

Decoding Entrepreneurial Intentions among University Students in the Digital Age: A Machine Learning Approach to Leadership and Attributes

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Received: 13th September 2024/ **Revised:** 3rd December 2024
Accepted: 9th December 2024/ **Published Online:** 0th February 2025

Abstract - Leadership and personal attributes have significant roles in leading a successful business organization. Meanwhile, a new perspective in leadership and entrepreneurship research is how the pattern of leadership and personal attributes contribute to entrepreneurial intention. To fill the gap and explore the pattern, this research examines the role of leadership and personal attributes in shaping entrepreneurial intention. This research employs a mixed-method approach, combining exploratory analysis and machine learning techniques. Data were collected from 127 entrepreneurial students in West Java, Indonesia. Moreover, data were collected using a web-based questionnaire consisting of 38 indicators that reflect the five variables (motivation, expectation, risk resistance, negative attitudes, and leadership). The collected data were processed using exploratory factor analysis to test the reliability of each indicator and analyzed using a decision tree model to identify critical factors influencing entrepreneurial intention. The research findings reveal that negative attitudes are crucial in determining entrepreneurial intention, followed by motivation and leadership. This research explains how these attributes interact to influence entrepreneurial decisions. This research gives insight into improving the effective development program that fosters the key attributes by reducing negative attitudes. This research also contributes to the broader field of leadership and entrepreneurship, offering an

understanding of the role of personal attributes and leadership in driving entrepreneurial action.

Keywords: entrepreneurial leadership, entrepreneurial intention, machine learning, decision tree algorithm

I. INTRODUCTION

Understanding and implementing effective leadership practices is essential for business organizations to achieve sustainability and long-term success (Nguyen et al., 2021). Effective leadership significantly enhances the organization's financial performance and drives innovation in product development (Son et al., 2020). In addition, the leadership style adopted within an organization plays a critical role; it positively correlates with key business outcomes, such as increased market share and profitability. Additionally, a supportive and empowering leadership style boosts employee satisfaction and commitment, leading to lower turnover rates, higher levels of engagement, and improved overall organizational performance (Kim & Beehr, 2020).

Successful leadership cannot be separated from personal attributes. How a person reaches the environment and expresses their motivation, expectations, risk resistance, and attitudes are part of the personal attributes, including individual values carried by the person in charge. Previous studies on leadership and personal values found that there is a

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positive relationship between personal values balance and leadership effectiveness (Arieli et al., 2020; Lips-Wiersma et al., 2020). Personal values are what people aspire to and, what individuals endorse for achievement values because they aspire to succeed (Sagiv & Schwartz, 2022).

Developing and starting a new business is a big decision. Both leadership and personal attributes play a role in individual decisions. The literature explores many areas of relationship among leadership, personal attributes, and entrepreneurial intention (Nunfam et al., 2022; Sánchez, 2021). The relationship explored the relationship between leadership and entrepreneurial intention (Sujana et al., 2022), the relationship between leadership and personal attributes (Gardner et al., 2021; Steffens et al., 2021), and the relationship between personal attributes and entrepreneurial intention (Nunfam et al., 2022; Sánchez, 2021). The pattern of how the three aspects relate to each other is underexplored. This research aims to bridge the literature gaps by exploring the leadership patterns and personal attributes that lead to the intention to start a business.

This research introduces a novel perspective by exploring the interplay between leadership, personal attributes, and entrepreneurial intention. Unlike prior research, such as Nunfam et al., (2022), which focuses on how personal attributes drive entrepreneurial intention and Sánchez (2021), which examines entrepreneurial intention. Through a psychological lens (Bueckmann-Diegoli et al., 2021), this research explores the interplay between leadership, personal attributes, and entrepreneurial intention as an integrated framework. By simultaneously analyzing the patterns among these three aspects, this research seeks to bridge the gap in the literature and provide a holistic understanding of how leadership and personal attributes shape entrepreneurial intention. This integrative approach enhances theoretical insights and offers practical implications for fostering entrepreneurial leadership. Moreover, this research contributes to the development of entrepreneurship development programs. Institutions can consider the proper program to assist their students' businesses. In leadership, this research contributes to mapping the attributes of leadership that lead to individual decisions to start new businesses.

Leadership theory is a nonstatic theory since theory grows and changes over time (Benmira & Agboola, 2021). any definitions have been built occasionally, but the exact role happens in the definition of leadership. To summarize the definition of leadership, three components are important and related to leadership: leader, follower, and the context surrounding it (Dinibutun, 2020). From time to time, no literature argues about the necessity of leadership. Supported by empirical evidence, it shows that leadership has several roles (Mehmood et al., 2020; Suswati, 2023): shapes (Hensellek et al., 2023; Wu et al., 2021), style (Verma & Kumar, 2022), and ways to influence the organization (Islam & Asad, 2021;

Kafetzopoulos & Gotzamani, 2021; Wu et al., 2021) to reach its vision.

The significant roles of leadership in business organizations have been proven. Leadership promotes creativity, psychological safety, innovation, and adaptive culture. Leadership in entrepreneurial firms is positively related to employee creativity, mediated by psychological empowerment and psychological safety (Mehmood et al., 2020). In entrepreneurial firms, especially small businesses, leadership has a significant role in facilitating the innovation process in their business model, which leads to increasing sales (Colovic, 2022). The leadership style found relates to the organization's ability to be culturally adaptive and plays a significant role in making the business resilient (Madi-Odeh et al., 2023).

Leadership and personal attributes are difficult to distinguish. Past research proves that personal attributes are indispensable qualities for a leader (Bass, 2019). Personal attributes encompass a belief system expressed in attitudes, motivation, expectations, and how they deal with risk. These influences by their extensive past experiences shape their action in leading organizations (Sanfilippo et al., 2023). Research on the relationship between leadership and personal attributes examined how the follower received the relationship of both (Gardner et al., 2021; Steffens et al., 2021), identified personal attributes of charismatic leaders (Zhao et al., 2021), and the role of personal attributes of leaders in making changes (Jung et al., 2020).

In the context of business, research has shown that a leader's attributes significantly influence public perception of the business's values (Chandler et al., 2023). Entrepreneurial intention is also closely related to personality traits, with gender as a mediating factor (Hossain et al., 2024). Furthermore, passion is a critical element that significantly influences entrepreneurial intention (Ferreira-Neto et al., 2023). While many studies have explored the relationships between variables, examining how one variable influences another, there is a noticeable gap in the literature. Specifically, this research found no research investigating how leadership and personal attributes play a role in driving the decision to start a business.

II. METHODS

This research explores the pattern of leadership, personal attributes, and entrepreneurial intention. The data was collected from entrepreneurial students from West Java, Indonesia, who take an entrepreneurship program. The entrepreneurial students were selected as they actively engaged in entrepreneurship programs, making them a relevant population for this research. Their academic training and exposure to entrepreneurial activities equip them with foundational knowledge and experiences, enabling them to provide informed responses regarding leadership, personal attributes, and entrepreneurial intention. The methods

used in this study are quantitative research methods and machine learning for advanced data analysis to identify patterns and relationships among the variables.

As the primary data, the questionnaire is built using a Likert scale, which contains five scales. The data are collected using a web-based questionnaire consisting of 38 indicators that reflect the five variables (motivation, expectation, risk resistance, negative attitudes, and leadership). The data is collected within two months among students from various study programs. About 127 respondents are gathered from ages 18 to 23; 63% were men, and 37% were women. The respondents are selected through purposive sampling, targeting students enrolled in entrepreneurship programs in West Java, Indonesia. These students are chosen due to their active participation in structured entrepreneurial education, which aligns with the study's objectives of examining leadership, personal attributes, and entrepreneurial intention. Exploratory Factor Analysis is employed for each variable to test each indicator's reliability and explain that variable. Then, Cronbach's alpha is used to test the reliability.

Table 1 Scale transformation

| No | Likert Scales | Transformation |
|----|---------------|----------------|
| 1. | 1 to 2 | Low |
| 2. | 3 | Moderate |
| 3. | 4 to 5 | High |

The research instrument is transformed into a dataset to process data and build models for implementing a decision tree algorithm on a RapidMiner. The average value of the indicators for each variable is taken to get a score from each respondent on each variable. Each variable's response scales (1 to 5) are transformed into low, moderate, and high levels (see Table 1), prepared for the following process using machine learning. After being transformed, the data becomes a dataset ready to be used. In the dataset, each existing variable becomes an attribute of the dataset. The dataset consists of six attributes: motivation, expectation, risk resistance, negative attitudes, leadership, and gender. The label to predict is the intention to start a business. The result is validated using performance measurement to measure the accuracy of the prediction.

III. RESULTS AND DISCUSSIONS

Exploratory factor analysis was used to test the indicators of each variable to determine their validity. The tests use KMO and Bartlett's test, and communalities. Each variable is tested using KMO and Bartlett's test, and anti-image matrices.

KMO and Bartlett's test and anti-image matrices were used to check the adequacy of the

indicator for conducting factor analysis. KMO values range from 0 to 1, with values above 0.60 indicating adequate sampling for factor analysis. At the same time, Bartlett's test evaluates whether the correlation matrix significantly deviates from an identity matrix, suggesting that the variables are correlated sufficiently to warrant further analysis (Eze et al., 2021; Yusof et al., 2020). Table 2 shows that each variable has high KMO values, with ranges of KMO from 0.64 to 0.930, indicating that the indicator of the variable is adequate for factor analysis (Yusof et al., 2020). The importance of these tests in validating constructs within educational contexts further supports the notion that high KMO values indicate data suitability for EFA (Hidayati et al., 2018).

Table 2 Result of KMO Values

| Variable | KMO | | |
|--------------------|----------|----------|----------|
| | Result 1 | Result 2 | Result 3 |
| Leadership | 0.930 | 0.917 | |
| Motivation | 0.766 | 0.500 | |
| Expectation | 0.764 | 0.746 | |
| Risk resistance | 0.643 | - | |
| Negative attitudes | 0.875 | 0.882 | 0.875 |

KMO and Bartlett's test and anti-image matrices were used to check the adequacy of the indicator for conducting factor analysis. KMO values range from 0 to 1, with values above 0.60 indicating adequate sampling for factor analysis. At the same time, Bartlett's test evaluates whether the correlation matrix significantly deviates from an identity matrix, suggesting that the variables are correlated sufficiently to warrant further analysis (Eze et al., 2021; Yusof et al., 2020). Table 2 shows that each variable has high KMO values, with ranges of KMO from 0.64 to 0.930, indicating that the indicator of the variable is adequate for factor analysis (Yusof et al., 2020). The importance of these tests in validating constructs within educational contexts further supports the notion that high KMO values indicate data suitability for EFA (Hidayati et al., 2018).

The chi-square values (see Table 3) range from 137 to 925, and significant values <0.05 indicate a significant correlation. So, the data is suitable for factor analysis. This result is in line with the findings of Eze et al. (2021), who demonstrated that significant results in Bartlett's test confirm the appropriateness of factor analysis.

Table 3 shows the results of the analysis factor for leadership, motivation, expectation, risk resistance, and negative attitude. The result of communalities extraction represents the proportion of each variable that can be explained by the factors extracted. A variable can explain a factor if its extraction value is greater than 0.50 (Zhou et al., 2022). Extraction is carried out several times by removing values less

than 0.50. The iterative process of removing variables with lower communalities ensures that the final model retains only the most relevant indicators (Melnik et al., 2022). Table 4 shows the extraction values on leadership, motivation, and expectation, while Table 5 shows the results on risk resistance and negative attitudes.

Table 3 Result of Chi-Square Values

| Variable | Chi-Square | | |
|--------------------|------------|----------|----------|
| | Result 1 | Result 2 | Result 3 |
| Leadership | 925.133 | 768.260 | |
| Motivation | 137.464 | 17.589 | |
| Expectation | 315.574 | 288.749 | |
| Risk resistance | 177.334 | - | |
| Negative attitudes | 589.315 | 505.460 | 446.229 |

Table 4 Results of Communalities of Leadership, Motivation, and Expectation

| Indicator | Leadership | | Motivation | | Expectation | |
|-----------|------------|----------|------------|----------|-------------|----------|
| | Result 1 | Result 2 | Result 1 | Result 2 | Result 1 | Result 2 |
| 1 | 0.663 | 0.662 | 0.437 | - | 0.670 | 0.713 |
| 2 | 0.638 | 0.633 | 0.305 | - | 0.282 | - |
| 3 | 0.540 | 0.562 | 0.406 | - | 0.558 | 0.558 |
| 4 | 0.701 | 0.715 | 0.525 | 0.681 | 0.692 | 0.691 |
| 5 | 0.589 | 0.594 | 0.528 | 0.681 | 0.622 | 0.620 |
| 6 | 0.499 | - | 0.378 | - | 0.568 | 0.581 |
| 7 | 0.510 | 0.512 | | | 0.559 | 0.570 |
| 8 | 0.607 | 0.609 | | | 0.723 | 0.733 |
| 9 | 0.559 | 0.579 | | | | |
| 10 | 0.631 | 0.630 | | | | |
| 11 | 0.533 | 0.538 | | | | |
| 12 | 0.496 | | | | | |

Table 5 Result of Communalities of Risk Resistance and Negative Attitudes

| Indicator | Risk Resistance | Negative attitudes | | |
|-----------|-----------------|--------------------|-------|-------|
| | | R1 | R2 | R3 |
| 1 | 0.855 | 0.455 | - | - |
| 2 | 0.828 | 0.520 | 0.456 | - |
| 3 | 0.672 | 0.672 | 0.675 | 0.650 |
| 4 | 0.701 | 0.589 | 0.630 | 0.670 |
| 5 | 0.657 | 0.736 | 0.763 | 0.773 |
| 6 | | 0.760 | 0.791 | 0.805 |
| 7 | | 0.785 | 0.813 | 0.843 |

The component transformation matrix ensures that each indicator is correlated with the factor it forms.

This ensures that each indicator is right for the variable of interest. The test results show five groupings where several indicators are grouped with indicators from other variables. Through analysis and understanding of the context of the indicators and variables formed, the renaming is carried out according to the original variables. Table 6 shows the complete results of the variable operationalization (based on the indicator result).

Table 6 Variable and Description

| Description/operationalization variable | Attributes |
|---|--------------------|
| Determination and persistence | Leadership |
| Confidence | |
| Being good with people | |
| Interest and energy | |
| Creativity and ability | |
| Intelligence | |
| Honesty | |
| Sensitivity | |
| Commitment | |
| Acts according to plans | |
| Doubt that they will ever have a business degree to start their own business | Negative Attitudes |
| Doubt that they will ever have enough money to start their own business | |
| Doubt that they will ever have enough good communication skills to start their own business | |
| Doubt that they will ever have proper knowledge about money to start their own business | |
| Doubt that they will ever have sufficient management skills to start their own business | |
| A business degree is needed to start a business | Expectation |
| A lot of money needed to start a business | |
| Have a career that uses the skills and abilities fully | |
| could make lots of money | |
| Could work the hours that they want | |
| Could earn a living doing something that they enjoy | |
| It's important to put ideas into practice | Motivation |
| It's important to earn a living doing something that they enjoy | |
| Starting a business involves taking a risk. | |

Table 6 Variable and Description (Continued)

| Description/operationalization variable | Attributes |
|---|------------|
| Starting a business could put the ideas into practice. | |
| Starting a business could have the control that comes from being one's own boss | |
| Need good communication skills to start own business | Risk |
| Need proper knowledge about money to start own business | |
| Need management skills to start own business | |

The Cronbach's alpha test ensures that all the questionnaire indicators were reliable. The Cronbach's alpha test results show values > 0.60, which means that the indicators are reliable in explaining the research variable. Table 7 shows the result of the reliability test.

Table 7 Reliability Result of Each Variable

| No | Variable | Cronbach's Alpha | N of Items |
|----|--------------------|------------------|------------|
| 1 | Leadership | 0.926 | 10 |
| 2 | Motivation | 0.736 | 5 |
| 3 | Expectation | 0.771 | 6 |
| 4 | Risk resistance | 0.761 | 3 |
| 5 | Negative attitudes | 0.915 | 5 |

The final indicator and variables were transformed and prepared for final analysis using machine learning. Machine learning was used to find the pattern of aspects that lead to entrepreneurial intention. The attributes involved in the analysis are leadership, motivation, expectation, risk resistance, negative attitudes, and gender. The label for this model is the intention of starting a business.

At the modeling step, this research uses a decision tree algorithm to process the dataset (see Figure 1). A decision tree is utilized in various fields, such as machine learning. Moreover, a decision tree is a powerful and popular approach in data mining to finding useful patterns (Priyanka & Kumar, 2020).

Information gain is used as the splitting criteria with simple pruning. This approach is the most effective method for small datasets (Jijo & Abdulazeez, 2021). Tree pruning is applied in the decision trees to reduce the tree size by removing the branches. The pruning is applied to decrease the complexity of the tree.

The process on RapidMiner (see Figure 2) involves four operators: Read Excel, Decision Tree, Apply Model, and Performance. All the operators should connect in certain rules to point to the right to process the analysis.

| Leadership | Negative attitudes | Expectation | Risk resistance | Motivation | Gender |
|------------|--------------------|-------------|-----------------|------------|--------|
| high | high | high | high | high | Male |
| high | high | high | high | high | Male |
| moderate | high | high | high | high | Male |
| moderate | high | high | high | high | Female |
| high | moderate | high | high | high | Female |
| high | high | moderate | moderate | high | Male |
| high | high | moderate | high | high | Male |
| high | high | high | high | high | Male |
| moderate | high | high | high | high | Male |
| moderate | high | high | high | high | Male |
| high | moderate | high | moderate | high | Female |
| high | high | high | high | high | Female |
| high | high | high | high | high | Male |
| high | moderate | moderate | moderate | high | Female |
| high | low | high | high | high | Female |
| moderate | low | moderate | high | high | Male |
| high | low | high | high | high | Female |
| high | moderate | high | high | high | Male |
| high | high | high | high | high | Male |
| moderate | moderate | high | high | high | Male |
| moderate | moderate | moderate | high | moderate | Female |
| high | moderate | high | high | high | Male |
| high | high | high | high | high | Male |
| high | low | high | high | high | Female |
| high | moderate | high | high | high | Female |
| high | high | high | high | high | Female |
| high | moderate | high | high | high | Female |
| high | moderate | high | high | high | Female |
| moderate | high | high | high | high | Male |

Figure 1 Snapshot of dataset

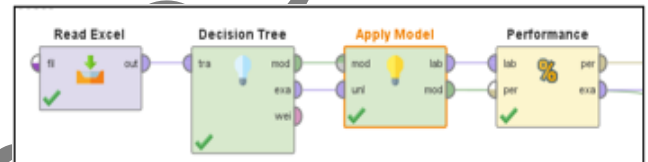


Figure 2 RapidMiner's Process

```

Negative attitudes = high
| Motivation = high
| | Risk resistance = high
| | | Expectation = high
| | | | Leadership = high
| | | | | Gender = Female: Intend {Undecided=5,
Intend=6, DN Intend=0}
| | | | | Gender = Male: Undecided {Undecided=12,
Intend=8, DN Intend=0}
| | | | | Leadership = moderate: Intend {Undecided=5,
Intend=8, DN Intend=0}
| | | | | Expectation = low: Intend {Undecided=0,
Intend=1, DN Intend=0}
| | | | | Expectation = moderate: Undecided
{Undecided=4, Intend=1, DN Intend=0}
| | | | | Risk resistance = moderate: Intend {Undecided=0,
Intend=3, DN Intend=0}
| | | | | Motivation = moderate: Undecided {Undecided=4,
Intend=0, DN Intend=0}
Negative attitudes = low
| Leadership = high: Intend {Undecided=0, Intend=21,
DN Intend=0}
| Leadership = low: Undecided {Undecided=1,
Intend=1, DN Intend=0}
| Leadership = moderate
| | Risk resistance = high
| | | Expectation = high: Intend {Undecided=1,
Intend=2, DN Intend=0}
| | | Expectation = moderate: Undecided
{Undecided=1, Intend=0, DN Intend=0}
    
```

Figure 3 Decision Tree Result

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| | Risk resistance = moderate: Intend {Undecided=0,
Intend=1, DN Intend=0}
Negative attitudes = moderate
| Expectation = high
| | Leadership = high
| | | Gender = Female
| | | | Motivation = high: Intend {Undecided=5,
Intend=7, DN Intend=0}
| | | | Motivation = moderate: Undecided
{Undecided=1, Intend=0, DN Intend=0}
| | | | Gender = Male: Intend {Undecided=1, Intend=8,
DN Intend=1}
| | | Leadership = low: Undecided {Undecided=2,
Intend=2, DN Intend=0}
| | | Leadership = moderate: Undecided {Undecided=3,
Intend=1, DN Intend=0}
| | | Expectation = low: Intend {Undecided=0, Intend=2,
DN Intend=0}
| | | Expectation = moderate
| | | Risk resistance = high
| | | | Gender = Female: Undecided {Undecided=2,
Intend=0, DN Intend=0}
| | | | Gender = Male
| | | | | Leadership = high: Undecided {Undecided=2,
Intend=1, DN Intend=0}
| | | | | Leadership = moderate: Intend {Undecided=0,
Intend=1, DN Intend=0}
| | | Risk resistance = moderate: Undecided
{Undecided=2, Intend=0, DN Intend=1}

```

Figure 3 Decision Tree Result (Continued)

The decision tree results (see Figure 3) show that the root node of the tree has a negative attitude. This indicates that negative attitudes are the most crucial factor significantly influencing entrepreneurial intention. The negative attitude, as the root node, is split into three branches. Those branches are high negative, low negative, and moderate attitudes.

In high negative attitudes, motivation, risk resistance expectation, and leadership have roles that influence intention. In the high condition of negative attitude, the motivation branch is further split. This condition shows that motivation is important for those with a highly negative attitude. Risk resistance frequently appears and affects the outcome, especially in certain conditions while negative attitude and motivation are high. Expectation and leadership refine the outcome, followed by gender.

In low negative attitudes, leadership plays a significant role in influencing the outcome. In certain conditions, when the negative attitude is low, leadership leads to clear entrepreneurial intention.

In moderate negative, attitude, expectation, leadership, and gender play roles that influence the outcome. Leadership and gender in moderate negative attitude are important for entrepreneurial intention.

Based on the result, the decision tree starts with a negative attitude as the root node. This indicates that the most crucial factor is a negative attitude. Other critical factors are motivation and leadership. Motivation is the next important aspect influencing the tree's route under high negative attitudes. This

suggests that individuals with high negative attitudes have considerably different entrepreneurial intentions depending on their motives. While leadership appears frequently and multiple times across the different branches. Under low negative attitudes, leadership directly affects results. Then, under high and moderate negative attitudes, forecasts are further refined.

Leadership plays a significant role in entrepreneurial intention among students (Akbari et al., 2021; Hoang et al., 2021). Moreover, leadership appears frequently and plays a major part in the decision tree. It is important to forecast the intention to start a business. Its strong influence is demonstrated by the fact that it is utilized to partition the data several times among different branches. People's decisions to launch a business are significantly influenced by leadership, particularly when taken into account in conjunction with other elements like unfavorable attitudes and expectations. Moreover, the impact of leadership is seen in a range of circumstances, encompassing elevated, lowered, and somewhat negative attitudes, underscoring its significance in diverse contexts. Compared to factors like anticipation, motivation, and risk aversion, leadership consistently has a greater impact.

The accuracy of this prediction model is 74.02%. This number shows that the prediction model is effective and reliable in most cases. Moreover, this model can correctly predict entrepreneurial intentions three-quarters of the time. The performance of this model still needs improvement, especially in predicting individuals who do not intend to start a business. Further improvements are still needed to predict accurately with a better level of prediction.

The results in the prediction model with decision trees can be implemented in entrepreneurial study programs. The research found that three significant factors must be considered to boost entrepreneurial intention. The study program can build up the proper strategic planning. Programs should provide certain programs and entrepreneurial ecosystems to boost students' motivation. Moreover, programs should intensively grow the students' leadership because of the critical role leadership plays in entrepreneurial intention. Regarding the negative attitude as the most critical factor, creating a support system will help student lower their negative attitude level.

IV. CONCLUSIONS

Effective leadership and personal attributes are essential in leading business organizations to success. To support entrepreneurial firms, the personal attributes and leadership of the entrepreneurial leader drive the entrepreneurial intention to start the business. This research explores the pattern of leadership and personal attributes that lead to entrepreneurial intention. This research collects data from an entrepreneurial program designed to launch new entrepreneurs. Using the Likert scale, the questionnaire consists of six

attributes: motivation, expectation, risk resistance, negative attitudes, leadership, and gender. The 127 collected questionnaires proceeded to reliability using Cronbach's Alpha and validity of every indicator that belongs to the factor used in exploratory factor analysis.

The valid indicators of the factors are transformed into a dataset for machine learning analysis using a decision tree algorithm. The result shows that the accuracy of this prediction model is 74.02%. This indicates that the prediction model is effective and reliable in most cases. The decision tree starts with a negative attitude as the root node; this indicates that the most crucial factor is a negative attitude. Other critical factors are motivation and leadership. The frequent appearance of leadership as a critical factor in the decision tree highlights its importance in fostering entrepreneurial intention, underscoring the need for educational programs to cultivate leadership skills among aspiring entrepreneurs. It is an important component in forecasting the intention to start a business. The research found that three significant factors have to be considered to boost entrepreneurial intention: reducing negative attitudes and leveling up motivation and leadership. The study program can build proper strategic planning by implementing this research result. This research can contribute to the leadership and entrepreneurship research field to help understand more about the patterns related to personal attributes and entrepreneurial intention.

The limitations of this research are, in particular, the sample size and geographical scope. These scopes are critical factors that can significantly affect the generalizability of the findings. Regarding entrepreneurship program students, the narrow focus on this specific group may lead to results that do not apply to a broader audience. Future research could address these limitations by expanding the sample size and including a more varied demographic across different regions and cultural contexts. Moreover, comparative studies across different regions, industries, and educational levels could provide deeper insights into the pattern.

Author Contributions: Conceived and designed the analysis, M. K.; Collected the data, M. K.; Performed the analysis, M. K., I. A. J., W. S., and A. S.; Contributed data or analysis tools, M. K., I. A. J., W. S., and A. S.; Writing original draft, M. K., I. A. J., W. S., and A. S.

Data Availability Statement: Data openly available in Mendeley data at doi: 10.17632/yhdsztk82n.1

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In Progress