Assessing business management factors in young agricultural entrepreneurs in Indonesia

Penilaian faktor-faktor yang mempengaruhi manajemen usaha pada wirausahawan muda pertanian di Indonesia

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ABSTRACT
Indonesia faces a pressing challenge in its agricultural sector: the declining participation of young workers due to limited entrepreneurial opportunities and inadequate business management skills. This study investigates the factors influencing business management among young agricultural entrepreneurs participating in the growth of young agricultural entrepreneurs (PWMP) program at Politeknik Pembangunan Pertanian (Polbangtan) Medan, Indonesia. Utilizing a descriptive quantitative approach, data were gathered through questionnaires and analyzed using Likert scale measurements and multiple linear regression tests. The findings highlight that business management capabilities were categorized as high (79.68%), supported by strong personality traits (84.30%), high knowledge levels (83.05%), extensive experience (81.13%), a supportive family environment (75.80%), and a robust entrepreneurial ecosystem (79.78%). Regression analysis revealed that personality, experience, family environment, and the entrepreneurial ecosystem significantly impacted business management capabilities, while knowledge had no notable effect. These results underscore the importance of structured interventions, such as internships and business incubation programs, to enhance practical business skills and foster entrepreneurial success.

ABSTRAK
Indonesia menghadapi tantangan serius di sektor pertanian, yaitu menurunnya partisipasi pekerja muda akibat keterbatasan peluang kewirausahaan dan kurangnya keterampilan manajemen usaha. Penelitian ini mengkaji faktor-faktor yang memengaruhi manajemen usaha pada wirausahawan muda pertanian yang berpartisipasi dalam Program Penumbuhan Wirausahawan Muda Pertanian (PWMP) di Politeknik Pembangunan Pertanian Medan. Dengan pendekatan deskriptif kuantitatif, data dikumpulkan melalui kuesioner dan dianalisis menggunakan pengukuran skala Likert serta uji regresi linear berganda. Hasil penelitian menunjukkan bahwa kemampuan manajemen usaha dikategorikan tinggi (79.68%), didukung oleh kepribadian yang kuat (84.30%), tingkat pengetahuan yang tinggi (83.05%), pengalaman yang luas (81.13%), lingkungan keluarga yang mendukung (75.80%), dan ekosistem kewirausahaan yang kuat (79.78%). Analisis regresi menunjukkan bahwa kepribadian, pengalaman, lingkungan keluarga, dan ekosistem kewirausahaan secara signifikan memengaruhi kemampuan manajemen usaha, sementara faktor pengetahuan tidak memberikan dampak signifikan. Temuan ini menegaskan pentingnya intervensi terstruktur seperti magang dan program inkubasi bisnis untuk meningkatkan keterampilan praktis dalam perencanaan, pengorganisasian, pelaksanaan, dan pengawasan usaha.

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INTRODUCTION

Indonesia, an agrarian nation, heavily relies on its agricultural sector, which employs a majority of the population. Despite its crucial role, the agricultural sector faces significant challenges. The 2023 Agricultural Census reported a 7.42% decline in agricultural businesses over the past decade, reducing the total to 29,360,833. Although agriculture remains a cornerstone of Indonesia's economic stability, this decline raises concerns about its long-term sustainability. Moreover, the agricultural sector continues to be labor-intensive, contributing directly and indirectly to food security and environmental stewardship (Easwarana, 2024; Sadikin, 2019).

One pressing issue is the limited participation of young workers in the agricultural sector. With only 6.2 million young workers aged 19–39 years currently engaged in agriculture (BPS, 2023), the sector struggles to attract this demographic due to barriers such as limited access to land, inadequate education, and low financial returns. Additionally, external challenges, including limited family and community support, exacerbate these issues (Maihani et al., 2021). In comparison to neighboring countries like Singapura and Thailand (Nofriser & Hermansyah), Indonesia's entrepreneurial participation rate, at 3.47%, is significantly lower, indicating a need for enhanced efforts to promote entrepreneurship (Dolonseda et al., 2024).

To address these challenges, the Ministry of Agriculture launched the Growth of Young Agricultural Entrepreneurs (PWMP) Program in 2016. This initiative aims to develop entrepreneurial skills, reframe agriculture as a lucrative business opportunity, and foster agrisociopreneurship through capital assistance and institutional support. The program seeks to strengthen the entrepreneurial ecosystem, providing resources such as funding, mentorship, market access, and human capital development (Apriliani et al., 2024). However, poor managerial practices among participants remain a critical obstacle, limiting the program's success in fostering sustainable entrepreneurial ventures (Sadikin, 2019).

Existing studies highlight the importance of entrepreneurial ecosystems in supporting young entrepreneurs. For instance, Apriliani et al. (2024) emphasize the role of ecosystem components, including access to funding and market networks, in enhancing business performance. Similarly, Karimi and Ataei (2022) identify that social and emotional intelligence, mediated by a robust entrepreneurial ecosystem, significantly influences entrepreneurial skills in agricultural contexts. Despite this, there is limited research on how these ecosystems interact with individual traits, such as personality and experience, in shaping business management outcomes among young agricultural entrepreneurs.

Personality traits also play a critical role in business success. Darwin (2021) identify key entrepreneurial characteristics, including risk-taking, responsibility, and a high need for achievement, as vital for effective business management. Additionally, Firdarini (2019) highlights the importance of prior experience, showing that entrepreneurs with substantial experience demonstrate better resource management and business success. However, gaps remain in understanding how these individual traits translate into effective management in agriculture-specific entrepreneurship programs like PWMP. This study seeks to fill these gaps by analyzing the factors influencing business management among young agricultural entrepreneurs participating in the PWMP Program at Polbangtan Medan. By evaluating key variables—personality, knowledge, experience, family environment, and the entrepreneurial ecosystem—this research aims to identify determinants of business success and provide actionable recommendations. These findings will inform policymakers, educators, and program developers, ensuring the sustainability of young entrepreneurs and revitalizing Indonesia's agricultural sector.

MATERIALS & METHODS

This study employed a descriptive quantitative design to analyze factors influencing business management among young agricultural entrepreneurs in Indonesia. The research was conducted at Politeknik Pembangunan Pertanian (Polbangtan)

Medan, chosen for its active implementation of the 2021–2022 PWMP Program. The study was carried out between December 2022 and April 2023.

Sampling and participants
The target population consisted of 119 members of the 2021–2022 PWMP groups, all of whom were included in this study using a census sampling method. This approach was selected to ensure comprehensive representation of the population, as further sampling would not significantly improve the validity or generalizability of the findings (Sugiyono, 2019). The participants were business group members actively engaged in entrepreneurial activities as outlined in their program proposals and still under mentorship during the data collection period.

Data collection
Data were collected through structured questionnaires designed to assess business management capabilities and related factors, including personality, knowledge, experience, family environment, and the entrepreneurial ecosystem. The questionnaire items were developed based on relevant literature and validated through expert review to ensure content validity. A pilot test was conducted with a small subset of participants to confirm reliability, achieving a Cronbach's alpha value above 0.7 for all variables. The study utilized a five-point Likert scale, widely recognized in social sciences for measuring attitudes and perceptions (Yamashita, 2022). The scale ranged from 1 ("Never") to 5 ("Always"), capturing responses on various dimensions of business management and entrepreneurial factors.

Data analysis
Data analysis was performed using SPSS version 25. Multiple linear regression analysis was employed to test the research hypotheses and determine the influence of independent variables—personality, knowledge, experience, family environment, and the entrepreneurial ecosystem—on the dependent variable, which is business management capability. The coefficient of determination (R^2) measured the proportion of variance in the dependent variable explained by the independent variables. An F-test assessed the overall significance of the regression model, while t-tests evaluated the significance of each independent variable. The regression equation quantified the relationships between variables. Prior to applying the regression model, all assumptions of linear regression—including normality, homoscedasticity, and independence of residuals—were verified to ensure the validity of the analysis.

RESULTS & DISCUSSION

Business management in the PWMP program groups
The business management capabilities of the PWMP Program groups at Politeknik Pembangunan Pertanian Medan were assessed based on planning, organizing, actuating, and controlling functions. Table 1 shows that the overall business management score was 79.68%, categorized as high. Among the managerial functions, controlling scored the highest at 81.04%, while actuating scored the lowest at 78.02%. This indicates that PWMP group members excel in supervision but face challenges in the implementation of business activities.

Table 1. Business management of the PWMP program groups

No.	Statement	Interval Score	Average score achievement	Personality level (%)
1.	Planning	1-25	19.70	78.86
2.	Organizing	1-25	20.20	80.81
3.	Actuating	1-25	19.51	78.02
4.	Controlling	1-25	20.25	81.04
	Total	1-100	79.66	79.68

The findings highlight the importance of developing managerial competence among young entrepreneurs to address business challenges effectively. Managerial functions such as planning, organizing, actuating, and controlling are essential skills that must be continuously honed to ensure business sustainability and profitability. Entrepreneurs in the PWMP groups not only serve as managers but also as technical implementers and leaders within their teams.

The ability to manage a business comprehensively—encompassing planning, organizing, implementation (including business administration, production, and marketing), and supervision—directly influences profitability and long-term success. According to Yasin (2023), managerial competence is a critical factor in the success of small and medium-sized enterprises (SMEs). In the context of the PWMP program, enhancing these skills through targeted training and mentorship is essential to maximize the entrepreneurial potential of participants and ensure the sustainability of their ventures.

Factors influencing the business management

Personality (X1)

The measurement of personality variables for the PWMP Program group is summarized in Table 2. The results indicate an overall personality score of 84.30%, categorized as high. Among the assessed indicators, the highest score (87.73%) reflects the determination of entrepreneurs to grow and develop their businesses. Conversely, the lowest score (80.50%) pertains to consistency in maintaining personality traits essential for business operations.

Table 2. Measurement results based on personality variables

No.	Statement	Interval score	Average score	Achievement level (%)
1	Determination to make the business progress and develop	1-5	4.38	87.73
2	Efforts to ensure smooth and optimal business operations	1-5	4.36	87.23
3	Consistency in running the business	1-5	4.02	80.50
4	Good business management	1-5	4.20	84.03
5	Ability to obtain new insights for business improvement	1-5	4.10	82.02
	Total	1-25	21.06	84.30

The findings highlight that personality traits such as responsibility, perseverance, risk-taking, and high enthusiasm are pivotal for effective business management in PWMP Program groups. These traits contribute significantly to the sustainability and growth of entrepreneurial ventures. The high score for determination (87.73%) demonstrates that most entrepreneurs are strongly committed to advancing their businesses. However, the lower score for consistency (80.50%) suggests that maintaining a steady approach in day-to-day operations remains a challenge for some participants.

The importance of personality in entrepreneurship aligns with Barton and Lischeron (as cited in Darwin, 2021), who emphasize that key personality traits—such as honesty, responsibility, and the ability to take calculated risks—are essential for business success. These traits enable entrepreneurs to navigate challenges and capitalize on opportunities, ultimately ensuring the sustainability of their ventures. For the PWMP Program groups, fostering these characteristics through structured mentorship and continuous support could further enhance their business management capabilities and long-term success.

Knowledge (X2)

The assessment of the knowledge variable for the PWMP Program groups is summarized in Table 3. The results indicate an overall knowledge score of 83.05%, categorized as high. Among the indicators, the highest score (88.07%) reflects participants' understanding of how to create business products, while the lowest score (79.66%) pertains to knowledge of business branding.

Table 3. Measurement results based on knowledge variables

No.	Statement	Interval score	Average score	Achievement level (%)
1	Understanding in preparing a target market plan	1-5	4.22	84.37
2	Understanding in determining the segment or target market	1-5	4.10	82.02
3	Understanding how to create business products	1-5	4.40	88.07
4	Understanding in determining product pricing	1-5	4.22	84.37
5	Understanding in determining the appropriate place for business	1-5	4.17	83.36
6	Understanding in promotion strategy	1-5	4.07	81.34
7	Understanding of business branding	1-5	3.98	79.66
8	Knowledge of managing Human Resources of a business team	1-5	4.06	81.18
	Total	1-40	33.22	83.05

The findings indicate that knowledge plays a critical role in managing PWMP Program businesses, as it equips participants with the ability to innovate in product development and implement effective marketing strategies. High scores in areas such as product creation (88.07%) and market planning (84.37%) demonstrate the participants' strength in technical and strategic aspects of business. However, the relatively low score in business branding (79.66%) suggests that participants face challenges in building and maintaining brand identity, which is essential for long-term business success.

Knowledge is a key driver of entrepreneurial growth, as it enables individuals to adapt to market demands and explore innovative approaches to achieve competitive advantages. These results align with previous studies, such as those by Ahmad Sadikin (2018), which emphasized the importance of aligning entrepreneurial knowledge with practical applications to overcome challenges in business management. In the context of PWMP Program groups, enhancing knowledge through targeted training programs and mentorship focusing on branding and advanced marketing techniques could further strengthen participants' business management capabilities. While the PWMP group demonstrates a strong foundation in entrepreneurial knowledge, addressing gaps in branding and promotional strategies is crucial. By improving these areas, the program can better support participants in achieving sustained business growth and competitiveness in the market.

Experience (X3)

The measurement of experience variables for the PWMP Program groups is summarized in Table 4. The results indicate an overall experience score of 81.13%, categorized as very high. Among the indicators, the highest score (83.70%) reflects efforts to enhance customer loyalty, while the lowest score (77.65%) pertains to the use of production technology in business operations. The findings indicate that experience is a crucial factor influencing the management of PWMP Program group businesses. Participants with greater experience are better equipped to manage business performance, make strategic decisions, and adapt to challenges effectively. The high score for customer loyalty efforts (83.70%) suggests that participants prioritize building strong relationships with customers, a critical aspect of sustainable business practices. Conversely, the relatively low score for the use of production technology (77.65%) highlights an area for improvement, indicating the need for greater familiarity with and integration of advanced technologies into business operations.

Entrepreneurial experience provides participants with valuable insights that enhance their ability to navigate the complexities of business management. According to Nabawi (as cited in Mubarokah & Srimindarti, 2022), prolonged

entrepreneurial involvement reduces errors and fosters innovation, enabling entrepreneurs to identify and implement effective solutions. Similarly, Firdarini (2019) found that prior business experience significantly improves resource management capabilities, ultimately contributing to business success.

Table 4. Measurement results based on experience variables

No.	Statement	Interval score	Average score	Achievement level (%)
1	Making a target market or business market segment	1-5	4.14	82.86
2	Conducting trials of several business products	1-5	3.96	79.16
3	Determining the price of business products	1-5	4.15	83.02
4	Determining a suitable place for business	1-5	3.92	78.49
5	Implementing effective product promotion strategies	1-5	4.16	83.19
6	Branding my business	1-5	4.10	82.02
7	Using production technology in business	1-5	3.88	77.65
8	Using promotional technology in business	1-5	4.02	80.34
9	Making efforts to retain customer loyalty	1-5	4.18	83.70
10	Managing the Human Resources of the business team	1-5	4.04	80.84
	Total	1-50	40.55	81.13

In the context of the PWMP Program, the high experience score can be attributed to the program's requirement that participants have prior business involvement before joining. This ensures that most participants possess foundational entrepreneurial experience, which supports their ability to manage their businesses effectively. Strengthening participants' proficiency in utilizing production and promotional technologies through targeted training could further enhance their business outcomes and competitiveness.

Family environment (X4)
The measurement of the family environment variable for the PWMP Program groups is summarized in Table 5. The results indicate an overall score of 75.80%, categorized as high. Among the indicators, the highest score (77.31%) reflects the determination of participants to continue entrepreneurship despite the absence of family support. In contrast, the lowest score (73.61%) pertains to entrepreneurial growth stemming from families with a background in entrepreneurship.

Table 5. Measurement results based on family environment variables

No.	Statement	Interval score	Average score	Achievement level (%)
1	Growing up in a family engaged in entrepreneurship	1-5	3.68	73.61
2	Continuing entrepreneurship despite lack of family support	1-5	3.86	77.31
3	Interest in entrepreneurship to meet family needs	1-5	3.82	76.47
	Total	1-15	11.36	75.80

The findings suggest that the family environment plays a significant role in shaping the entrepreneurial tendencies of PWMP Program participants. A supportive family environment can enhance the likelihood of business success by providing encouragement, resources, and knowledge transfer. However, the relatively low score for entrepreneurial growth from families with a business background (73.61%) indicates that many participants may not have direct exposure to entrepreneurial practices within their family.

Despite this limitation, a majority of participants (77.31%) demonstrate resilience and determination to continue entrepreneurship even without direct family support. This highlights the importance of fostering independence and self-reliance among young entrepreneurs. According to Darwin (2021), family dynamics significantly influence entrepreneurial behavior, as families serve as the first social environment where individuals develop values such as creativity, responsibility, and perseverance.

For participants without entrepreneurial family backgrounds, external support systems, such as mentorship and training provided by the PWMP Program, become even more crucial. These systems can help compensate for the lack of familial encouragement and provide participants with the skills and confidence needed to succeed in their ventures. While the family environment positively influences entrepreneurial management within the PWMP Program groups, strengthening external support mechanisms is essential for participants lacking familial entrepreneurial exposure. By addressing these gaps, the program can further empower participants to achieve business sustainability and growth.

Entrepreneurial ecosystem (X5)
The measurement of the entrepreneurial ecosystem role variable for the PWMP Program groups is summarized in Table 6. The results indicate an overall score of 79.78%, categorized as high. Among the indicators, the highest score (82.92%) reflects the ecosystem's support in providing access to capital, while the lowest score (76.07%) pertains to market access.

Table 6. Measurement results based on entrepreneurial ecosystem role variables

No.	Role Type	Interval score	Average score	Achievement level (%)
1	Increasing Human Resources	1-25	20.04	80.17
2	Access to Capital	1-25	20.70	82.92
3	Market Access	1-25	19.02	76.07
4	Support Network Development	1-25	19.98	79.97
	Total	1-100	79.74	79.78

The findings highlight the critical role of the entrepreneurial ecosystem in supporting PWMP Program group businesses. Access to capital (82.92%) emerged as the most significant contributor, reflecting the availability of funding opportunities for business development. In contrast, market access (76.07%) received the lowest score, suggesting that participants face challenges in reaching broader markets and identifying viable opportunities for their products and services. The entrepreneurial ecosystem encompasses various components, including human resource development, capital access, market networks, and support systems. These components collectively enhance the capacity of entrepreneurs to manage their businesses effectively and achieve sustainability. Karimi and Ataei (2022) emphasized that a robust entrepreneurial ecosystem fosters the development of entrepreneurial skills by providing essential resources and infrastructure.

In the context of the PWMP Program, the strong support for capital access highlights the program's ability to meet participants' funding needs, which is crucial for scaling their businesses. However, the relatively low score for market access indicates the need for additional interventions, such as facilitating market linkages, expanding distribution channels, and organizing trade expos to connect participants with potential buyers. A well-functioning entrepreneurial ecosystem not only provides resources but also creates an enabling environment for innovation and collaboration. By improving weaker components, such as market access, the program can significantly enhance participants' ability to achieve long-term success. Strengthening support networks and fostering partnerships with industry stakeholders can further contribute to the development of a resilient and competitive entrepreneurial ecosystem for PWMP Program groups.

Overall model and Implications

The research findings, which satisfied the classical assumption test criteria, were analyzed using multiple regression analysis to assess the influence of personality, knowledge, experience, family environment, and the entrepreneurial ecosystem on the business management of PWMP Program participants. The results, presented in Table 7, show that personality, experience, family environment, and the entrepreneurial ecosystem have significant effects on business management, while knowledge does not.

The coefficient of determination (R^2) value of 0.505 indicates that 50.5% of the variation in business management can be explained by the independent variables in the model, with the remaining 49.5% attributed to other factors outside the study. The adjusted R^2 value of 0.483 provides a more refined estimate by accounting for the complexity of the model. The F-statistic of 19.255 ($p < 0.05$) confirms that the independent variables collectively have a significant effect on business management.

Personality emerged as a significant factor, with a t-value of 2.895 ($p < 0.05$) and a regression coefficient of 0.601. This highlights the importance of traits such as determination, consistency, and leadership in driving effective business management. These findings align with previous research emphasizing the role of personal values and entrepreneurial resilience in achieving business success. Similarly, experience showed the strongest positive influence, as evidenced by a t-value of 4.724 ($p < 0.05$) and a regression coefficient of 0.726. Participants with greater entrepreneurial experience demonstrated superior decision-making and resource management capabilities, reinforcing the value of prior business exposure in sustaining entrepreneurial ventures.

Table 7. Results of multiple regression analysis on factors influencing business management.

No.	Variable	Regression coefficient	Standardized coefficient	T count	Sig	Information
1	Personality	0.601	0.223	2.895	0.005	Real effect
2	Knowledge	-0.262	-0.109	-1.224	0.224	Unreal effect
3	Experience	0.726	0.404	4.724	0.000	Real effect
4	Family Environment	1.070	0.283	3.921	0.000	Real effect
5	Role of the Entrepreneurial Ecosystem	0.211	0.164	2.009	0.047	Real effect

Note. R = 0.710; R^2 = 0.505; Adjusted R^2 = 0.483; Std. Error of Estimate = 5.7829.

The family environment also had a significant positive effect on business management, with a t-value of 3.921 ($p < 0.05$) and a regression coefficient of 1.070. A supportive family environment provides both psychological encouragement and material resources, enabling participants to better manage their businesses. Furthermore, the entrepreneurial ecosystem played a significant role, with a t-value of 2.009 ($p < 0.05$) and a regression coefficient of 0.211. Access to capital was identified as a key strength within the ecosystem, while market access was noted as a challenge. Strengthening market linkages and fostering collaborative networks could further amplify the ecosystem's impact.

Conversely, knowledge did not have a significant effect on business management, as shown by a t-value of -1.224 ($p > 0.05$) and a regression coefficient of -0.262. This suggests that the current training and mentorship provided may not adequately address the specific knowledge gaps of participants, particularly those operating in diverse business sectors. Enhancing mentorship programs and aligning training modules with the practical needs of participants could address this limitation. The findings underscore the multifaceted nature of business management within the PWMP Program. While personality, experience, family environment, and the entrepreneurial ecosystem play significant roles, targeted

interventions are needed to enhance the relevance and applicability of knowledge. Addressing these gaps will ensure the program achieves its goals of empowering young agricultural entrepreneurs.

CONCLUSIONS

This study identified key factors influencing business management within the PWMP Program at the Politeknik Pembangunan Pertanian Medan. Personality, experience, family environment, and the entrepreneurial ecosystem significantly impact business management, while knowledge showed no significant effect. Experience emerged as the strongest predictor, while gaps in training and mentorship likely explain the limited influence of knowledge. The study is limited to a single institution, which may restrict the generalizability of findings. However, it highlights critical factors for program success, emphasizing the need for improved training modules, targeted mentorship, and enhanced market access. Policymakers and stakeholders can use these insights to strengthen entrepreneurial ecosystems and ensure program sustainability. Future research should explore broader participant groups, assess longitudinal effects of interventions, and examine technological adoption as a driver of entrepreneurial success. These efforts will advance strategies for empowering young agricultural entrepreneurs.

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