

Analysis of the Influence of Personality Traits on Need-Achievement and Its Impact on Entrepreneurial Intention of Jambi University Students

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ABSTRACT: This study aims to analyze the effect of each of the Big Five Factors on the Need for Achievement and analyze the effect of personality trait configurations on the Need for Achievement and Entrepreneurial Intentions in final semester students of Jambi University, Indonesia. This study adopted an inferential design with cross-sectional data. The sample was final semester students of 7 faculties at Jambi University, totaling 2,600 (50% male, 50% female). The results showed that Big Five Factors (except Emotional Stability) have a positive and significant effect on Entrepreneurial Intentions. Big Five Factors positively and significantly influence Need for Achievement and Entrepreneurial Intentions. The limitation of this study recognizes that the sample used, namely students with final year status, may not represent the total population of prospective student graduates as a whole. For future research, the representativeness of the sample should be increased. Future research, using a broader and more diverse sample in terms of age, education, ethnicity, city, and socio-economic background may reveal a greater Need for Achievement between men and women found in Jambi University students. This research was analyzed with perception or attitude-based survey-type data processing. The researcher suggests that to capture more in-depth phenomena and dynamic relationships in uncovering the big five personality factors among university students in starting entrepreneurship, more qualitative research is highly recommended, which includes longitudinal observations and intensive behavioral-oriented interviews.

I. INTRODUCTION

Indonesia is the fourth most populous country in the world after China, India, and the United States with a population of 265,015,000. One of the challenges in a country's development is dealing with unemployment. Data from the National Planning Agency (Bappenas) shows that the unemployment rate in Indonesia is still very high. The number of unemployed people in Indonesia currently stands at 6.87 million. The slowing down of the Indonesian economy is considered a factor that causes the number of unemployed people in the country to increase. According to McClelland (in Ciputra, 2009: 56) a country will develop if it has at least 2 percent of the total population entrepreneurial. Indonesia itself only has 1.5% of entrepreneurs from around 265 million people, so Indonesia still needs around 1.7 million entrepreneurs to reach the 2% mark. The average population in Indonesia chooses to become employees rather than entrepreneurs (Loso, 2008: 25).

One alternative to solving the unemployment problem is to empower the community and educated groups through entrepreneurship programs that are expected to contribute to the absorption of labor to reduce unemployment and the burden on the state (Adnyana and Purnami, 2016: 25). Higher education is expected to be able to prepare for a better future by developing intellectuals and skills so that the younger generation can self-actualize. Universities also play a role in producing human resources who have an entrepreneurial spirit and attitude to overcoming the country's economic problems by creating jobs. According to Santoso (in Farida and Mahmud, 2015: 39), Entrepreneurial intention is the desire of individuals to take entrepreneurial action by creating new products through business opportunities and taking risks.

Entrepreneurial intention can be defined as a state of mind directing and guiding individual actions towards the development and implementation of new business concepts" (Bird, 1988). Intention to carry out a particular behavior is shaped and influenced by various factors, such as; needs, values, desires, habits and beliefs" (Lee & Wong, 2004); a set of cognitive variables (Ajzen, 1991) and situational factors (Liñán & Chen, 2006). Previous research shows that one of the key instruments to improve entrepreneurial attitudes of potential and nascent entrepreneurs is entrepreneurship education (Liñán et al., 2010) which is strongly related to intentions (Noel, 1998) and the inculcation of various skills and attributes aimed at improving entrepreneurial behavior among the recipients (OECD, 2009). This has important effects on students' propensity to start a

company (see Do Paco, Ferreira, Raposo, Rodrigues & Dinis, 2011) and increases their interest in entrepreneurship as a career choice (Wilson, Kickul & Marlino, 2007). Some studies have focused on the role of personality, educational attainment, and/or ethnic origin (Lee et al., 2004). Personality studies have found that entrepreneurship is associated with characteristics such as alertness to business opportunities; entrepreneurial vision and proactivity (see Chell et al., 1991). Research on personality generally compares entrepreneurs with non-entrepreneurial groups and finds that entrepreneurs exhibit greater individualism than non-entrepreneurs (McGrath et al., 1992).

Recently, several researchers have sought to explain how personality traits affect one's likelihood of becoming an entrepreneur. Analyzing differences in personality traits is critical to understanding and describing such differences to provide new insights into the effects of personality variables on entrepreneurial behavior. Previous phases of personality trait research focused on identifying the personality characteristics of entrepreneurs and investigating the differences between entrepreneurs and non-entrepreneurs, as well as the differences between successful and unsuccessful entrepreneurs. From the mid-1980s, some researchers criticized the pure personality approach to entrepreneurship research and raised serious doubts about whether personality plays a role in interpreting entrepreneurial success (e.g. Carland et al., 1984; Gartner, 1985). One possible reason for the weak personality-entrepreneurship relationship is that traditional studies adopted correlational or variable-centered methods to study the relationship between personality traits and entrepreneurial intentions. For example, they only focus on one particular personality trait such as openness to experience, and its impact on entrepreneurial criteria such as entrepreneurial intentions.

In other words, the analysis of entrepreneurial personality should be conducted beyond the concept of a unidirectional causal relationship, which focuses on one factor (a single personality trait) only. The configuration approach will also be used in this research. "A configuration is essentially a multidimensional entity in which key attributes are closely interrelated and mutually reinforcing (Dess et al., 1993). Therefore, the first objective of this study is to examine the effect of each personality trait on entrepreneurial intention, and the second objective is how the effect of personality trait configuration on achievement needs and entrepreneurial intention.

II. LITERATURE REVIEW AND HYPOTHESIS

Entrepreneurial Intentions

Krueger and Carsrud (1993) define entrepreneurial intention as an individual's commitment to start a new business. Meanwhile, Bird (1988) defines entrepreneurial intention as the level of cognitive awareness that directs the establishment of a new business. Bird (1988) explains that intention is a thought situation consisting of concentration, experience, and certain objective individual behavior or certain behavior. It is important to understand the overall entrepreneurial intention process because the intention is usually involved in establishing a new business (Bird 1988; Krueger and Carsrud 1993). According to Summer (1998); when a person has a certain intention, he is sure to direct his behavior so that it runs parallel to the goal in achieving the goal.

Entrepreneurial intentions have recently begun to receive attention to study because it is believed that intentions concerning behavior are proven to be a reflection of actual behavior. In the theory of planned behavior, it is believed that factors such as attitudes and norms will form a person's subjective norms and will directly affect behavior (Fishbein & Ajzen 1985 in Tjahjono & Ardi 2008). Ajzen (1991) developed a psychological model of "Planned Behavior". It is a theory that can be applied to almost any voluntary behavior and provides quite good results in very diverse fields, including professional career choices (Ajzen 2001; Kolvereid 1997). It represents three motivational factors that influence behavior, which are as follows (Ajzen 1991 in Liñan and Chen 2009); (a) Attitude towards entrepreneurship refers to the individual's level of evaluation in judging whether being an entrepreneur is good (positive) or harmful (negative). (b) Subjective norms will measure social pressure to determine whether entrepreneurial behavior needs to be done or not. Subjective norms refer to the perception of relationships in which groups have great influence over people's behavior, therefore social networks affect individual behavior. (c) Perceived behavioral control is defined as feeling comfortable or uncomfortable performing the behavior and is assumed to reflect past experiences and anticipated barriers and obstacles. Some relevant research results are presented in TABLE 1 below:

Summary of previous research

Table 1 Summary of previous research

Title	Sample	Variable	Result
Basu and Vrick (2007) 'assessing entrepreneurial intentions amongst students: a comparative study'	123 students at San Jose State University	<i>Dependent:</i> entrepreneurial intention <i>Independent:</i> education, parents owned a business, and work experience	Variables of education and family have a positive relationship with the attitudes toward entrepreneurship, subjective norms, and perceived behavioral control
Krueger et al. (2000) 'competing models of entrepreneurial intention'	University students who were on the verge of graduation	<i>Dependent:</i> entrepreneurial intention <i>Independent:</i> theory of planned behavior and entrepreneurial event	This research showed positive result on both the theories they examined
Autio et al. (2001) 'entrepreneurial intent among students in Scandinavia and in the USA'	University students from Finland, Sweden, the United States, and the United Kingdom	<i>Dependent:</i> entrepreneurial intention <i>Independent:</i> theory planned of behavior	All variables of the theory of planned behavior had significant effects on intention
Kolvereid and Isaksen (2006) 'prediction of employment status choice intentions'	Norwegian business founder	<i>Dependent:</i> entrepreneurial intention <i>Independent:</i> attitude, subjective norm, and self-efficacy construct	Both attitude and subjective norm over intent to become self-employed. Self-efficacy did not add to the explanation of the variance of the self-employment intention behavior
Gelderen et al. (2007) 'explaining entrepreneurial intentions by means of the theory of planned behavior'	200 students of business administration in Amsterdam	<i>Dependent:</i> entrepreneurial intention <i>Independent:</i> theory of planned behavior	Attitudes toward entrepreneurship and perceived behavioral control have positive and significant relationship to entrepreneurial intention
Wu and Wu (2008) 'the impact of higher education on entrepreneurial intention of university students in China'	Students in Tongji University, China	<i>Dependent:</i> entrepreneurial intention <i>Independent:</i> theory of planned behavior <i>Antecedent:</i> Education	Education factor influenced attitude towards entrepreneurship and perceived behavioral control has positive effect on entrepreneurial intention
Gird and Bagraim (2008) 'the theory of planned behavior as predictor of entrepreneurial intent amongst final-year university students'	Final-year commerce students from two universities in Western Cape, South Africa	<i>Dependent:</i> entrepreneurial intention <i>Independent:</i> theory of planned behavior	The theory of planned of behavior significantly explained the entrepreneurial intention
Liñán and Chen (2009) 'intention-based models of entrepreneurship education'	93 students from the University of Seville and 73 students from the University of Jaen	Qualitative research which discusses about entrepreneurship education, intention models, and entrepreneurial intention	Influence of each entrepreneurship education's course on the variables determining intention is different depending on the kind of course considered
Sofia Karali (2013) 'the impact of entrepreneurship education program on entrepreneurial intention: an application of the theory of planned behavior'	Students from 11 universities and 9 universities of applied science	<i>Dependent:</i> entrepreneurial intention <i>Independent:</i> participation in entrepreneurship program <i>Mediator:</i> theory of planned behavior	Participants in entrepreneurship education program are more likely to intend to start their own business directly after their studies compared to non-participants

Recent research also shows that perceived desire and entrepreneurial Self-Efficacy positively and significantly affect entrepreneurial intention (Suratno, Ekawarna & Ade Kusmana, 2019).

III. NEED FOR ACHIEVEMENT

Based on McClelland's Motivation Theory, the need for achievement is defined as the desire to do something better or more efficiently than has been done before. McClelland says that in some business people, the need for achievement is so strong that he is more motivated to achieve profit. To maximize their satisfaction, individuals with a high need for achievement tend to set goals for themselves that are challenging but achievable. While such individuals are not completely risk-averse, they assess risk very carefully. Individuals motivated by a need for achievement do not want to fail and will avoid tasks that involve too much risk. Individuals with a low need for achievement generally avoid challenges, responsibilities, and risks (Wiratmo, 2018). The need for achievement can also be interpreted as the desire to complete a task with a goal more effectively. Individuals who have a high need for achievement tend to set quite difficult goals and make more risky decisions (Griffin and Moorhead, 2013: 46). McClelland (1961) put forward revealing empirical evidence (obtained through several kinds of methods) about the relationship between the need for achievement and (business) development. Other authors found a relationship between the need for achievement and entrepreneurial behavior (e.g. Davidsson, 1989), and consider this need for achievement an important factor (Begley and Boyd, 1987; Bellu, 1988; Beverland and Lockshin, 2001).

Setyawan (2015) argues that the level of need for achievement will make a person able to overcome all obstacles, produce high-quality work, and can compete to be the best. The need for achievement will make a person able to overcome all obstacles, produce high-quality work, and can compete to be the best. In reality, students admit that it is still difficult to find ideas for entrepreneurship and have not dared to do

entrepreneurship because they do not have capital and are afraid of the risk of failure, because they have formed a *mindset of failure* in entrepreneurship with the risk of entrepreneurship and they feel less confident that they can succeed if entrepreneurship (Handaru, Agung Wahyu, 2014). Davidsson and Wiklund (1999) state that the need for achievement is not an important cause of entrepreneurial behavior. According to these authors, the concept of a need for achievement is unclear in definition, as well as problematic in measurement. However, some other researchers found a relationship between the need for achievement and entrepreneurial behavior (Davidsson, 1989), and consider this need for achievement an important factor (Beverland and Lockshin, 2001). Likewise, the results of research by Anabe Dinis, et al., (2013) show that there is an influence between (several) psychological characteristics on entrepreneurial intentions. The tendency to take risks harms entrepreneurial intentions, while self-confidence and achievement needs have a positive effect on entrepreneurial intentions. For this reason, a hypothesis is proposed:

H₁: Need for Achievement affects Entrepreneurial Intention

IV. PERSONALITY TRAITS

Empirical research on entrepreneurial personality traits originated with McClelland's (1961) achievement motivation theory. The idea that entrepreneurs have a high need for achievement was scrutinized by several researchers (e.g. Begley and Boyd, 1987; Sexton and Bowman-Upton, 1990; Shaver and Scott, 1992). However, the findings were largely inconclusive (Brockhaus, 1982). Besides the need for achievement, four other traits have been considered entrepreneurial personality traits (Ciavarella et al., 2004). These traits are, *locus of control, risk-taking propensity, tolerance of ambiguity* and type A behavior (Begley and Boyd, 1987; Brockhaus and Horwitz, 1986).

Individual traits or personality characteristics remain one of the factors that attract researchers' attention (see: Robinson et al., 1991; Ho and Koh, 1992; Koh, 1996; Bakotic and Kruzic, 2010). Mitton (1989) described entrepreneurs as people who exhibit some psychological characteristics such as commitment to work, the need for total control, and the ability to cope with uncertainty and challenge. Ajzen (1991) provides a general definition of intention as "a person's readiness to perform a particular behavior". In the context of entrepreneurship, Thompson (2009) defines intention as "a self-recognized belief by someone who intends to establish a new business venture, and consciously plans to do so in the future". Psychological characteristics associated with entrepreneurial intentions, Bygrave (1989) put forward a model that includes: the need for achievement, internal locus of control, tolerance for ambiguity, and propensity to take risks. Robinson et al. (1991), found that innovativeness, control, and self-confidence may be good predictors of entrepreneurial attitudes. In general, the main psychological characteristics associated with entrepreneurship that the literature focuses on are the locus of control, the propensity to take risks, self-confidence, the need for achievement, tolerance for ambiguity, and innovativeness (Anabela, et. Al, 2013).

In contemporary entrepreneurship research, researchers have proposed configuration or studying non-linear or non-additive relationships or higher-order interactions (Horst, 1968; Lee, 1961). The configuration approach presupposes that a person should be considered an organized whole, functioning and developing in totality (Bergman and Magnusson, 1997). The configuration approach pays more attention to how individual personality traits act together to shape human behavior (Bergman and Trost, 2006). In the context of entrepreneurship, given the fact that entrepreneurs' personality traits do not develop in isolation, the configuration can better describe the organization of personality traits within individuals. Therefore, the hypothesis is proposed:

H₂: Big Five Factors together affect entrepreneurial intention.

H₃: Big Five Factors jointly affect the Need for Achievement.

One of the personality theories called the Big Five is presented in TABLE 2 below:

Big Five Factor Theory, its traits, and components

Big Five factor	Traits	Components
Extraversion	Sociable, gregarious, assertive, talkative, active	Ambition – initiative, impetuous, likes to be in charge, seeks leadership roles, persuasive Sociability – talkative, gregarious, enjoys meeting people Individuality – shows off, enjoys taking Chances and stirring up excitement
Emotional stability	Calm, even-tempered, self-satisfied, comfortable, unemotional, hardy, stable, confident, effective	Steady – even-tempered, steady emotionally Security – feels secure about self, not bothered by criticism
Agreeableness (likability, friendliness)	Being courteous, flexible, trusting, good-natured, cooperative, forgiving, soft-hearted, tolerant	Cooperative – likes to help others and does things for friends, trusting of others Considerate – good-natured, cheerful, forgives others easily
Conscientiousness	Responsible, well-organised, dependability hardworking, Achievement-oriented, persevering	Industriousness – strives to do best, does more than planned, hardworking, persistent Dependability – thorough, careful
Openness to experience (Intellect)	Being imaginative, creative, cultured, curious, original, broadminded, intelligent, artistically sensitive, etc.	Intellect – imaginative, likes abstract ideas and concepts, analytical and introspective, enjoys philosophical debates Open – cultured, likes to try new and different things, enjoys art, music, literature

Source: Adapted from Ciavarella *et al.* (2004)

Extraversion

Extraversion is mainly manifested in traits such as sociability and assertiveness (John et al., 2008). Past research (e.g. Barrick and Mount, 1991; Judge and Zapata, 2015; Judge et al., 1999; Vinchur et al., 1998) has indicated that extraverted managers are more likely to adopt leadership roles and perform better in their jobs. Research on extraversion among managers and entrepreneur groups has found a significant correlation between the trait and intention to start a business as well as business performance (Zhao et al., 2010). More recent research by Hussein and Aziz (2017) comparing entrepreneurs with non-entrepreneurial managers in Egypt found that "extraversion is highly correlated with entrepreneurship". Furthermore, being extraverted should also facilitate the development of social networks, ultimately resulting in stronger partnerships with suppliers and customers (Barringer and Greening, 1998). For this reason, the hypothesis is proposed:

H₄: Extraversion affects entrepreneurial intention.

Emotional Stability

This trait contrasts with the term neuroticism and feelings such as anxiety, restlessness, and depression (John et al., 2008). Previous research has reported high scores on emotional stability for entrepreneurs compared to managers (Zhao and Seibert, 2006) and positive effects of emotional stability on the intention to start a personal business and performance (Zhao et al., 2010). High emotional stability may also aid an individual's ability to maintain relationships (Hurtz and Donovan, 2000). For this reason, the hypothesis is proposed:

H₅: Emotional stability affects entrepreneurial intention.

Agreeableness

Individuals high on agreeableness tend to be polite, trusting, and cooperative (John et al., 2008), focusing on the quality of relationships with others (DeNeve and Cooper, 1998; Judge et al., 1999). While some researchers have proposed that being cooperative is a key factor in an entrepreneur's ability to obtain venture capital (Cable and Shane, 1997), entrepreneurs are rated lower than managers in terms of agreeableness (Zhao and Seibert, 2006) and Zhao et al. (2010) found no significant correlation between agreeableness and business start-up intentions or business performance. It has however been suggested that this trait may have more impact on interpersonal relationships than on task performance (Hurtz and Donovan, 2000; Van Scotter and Motowidlo, 1996). Moreover, contemporary research in developing country contexts finds that agreeableness is strongly associated with entrepreneurship (Hussein and Aziz, 2017). Thus, the role of agreeableness in entrepreneurship needs to be further investigated to explain this inconsistency. For this reason, a hypothesis is proposed:

H₆: Agreeableness influences entrepreneurial intention.

Conscientiousness

Responsible, reliable, hardworking, and achievement-oriented are some of the hallmarks of this personality trait (John et al., 2008). Conscientiousness is also closely related to "goal-directed behaviors such as self-efficacy and control-related characteristics such as internal locus of control" (Ciavarella et al., 2004, p. 472). Entrepreneurs have shown high scores on the achievement-oriented conscientiousness dimension, more so than managers (Brandstätter, 2011). Furthermore, Zhao et al. (2010) reported a "positive correlation between earnestness and intention to become an entrepreneur and entrepreneurial performance". For this reason, the hypothesis is proposed:

H₇: Conscientiousness affects entrepreneurial intention

Openness to Experience/Intellect

The attributes of this trait describe "the breadth, depth, originality, and complexity of an individual's mental life and experiences" (Brandstätter, 2011, p. 227; John et al., 2008, p. 138). Individuals high in openness to experience are imaginative, insightful, creative, and artistically sensitive. These characteristics are considered prominent for starting new ventures (Ciavarella et al., 2004) so entrepreneurial ideas for new products or services start with creativity and innovative thinking (Bird, 1988). Studies on openness and entrepreneurial intention, business creation, entrepreneurial success, and status have confirmed these positive effects (Hussein and Aziz, 2017; Zhao et al., 2010; Zhao and Seibert, 2006). For this reason, the hypothesis is proposed:

H₈: Openness to Experience/Intellect affects entrepreneurial intention

V. METHODS

Research Design

This study adopts inferential research designs. This is a cross-sectional study as the data in this study is collected at one point in time. The objective was to assess the impact of personality traits of undergraduate students at Jambi University on their need for achievement and entrepreneurial intention. Why were Jambi University students chosen as the unit of analysis? Jambi University is the largest university in Jambi Province which has a vision to become an *Entrepreneur University*, starting in 2018 all faculties adopt and implement the university's vision by providing various programs that can support student entrepreneurship. These programs include face-to-face lectures, seminars, entrepreneurship week, entrepreneurship training, funding for student entrepreneurship proposals that are deemed worthy, and participation in business competition plans on a national scale. All of these are done to facilitate students to understand and hopefully choose entrepreneurship as a career choice.

Participants

This empirical study was conducted on Jambi University Indonesia graduate students who were willing to cooperate to participate voluntarily by completing an online questionnaire. Participants were guaranteed anonymity and were welcome to leave their contact numbers if they wished to participate in a follow-up study. These student participants were chosen because they have been heavily involved in entrepreneurial activities. In this study, 2,600 students volunteered and returned the questionnaire in full.

Study Measures

The instruments to measure all research variables in this study adopted previously used instruments. The number of themes and scales were adjusted to the needs of online data collection and the characteristics of students in Indonesia. After being adopted, the items were translated into Indonesian.

Entrepreneurial Intention: Adopting Linan and Chen (2009), all items are measured using a 4-point Likert scale with response options ranging from 1 (strongly disagree) to 4 (strongly agree). Example items are INT-1: I am ready to do anything to become an entrepreneur, INT-6: I have the intention to open a business someday. Cronbach's alpha for the scale is 0.943

Need for Achievement: Adopting Dinis, et.al, (2013), all items were measured using a 4-point Likert scale with response options ranging from 1 (strongly disagree) to 4 (strongly agree). Sample items include (NA-1) I enjoy facing challenges, competition makes me work harder, (NA-6) I hire people based on competence, not based on friendship and other relationships (for their loyalty). Cronbach's alpha for the scale was 0.930.

Personality Traits: Measurement of this variable uses the Indonesian IPIP-BFM-25, which is a short version of the big five personality scale that measures the five dimensions of the Big Five personality, namely; Extraversion, Agreeableness, Conscientiousness, Emotional stability, and Intellect. The original IPIP-BFM was developed by Goldberg (1992) and later adapted to the Indonesian language by Akhtar (2018). All items are measured using a 4-point Likert scale with response options ranging from 1 (strongly disagree) to 4 (strongly agree). Sample items included (AGR-1) Liven up the atmosphere in an event, (ITL-5) Not having a good imagination (-). Cronbach's alpha for the Extraversion scale was 0.796, Agreeableness 0.778, Conscientiousness 0.797, Emotional stability 0.778, and Intellect 0.709.

Data Analysis

Data analysis using statistics includes correlational analysis, and regression analysis, using SPSS and SEM-PLS software. A measurement model and structural model assessment are two stages in SEM followed in this study, namely with PLS Algorithm to measure data quality criteria and the second is to use PLS Bootstrapping to measure the *final result model*. The procedure for using PLS-SEM includes Bootstrapping is a non-parametric procedure that allows testing the statistical significance of various PLS-SEM results such as path coefficients, Cronbach's alpha, HTMT, and R² values. PLS-SEM is a non-parametric method that does not require the data to meet certain distribution assumptions. However, parametric significance testing (for example, as used in regression analysis) cannot be applied to test whether coefficients such as outer weight, outer loading,

and path coefficient are significant. Instead, PLS-SEM relies on a non-parametric bootstrap procedure (Hair et al., 2019) to test the significance of various outcomes such as path coefficients, Cronbach's alpha, HTMT, and R^2 values. In bootstrapping, a sub-sample is created with observations randomly drawn from the original data set (with replacement). The sub-sample is then used to estimate the PLS path model. This process is repeated until a large number of random sub-samples have been created. The estimates from the bootstrap sub-samples are used to obtain the standard errors for the PLS-SEM results. With this information, Hair et al. (2017) describe bootstrapping in more detail as t-values, p-values, and confidence intervals are calculated to assess the significance of the PLS-SEM results.

VI. RESULTS

Demographic data

After the data screening process was carried out on all respondents who filled out the questionnaire in the Academic Information System application, only 2600 data were accepted to be analyzed as research samples. The results are presented in TABLE 3 below.

Respondents' Demographic Information (n=2,600)

Demographic Characteristics	Category	Frequency	Percentage %
Gender	Male	1291	50%
	Female	1309	50%
	Total	2600	100%
Age	< 20 Years	121	5%
	> 20 Years	2479	95%
	Total	2600	100%
Family Background	Entrepreneur	292	11%
	Non-entrepreneurs	2308	89%
	Total	2600	100%
Entrepreneurship Lecture	Ever	1519	58%
	Never	1081	42%
	Total	2600	100%
Entrepreneurship Training	Ever	915	35%
	Never	1685	65%
	Total	2600	100%
Faculty	Teacher Training and Education	566	22%
	Economics and Business	393	15%
	Agriculture	341	13%
	Science and technology	337	13%
	Law	522	20%
	Medicine and Health Sciences	262	10%
	Livestock	179	7%
	Total	2600	100%

SEM Model Quality Measurement

The first step in measurement model analysis in PLS consists of testing the global goodness of fit of the model (Henseler, Hubona, & Ray, 2016) using the Standardized Root Mean Square Residual (SRMR) index. According to this test, the saturated model must obtain an SRMR value below 0.08 (Hu & Bentler, 1998) to be acceptable. In addition, to assess the accuracy of a model with PLS, it can be seen from the Normed Fit Index (NFI). Hair, Risher, Sarstedt, & Ringle (2019) suggest that an NFI value close to 1 implies that the tested model has an accuracy (fit model). In the case of this study, the saturated model presents a value of 0.046, thus confirming the goodness of fit of the model. The NFI value that meets the assessment threshold is 0.754. RMS_theta should be used to assess the common factor model calculated by PLS-SEM, it only exists for the composite model calculated by PLS-SEM. An RMS_theta value below 0.12 indicates a good model fit, while a higher value indicates a lack of fit (Henseler et al., 2016). The following are the results of model fit testing (TABLE 4) on the structural model.

PLS Algorithm model fit test (goodness of Fit test)

	Saturated Model	Estimation Model
SUMMER	0.043	0.043
d_ULS	0.803	0.803
d_G	0.371	0.371
Chi-Square	5979.859	5979.859
NFI	0.877	0.877

Reflective indicator loadings

This study used the PLS-SEM Algorithm results format to report the results of the reflective indicator test. TABLE 5 below provides the final detailed results of the reflective measurement model assessment of the seven variable constructs. The detailed assessment and results of the reflective indicators found that some of the factor *loadings (Loading Factors/Outers loading)* were lower than the threshold or recommended values. From the final results of the PLS-SEM process, most indicators reached the recommended value of >0.708 (Hair et al. 2019). However, some indicators show values below the threshold <0.708 . Some of the indicators whose values are below 0.708 appear from the Need for Achievement construct, namely NFA2 (0.505), NFA3 (0.677), NFA 4 (0.582), Extraversion construct, namely EXT4 (-0.319), EXT5 (-0.309) and Intellect construct, namely ITL3 (-0.453), ITL4 (-0.248), ITL5 (-0.215). The weak indicators were then removed from the process (Hair et al. 2016).

Internal consistency reliability

Internal consistency reliability is used to evaluate the consistency of results across items. In the PLS-SEM method for this study, *Cronbach's alpha & composite reliability* were tested (Hair et al. 2019). The internal consistency reliability value is measured between 0 and 1, where the higher the value indicates the higher the level of validity. Cronbach's alpha and composite reliability should be higher than 0.700 (Hair et al. 2019). TABLE 5 below displays details of Cronbach's *alpha & composite reliability* values. The resulting Cronbach's alpha and composite reliability values for all constructs are stable, equivalent, and have good internal consistency reliability exceeding the recommended value with the smallest value of 0.748 and below the largest value of 0.933.

Convergent validity

To test *Convergent validity* or convergent validity using the AVE value as suggested as a metric to measure (Hair et al. 2019). To calculate AVE, this study uses the PLS-SEM Algorithm stage. The minimum acceptable AVE is 0.500 or higher, explaining 50% or more of the item variance for all constructs. All constructs in this study have AVE values greater than 0.500 or explain 50% or more of the item variance for the construct (TABLE 5).

Outer loading, Cronbach's alpha, composite reliability, and AVE

Construct	Sub Construct	Outer Loading	Cronbach's Alpha	Composite reliability	AVE (Average Variance Extracted)
Agreeableness	AGR1	0.831	0.896	0.923	0.706
	AGR2	0.858			
	AGR3	0.812			
	AGR4	0.850			
	AGR5	0.849			
Conscientiousness	CONS1	0.818	0.894	0.922	0.702
	CONS2	0.841			
	CONS3	0.832			
	CONS4	0.854			
	CONS5	0.845			
Emotional Stability	EMO1	0.847	0.903	0.928	0.721

	EMO2	0.852			
	EMO3	0.872			
	EMO4	0.864			
	EMO5	0.811			
Extraversion	EXT1	0.876	0.858	0.914	0.779
	EXT2	0.897			
	EXT3	0.875			
Entrepreneurial Intention	INT1	0.788	0.914	0.933	0.701
	INT2	0.799			
	INT3	0.846			
	INT4	0.859			
	INT5	0.865			
	INT6	0.862			
Intellect	ITL1	0.880	0.765	0.894	0.809
	ITL2	0.918			
Need for Achievement	NFA1	0.827	0.748	0.855	0.663
	NFA5	0.809			
	NFA6	0.806			

Discriminant validity

Discriminant validity is "the extent to which a construct is empirically different from other constructs in the structural model (Hair et al. 2019, p.13). Furthermore, based on TABLE 6, the results of checking construct reliability based on discriminant validity can be done with two events, namely (1) looking at the AVE value to show the amount of indicator variance contained by the construct and (2) looking at the HTMT cross-coding value. The first discriminant validity criterion refers to Fornell-Larcker (1981), where the AVE value limit is ≥ 0.5 . The results in the table below show all *Squared Root of AVE's and Correlation* values for are (>0.5). In addition, the square root value of AVE (shown in Bold) shows a high value of discriminant validity and is acceptable because the square root value of AVE of all variable constructs is above the correlation value (Correlation) between other construct values.

Discriminant Validity (Fornell-Larcker Criterion)

Construct	AGR	CONS	EMO	INT	EXT	INT	NFA	$\sqrt{\text{AVE}}$
	Square Root of AVE and Correlation							
Agreeableness	0.840							0.840
Conscientiousness	0.645	0.838						0.838
Emotional Stability	-0.159	-0.137	0.849					0.849
Entrepreneurial Intention	0.494	0.507	-0.091	0.837				0.837
Extraversion	0.576	0.580	-0.072	0.527	0.883			0.883
Intellect	0.488	0.490	-0.183	0.457	0.465	0.899		0.899
Need for Achievement	0.584	0.593	-0.125	0.679	0.623	0.516	0.814	0.814

Furthermore, discriminant validity is known from the measurement test that all related items meet the criteria value if the construct formed has a higher value than the *cross-loading of* other columns and rows. Therefore, if these criteria are met, the reliability of discriminant validity can be determined. The test results in (TABLE 7), show that the cross-loading value criterion has a higher value than the other columns and rows (values in bold). Thus, the shaped construct data can meet the discriminant validity criteria. In conclusion, this research construct data is reliable and valid.

Discriminant Validity (Cross Loadings)

	AGR	CONS	EMO	INT	EXT	ITL	NFA	VIP
AGR1	0.831	0.536	-0.078	0.427	0.487	0.408	0.487	2.406
AGR2	0.858	0.516	-0.122	0.426	0.468	0.397	0.505	2.678
AGR3	0.812	0.502	-0.171	0.400	0.490	0.396	0.465	2.042
AGR4	0.850	0.572	-0.159	0.395	0.468	0.425	0.490	2.638
AGR5	0.849	0.582	-0.143	0.424	0.507	0.422	0.508	2.510
CONS 1	0.608	0.818	-0.106	0.462	0.496	0.464	0.534	1.953
CONS 2	0.490	0.841	-0.107	0.400	0.500	0.377	0.473	2.292
CONS 3	0.536	0.832	-0.127	0.396	0.451	0.382	0.480	2.236
CONS 4	0.519	0.854	-0.114	0.427	0.491	0.379	0.493	2.466
CONS 5	0.538	0.845	-0.124	0.430	0.488	0.443	0.499	2.294
EMO1	-0.125	-0.130	0.847	-0.076	-0.051	-0.145	-0.093	2.540
EMO2	-0.189	-0.145	0.852	-0.086	-0.078	-0.147	-0.112	2.535
EMO3	-0.137	-0.096	0.872	-0.079	-0.070	-0.162	-0.112	3.033
EMO4	-0.127	-0.096	0.864	-0.073	-0.062	-0.174	-0.111	3.103
EMO5	-0.088	-0.113	0.811	-0.073	-0.041	-0.149	-0.101	2.110
EXT1	0.518	0.506	-0.066	0.487	0.876	0.436	0.581	2.004
EXT2	0.520	0.521	-0.058	0.456	0.897	0.411	0.539	2.430
EXT3	0.486	0.509	-0.066	0.450	0.875	0.383	0.526	2.163
INT1	0.394	0.408	-0.088	0.788	0.426	0.351	0.537	2.026
INT2	0.371	0.363	-0.089	0.799	0.409	0.341	0.494	2.159
INT3	0.456	0.451	-0.084	0.846	0.464	0.402	0.578	2.455
INT4	0.411	0.427	-0.047	0.859	0.425	0.394	0.584	2.888
INT5	0.414	0.446	-0.073	0.865	0.461	0.391	0.590	2.804
INT6	0.429	0.441	-0.080	0.862	0.458	0.408	0.616	2.962
ITL1	0.428	0.383	-0.212	0.371	0.366	0.880	0.437	1.623
ITL2	0.448	0.491	-0.125	0.445	0.464	0.918	0.488	1.623
NFA1	0.430	0.463	-0.050	0.629	0.511	0.421	0.827	1.404
NFA5	0.513	0.489	-0.155	0.509	0.510	0.442	0.809	1.559
NFA6	0.496	0.504	-0.113	0.503	0.500	0.396	0.806	1.556

In addition, Collinearity Statistics (VIF) shows the value of Multicollinearity occurs if the predictor model is correlated and provides response redundancy. Multicollinearity is measured by the variance inflation factor (VIF). If the VIF value exceeds 4.0, then there is a problem with multicollinearity (Hair et al., 2017). In the test results seen in the table above, no VIF value exceeds 4.0 (Table 4.6) the score shown in the VIP column informs the value with the highest score being only (3.103). This score means that multicollinearity is not a problem in this study.

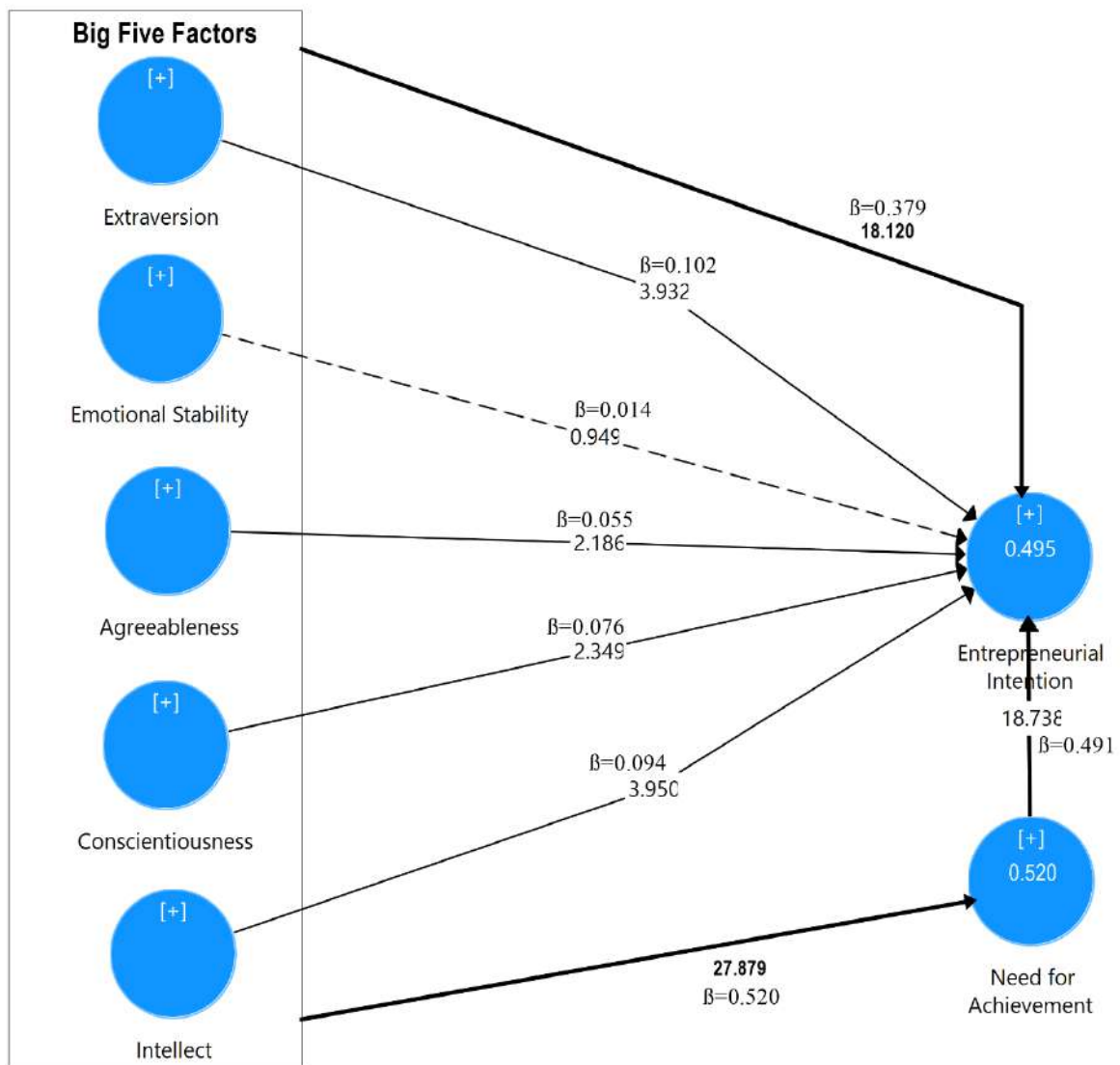
Meanwhile, an acceptable threshold level of discriminant validity was also obtained judging from the smaller Heterotrait-Monotrait Ratio (HTMT) values (<0.90) as suggested by Hair et al. (2017). All HTMT values (TABLE 8) were lower than 0.90. In addition, through the PLS algorithm process for HTMT, the confidence interval shows the resulting confidence interval (<1). HTMT shows that all HTMT values are significantly different from the value of 1.

Discriminant Validity based on Heterotrait-Monotrait Ratio (HTMT)

	AGR	CONS	EMO	INT	EXT	ITL	NFA
Agreeableness (AGR)							
Conscientiousness (CONS)	0.717						
Emotional Stability (EMO)	0.176	0.152					
Entrepreneurial Intention (INT)	0.544	0.557	0.101				
Extraversion (EXT)	0.656	0.661	0.081	0.593			
Intellect (ITL)	0.588	0.584	0.226	0.541	0.568		
Need for Achievement (NFA)	0.719	0.726	0.158	0.810	0.775	0.679	

VII. HYPOTHESIS TESTING

The table below informs the results of the *Path Coefficients value and effect size (direct effect) and Significance (P-Value)*. The results show that out of 8 hypotheses, 7 hypotheses have a significant effect and the results are accepted (p-value <0.05) and 1 hypothesis is insignificant and the results are rejected (p-value>0.05). The findings are shown in FIGURE 1 below.



Notes: *Significant effect, Insignificant effect*

*The model and t value**Summary hypothesis test (Bootstrapping results)*

Hypothesis	Path	Path coefficient (β)	t value	p-value	Decision
H1	Extraversion => Entrepreneurial Intention	0.102	3.932	0.000	Retrieved
H2	Emotional Stability => Entrepreneurial Intention	0.014	0.949	0.343	Rejected
H3	Agreeableness => Entrepreneurial Intention	0.055	2.186	0.029	Accepted
H4	Conscientiousness => Entrepreneurial Intention	0.076	2.349	0.019	Accepted
H5	Intellect => Entrepreneurial Intention	0.094	3.950	0.000	Accepted
H6	Need for Achievement => Entrepreneurial Intention	0.491	18.738	0.000	Accepted
H7	Big Five Factors => Entrepreneurial Intention	0.379	18.120	0.000	Accepted
H8	Big Five Factors => Need for Achievement	0.520	27.879	0.000	Accepted

VIII. DISCUSSION AND CONCLUSION

Entrepreneurship is a creative endeavor that is very important because of its impact on job availability, economic efficiency, and innovation (Shane and Venkataraman, 2000). Despite its importance, there is very little research on the determinant factors that impact a UNJA graduate student's intention to become an entrepreneur. Currently, there are many findings from various studies on various factors that can shape a person's entrepreneurial behavior, and it is increasingly clear that a person's entrepreneurial behavior can be learned and shaped. For this reason, several psychological capital attributes such as; achievement needs, strong internal locus of control, self-efficacy, high creativity, and innovation, have been shown to play a role in shaping a person's intention to become an entrepreneur (Ekawarna et al., 2020). Likewise, attitudinal factors in viewing entrepreneurial activities, and contextual factors including academic climate support, social support, and business environment conditions are also believed to shape entrepreneurial intentions. In particular, the effects of personality traits (*Extraversion, Agreeableness, Neuroticism, Intellect, and Conscientiousness*) are rarely found and tend to be neglected in the existing literature. In addition, previous research reports are very limited and it is rare to find research conducted to look at the problem of entrepreneurial intention and its factors from the perspective of higher education, namely the context of Jambi University in Indonesia as one of the developing countries.

Jambi University one of the largest universities on the island of Sumatra is a university that has a long-term vision of becoming "a world-class entrepreneur university". Of course, this vision needs to be supported by activities that promote the achievement of entrepreneurship, such as research that can be used as a basis for making decisions or policies related to programs that increase student entrepreneurial activity. In addition, to fill the limitations of research reports in increasing entrepreneurial activity at Jambi University, researchers studied the determinant factors that have an impact on Entrepreneurial Intentions in the context of higher education in Indonesia, namely Jambi University. The researcher proposes a structural equation modeling technique that can statistically determine the *effect* of each indicator which will later form a *fit* or complete model.

Recent research from Baron, 1998; Hmieleski, and Baron, 2009; Kambourova and Stam, (2017) has found that personality variables perform better as predictors of behavior when combined with other factors related to motivation and cognition (Kode and Langan-Fox, 2001; Naffziger, 1995). In this context, motivation and cognition have been explored in the existing literature as mediating factors in the personality-performance relationship (Baum and Locke, 2004; Baum et al., 2001; Dewal and Kumar, 2017) that can explain intra-individual variation in personality across situations (Judge et al., 2014).

The development of the personality FFM, which combines personality variables into five main categories, is recognized as a strong indicator of an individual's personality. (Ciavarella et al., 2004; Leutner et al., 2014; Seibert and DeGeest, 2017). FFM Commonly referred to as the Big Five, the FFM groups a person's personality into five categories: extraversion, emotional stability, agreeableness, conscientiousness, and openness to experience (Costa and McCrae, 1992; Digman, 1990). It adopts a genotypic view of personality traits as endogenous and inherited basic tendencies that are largely independent of culture (McCrae and Costa,

1996). In this approach, Costa and McCrae (1996) distinguish between biologically based traits captured by their FFM and characteristic adaptations - habits, values, beliefs, goals, and identities, which develop from the interaction between basic tendencies and experiences. While characteristic adaptations can be culturally shaped, FFM traits are culture-free and thus considered universal. Any cultural differences at the FFM level are considered to represent genetic differences between the model cultural groups used to investigate. However, whether there are cultural differences in personality traits such as extraversion or emotional stability remains unanswered when thinking about the issue of cultural influences on personality. Studies in entrepreneurship that have examined the relationship between the five basic dimensions of personality and venture survival (Ciavarella et al., 2004); entrepreneurial status (Hussein and Aziz, 2017; Zhao and Seibert, 2006), and entrepreneurial intentions and entrepreneurial performance (Zhao et al., 2010) have either compared entrepreneurs with managers or conducted meta-analyses of previous studies where entrepreneurs were compared with non-entrepreneurial groups. Thus, the finding that Big Five personality dimensions are related to entrepreneurial behavior cannot be generalized.

This study proposes eight hypotheses that will empirically analyze how the intentions of newly graduated students in all faculties at Jambi University towards entrepreneurial intentions are influenced by personality constructs (big five factors namely Extraversion, Agreeableness, Neuroticism, Intellect, and Conscientiousness). A person's entrepreneurial intention can be seen from the extent of the attitude he shows in responding to entrepreneurship (Mei, Lee & Xiang, 2020). In a review of entrepreneurship literature, entrepreneurial intention is considered the first step of the long-term process of venture creation (Krueger, 2017; Mei, Lee & Xiang, 2020; Zhang, Duysters & Cloudt, 2014). Many scholars have paid attention to personality traits when describing entrepreneurial intentions. The *big five factors* model is often used in such research to assess one's personality (Şahin, Karadağ & Tuncer, 2019). Similarly, researchers have paid attention to the relationship between Need for Achievement and entrepreneurial intention (Karabulut, 2016). At the same time, researchers have also paid attention to the relationship between entrepreneurial intention and demographic variables, especially gender (Ferreira et al, 2012). Due to the empirical background, this study utilizes the Big Five and Need for Achievement models, and aims to investigate the influence of Big Five personality traits and the Need for Achievement on entrepreneurial intention.

The findings of this study are also consistent with the research of Murugesan & Jayavelu (2017) and Bazaei (2020), who found that entrepreneurial intention is determined by different personality attributes. The influence between *Need for Achievement* and entrepreneurial intention is also high. This is in line with the findings of Şahin, Karadağ & Tuncer (2019), Sahinidis (2020), and Hidayat and Wibowo (2019) who found that people with a high Need for Achievement have higher entrepreneurial aspirations. The reason can be attributed to the fact that belief in one's ability to succeed in an action is what a potential entrepreneur needs to succeed in his/her action (Ryan, Tipu & Zeffane (2011). In the case of the *Need for Achievement*, this study adopts the *Self-determination theory* (SDT) by Gagné & Deci (2005). The empirical test results show that *Need for Achievement* to create a new venture does have a positive influence on entrepreneurial intention. This result is consistent with the research of Ryan, Tipu & Zeffane (2011)). Meanwhile, recent previous research by Wardana et al. (2020) found that youth who need *Achievement* have high potential and intention in entrepreneurship.

Personality traits play an important role in influencing the number of prospective entrepreneurs (Utari & Sukidjo, 2020). Successful entrepreneurs must be fun, open, conscientious, confident, and creative and have strong judgment to adapt to changing scenarios in today's business world (Agustina and Fauzia, 2021). Personality traits, often the initial starting point for one's beliefs, and attitudes known to predict entrepreneurial success can guide adults or students interested in entrepreneurship. The results of this empirical research show that four personality traits have a significant influence, namely Agreeableness, Conscientiousness, Extraversion, and Intellect with Entrepreneurial Intention. This shows that people who are very open or conscientious, very pleasant, and intelligent have the potential to form stronger entrepreneurial intentions than others. The empirical findings of this study are in line with (Antoncic, 2020; Bazkiaei et al., 2020; Sujarwoto, 2020) who examined the influence of Personality Traits constructs and Entrepreneurial Intention. Ettis & Kefi (2016) tested the big five personality trait model and entrepreneurial intention of university students in Tunisia and resulted in the effect of the big five personality trait model had a significant effect on entrepreneurial intention except *Neuroticism* had no significant effect. Interestingly, Sahinidis, Tsaknis, Gkika & Stavroulakis (2020) did not find a significant effect of conscientiousness on entrepreneurial intention. Sujarwoto (2020) concluded that conscientiousness has a positive relationship with the likelihood of getting a job. The relationship between entrepreneurial intention and extraversion/introversion was found to be significant. Introversion (versus extraversion) reduces students' entrepreneurial intentions.

The results of this study have a number of both theoretical and practical implications for higher education management. From a theoretical point of view, this study supports that personality significantly affects entrepreneurial intention and that the *big five factors theory* with a supportive framework to explain entrepreneurial intention. From a practical point of view, and seeing that college alumni graduates, especially

Jambi University, have low entrepreneurial abilities, students still see becoming employees, especially civil servants, as the main goal after graduating from college. In addition, the family background of students who are entrepreneurs is relatively low, only 11% in the findings of this study. It is therefore possible to rely on individual entrepreneurial qualities to promote entrepreneurship and stimulate students' desire for an entrepreneurial career. Educators in this case lecturers may be able to strengthen the psychological qualities of openness, conscientiousness, extraversion, competition, and risk tolerance to enhance students' entrepreneurial orientation. Policymakers such as the Rectorate and Deans in this case may create educational programs that offer appropriate support and challenges to students to develop these personality traits. In addition, students' awareness of the *Need for Achievement* and the personality characteristics required for entrepreneurship may change when they are brought into direct experience with entrepreneurs who can serve as role models (Henderson and Robertson, 2000). Another implication is that in the field of entrepreneurship teaching, the relationship between openness, conscientiousness, extraversion, sociability, risk tolerance, and entrepreneurial motivation can be used as criteria to identify students for entrepreneurship training programs.

IX. LIMITATIONS AND FURTHER RESEARCH

This study recognizes that the sample used, namely students who have recently graduated, may not represent the total population of UNJA student alumni as a whole. For future research, the representativeness of the sample should be improved. Future research, using a broader and more diverse sample in terms of age, education, ethnicity, and socio-economic background may reveal a greater *Need for Achievement* between men and women found in Jambi University students. Data were analyzed using Variance Based SEM, namely PLS-SEM, a structural equation modeling technique. This research was analyzed with perception or attitude-based survey-type data processing. The researcher suggests that to capture more in-depth phenomena and dynamic relationships in uncovering the big five factors of personality among college students in starting entrepreneurship, more qualitative research is highly recommended, which includes longitudinal observations and intensive behavioral-oriented interviews.

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