policy-making programs that support the growth of digital entrepreneurship among university students.

Managerial Implications for Higher Education

The managerial implications for higher education managers of the findings of this study are as follows: First, Curriculum Development: College managers can use the findings of this study to develop a curriculum that is more responsive to the needs of students in developing digital entrepreneurship intentions and skills. By including aspects of personal traits and personal attitudes in the curriculum, universities can help students to prepare themselves to enter the world of digital entrepreneurship. Second, Supporting Program Development: College managers can design supporting programs such as entrepreneurship training, workshops, and mentoring that aim to help students develop positive attitudes towards digital entrepreneurship. These programs can help students hone their skills and build confidence to become successful digital entrepreneurs. Third, Collaboration with Industry: Higher education managers can collaborate with industries and start-up companies to provide students with practical experience in developing digital entrepreneurship skills. This collaboration can help students to better understand the demands and opportunities in the world of digital entrepreneurship and expand their professional network. Fourth, Human Resource Development: Higher education managers can pay attention to human resource development on campus to support students in developing positive attitudes towards digital entrepreneurship. Training and development of academic and non-academic staff is also important to create an educational environment that supports students' entrepreneurial growth. By paying attention to these managerial implications, higher education managers can enhance their role and contribution in supporting the development of digital entrepreneurship among students and preparing them to face the challenges and opportunities in the digital era.

Research Limitations

Some limitations of this study are as follows: First, Generalization of Results: This study was conducted on a sample of senior students at a public university in Saudi Arabia. Therefore, the results of the study may not be directly applicable to student populations at public universities or in other countries. Generalization of the study results needs to be done with caution. Second, Variables Not Considered: This study only considered the role of personal attitude as a mediator between personal traits and digital entrepreneurship intention. Other variables such as subjective norms or perceived behavioral control were not included in the analysis. Future research can expand the scope of variables considered to gain a more comprehensive understanding. Third, Research Methods: This study used a quantitative approach with a questionnaire as the data collection instrument. Qualitative approaches such as in-depth interviews or observations may be able to provide a deeper understanding of the relationship between personal characteristics, personal attitudes, and digital entrepreneurial intentions. A combination of research methods may yield richer results. Fourth, Contextual Factors: This study did not consider certain contextual factors such as gender differences, age, or university specialization in

the relationship between personal character and digital entrepreneurial intention. Future research could explore how these factors may moderate the relationship. Recognizing these limitations, future research can address and extend the findings of this study to provide a more in-depth and comprehensive understanding of the factors that influence digital entrepreneurial intentions among university students.

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