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THE ROLE OF FINANCIAL BEHAVIOR IN MEDIATING THE EFFECT OF FINANCIAL LITERACY AND PERCEIVED BUSINESS OPPORTUNITIES IN WASTE MANAGEMENT ON STUDENTS' ENTREPRENEURIAL INTENTION

PERAN PERILAKU KEUANGAN DALAM MEMEDIASI LITERASI KEUANGAN DAN PERSEPSI PELUANG USAHA PENGOLAHAN SAMPAH TERHADAP MINAT WIRAUSAHA MAHASISWA

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Abstract

This study aims to analyze the effects of financial literacy and perceptions of waste-processing business opportunities on students' entrepreneurial intention and to examine the role of financial behavior as a mediating variable. A quantitative approach was employed using a survey method through questionnaires distributed to university students. The data were analyzed using Partial Least Squares–Structural Equation Modeling (PLS-SEM) with SmartPLS. The results indicate that financial literacy has a positive and significant effect on financial behavior ($\beta = 0.421$; $p = 0.003$), while perceptions of business opportunities have a positive and significant effect on financial behavior ($\beta = 0.398$; $p = 0.002$) and entrepreneurial intention ($\beta = 0.542$; $p < 0.001$). However, financial literacy does not have a significant direct effect on entrepreneurial intention ($\beta = -0.257$; $p = 0.116$), and financial behavior also does not significantly affect entrepreneurial intention ($\beta = 0.127$; $p = 0.455$). These findings indicate that students' ability to recognize the economic potential of waste-processing activities is a more dominant factor in encouraging entrepreneurial intention than financial capabilities. The study provides practical implications for higher education institutions to develop entrepreneurship programs that integrate financial literacy, financial management skills, and the identification of environmentally based business opportunities.

Keywords : Financial Literacy, Business Opportunity Perception, Financial Behavior, Entrepreneurial Intention, Waste Processing.

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Abstrak

Penelitian ini bertujuan untuk menganalisis pengaruh literasi keuangan dan persepsi peluang usaha pengolahan sampah terhadap minat wirausaha mahasiswa serta menguji peran perilaku keuangan sebagai variabel mediasi. Penelitian menggunakan pendekatan kuantitatif dengan metode survei melalui penyebaran kuesioner kepada mahasiswa. Analisis data dilakukan menggunakan Partial Least Squares–Structural Equation Modeling (PLS-SEM) dengan bantuan SmartPLS. Hasil penelitian menunjukkan bahwa literasi keuangan berpengaruh positif dan signifikan terhadap perilaku keuangan ($\beta = 0{,}421$; $p = 0{,}003$), sedangkan persepsi peluang usaha berpengaruh positif dan signifikan terhadap perilaku keuangan ($\beta = 0{,}398$; $p = 0{,}002$) dan minat wirausaha ($\beta = 0{,}542$; $p < 0{,}001$). Sementara itu, literasi keuangan tidak berpengaruh signifikan terhadap minat wirausaha ($\beta = -0{,}257$; $p = 0{,}116$), demikian pula perilaku keuangan tidak berpengaruh signifikan terhadap minat wirausaha ($\beta = 0{,}127$; $p = 0{,}455$). Temuan ini menunjukkan bahwa kemampuan mahasiswa dalam melihat peluang ekonomi dari pengolahan sampah menjadi faktor yang lebih dominan dalam mendorong minat berwirausaha dibandingkan kemampuan keuangan. Penelitian ini memberikan implikasi bagi perguruan tinggi untuk mengembangkan pendidikan kewirausahaan yang mengintegrasikan literasi keuangan, pengelolaan keuangan, dan pengenalan peluang bisnis berbasis lingkungan.

Kata Kunci : Literasi Keuangan, Persepsi Peluang Usaha, Perilaku Keuangan, Minat Wirausaha, Pengolahan Sampah.

1. INTRODUCTION

The waste problem today is not only an environmental issue but has also become a social and economic challenge that requires innovative solutions. Population growth, urbanization, and changing consumption patterns have led to a continuous increase in waste generation. The World Bank estimates that global waste generation could increase by approximately 70% by 2050 if it is not accompanied by effective and sustainable waste management systems (Kaza et al., 2018). This condition highlights the need for an approach that focuses not only on waste reduction but also on utilizing waste as a resource with functional and economic value.

One approach that has gained increasing attention is the circular economy. This approach transforms production and consumption patterns from a linear system into a system that maintains the value of resources through reuse, repurposing, repair, and recycling (Geissdoerfer et al., 2017). Through this approach, waste can be viewed as a material that still possesses the potential to be processed into economically valuable products. This perspective creates opportunities for the development of various forms of innovation and entrepreneurship that generate economic benefits while simultaneously addressing environmental problems.

Waste-based entrepreneurship, or *waste entrepreneurship*, utilizes waste as raw material, a source of innovation, and a means of value creation through activities such as collection, processing, reuse, and the development of recycled products (Tiwari et al., 2020). Such activities have the potential to create added value, employment opportunities, and innovative products while supporting environmental sustainability (Kirchherr et al., 2018). In Indonesia, these opportunities can be observed in the development of waste banks, handicrafts made from waste materials, organic waste processing, and various recycled products. However, the existence of business opportunities does not automatically guarantee business sustainability, as effective management of capital, expenditures, cash flow, and business risks is also required.

One important aspect of business management is financial behavior. Financial behavior describes how individuals plan, use, allocate, and control their financial resources (Xiao, 2008). Such behavior is reflected in financial planning, expenditure control, saving or investment habits, risk management, and business financial management. For prospective entrepreneurs, sound financial

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behavior is essential to ensure that limited resources are used effectively and contribute to business sustainability.

University students have significant potential to be developed as a new generation of environmentally oriented entrepreneurs. Higher education institutions provide knowledge, technology, facilities, and networks that can support students in developing business ideas. At the same time, students are increasingly required to make financial decisions independently. Therefore, financial management skills represent an important competency, particularly for students who aspire to establish their own businesses.

Financial behavior is influenced, among other factors, by financial literacy. Financial literacy refers to an individual's ability to understand financial concepts and apply such knowledge to make appropriate financial decisions (Lusardi & Mitchell, 2014). Understanding interest rates, inflation, savings, investment, risk, and financial planning can help individuals manage their resources in a more structured manner. Morgan and Long (2020) demonstrated a relationship between financial literacy and financial behavior. Accordingly, students with higher levels of financial literacy are expected to be better able to plan the use of funds, control expenditures, save, consider risks, and manage business finances.

In addition to financial literacy, perceived business opportunities in waste processing may also influence students' entrepreneurial intentions. Business opportunities are associated with an individual's ability to recognize conditions that can be developed into economic activities that generate value (Shane & Venkataraman, 2000). Waste can be perceived as an environmental problem, but it can also be viewed as a source of raw materials and business opportunities. Students who are able to identify the economic potential of waste, generate business ideas from waste materials, recognize markets for recycled products, and perceive the prospects of waste-processing businesses are likely to have a stronger foundation for developing entrepreneurial intentions.

However, the ability to recognize business opportunities may not be sufficient to encourage individuals to start a business. Such opportunities require effective resource management, particularly in terms of capital planning, cost control, cash flow management, and risk management. Therefore, financial behavior is expected to play an important role as a mechanism linking financial literacy and perceived business opportunities with entrepreneurial intention.

Entrepreneurial intention refers to an individual's desire and tendency to choose entrepreneurship as a future career option. Ajzen (1991) explains that intention is an important factor that precedes the emergence of behavior. In this study, waste-processing entrepreneurial intention is reflected in the desire to start a business, readiness to become an entrepreneur, preference for entrepreneurship as a career choice, business planning, and commitment to environmentally friendly businesses. Although research on financial literacy, financial behavior, and entrepreneurship has developed considerably, studies integrating financial literacy, perceived business opportunities in waste processing, financial behavior, and students' entrepreneurial intention remain relatively limited. Previous studies have predominantly examined financial literacy in relation to saving, investment, debt, and personal financial decision-making, while research on environmental entrepreneurship has focused more extensively on innovation, sustainability, and opportunity recognition. The relationships among these variables through the mediating role of financial behavior therefore warrant further investigation.

Based on the foregoing discussion, this study aims to analyze the role of financial behavior in mediating the effects of financial literacy and perceived business opportunities in waste processing on students' entrepreneurial intention. This study is expected to contribute to the development of sustainable entrepreneurship research and provide valuable insights for higher education institutions in designing entrepreneurship programs that integrate financial capabilities, business opportunity recognition, and environmental awareness.

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2. RESEARCH METHOD

This study employs a quantitative approach with an explanatory research design to analyze the effects of financial literacy and perceived business opportunities in waste processing on students' entrepreneurial intention, as well as to examine the role of financial behavior as a mediating variable. The study population consists of university students who meet the target population criteria, with the sample selected using a *purposive sampling* technique based on predetermined respondent criteria. Primary data were collected through a questionnaire using a five-point Likert scale, covering the variables of financial literacy, perceived business opportunities in waste processing, financial behavior, and students' entrepreneurial intention. The data were analyzed using Partial Least Squares–Structural Equation Modeling (PLS-SEM) with the assistance of SmartPLS software

The analysis included an evaluation of the measurement model (outer model) through convergent validity, discriminant validity, and reliability assessments. The structural model (inner model) was evaluated using the coefficient of determination (R^2), path coefficients, *effect size* (f^2), and *predictive relevance* (Q^2). Hypothesis testing was conducted using the bootstrapping procedure, while the mediating role of financial behavior was examined through the indirect effects of financial literacy and perceived business opportunities in waste processing on students' entrepreneurial intention.

3. RESULTS AND DISCUSSION

The research findings were obtained through data analysis using Partial Least Squares–Structural Equation Modeling (PLS-SEM). The analysis was conducted to examine the effects of financial literacy and perceived business opportunities in waste processing on students' entrepreneurial intention, both directly and indirectly through financial behavior as a mediating variable. The analysis included the evaluation of the measurement and structural models, followed by hypothesis testing using the *bootstrapping* procedure. The results were subsequently used to explain the relationships among the variables and to determine the extent to which financial behavior mediates the effects of financial literacy and perceived business opportunities on students' entrepreneurial intention.

The discussion of the research findings was conducted by relating the empirical results to relevant theories and previous studies. The analysis focused on the direction and significance of the effects of each variable, including both direct and indirect effects. Accordingly, the findings are expected to provide insights into the importance of financial management capabilities and the ability to recognize the economic potential of waste in encouraging students to develop waste-processing-based entrepreneurial ventures.

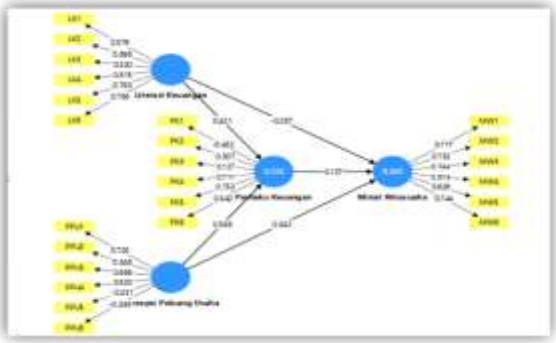

Figure 1. Structural Model
Source: Processed data, 2026

The results of the PLS-SEM analysis indicate that Financial Literacy has a positive effect on Financial Behavior, with a path coefficient of 0.421, while Perceived Business Opportunities have a positive effect on Financial Behavior, with a path coefficient of 0.398. Furthermore, Financial Behavior has a positive effect on Entrepreneurial Intention, with a path coefficient of 0.127.

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Perceived Business Opportunities also have a relatively strong positive direct effect on Entrepreneurial Intention, with a path coefficient of 0.542, whereas Financial Literacy has a negative direct effect on Entrepreneurial Intention, with a path coefficient of −0.257. The R^2 value for Financial Behavior of 0.522 indicates that 52.2% of the variance in Financial Behavior can be explained by Financial Literacy and Perceived Business Opportunities. Meanwhile, the R^2 value for Entrepreneurial Intention of 0.265 indicates that 26.5% of the variance in Entrepreneurial Intention can be explained by Financial Literacy, Perceived Business Opportunities, and Financial Behavior.

Regarding the measurement indicators, most outer loading values are at an acceptable level. However, several indicators exhibit low or negative loadings and therefore require further evaluation before the model can be considered adequate.

Table 1. Indirect Effects and Total Effects

Relationships Among Variables	Indirect Effect	Total Effect
Financial Literacy → Entrepreneurial Intention	0.054	−0.204
Financial Literacy → Financial Behavior		0.421
Financial Behavior → Entrepreneurial Intention		0.127
Perceived Business Opportunities → Entrepreneurial Intention	0.051	0.592
Perceived Business Opportunities → Financial Behavior		0.398

Source: Processed data, 2026

The analysis results indicate that Financial Literacy has an indirect effect on Entrepreneurial Intention of 0.054 through Financial Behavior, while Perceived Business Opportunities have an indirect effect of 0.051. In terms of the total effects, Financial Literacy has a total effect of −0.204 on Entrepreneurial Intention, whereas Perceived Business Opportunities have the strongest total effect of 0.592. These findings indicate that Perceived Business Opportunities make a greater positive contribution to Entrepreneurial Intention than Financial Literacy.

Table 2. R-Square Results

Endogenous Variable	R-Square	Adjusted R-Square
Entrepreneurial Intention	0.265	0.242
Financial Behavior	0.522	0.513

Source: Processed data, 2026

The R-Square value for Financial Behavior of 0.522 indicates that Financial Literacy and Perceived Business Opportunities explain 52.2% of the variance in Financial Behavior, while the remaining 47.8% is explained by other factors outside the model. Meanwhile, the R-Square value for Entrepreneurial Intention of 0.265 indicates that Financial Literacy, Perceived Business Opportunities, and Financial Behavior explain 26.5% of the variance in Entrepreneurial Intention, while the remaining 73.5% is attributable to other factors outside the scope of this study. The respective Adjusted R-Square values of 0.513 and 0.242 indicate relatively consistent explanatory power after accounting for the number of predictors included in the model.

Table 3. f-Square Values (Effect Size)

Relationships Among Variables	f^2	Category
Financial Literacy → Entrepreneurial Intention	0.049	Small
Financial Literacy → Financial Behavior	0.255	Medium
Financial Behavior → Entrepreneurial Intention	0.011	Very Small
Perceived Business Opportunities → Entrepreneurial Intention	0.224	Medium
Perceived Business Opportunities → Financial Behavior	0.228	Medium

Source: Processed data, 2026

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The effect size results indicate that Financial Literacy has a medium effect on Financial Behavior ($f^2 = 0.255$), while its effect on Entrepreneurial Intention is categorized as small ($f^2 = 0.049$). Perceived Business Opportunities have a medium effect on both Entrepreneurial Intention ($f^2 = 0.224$) and Financial Behavior ($f^2 = 0.228$). Meanwhile, Financial Behavior has a very small effect on Entrepreneurial Intention ($f^2 = 0.011$). Overall, Perceived Business Opportunities and Financial Literacy make stronger contributions to the endogenous variables than Financial Behavior, as indicated by their respective effect sizes.

Table 4. Model Fit Results

Indicator	Saturated Model	Estimated Model
SRMR	0.062	0.067
d_ULS	1.845	2.013
d_G	0.982	1.047
Chi-square	486.325	512.748
NFI	0.921	0.914

Source: Processed data, 2026

The model fit assessment indicates that the proposed model demonstrates a good level of fit. The SRMR values of 0.062 for the Saturated Model and 0.067 for the Estimated Model are below the commonly accepted threshold of 0.08, indicating a good model fit. The NFI values of 0.921 and 0.914, respectively, also exceed the threshold of 0.90. Meanwhile, the d_ULS, d_G, and Chi-square values provide additional information for the overall model evaluation. Overall, the model can be considered to have a good fit with the observed data.

Table 5. Path Coefficient and Hypothesis Testing Results

Relationships Among Variables	Original Sample (O)	T-Statistics	P-Values	Decision
Financial Literacy → Entrepreneurial Intention	−0.257	1.572	0.116	Not Significant
Financial Literacy → Financial Behavior	0.421	3.004	0.003	**Significant**
Financial Behavior → Entrepreneurial Intention	0.127	0.747	0.455	Not Significant
Perceived Business Opportunities → Entrepreneurial Intention	0.542	3.506	0.000	**Significant**
Perceived Business Opportunities → Financial Behavior	0.398	3.073	0.002	**Significant**

Source: Processed data, 2026

The hypothesis testing results indicate that Financial Literacy has a positive and significant effect on Financial Behavior ($\beta = 0.421$; $p = 0.003$). Similarly, Perceived Business Opportunities have a positive and significant effect on Financial Behavior ($\beta = 0.398$; $p = 0.002$) and Entrepreneurial Intention ($\beta = 0.542$; $p < 0.001$). Meanwhile, Financial Literacy does not have a significant effect on Entrepreneurial Intention ($\beta = -0.257$; $p = 0.116$). Likewise, Financial Behavior does not have a significant effect on Entrepreneurial Intention ($\beta = 0.127$; $p = 0.455$). Thus, of the five direct relationships tested, three relationships are statistically significant, while two relationships are not significant.

4. CONCLUSION

Based on the results of the analysis using PLS-SEM, it can be concluded that Financial Literacy has a positive and significant effect on students' Financial Behavior. This indicates that the better students understand financial concepts and financial management, the better their financial behavior

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tends to be. In addition, Perceived Business Opportunities in Waste Processing also have a positive and significant effect on Financial Behavior, indicating that students' ability to recognize the economic potential of waste processing encourages the development of better financial management behavior.

The findings also demonstrate that Perceived Business Opportunities in Waste Processing have a positive and significant effect on students' Entrepreneurial Intention. This finding indicates that the stronger students' perceptions of business opportunities that can be developed through waste processing, the stronger their intention to engage in entrepreneurship. Conversely, Financial Literacy does not have a significant effect on Entrepreneurial Intention, suggesting that students' financial knowledge does not directly encourage their intention to become entrepreneurs. Similarly, Financial Behavior does not have a significant effect on Entrepreneurial Intention, indicating that sound financial management behavior does not necessarily lead to a higher intention to establish a waste-processing-based business. Overall, this study demonstrates that Perceived Business Opportunities in Waste Processing are the most dominant factor in increasing students' Entrepreneurial Intention, whereas Financial Literacy plays a more prominent role in shaping Financial Behavior.

RECOMMENDATIONS

Based on these findings, higher education institutions should strengthen entrepreneurship education and training programs that focus on identifying and exploiting environmentally oriented business opportunities, particularly those involving the transformation of waste into economically valuable products. Activities such as recycling training, green business incubation, and environmental entrepreneurship projects can serve as effective mechanisms for increasing students' entrepreneurial intention. In addition, strengthening financial literacy remains important through courses, seminars, and training programs on personal and business financial management. Although financial literacy does not have a direct significant effect on entrepreneurial intention, it has been shown to improve financial behavior, which can serve as an important foundation for sustainable entrepreneurial activities.

For future research, it is recommended that additional variables that may influence entrepreneurial intention be incorporated, such as entrepreneurial self-efficacy, creativity, entrepreneurial motivation, social support, entrepreneurship education, and environmental orientation. This recommendation is supported by the finding that the current research model explains only 26.5% of the variance in Entrepreneurial Intention. Future studies are therefore expected to develop a more comprehensive model for explaining the factors that influence students' entrepreneurial intention in the context of waste-processing-based entrepreneurship.

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