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The differential impact of digital training and financial literacy on agricultural MSMEs' growth: Empirical evidence from Rangdumulya Village, Indonesia

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Abstract

This research aimed to investigate the type of support, digital skills training, or financial education required to increase the growth of small-scale agricultural businesses in a rural Indonesian village. A survey was conducted with 92 local entrepreneurs to collect data on training experiences, financial knowledge, and business growth. The data were rigorously analysed using statistical methods to test the relationships. The results showed that digital training had a strong and positive effect on business growth. In contrast, financial literacy did not show a significant impact. For rural businesses, gaining skills to use technology for marketing and sales was a more immediate and powerful driver of growth than financial knowledge. This insight was crucial for policymakers and support organizations since the prioritization of practical digital training led to faster and more sustainable economic development in similar rural communities.

Keywords

Digital training agricultural, Financial literacy, MSME growth, agricultural MSMEs

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Introduction

In the economic fabric of developing nations such as Indonesia, Micro, Small, and Medium Enterprises (MSMEs) are indisputably the backbone, accounting for a substantial share of the gross domestic product and employment (OECD, 2021). Within the sector, agricultural MSMEs play an important role in ensuring food security, generating rural employment, and alleviating poverty. Despite the significance, these enterprises are influenced by different constraints, namely limited access to modern technology, deficient managerial capabilities, and restricted market reach (Tambunan, 2019). The challenges reduce growth potential, scalability, and resilience to market volatilities.

The paradox has been exemplified by Rangdumulya Village. In this context, digital training and financial literacy are frequently proposed as panaceas. Digital training is expected to equip entrepreneurs with the skills to leverage technology for operational efficiency and market expansion (Choudhury, 2019). Meanwhile, financial literacy is presumed to empower individuals with better management ability, leading to reduced risks and enhanced profitability (Lusardi & Mitchell, 2014).

The synergistic efficacy of the interventions, particularly in the unique context of rural agricultural MSMEs, remains underexplored. Even though previous research has independently examined the roles of digital skills (Santoso & Putra, 2020) and financial knowledge (Bruhn et al., 2013), few investigations have correlated the impacts within the same empirical framework, specifically in Indonesia's rural agricultural landscape. The research gap is critical since resources for development programs are often scarce, necessitating a clear understanding of the interventions needed to obtain the highest marginal returns. Therefore, this research aims to bridge the gap by investigating the distinct and comparative impacts of digital training and financial literacy on the growth of agricultural MSMEs in Rangdumulya Village. A more granular understanding of the drivers of MSME growth is provided by engaging 92 micro-entrepreneurs. The results contribute to the literature on MSME development and inform the design of more effective, context-sensitive policies and training programs for improving sustainable rural entrepreneurship.

MSME growth is a multidimensional construct measured through indicators such as increased revenue, profitability, employment generation, market share expansion, and asset acquisition (Beck et al., 2005). This variable is a critical indicator of business health and a primary contributor to broader economic development, innovation, and job creation. In developing economies, the growth of MSMEs is often constrained by internal (human capital, financial management) and external factors (market access, regulatory environment). Accurate measurement is crucial, and Bruhn et al. (2013) advocate for comprehensive surveys that capture the quantitative and qualitative dimensions of growth.

Digital training includes educational interventions designed to enhance competencies in using tools and platforms. For MSMEs, this can include training on e-commerce, digital marketing, social media for business, and the use of productivity software. The theoretical underpinning for the impact lies in the Diffusion of Innovations theory (Rogers, 2003), where the adoption of new ideas or technologies spreads through social systems, with early adopters gaining competitive advantages. Furthermore, the Resource-Based View (RBV) of the firm (Barney, 1991) suggests that unique, valuable, and inimitable resources, such as advanced digital capabilities, can be a source of sustained competitive advantage.

Santoso and Putra (2020) reported that digital training significantly increased the productivity and market reach of Indonesian MSMEs. Similarly, Choudhury (2019) stated the function of digital tools in optimizing operations and accessing global value chains.

H1: Digital training has a positive and significant influence on the growth of MSMEs in Rangdumulya Village.

Financial literacy refers to the understanding of financial concepts and the ability to manage personal and business finances effectively. This variable includes skills in budgeting, saving, investing, debt management, and financial planning (Lusardi & Mitchell, 2014). Theoretically, enhanced financial literacy should lead to superior decision-making, improved cash flow management, and better access to finance, improving business growth and sustainability (Cole et al., 2011).

Bruhn et al. (2013) in Brazil found that financial education programs improved practices among entrepreneurs. However, the literature also shows that the impact of financial literacy can be contingent on other factors, such as the business environment and the availability of financial products (Fernandes et al., 2013). In isolated rural settings, the effect is muted without complementary support. The prevailing consensus in the literature supports the positive role, leading to the second hypothesis.

H2: Financial literacy has a positive and significant influence on the growth of MSMEs in Rangdumulya Village.

The integration of digital and financial competencies can be conceptualized through Dynamic Capabilities Theory (Teece et al., 1997). This theory emphasizes an organization's ability to integrate, build, and reconfigure internal and external competencies to address rapidly changing environments. The combination of digital skills (for market sensing and customer engagement) with financial ability (for resource allocation and risk assessment) creates a dynamic capability greater than the sum of the parts.

Berman and Kestelman (2019) argued that "digi-financial" literacy allowed entrepreneurs to leverage digital tools for financial management (digital bookkeeping, online lending platforms), leading to greater operational efficiency. Lyons and Kass-Hanna (2021) emphasized the empowering role of digital financial literacy.

H3: The integration of digital training and financial literacy has a greater positive influence on MSME growth than the influence of each variable separately.

Method

Research design and sample

This research used a quantitative, cross-sectional design with a survey method. The population consisted of all 150 micro-entrepreneurs in the agricultural sector registered in Rangdumulya Village. A sample size of 92 respondents was determined using the Slovin formula with a 95% confidence level and a 5% margin of error. A simple random sampling c.

Data collection

Primary data were collected through a mixed-methods approach to ensure comprehensive data triangulation. The primary instrument was a structured questionnaire designed and divided into four distinct sections. The first section (A) captured the demographic profiles of respondents, including age, gender, education level, and business experience. The subsequent sections measured the core variables using a 5-point Likert scale. Section B assessed digital training exposure and competencies, Section C evaluated financial literacy levels using items adapted from established instruments, and Section D gauged MSME growth over the past year through increased revenue, profit, employment, and market reach.

A second phase of data collection was conducted through in-depth interviews to complement the quantitative data and gain a deeper contextual understanding. These semi-structured interviews were held with a purposively selected sub-sample of 15 entrepreneurs. The qualitative component was designed to introduce rich, narrative insights into the participants' personal experiences, the practical application of skills, and the challenges faced during business operations, providing a more holistic interpretation of the quantitative results.

Variable measurement and data analysis

The constructs were measured using multiple items on a 5-point Likert scale, and the collected data were analyzed through SPSS version 26. The data analysis commenced with descriptive statistics to summarize the profile of the respondents. The subsequent stage comprised testing the quality of the research instrument, where construct validity was confirmed using Confirmatory Factor Analysis (CFA), and reliability was assessed using Cronbach's Alpha coefficient. A series of classical assumption tests were performed for normality (Kolmogorov–Smirnov), multicollinearity (Variance Inflation Factor, VIF), heteroscedasticity (Glejser test), and autocorrelation (Durbin–Watson) to ensure the regression results satisfied the criteria of Best Linear Unbiased Estimators (BLUE). After meeting the necessary conditions, the testing of the main hypotheses (H1 and H2) was performed by applying multiple linear regression analysis modeled as.

An interaction term (Digital Training * Financial Literacy) was added to the regression model to determine when the coefficient of the interaction term was positive and significant in testing H3.

$$Y = \alpha + \beta_1 X_1 + \beta_2 X_2 + \varepsilon \quad \ldots\ldots 1)$$

$$Y = \alpha + \beta_1 X_1 + \beta_2 X_2 + \beta_3 X_1 * X_2 + \varepsilon \quad \ldots\ldots 2)$$

Where:

Y = MSME Growth

α = Constant

X_1 = Digital Training

X_2 = Financial Literacy

X1*X2 = Digital Training * Financial Literacy

$\beta_1, \beta_2, \beta_3$ = Regression Coefficients

ε = Error Term

Results and discussion

Results

1. Descriptive statistics of respondents

Table 1 summarizes the profile of the 92 respondents. The data show a predominantly male cohort (63%) with an average age of 42 years, indicating a mature entrepreneurial base. A significant majority (53.3%) attained secondary school education, while only 19.6% had post-secondary qualifications. In terms of business experience, nearly half (48.9%) had been operating for 5-10 years, suggesting a degree of stability.

Table 1. Demographic and Business Profile of Respondents (N=92)

Characteristic	Category	Frequency	Percentage (%)
Gender	Male	58	63.0%
	Female	34	37.0%
Age	20 - 35 years	22	23.9%
	36 - 50 years	51	55.4%
	> 50 years	19	20.7%
Education Level	Primary School	25	27.2%
	Secondary School	49	53.3%
	Diploma/Degree	18	19.6%
Business Experience	< 5 years	28	30.4%
	5 - 10 years	45	48.9%
	> 10 years	19	20.7%

2. Validity, reliability, and classical assumption tests

The validity test showed that all questionnaire items had a loading factor greater than 0.5, confirming construct validity. The reliability test obtained Cronbach's Alpha values all above 0.7 (Digital Training: 0.84, Financial Literacy: 0.78, MSME Growth: 0.81), showing high internal consistency. The classical assumption tests confirmed that the data met all necessary criteria for regression analysis. The data were normally distributed (K-S $p > 0.05$) without multicollinearity (VIF values < 2.0), heteroscedasticity (Glejser test $p > 0.05$).

3. Hypothesis testing (multiple linear regression and interaction)

Table 2 shows the results of the regression analysis incorporating the interaction term between digital training and financial literacy. The overall model was statistically significant, F-statistic = 35.924, $p < 0.001$, explaining 58.5% of the variance in MSME growth ($R^2 = 0.585$). The adjusted R^2 of 0.571 confirmed the robustness of the model.

Table 2. Results of Multiple Linear Regression and InteractionAnalysis

Variable	Coefficient (β)	Standard Error	t-statistic	p-value
Constant	1.185	0.325	3.646	0.000
Digital Training (X_1)	0.438	0.102	4.294	0.000
Financial Literacy (X_2)	0.118	0.089	1.326	0.188
Interaction ($X_1 \times X_2$)	0.058	0.072	0.806	0.421
R^2	0.585			
Adjusted R^2	0.571			
F-statistic	35.924			0.000

Digital training (X_1) maintained a strong, statistically significant positive effect on MSME growth ($\beta = 0.438$, $p < 0.001$). Financial literacy (X_2) showed no significant direct relationship with growth ($\beta = 0.118$, $p = 0.188$). The central result of the analysis is that the interaction term ($X_1 \times X_2$) is not statistically significant ($\beta = 0.058$, $p = 0.421$). The effect of digital training on MSME growth is consistent and does not depend on the level of an entrepreneur's financial literacy. Therefore, financial literacy does not strengthen or weaken the positive impact of digital training on business growth. The relationship between digital training and growth is robust across all observed levels of financial literacy.

Discussion

The results provide compelling evidence regarding the differential impacts of digital training and financial literacy on the growth of agricultural MSMEs in Rangdumulya Village, while offering important insights into the interactive effects. The strong, statistically significant positive effect of digital training on MSME growth ($\beta = 0.438$, $p < 0.001$) provides robust support for Hypothesis 1. This result is consistent with Rogers' (2003) Diffusion of Innovations theory, where the adoption of new technologies through social systems can increase innovation and business growth. In the context of Rangdumulya Village, digital training served as a crucial intervention that enhanced the "knowledge" and "persuasion" stages of technology adoption. Entrepreneurs who received training became early adopters within the community, leveraging digital tools to overcome traditional barriers to market access.

From a RBV perspective (Barney, 1991), the digital skills acquired through training became valuable, rare, and imperfectly imitable resources that provided a competitive advantage. The qualitative data showed that entrepreneurs who mastered basic digital marketing and e-commerce platforms could bypass traditional intermediaries, access urban markets directly, and command better prices for agricultural products. This result corroborates previous research by Santoso and Putra (2020), where digital literacy significantly enhanced market expansion for Indonesian SMEs. The consistency between the results and existing literature strengthens the validity of the conclusion that digital training serves as a direct and powerful growth lever for rural MSMEs. In contrast to conventional wisdom and Hypothesis 2, financial literacy reported no statistically significant effect on MSME growth ($\beta = 0.118$, $p = 0.188$). This challenges the assumed universal primacy of financial education in line with the contextual limitations of Dynamic Capabilities Theory (Teece, Pisano, & Shuen, 1997). The theory suggests that

isolated capabilities are less effective than integrated competencies in driving sustainable advantage.

Several contextual factors explain the unexpected result. First, the micro-scale of operations in Rangdumulya showed that financial management remained relatively simple, often handled through mental calculations or basic records. Second, there was a significant gap between financial knowledge and the practical application since entrepreneurs lacked the tools or discipline to implement sophisticated practices. The constrained local financial ecosystem limited opportunities to apply financial knowledge since access to formal credit, insurance, or investment products remained scarce. This result resonates with Fatoki (2014) in South Africa, where financial literacy needed to be complemented by management skills and market access to significantly impact SME growth.

The non-significant interaction term ($\beta = 0.058$, $p = 0.421$) leads to the rejection of Hypothesis 3 since the integration of digital training and financial literacy does not produce synergistic effects greater than individual impacts. This result offers crucial theoretical and practical implications. Even though Dynamic Capabilities Theory emphasizes the importance of integrating competencies, the integration may only become valuable at more advanced stages of enterprise development or in more complex business environments.

The absence of a moderation effect can be interpreted through several lenses. First, the "floor effect" of financial literacy explained the lack of synergy. Second, the immediate, tangible benefits of digital tools for market access might overshadow any potential complementary effects from financial knowledge in the short term. This result partially contradicts research by Berman and Kestelman (2019), who emphasized the importance of "digi-financial" integration.

Conclusion

The regression analysis shows that digital training has a significant positive effect on MSME growth in Rangdumulya Village, confirming that improved digital skills are an important driver of rural business development. However, financial literacy does not significantly influence MSME growth, and its interaction with digital training also does not produce a synergistic effect. These findings indicate that the impact of human capital competencies depends on the specific enterprise context, particularly in rural MSME ecosystems. Therefore, MSME development programs should prioritize practical digital training in areas such as social media marketing, e-commerce, and digital payments, while redesigning financial literacy programs by integrating them with mentoring, access to finance, and market linkage initiatives. For early-stage rural MSMEs, digital market access should be strengthened first, followed by broader business and financial management support as the enterprises grow.

Limitations and direction for future research

This study has several limitations that provide directions for future research. Its cross-sectional design limits causal interpretation, so longitudinal studies are needed to examine the long-term impact and sustainability of training interventions on MSME growth. The focus on a single village also limits generalizability, requiring replication in broader rural contexts across Indonesia and other developing countries. Future research should explore when financial literacy becomes a significant factor for business growth, particularly as MSMEs increase in scale and complexity, and should examine moderating factors such as entrepreneurial mindset, social capital, and local digital or financial infrastructure. Further studies may also develop and test integrated "digi-financial" literacy modules that combine financial education with practical digital tools.

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References

1. Barney, J. B. (1991). Firm resources and sustained competitive advantage. *Journal of Management*, 17(1), 99–120.
2. Beck, T., & Demirguc-Kunt, A. (2006). Small and medium-size enterprises: Access to finance as a growth constraint. *Journal of Banking & Finance*, 30(11), 2931–2943.
3. Bruhn, M., Karlan, D., & Schoar, A. (2013). The impact of consulting services on small and medium enterprises: Evidence from a randomized trial in Mexico. *Journal of Political Economy*, 121(2), 329–369.
4. Choudhury, A. (2019). *Digital Transformation for Small and Medium Enterprises*. Routledge.
5. Cole, S., Sampson, T., & Zia, B. (2011). Prices or knowledge? What drives demand for financial services in emerging markets? *The Journal of Finance*, 66(6), 1933–1967.
6. Fatoki, O. (2014). The financial literacy of micro entrepreneurs in South Africa. *Journal of Social Sciences*, 40(2), 151–158.
7. Kurniawan, R. (2021). The effect of digital technology adoption on the performance of Indonesian SMEs. *Journal of Asian Finance, Economics and Business*, 8(3), 1123–1132.
8. Lusardi, A., & Mitchell, O. S. (2014). The economic importance of financial literacy: Theory and evidence. *Journal of Economic Literature*, 52(1), 5–44.
9. Rogers, E. M. (2003). *Diffusion of Innovations* (5th ed.). Free Press.
10. Santoso, A., & Putra, R. (2020). The effect of digital training on the performance of Indonesian SMEs. *Journal of Asian Finance, Economics and Business*, 7(12), 1021–1030.
11. Sekaran, U., & Bougie, R. (2016). *Research Methods for Business: A Skill-Building Approach* (7th ed.). Wiley.
12. Tambunan, T. (2019). *MSMEs in Indonesia: Challenges and Policy Responses*. SMERU Research Institute.
13. Teece, D. J., Pisano, G., & Shuen, A. (1997). Dynamic capabilities and strategic management. *Strategic Management Journal*, 18(7), 509–533.