



The Role of Entrepreneurship Training and Technological Innovation Adaptation in Improving the Welfare of MSME Actors (Case Study: Bluru Kidul Village, Sidoarjo Regency)

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support institutions to design MSME empowerment programs that are more adaptive, sustainable, and tailored to the specific needs of local entrepreneurs.

Abstract: Micro, Small, and Medium Enterprises (MSMEs) play a vital role in Indonesia's economy as both employment providers and drivers of community welfare. However, limited entrepreneurial skills and slow technology adoption remain major challenges, including in Bluru Kidul Village, Sidoarjo Regency. This study aims to examine the effect of entrepreneurship training and technological innovation adaptation on the welfare of MSME actors. A quantitative method was employed using multiple linear regression analysis based on survey data from 83 respondents. The findings indicate that entrepreneurship training and innovation adaptation have a positive and significant effect on MSME welfare, measured through business income, sales volume, operational cost efficiency, and household consumption. These results reinforce Amartya Sen's Capability Approach, which emphasizes expanding individual capabilities through training and technology. Practically, the study provides insights for local governments and

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Introduction

Micro, Small, and Medium Enterprises (MSMEs) play a vital role in sustaining Indonesia's economy while contributing to equitable community welfare. According to the Organisation for Economic Co-operation and Development (Organisation for Economic Co-operation and Development (OECD), 2023), Indonesia hosts approximately 65.2 million MSMEs, contributing around 60.5% to the national Gross Domestic Product (GDP), equivalent to IDR 9,580 trillion. This sector also absorbs 97% of the national workforce and contributes 15.7% to non-oil and gas exports. The resilience of MSMEs is evident in their ability to withstand global crises, reflecting strong adaptive capacity (H. Maulana et al., 2025). However, limited entrepreneurial capacity, insufficient product innovation, and the underutilization of technology remain key barriers to enhancing the competitiveness of Indonesian MSMEs.

At the regional level, MSMEs are equally strategic in supporting local economies. In East Java Province, there are 9.78 million MSMEs contributing approximately 57% to the regional GDP (BPS Jawa Timur, 2022). The sectors involved include food processing, handicrafts, and skill-based services, supported by regulations such as East Java Provincial Regulation No. 1 of 2024 on entrepreneurship training and technology access (Gubernur Jawa Timur, 2024). Nevertheless, most MSMEs continue to operate on a local scale with limited market penetration and product innovation. This indicates a gap between the sector's vast potential and its actual competitiveness in broader markets. Strengthening entrepreneurial capacity through training and innovation therefore becomes a critical measure to improve MSME competitiveness in East Java (Sidi et al., 2023).

In Sidoarjo Regency, MSMEs also play a significant role, with 207,000 business units engaged in manufacturing, trade, and services (Direktorat Jenderal Kekayaan Negara – Kantor Wilayah Jawa Timur, 2022). These enterprises are predominantly family-run with limited capital but still contribute meaningfully to regional economic growth. The main challenges faced include low entrepreneurial skills, limited innovation, and slow adoption of production technologies (Widyaningtyas & Rahmawati, 2021). Such limitations hinder business actors from fully capitalizing on available market opportunities. Consequently, capacity building through entrepreneurship training and technology adaptation is also urgently needed at the regency level.

Bluru Kidul Village, located in Sidoarjo District, exemplifies this dynamic, with 495 active MSMEs mainly engaged in processed foods, handicrafts, and service-based industries (P. F. Maulana et al., 2024). These enterprises significantly contribute to local employment, reducing unemployment, and improving household income (Gunawan et al., 2024). However, most businesses still rely on traditional production methods, resulting in relatively low competitiveness compared to more innovative regions. Although entrepreneurship training programs have been facilitated by the government and partner institutions, they tend to be incidental and fail to address the specific needs of business actors (Fadillah et al., 2024). Therefore, Bluru Kidul offers a valuable context to assess how training and innovation contribute to improving MSME welfare.

MSME welfare can be assessed through indicators such as business income, sales stability, operational cost efficiency, and household consumption (Irawan et al., 2024). Increased income not only reflects business success but also enhances the quality of life for MSME households (Setiari et al., 2023). Improved household consumption demonstrates the direct benefits of entrepreneurial activity in areas such as education, health, and housing (Nursahida et al., 2024). Meanwhile, cost efficiency helps maintain healthy profit margins and strengthens business sustainability (Refacaroline et al., 2024). Hence, welfare serves as a comprehensive benchmark for evaluating the effectiveness of MSME empowerment

programs.

Based on the above description, there remains a gap between the availability of entrepreneurship training programs and the ability of MSMEs to adapt to technological innovation. On the one hand, training programs are often incidental and fail to address real business needs, while on the other hand, technology adoption progresses slowly among micro enterprises. This gap directly limits improvements in productivity and welfare, particularly at the village level. The case of MSMEs in Bluru Kidul illustrates a real situation in which substantial potential is not matched with innovation readiness. Therefore, this study examines the role of entrepreneurship training and technological innovation adaptation in enhancing MSME welfare, with a focus on business income, sales volume, operational cost efficiency, and household consumption.

Research Method

This study employed a quantitative approach with a survey method to analyze the effect of entrepreneurship training and technological innovation adaptation on the welfare of MSME actors. This approach was chosen because it allows for the examination of causal relationships between variables through the processing of numerical data that can be statistically tested. Quantitative research also enables objective measurement of the phenomena under investigation, ensuring that the results can be generalized to similar contexts. Data analysis was conducted using multiple linear regression to examine the contribution of each independent variable to the dependent variable. All data processing was carried out with the assistance of SPSS software.

The research site was determined to be Bluru Kidul Village, Sidoarjo Regency, East Java, which has a relatively high concentration of MSMEs actively participating in entrepreneurship training programs. This area was selected because its characteristics are relevant to the focus of the study, namely the interrelation between training interventions, technology adaptation, and welfare conditions. The research was conducted from August to September 2025, covering instrument preparation, data collection, and result analysis. The choice of this location also considered the unique dynamics of suburban MSMEs. Therefore, Bluru Kidul Village was deemed representative for the purposes of this study.

The population of this research comprised 495 active MSMEs in Bluru Kidul Village. The sample was determined using purposive sampling, selecting respondents according to research criteria, including business actors aged above 18 years, actively operating for at least one year, residing in the study location, and having participated in entrepreneurship training and technological innovation programs. The sample size was calculated using Slovin's formula with a 10% margin of error, resulting in 83 respondents. This number was

considered adequate to represent the population. Thus, the selected respondents were deemed relevant for addressing the research objectives.

Data collection was conducted through the distribution of closed-ended questionnaires based on a five-point Likert scale, ranging from “strongly disagree” to “strongly agree.” The research instrument was designed based on the indicators established in the operational definition, covering aspects of entrepreneurship training, technological innovation adaptation, and MSME welfare. Primary data were obtained directly from respondents’ answers, while secondary data were derived from official reports, publications by the Central Bureau of Statistics, and documents from local MSME communities. Questionnaires were distributed online to reach respondents more broadly and flexibly. All data were checked for completeness before further analysis.

Quantitative data analysis was conducted using multiple linear regression to test the influence of entrepreneurship training and technological innovation adaptation on MSME welfare. Prior to analysis, validity and reliability tests were performed, with results confirming that the instrument met acceptable scientific standards. Subsequently, classical assumption tests were conducted to ensure the feasibility of the regression model, including tests of normality, multicollinearity, and heteroscedasticity. Hypothesis testing was carried out using t-tests (partial) and F-tests (simultaneous) with a significance level of 10%. The results of this analysis provided the empirical basis for drawing conclusions regarding the relationships among the variables under study.

Results and Discussion

1. Descriptive Analysis of Questionnaire Data

The questionnaire employed a five-point Likert scale (1 = Strongly Disagree, 5 = Strongly Agree). Table 1 presents the distribution of responses for each indicator. Overall, the majority of respondents expressed Agree and Strongly Agree, suggesting that entrepreneurship training, technological adaptation, and welfare indicators were positively perceived.

Table 1. Distribution and Responden's Answer (in frequency)

Variable	Indicator	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree	Mean
X1: Entrepreneurship Training	Business Planning	2	3	10	25	35	4.17
	Opppurtunity Analysis	1	2	8	28	36	4.28
	Training Material Understanding	0	1	9	30	35	4.32

Variable	Indicator	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree	Mean
	Training Implementation	1	2	7	29	36	4.29
X2: Technological Adaption	Product Innovation	1	2	8	30	34	4.25
	Proces Inovation	0	2	7	28	38	4.36
	Technology Utilization	1	3	6	29	36	4.28
	Technology Adoption	0	2	5	27	39	4.41
Y: Welfare	Business Income	1	3	9	28	34	4.21
	Sales Volume	1	2	8	30	34	4.25
	Operational Cost Efficiency	2	2	7	29	35	4.24
	Household Consumption	1	2	10	27	35	4.24

Source: Processed primary data, 2025.

The results presented in Table 1 indicate that most respondents expressed agreement or strong agreement across all indicators. In the case of entrepreneurship training (X1), the indicator Training Material Understanding recorded the highest mean score of 4.32, followed closely by Training Implementation at 4.29. This finding suggests that participants not only understood the training content but also found it relevant to their business activities. Meanwhile, Business Planning and Opportunity Analysis also obtained high scores, showing that training successfully enhanced managerial and strategic thinking skills. Overall, these results imply that entrepreneurship training was effective in strengthening the core competencies of MSME actors.

For technological adaptation (X2), the descriptive results were even stronger, as indicated by the highest mean score of 4.41 on the Technology Adaptation indicator. This implies that MSME actors are becoming more willing and capable of adjusting to the use of new technologies in their business processes. The Process Innovation indicator also scored highly at 4.36, reflecting respondents' awareness of the importance of efficiency and innovation. Similarly, Product Innovation and Technology Utilization received strong agreement, highlighting that digital tools are perceived as useful for improving business performance. Altogether, these findings demonstrate that technology adoption has been embraced positively by most respondents.

Welfare indicators (Y) also revealed consistently high averages, ranging from 4.21 to 4.25 across all four dimensions. The highest perception was found in Sales Volume with a mean score of 4.25, which indicates that entrepreneurs experienced measurable improvements in their ability to increase product sales. The indicators Operational Cost

Efficiency and Household Consumption were also positively assessed, showing that welfare is not only reflected in business performance but also in household economic stability. Meanwhile, Business Income scored 4.21, suggesting that many respondents already felt an increase in their earnings. Taken together, these results reveal that MSME welfare has improved across multiple aspects, both at the enterprise and household level.

Overall, the descriptive analysis highlights that both entrepreneurship training and technological adaptation are perceived as highly beneficial by MSME actors in Bluru Kidul Village. The consistently high scores suggest that these interventions address the real needs of entrepreneurs, particularly in terms of knowledge, innovation, and market expansion. Respondents not only acknowledged improvements in business management and planning but also recognized the importance of adopting technology. This combination of training and innovation appears to strengthen resilience and competitiveness. These descriptive findings provide a strong basis for the subsequent regression analysis, which statistically confirms their influence on MSME welfare.

2. Regression Analysis

To test the hypotheses, multiple linear regression was employed. The regression model is as follows:

$$Y = \alpha + \beta_1 X_1 + \beta_2 X_2 + \varepsilon$$

where:

- Y = Welfare of MSMEs
- X1 = Entrepreneurship Training
- X2 = Technological Adaptation

Table 2. Regression Results

Variable	Coefficient (β)	t-value	Sig.	Result
Constant	7.120	-	-	-
X1: Entrepreneurship Training	0.327	5.413	0.001	Significant
X2: Technological Adaption	0.621	10.065	0.001	Significant

Source: Processed SPSS output, 2025.

Model fit:

- R^2 = 0.605 (Adjusted R^2 = 0.595)
- F-statistic = 61.354 (Sig. 0.000)

The results indicate that both entrepreneurship training and technological adaptation significantly influence MSME welfare, with technological adaptation ($\beta = 0.621$) showing a stronger effect compared to entrepreneurship training ($\beta = 0.327$).

3. Discussion

The findings indicate that entrepreneurship training contributes positively to improving the welfare of MSME actors in Bluru Kidul Village. Respondents who participated in training programs reported better abilities in developing business strategies, identifying market opportunities, and managing risks. This aligns with (Utomo et al., 2024), who emphasized that training not only enhances knowledge but also builds adaptive and innovative mindsets among entrepreneurs. MSME actors who put training outcomes into practice were more prepared to face market dynamics, including fluctuations in consumer demand. Thus, entrepreneurship training plays a crucial role in laying the foundation of skills that support business sustainability.

Moreover, training was found to broaden MSME actors' perspectives in exploring new business opportunities. Several respondents mentioned that digital marketing sessions helped them understand better ways to promote their products. (Gustalika et al., 2024) highlighted that reflective training sessions strengthen practical skills that can be directly applied in business activities. With improved understanding, entrepreneurs are able to connect theoretical insights with real-world conditions. This demonstrates that entrepreneurship training goes beyond knowledge transfer, as it also encourages behavioral changes in business practices.

On the other hand, the study also confirms that technological innovation adaptation significantly contributes to the welfare of MSMEs. Entrepreneurs who actively applied digital technology in production and marketing reported reduced costs and increased sales. This finding is consistent with (Monalisa et al., 2025), who stressed the importance of product and process innovation as key drivers of economic growth. Field evidence further supports (Maryanti et al., 2023), showing that MSME actors responsive to technological change tend to have higher competitiveness. Hence, technological adaptation becomes a strategic instrument to strengthen entrepreneurial capacity in the digital era.

A clear distinction is visible between entrepreneurs who adopted technology and those who continued with traditional methods. Many MSMEs that integrated e-commerce, social media, and digital payment systems reported a consistent increase in new customers. This supports (Nurhasanah, 2022), who argued that technology use in operations expands market access. However, challenges remain, including limited digital literacy, financial constraints, and inadequate supporting infrastructure (Aminullah et al., 2025). These barriers prevent some MSMEs from maximizing technological benefits. Continuous

interventions such as digital literacy training and technical assistance are therefore essential.

The combination of entrepreneurship training and technological adaptation proves to have the most significant impact on MSME welfare. Respondents who received training and simultaneously adopted technology reported improvements in income, sales volume, and operational efficiency. This reinforces (Ramos Farroñán et al., 2024), who argued that MSME welfare should not be measured solely by income but also by the ability to meet household needs. In this context, training provides managerial skills, while technology offers tools to expand market reach. Both dimensions complement each other in building the economic resilience of MSMEs.

This outcome also resonates with Sen's welfare theory, which views welfare as the ability of individuals to meet basic needs, education, and health for their families. MSME actors who combined entrepreneurial skills with technological adaptation managed to increase income and reduce operational costs, which in turn improved household consumption. (Rahman & Huq, 2023) further emphasized that increased sales volume is an important indicator of entrepreneurs' welfare. With better business performance, MSME actors are more capable of maintaining household financial stability. These findings show that the success of training programs and technology adoption directly contributes to improving local community welfare.

The implications of this study highlight the need for more sustainable and contextualized entrepreneurship training programs. Training materials should not only focus on business planning but also incorporate practical aspects of technological adaptation so that MSME actors are better prepared for global competition. (Wirapraja & Handy, 2024) stressed that institutional support, both from government and private sectors, plays a crucial role in accelerating MSME digitalization. Therefore, the synergy between training, access to technology, and continuous mentoring should become a key strategy. With such an approach, MSMEs in suburban areas such as Bluru Kidul Village can achieve more inclusive and sustainable growth.

Conclusion

Entrepreneurship training and technological innovation adaptation have proven to play a crucial role in improving the welfare of MSME actors in Bluru Kidul Village, Sidoarjo Regency. Welfare in this study is not limited to income growth but also includes sales stability, operational cost efficiency, and household consumption capacity. These findings confirm that the welfare of entrepreneurs is influenced by multidimensional factors. Therefore, the capacity development of MSME actors should be directed simultaneously toward knowledge, skills, and technological adaptation. Collaborative efforts from various stakeholders are essential to achieve comprehensive welfare.

Entrepreneurship training makes a significant contribution to enhancing the capacity of MSME actors. Through training materials, entrepreneurs are able to improve marketing strategies, risk management, and business planning. These results indicate that the knowledge acquired can be applied in daily business practices. Nevertheless, weaknesses remain in the implementation stage, as training often emphasizes theory more than practice. Hence, the improvement of training quality should focus on strengthening practical skills to ensure a broader impact on entrepreneurs' welfare.

Technological innovation adaptation exerts a more dominant influence compared to entrepreneurship training. The use of digital technology helps MSMEs expand market access, increase cost efficiency, and boost business income. This demonstrates that technology is an essential instrument in strengthening the competitiveness of small enterprises in the modern era. However, limited digital literacy and insufficient product innovation remain obstacles for some entrepreneurs. Therefore, ongoing support for digitalization assistance must be reinforced to maximize the benefits of technological adaptation.

Overall, the combination of entrepreneurship training and technological innovation adaptation has been proven to complement one another in fostering MSME welfare. These two factors not only enhance business performance but also strengthen household economic resilience. Increased income, sales stability, and cost efficiency represent tangible outcomes of this synergy. The findings also underscore the importance of an integrated strategy for local MSME development. With such an approach, MSMEs in Bluru Kidul Village can grow more inclusively and sustainably while contributing to regional economic development.

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