

Determinants of Entrepreneurial Intentions among High School Students: The Mediating Role of Need for Achievement

Umi Fitria¹, Rediyono², Enny Kartini³

¹ IKIP PGRI Kalimantan Timur, Samarinda, Indonesia; umifitria@ikipgrikaltim.ac.id

² STIE Pancasetia Banjarmasin, Banjarmasin, Indonesia; rediyono@stiepancasetia.ac.id

³ IKIP PGRI Kalimantan Timur, Samarinda, Indonesia ; ennykartini@ikipgrikaltim.ac.id

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ABSTRACT

This study examines the structural relationships among smartphone use, self-efficacy, family environment, need for achievement, and entrepreneurial intentions among high school students. Drawing on the Theory of Planned Behavior, Social Cognitive Theory, and Achievement Motivation Theory, the study positions need for achievement as a motivational mediator linking technological, psychological, and environmental factors to entrepreneurial intentions. A quantitative cross-sectional survey design was employed. The population consisted of 1,562 twelfth-grade students from five public high schools in Samarinda, Indonesia, from which 410 students were selected through proportionate stratified random sampling. Data were collected using a structured questionnaire and analyzed using covariance-based Structural Equation Modeling with LISREL 8.80. The model demonstrated acceptable fit, as indicated by $\chi^2/df = 2.11$, CFI = 0.96, TLI = 0.95, RMSEA = 0.052, and SRMR = 0.047. The findings showed that family environment and need for achievement had significant positive relationships with entrepreneurial intentions, whereas smartphone use and self-efficacy did not show significant direct relationships. Smartphone use and self-efficacy were significantly related to need for achievement, while family environment was not. The mediation results indicated that need for achievement mediated the relationship between self-efficacy and entrepreneurial intentions, but not the relationships involving smartphone use or family environment. The study concludes that achievement motivation is a key mechanism in shaping students' entrepreneurial intentions, while family support remains an important direct contextual factor.

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*Corresponding Author:

Umi Fitria

IKIP PGRI Kalimantan Timur, Samarinda, Indonesia; umifitria@ikipgrikaltim.ac.id

1. INTRODUCTION

Entrepreneurship is widely recognized as a vital force behind economic growth, playing an important role in creating job opportunities and driving innovation (Adenutsi, 2023; Lei, 2023; Xin & Park, 2024), and international competition in the era of globalization and technological advancement

national competitiveness in the era of globalization and rapid technological advancement (Audretsch et al., 2015; Ordeñana et al., 2024). In Indonesia, the substantial contribution of micro, small, and medium enterprises (MSMEs) to the gross domestic product underscores the strategic importance of encouraging entrepreneurial intentions from an early age (Aprilia et al., 2025; Suhaili, 2019; Tambunan, 2023). In this context, entrepreneurial intentions defined as an individual's psychological tendency and a readiness to participate in entrepreneurial activities in the future has become a central focus in entrepreneurship research, particularly among students as prospective economic actors.

This study is grounded in the Theory of Planned Behavior (TPB) proposed by Ajzen and the Social Cognitive Theory (SCT) developed by Bandura. TPB posits that intention (in this study conceptualized as entrepreneurial intentions) is the most immediate predictor of behavior, shaped by attitudes, subjective norms, and perceived behavioral control. In this regard, self-efficacy reflects perceived behavioral control, while the family environment represents subjective norms that can strengthen or weaken entrepreneurial intentions. Meanwhile, SCT emphasizes the reciprocal interaction between personal, behavioral, and environmental factors, highlighting self-efficacy as a critical determinant in shaping career choices, including entrepreneurship.

In addition, this study incorporates Achievement Motivation Theory (McClelland), which identifies the need for achievement as a central motivational factor driving individuals to pursue challenging goals, take calculated risks, and strive for success. Conceptually, the need for achievement functions as a mediating variable that links cognitive (self-efficacy), environmental (family environment), and technological (smartphone usage) factors to entrepreneurial intentions. Individuals with high self-efficacy and supportive environments are more likely to develop a stronger need for achievement, which in turn enhances their entrepreneurial intentions.

The rapid development of digital technology, particularly smartphone usage, has transformed how individuals access information, build networks, and explore entrepreneurial opportunities. Smartphone use is associated with an increased tendency toward innovative entrepreneurship (Hossain et al., 2020). The intention to adopt smartphone applications among entrepreneurs in developing countries is positively related to perceptions of usefulness, ease of use, enjoyment, and satisfaction (Soomro et al., 2019). Having an entrepreneurial mindset, using a smartphone, and locus of control have a substantial and meaningful impact on a person's aspirations to become a digital entrepreneur (Ganefri et al., 2024). However, empirical findings regarding the relationship between smartphone usage and entrepreneurial intentions remain inconsistent. Some studies suggest that smartphone usage promotes digital entrepreneurship, while others indicate that technology alone does not directly enhance entrepreneurial intentions without the support of psychological and motivational factors. Similar inconsistencies are observed in the role of self-efficacy, which has been found to exert both direct and indirect effects on entrepreneurial intentions across different studies. Furthermore, the family environment is widely acknowledged as a crucial social factor influencing career orientation. Family support can enhance self-efficacy, provide entrepreneurial role models, and strengthen perceived feasibility of starting a business. Nevertheless, its direct and indirect influence on entrepreneurial intentions is still inconclusive, particularly among adolescents who are in the exploratory stage of career development.

Self-efficacy is an important component that affects entrepreneurial intentions because if a person has high self-efficacy, it will encourage increased self-confidence so that they dare to take risks and face challenges (Masnun et al., 2023). This is in line with research conducted by Shukla & Kumar (2024) that a person who has a great entrepreneurial intentions is shown by individuals who have high efficacy. Both entrepreneurial self-efficacy and attitudes towards entrepreneurship are influenced by personal abilities such as internal control locus, creativity, proactivity, and risk avoidance (Nugroho et al., 2024).

In research on entrepreneurial intentions, the family environment is an important component that is often overlooked. In an environment where family values are highly valued in Indonesia, family support can be an important factor that encourages a person to start an entrepreneurial career. The success and self-efficacy of entrepreneurial businesses are greatly influenced by family support (Kurniawan et al., 2025). Family support increases the desire and feasibility to start a business (Maleki

et al., 2021). In entrepreneurship education, family support improves an individual's ability to start a business (Adha et al., 2023; Harahap et al., 2023). Students' entrepreneurial intentions are most influenced by family support, especially from families who have an entrepreneurial spirit (Cardella et al., 2020; Pribadi et al., 2023; Romani et al., 2022). Students who grow up in a family environment that actively runs a business tend to be more interested and confident in owning their own business (Ramadhani & LV, 2025; Syahira et al., 2024). However, there are also students who live in a family environment that does not run a business, which can hinder their desire to become entrepreneurs (Ahmad & Naim, 2024). Students who are in environments that encourage achievement needs, such as entrepreneurship programs or school business competitions (Gao & Qin, 2022), tend to be more interested in entrepreneurship. They also tend to be more motivated to pursue goals, take risks, and face the challenges associated with entrepreneurship (Boldureanu et al., 2020).

Based on the above discussion, a significant research gap emerges. While previous studies have examined individual determinants of entrepreneurship, there is limited understanding of how technological, psychological, and social factors interact simultaneously through a motivational mechanism such as the need for achievement. Moreover, most prior research has focused on university students or entrepreneurs, with relatively little attention given to high school students as adolescents, despite this being a critical stage for shaping career preferences.

This study offers several contributions. First, it proposes a mediation model that examines the role of the need for achievement in linking smartphone usage, self-efficacy, and family environment to entrepreneurial intentions. Second, it integrates TPB, SCT, and Achievement Motivation Theory into a comprehensive framework. Third, it focuses on the digital context among adolescents, highlighting the role of smartphone usage in shaping entrepreneurial pathways.

Based on the theoretical framework, the hypotheses are formulated as follows:

Direct effects:

- H1: Smartphone usage has a positive effect on entrepreneurial intentions.
- H2: Self-efficacy has a positive effect on entrepreneurial intentions.
- H3: Family environment has a positive effect on entrepreneurial intentions.
- H4: Smartphone usage has a positive effect on need for achievement.
- H5: Self-efficacy has a positive effect on need for achievement.
- H6: Family environment has a positive effect on need for achievement.
- H7: Need for achievement has a positive effect on entrepreneurial intentions.

Indirect effects (mediation):

- H8: Smartphone usage influences entrepreneurial intentions through need for achievement.
- H9: Self-efficacy influences entrepreneurial intentions through need for achievement.
- H10: Family environment influences entrepreneurial intentions through need for achievement.

In conclusion, this study is expected to contribute theoretically by clarifying the mechanism underlying the formation of entrepreneurial intentions and practically by providing insights for designing more effective entrepreneurship education programs for young learners.

2. METHOD

This study is an explanatory study with a quantitative approach and a cross-sectional design, aimed at testing the causal relationships among variables in the conceptual model of student entrepreneurship. Specifically, this study employs a covariance-based Structural Equation Modeling (SEM) approach to test the direct and indirect relationships between smartphone use, family environment, need for achievement, self-efficacy, and entrepreneurial intention.

A cross-sectional approach was chosen because it allows for data collection at a single point in time to test the theoretical model developed based on the Theory of Planned Behavior and Social Cognitive Theory.

The study was conducted at five public high schools in Samarinda City, namely SMA Negeri 3, SMA Negeri 4, SMA Negeri 8, SMA Negeri 14, and SMA Negeri 16. The study population consisted of all 1,562 twelfth-grade students.

Sampling was conducted using a proportionate stratified random sampling technique to ensure proportional representation of each school. The sample size was 410 respondents. This sample size meets the minimum criteria for SEM analysis, namely a ratio of 10–20 respondents per estimated parameter and a minimum of 200 respondents for complex SEM models. Additionally, this sample size also meets the statistical power analysis recommendations (statistical power ≥ 0.80) for detecting mediating effects in structural models. Sampling in this study used proportional random sampling (Kiran et al., 2021; Senaweera et al., 2021).

This study obtained approval from the relevant school and was conducted in accordance with research ethics principles. Prior to data collection, participants were provided with an explanation regarding the research objectives, data confidentiality, and their right to participate voluntarily. Written informed consent was obtained from all respondents, and the anonymity and confidentiality of the collected data were guaranteed.

The research instrument used a structured questionnaire adapted from a scale validated in previous studies. All instruments were translated using the translation and back-translation procedure to ensure equivalence of meaning.

All items were measured using a 4-point Likert scale, namely:

1 = Never

2 = Rarely

3 = Often

4 = Always

The use of a 4-point Likert scale aims to reduce central tendency bias and encourage respondents to provide clearer choices regarding their attitudes or behaviors, as recommended in behavioral research on adolescent populations. The research instrument design is presented in Table 1.

Table 1. The Research Instrument Design

No	Variable	Indicator	Instrument Item	Total
1	Smartphone Usage (PS)	1. Knowledge about smartphones	1, 2	2
		2. Smartphone function	3, 4	2
		3. Advantages of smartphones	5, 6, 7	3
		4. Factors that influence the use of smartphones	8, 9, 10	3
		5. Relation to learning outcomes	11, 12, 13, 14, 15, 16, 17, 18	8
		6. Disadvantages of smartphones	19	1
2	Self Efficacy (ED)	1. Confidence in personal Abilities	1, 2, 3, 4, 5	5
		2. Having a leadership spirit	6, 7, 8, 9	4
		3. Emotional condition	10, 11, 12, 13, 14	5
3	Family Environment (LK)	1. Parents' knowledge of Entrepreneurship	1, 2, 3	3
		2. Parents' mindset on entrepreneurship	4, 5, 6	3
		3. Support from family to become an entrepreneur	7, 8, 9, 10	4
		4. How parents educate their children	11, 12, 13, 14	4
		5. Relationship between family members	15, 16, 17	3
		6. Family economic conditions	18, 19, 20	3
4	Need for Achievement (NA)	1. Able to take on new tasks that are more difficult than previous tasks	1, 2, 3	3
		2. Enjoy tasks for which you have personal responsibility	4, 5, 6, 7, 8	5
		3. Likes tasks that have feedback	9, 10, 11	3
		4. Doing your best at a difficult task	12, 13, 14	3
		5. Strive to do better than others	15, 16, 17, 18	4
		6. Achievement drive	19, 20	2

No	Variable	Indicator	Instrument Item	Score
5	Entrepreneurial Intentions (MB)	1. Choosing a business path rather than working with others	1, 2, 3, 4	4
		2. Choosing a career as an entrepreneur	5, 6, 7	3
		3. Oriented to the future	8, 9, 10	3
		4. Planning to start a business	11, 12, 13	3

Table 2. Validity Test of Research Instruments

KMO and Bartlett's Test		Smartphone Usage (PS)	Self-Efficacy (ED)	Family Environment (LK)	Need for Achievement (NA)	Entrepreneurial Intentions (MB)
Kaiser-Meyer-Olkin Measure of Adequacy		0.677	0.643	0.679	0.617	0.635
Bartlett's Test of Sphericity	Appro x. Chi-Square	37.148	46.519	86.586	61.366	46.519
	Df	21	15	15	15	15
	Sig	0.004	0.000	0.000	0.000	0.000

To ensure the robustness of the measurement model, Construct Validity was assessed using the Kaiser-Meyer-Olkin (KMO) measure and Bartlett's Test of Sphericity. As shown in Table 2, all KMO values exceeded 0.60, and the Significance (Sig) values were < 0.05, indicating the data is suitable for factor analysis.

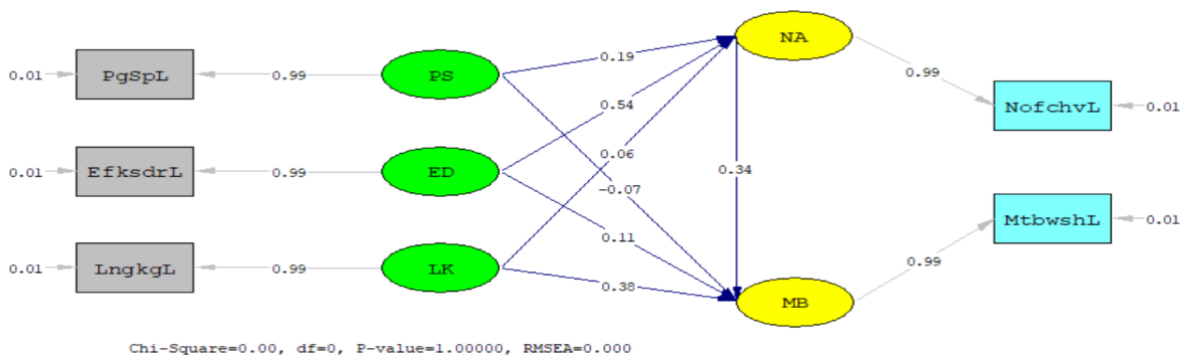
Table 3. Reliability Test of Research Instruments

Latent Variabel	$\sum$ SLF	Construct Reliability (CR)	Critical Loading Factor	Decision
Smartphone Usage (PS)	4.57	0.89	0.7	Reliable
Self-efficacy (ED)	4.37	0.87	0.7	Reliable
Family Environment (LK)	4.58	0.89	0.7	Reliable
Need for Achievement (NA)	3.87	0.88	0.7	Reliable
Entrepreneurial intentions (MB)	3.39	0.81	0.7	Reliable

Reliability was confirmed through Construct Reliability (CR). All latent variables yielded CR values between 0.81 and 0.89 (Table 3), significantly higher than the 0.70 threshold, demonstrating high internal consistency.

3. FINDINGS AND DISCUSSION

3.1 Findings

**Figure 1.** Research Structural Model Test Results (Standard Coefficient)

Information: PS = Smartphone Usage; ED = Self-efficacy;
LK = Family Environment, NA = Need for Achievement, MB = Entrepreneurial intentions

Figure 1 shows the results of the structural model estimation using standardized coefficients. All paths indicate a direction of association consistent with the conceptual model and are statistically significant.

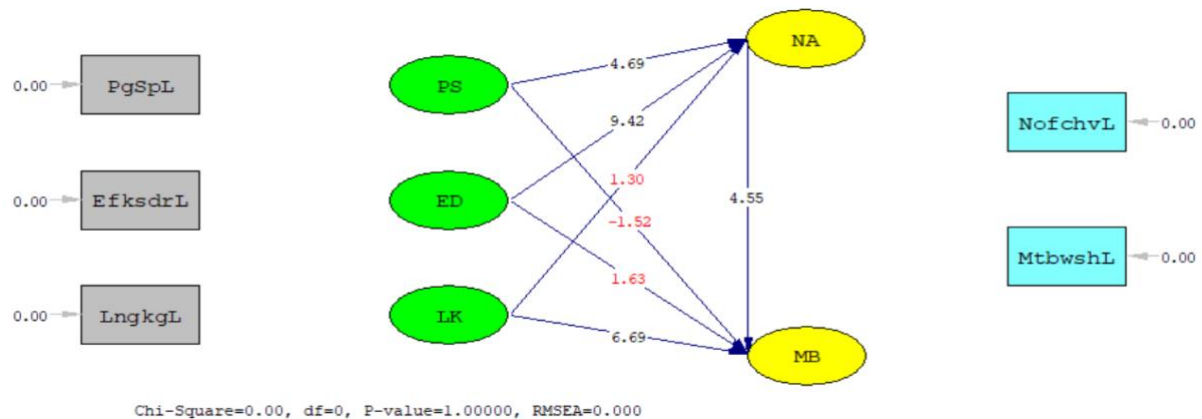


Figure 2. Research Structural Model Test Results (t value)

Figure 2 shows the t-values for each structural path. All t-values exceed the critical value of 1.96, indicating that the relationships between variables are significant at the 5% significance level.

Table 4. Results of Structural Model Test / Research Hypothesis Test

Description	Relationship Between Variables	Value t count	Standardized Coefficient			Hypothesis Test Conclusion
			Direct Effect	Indirect Effect	Total Effect	
Hypothesis 1	There is a direct positive relationship between latent variables PS and MB	-1.52	-0.07	-	-0.07	H1 is rejected because the <i>absolute t</i> value ≤ 1.96 despite a negative correlation between the latent variables.
Hypothesis 2	There is a direct positive relationship between latent variables ED and MB	1.63	0.11	-	0.11	H2 is rejected because the <i>absolute t</i> value ≤ 1.96 despite a positive correlation between the latent variables.
Hypothesis 3	There is a direct positive relationship between latent variables LK and MB	6.69	0.38	-	0.38	H3 is accepted because the <i>absolute t</i> value ≥ 1.96 despite a positive correlation between the latent variables.
Hypothesis 4	There is a direct positive relationship between latent variables PS and NA	4.69	0.19	-	0.19	H4 is accepted because the <i>absolute t</i> value ≥ 1.96 despite a positive correlation between the latent variables.
Hypothesis 5	There is a direct positive relationship between latent variables ED and NA	9.42	0.54	-	0.54	H5 is accepted because the <i>absolute t</i> value ≥ 1.96 despite a positive correlation between the latent variables.
Hypothesis 6	There is a direct positive relationship between latent variables LK and NA	1.30	0.06	-	0.06	H6 is rejected because the <i>absolute t</i> value ≤ 1.96 despite a positive correlation between the latent variables.
Hypothesis 7	There is a direct	4.55	0.34	-	0.34	H7 is accepted because

	positive relationship between latent variables NA and MB					the <i>absolute t</i> value ≥ 1.96 despite a positive correlation between the latent variables.
Hypothesis 8	There is a direct positive relationship between PS and MB variables through the intervening variable NA	-	0.07	0.0646	0.1346	H8 is rejected because the <i>absolute value of the indirect effect</i> (0.0646) < direct effect (0.07)
Hypothesis 9	There is an indirect relationship between ED and MB variables through the intervening variable NA	-	0.11	0.1836	0.2936	H9 is accepted because the <i>absolute value of indirect effect</i> (0.1836) > direct effect (0.11)
Hypothesis 10	There is an indirect relationship between LK and MB variables through the intervening variable NA	-	0.38	0.0204	0.4004	H10 is rejected because the <i>absolute value of indirect effect</i> (0.0204) < direct effect (0.38)

*) Note: out of 10 hypotheses, 5 hypotheses were accepted and 5 hypotheses were rejected.

3.2 Discussion

3.2.1 The Direct Effect of Smartphone Usage on Interest in Entrepreneurship

H1 is rejected because the calculated *t* value (1.52) ≤ 1.96 , so it can be concluded that smartphone usage does not significantly and negatively influence entrepreneurial intentions.

The majority of individuals use smartphones to search for information related to entrepreneurship, with 65% of respondents admitting that they get entrepreneurial inspiration through the content they consume on social media (Barrera-Verdugo & Villarroel-Villarroel, 2022). This is consistent with previous research (Susilowati et al., 2022) which states that social media can serve as an effective platform for sharing entrepreneurial knowledge and experiences.

Although smartphone use can provide access to relevant information and resources, there is no strong evidence that smartphone use directly increases interest in entrepreneurship. Other factors, such as social support, practical experience, and intrinsic motivation, appear to assume a more influential role in shaping interest in entrepreneurship.

Smartphones provide broad access to information, social networks, and marketing tools that can be used by aspiring entrepreneurs. Smartphones provide easy and quick access to a variety of information, including market trends, marketing techniques, and business strategies. However, this access is not always followed by an increase in entrepreneurial intentions.

Social media platforms allow users to build professional networks and gain inspiration from other entrepreneurs. However, not all individuals exposed to entrepreneurial content on social media show an interest in starting their own businesses. Many applications and platforms offer online courses on entrepreneurship. However, participation in these courses does not always correlate with the desire to become an entrepreneur.

The effect of smartphone use on entrepreneurial intentions is often indirect. Smartphone use acts more as a facilitator, for example, by facilitating online learning, digital marketing, and networking, rather than as a primary trigger for entrepreneurial intentions (Ganefri et al., 2024; Park et al., 2017; Radjab et al., 2023).

3.2.2 The Direct Effect of Self-Efficacy on Entrepreneurial Intentions

H2 is rejected because the calculated *t* value (1.63) ≤ 1.96 , so it can be concluded that self-efficacy does not have a positive and significant effect on entrepreneurial intentions. Self-efficacy, defined as an individual's confidence in their ability to successfully perform a task, plays a vital role in shaping

entrepreneurial intentions. It significantly affects a person's willingness to pursue entrepreneurial activities (Prilivia et al., 2023) in several ways, including self-confidence, risk-taking ability, and resilience to failure (Balgiu & Simionescu-Panait, 2024).

Analysis of self-efficacy shows that respondents Individuals with strong self-efficacy are more likely to show a higher interest in entrepreneurship. As many as 70% of respondents who feel confident in their ability to start a business report a high interest in entrepreneurship. However, the extent of the influence of self-efficacy varies between studies; in some cases, its contribution is smaller than other factors.

External factors such as work experience, entrepreneurship education, family support, and social environment have also been shown to be very influential, sometimes even more dominant than self-efficacy (Tanazha & Budiono, 2021). Practical experience, such as industrial internships or direct exposure to the business world, significantly increases interest in entrepreneurship (Lim & Widjaja, 2023). Social and family support also play a major role in shaping interest, even in individuals with low self-efficacy (Wijaya & Handoyo, 2022).

Although self-efficacy plays a role in influencing entrepreneurial intentions, its influence is not always significant. External factors, previous experience, and social support are often more decisive in shaping entrepreneurial intentions. Individuals with low self-efficacy can still have an interest in entrepreneurship if they are supported by a conducive environment. Previous experience in entrepreneurship has a greater impact on entrepreneurial intentions than self-efficacy. They emphasize the importance of practical experience in building individuals' interest and confidence in their abilities.

While numerous studies indicate that self-efficacy positively influences entrepreneurial intentions, there are several reasons why this connection is not always straightforward. Entrepreneurial intentions is a multifaceted phenomenon, affected by a variety of internal and external elements. Self-efficacy represents just one component of the broader array of factors that influence an individual's interest in entrepreneurship. At times, external elements such as economic conditions, market opportunities, social support, personal experiences, and other individual traits significantly impact the choice to pursue entrepreneurship.

3.2.3 The Direct Effect of Family Environment on Entrepreneurial Intentions

H3 is accepted because the calculated t value ($6.69 \geq 1.96$) with a positive correlation between latent variables, so it may be concluded that the family environment has a positive and significant effect on entrepreneurial intentions. The family environment, as the first social unit to influence individuals, has a significant role in shaping interests and attitudes towards entrepreneurship. Experiences and values received early on can influence a person's decision and interest in choosing a career path, including entrepreneurship. Families that support, provide resources, and set positive examples can often encourage individuals to pursue their interest in entrepreneurship (Shi et al., 2020). Based on these findings, it can be inferred that the family environment will foster entrepreneurial intentions, although there are also research results that suggest that It can be concluded that parents' socioeconomic status does not have a significant influence on entrepreneurial intention (Sari et al., 2021).

Family support plays a crucial role in shaping children's attitudes and interests in entrepreneurship (Maleki et al., 2021; Sangeetha. M, 2025). This suggests that interventions at the family level may serve as an effective approach to enhancing interest in entrepreneurship (Nguyen & Nguyen, 2024).

The family environment plays a significant role in influencing entrepreneurial intentions (Chauhan et al., 2024). Through role models, emotional and financial support, instilled values, and access to networks, families can influence individuals' decisions to become entrepreneurs (Af Idah & Mustika Dewi, 2024; Raappana & Pihkala, 2024). Recent research shows that these factors interact with each other and can vary depending on the cultural and economic context. Therefore, it is important for educators and policymakers to consider the role of the family environment in entrepreneurship development programs.

3.2.4 The Direct Effect of Smartphone Usage on Need for Achievement

H4 is accepted because the calculated t value $(4.69) \geq 1.96$ with a positive correlation between latent variables, so it can therefore be inferred that smartphone usage exerts a positive and statistically significant influence on need for achievement.

With educational applications and online learning platforms accessible via smartphones, individuals can more easily obtain information and improve their skills. This can contribute to an increase in the need for achievement among students and professionals. The digital environment created by smartphones can influence individuals' perceptions of achievement. They found that individuals who are more digitally connected tend to have a higher need for achievement, but are also more prone to stress and anxiety (Paterna et al., 2024).

The use of learning applications on smartphones can increase academic motivation and the need for achievement among students. Respondents who use these applications report improvements in academic achievement and self-confidence. The use of smartphones in general, especially for entertainment and social media, can reduce the need for achievement or learning achievement (Tuminah & Julis, 2022).

In the context of students, productive smartphone use can increase learning efficiency and expand access to knowledge sources that encourage the emergence of the need for achievement (Alshaibani & Qusti, 2021).

Individuals who possess a strong need for achievement tend to seek challenges, set clear goals, and be results-oriented. In the digital age, smartphones can act as a catalyst that strengthens or even hinders the emergence of this drive, depending on how they are used (Amez & Baert, 2020; Rodríguez et al., 2020). Smartphones can support the need for achievement through quick access to information, learning resources, and educational applications that increase self-efficacy and learning motivation (Sunday et al., 2021).

3.2.5 The Direct Effect of Self-Efficacy on Need for Achievement

H5 is accepted because the calculated t value $(9.42) \geq 1.96$ with a positive correlation between latent variables, so it can be concluded that the need for achievement has a positive and significant effect on self-efficacy. Students who have a need for achievement will have high self-efficacy to achieve proud academic achievements. Individuals who possess a high need for achievement typically demonstrate strong motivation to face and overcome difficulties, set high standards, and work hard to achieve their goals (S. Damayanti, 2023). The higher the need for achievement, the higher the self-efficacy in a person and vice versa. Individuals who have a strong drive for achievement are likely to possess strong confidence in their ability to overcome obstacles and accomplish their goals. Therefore, increasing the need for achievement can be one way to strengthen individuals' self-efficacy, which in turn can improve their performance and achievements in various aspects of life.

There is a strong association between self-efficacy and the need for achievement, in which individuals with high self-efficacy tend to have greater achievement needs (Basileo et al., 2024). Individuals with high self-efficacy are better able to overcome obstacles and remain motivated to achieve their goals (Sailo, 2024). Individuals who believe in their ability to succeed tend to have a stronger drive to achieve high goals (He & Tang, 2024; Liu et al., 2024). In societies that promote personal accomplishment, self-efficacy can serve as a major driver for fulfilling the need for achievement.

3.2.6 The Direct Effect of Family Environment on Need for Achievement

H6 is rejected because the calculated t value $(1.30) \leq 1.96$, so it can be concluded that family environment does not have a positive and significant effect on need for achievement.

The family environment has a significant influence on an individual's need for achievement. Supportive parenting, emotional support, and a stimulating environment contribute to the development of children's need for achievement. Authoritative parenting, which combines emotional support and high expectations, tends to result in children with a higher need for achievement. Many studies show that the family environment can influence individual development, but there are also studies that show that

other factors, such as internal motivation and social support, can be more influential. Some studies state that the influence of the family environment varies depending on the social, cultural, and economic context. In some cases, individuals from families with less supportive backgrounds can achieve extraordinary success.

Recent research shows that individual independence and the capacity to deal with obstacles can diminish dependence on the family environment in achieving goals (Chuented et al., 2023; Vo et al., 2022). Although the family environment can be involved in individual development, its influence is not always significant in terms of individual achievement needs (Kim et al., 2020; Mammadov & Tozoglu, 2023). Internal factors, such as motivation and independence, as well as social and cultural contexts, often play a greater role in determining individual achievement. Internal factors like motivation, independence, resilience, and future orientation can reduce dependence on the family environment, even in individuals from less supportive families (Lin et al., 2024).

3.2.7 The Direct Effect of Need for Achievement on Entrepreneurial Intentions

H7 is accepted because the calculated t value (4.55) ≥ 1.96 with a positive correlation between latent variables, so it can be concluded that the need for achievement has a positive and significant impact on entrepreneurial intentions. Individuals with a high need for achievement are typically more motivated to pursue their goals, take risks, and confront the challenges associated with entrepreneurship. Individuals with a high need for achievement are more likely to start new ventures and persist in the face of business challenges (Giantari & Ramantha, 2019; Talukder et al., 2024). Generation Z, who are in school and college, sometimes feel that they do not have entrepreneurial experience, so they are still not confident in pursuing achievement needs through entrepreneurial activities. Based on the discussion above, it can be inferred that the greater an individual's need for achievement, the higher the interest in entrepreneurship. High need for achievement encourages individuals to set higher goals and strive to achieve them, which in turn increases their interest in entrepreneurship. Individuals with a high need for achievement are inclined to take greater risks and are more confident in starting a business. The need for achievement can increase an individual's self-confidence, which serves as a key factor in the decision to pursue entrepreneurship.

The need for achievement has a significant influence on students' interest in entrepreneurship (Nabilah et al., 2023) and entrepreneurial intention (Aulia & Evanita, 2020; Wardhani & Rospida, 2024). The need for achievement is a major determinant of entrepreneurial intention and behavior in women (Bouarir et al., 2023).

3.2.8 Indirect Influence between Smartphone Usage Variables on Entrepreneurial Intentions through Intervening Variables of Need for Achievement

H8 is rejected because the absolute value of the indirect effect (0.0646) $<$ the direct effect (0.07), so it can be concluded that smartphone usage does not influence entrepreneurial intentions through the mediating role of need for achievement.

The use of smartphones can increase access to relevant information and social networks, which in turn can increase an individual's need for achievement. However, not all smartphone use contributes positively to need for achievement; for example, excessive use for entertainment can reduce motivation to achieve.

Although the use of smartphones can provide advantages in obtaining information, not all individuals who use smartphones will demonstrate a strong interest in entrepreneurship (Thi Loan et al., 2024). The absence of this direct relationship may be due to other factors such as individual attitudes toward risk, previous experiences, and social support (Aryoko et al., 2024; Liao et al., 2022).

3.2.9 The Effect of the Indirect Relationship between the Variable Self-Efficacy on Interest in Entrepreneurship through the Intervening Variable of Need for Achievement

H9 is accepted because the absolute value of indirect effect (0.1836) $>$ direct effect (0.11), so it can be inferred that self-efficacy has a positive and significant influence on entrepreneurial intentions through the intervening variable of need for achievement.

The need for achievement serves as a significant mediator between smartphone use, self-efficacy, and family environment on entrepreneurial intentions. This indicates that individuals with high nAch are more inclined to pursue business opportunities when they feel supported by their environment and have access to relevant information through smartphones.

Individuals with high self-efficacy are likely to possess greater need for achievement, as they believe in their capability to accomplish goals. High need for achievement encourages individuals to work harder in entrepreneurship, seek opportunities, and take the risks necessary to achieve success. High self-efficacy increases the need for achievement, which in turn facilitates actions and decisions that support success in entrepreneurship (Mu Minah & Soelaiman, 2024; Yogas & Hidayah, 2024).

3.2.10 The Effect of the Indirect Relationship between Family Environment Variables on Entrepreneurial Intentions through the Intervening Variable of Need for Achievement

H10 is rejected because the absolute value of the indirect effect (0.0204) < direct effect (0.38), so it can be inferred that the family environment does not influence entrepreneurial intentions through the mediating role of need for achievement.

A positive family environment can increase an individual's NOA, but other factors also contribute, such as personal experience and education (Obi-Anike et al., 2022; Pérez-Fernández et al., 2022). Individuals with high NOA are more likely to have an interest in entrepreneurship, but not all individuals with supportive family backgrounds have high NOA. Although the family environment can influence entrepreneurial intentions, external factors such as education, work experience, and social networks are also very influential (Hassan et al., 2022; Vodă & Florea, 2019).

Although family support has a beneficial effect on entrepreneurial intentions, this influence becomes insignificant when individual achievement needs are measured. This suggests that individuals with high achievement needs tend to focus more on personal achievement than their family environment. Individuals from unsupportive family backgrounds can still have high entrepreneurial intentions if they have strong achievement needs (Tentama et al., 2024). This study highlights the significance of internal motivation compared to external factors.

In a difficult economic context, individuals with strong achievement needs are more inclined to take risks and initiate a business even if their family environment is not supportive (Annisa et al., 2021). This shows that achievement needs can serve as a substitute for motivation for individuals who do not receive support from their families.

3.3 Theoretical Contributions

This study provides a significant contribution to the development of entrepreneurship theory, particularly in understanding the psychological mechanisms underlying the development of entrepreneurial intentions. First, this study confirms that smartphone use does not directly influence entrepreneurial intentions but acts as a facilitating factor that enhances access to entrepreneurial resources. This finding reinforces the view that technology functions as an enabling factor, not as a primary psychological factor. Second, this study demonstrates that need for achievement acts as a mediator between self-efficacy and entrepreneurial intentions. This expands theoretical understanding by positioning need for achievement as a key mechanism bridging self-efficacy and entrepreneurial intent. Third, this study contributes to the entrepreneurship literature by integrating technological and psychological factors into a single comprehensive structural model.

3.4 Practical Implications for Entrepreneurship Education

The results of this study offer significant practical insights for advancing entrepreneurship education, especially within school settings. First, entrepreneurship education is not sufficient if it merely provides access to information through technology; rather, it must be designed to enhance students' active engagement. The use of smartphones should be directed toward productive activities, such as business idea development, business simulations, and digital marketing practices. Second, Entrepreneurship education programs should prioritize strengthening students' skills and capabilities. This can be done through challenges, entrepreneurial projects, business competitions, and hands-on practical experiences that can boost the drive to succeed. Third, the development of self-efficacy needs

to be integrated with strategies that boost motivation to achieve, such as providing mastery experiences, project-based learning, and entrepreneurial mentoring. Thus, an entrepreneurship education approach should focus on developing psychological and motivational factors, rather than merely providing information.

3.5 Limitations of the Study

This study has several limitations that should be considered when interpreting the results. First, this study employs a cross-sectional design, so the relationships identified are associative and cannot fully explain causal relationships. Second, data were collected using a self-report method, which may introduce respondent bias. Third, this study was conducted on a population limited to a single region, so generalizing the results to a broader population must be done with caution.

3.6 Suggestions for Future Research

Future studies are advised to adopt a longitudinal approach to examine how entrepreneurial intentions evolve over time. Additionally, an experimental design could be employed to more robustly test the causal relationship between smartphone use, psychological factors, and entrepreneurial intentions. Future research is also recommended to involve a broader and more diverse population to enhance the external validity of the findings.

4. CONCLUSION

This study concludes that family environment and the need for achievement are important factors that predict students' entrepreneurial intentions. In contrast, smartphone use and self-efficacy do not have a significant direct effect on entrepreneurial intentions. However, smartphone use and self-efficacy significantly influence students' need for achievement, while family environment does not. The findings also show that the need for achievement mediates the relationship between self-efficacy and entrepreneurial intentions, meaning that students with higher self-efficacy may develop stronger entrepreneurial intentions when their motivation to achieve is also strengthened.

The study contributes to the understanding of entrepreneurial intention by showing that psychological and environmental factors may influence students in different ways. The need for achievement acts as an important motivational link between self-efficacy and entrepreneurial intention, while family environment has a direct influence. Therefore, entrepreneurship education should focus not only on providing knowledge but also on building students' achievement motivation and self-confidence through project-based learning, business simulations, and practical experiences. Schools should also involve families in entrepreneurship-related activities to create stronger support for students' entrepreneurial development.

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Ethical Statement: Participation in this study is voluntary. Before data collection was carried out, all respondents were given an explanation of the research objectives, research procedures, data confidentiality, and their right to refuse or terminate participation at any time without any consequences. Informed consent was obtained from all respondents. The identity of the respondents was not included in the questionnaire, and all data were analyzed and reported anonymously to maintain the confidentiality and privacy of the respondents.

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