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Comparative Analysis of the Impact of Training on Microenterprise Development in Sidoarjo Regency

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ABSTRACT

The growth of micro enterprises in Sidoarjo Regency is a positive phenomenon, driven by an increase in community initiatives to establish independent businesses. However, this growth needs to be accompanied by the government's active involvement in enhancing the capacity of micro-enterprises through targeted programs or policies. One such effort is reflected in the Regulation of the Minister of Cooperatives and Small and Medium Enterprises of the Republic of Indonesia No. 18 of 2015, which provides guidelines for education and training aimed at developing the human resources of cooperatives as well as micro, small, and medium enterprises. In line with this regulation, the Office of Cooperatives and Micro Enterprises has provided a digital marketing training program. Nevertheless, micro-entrepreneurs still face challenges, such as a limited understanding of digital technology. Therefore, it is necessary to measure the extent to which the provided training can impact micro enterprises productivity and capabilities. This research is intended to investigate significant differences in the impact of micro enterprises development training in Sidoarjo Regency. This study employs a quantitative approach with a comparative design using a one-group pretest-posttest method. Data were collected using a questionnaire distributed to 100 respondents. The data were analyzed using a paired t-test with SPSS Version 30. The findings revealed a statistically significant difference in the impact of micro enterprises development training in Sidoarjo Regency ($t(99) = -17.606$, $p < 0.001$). These results indicate that the training program positively impacts micro enterprises development in Sidoarjo Regency.

Keywords: Digital Marketing Training; Microenterprise; Training Program Impact

INTRODUCTION

The increase in the number of Micro, Small and Medium Enterprises is a positive phenomenon in the dynamics of the Indonesian economy. Therefore, it is necessary to facilitate the advancement of MSMEs through policy programs to encourage community welfare and a sustainable economy. Developing in terms of digital technology is an opportunity for business actors to reach the global market without time and location restrictions. However, the reality is that limited knowledge in applying digital technology is a problem and challenge for business actors (Anaqi et al., 2023). This condition hampers the potential of MSMEs to develop more competitively, especially in an increasingly dynamic global era. In this case, the government has the authority to implement business development programs to support the potential of MSMEs. According to Law No. 20 of 2008 of the Republic of Indonesia, Article 16, paragraph (1), "The government and regional governments shall facilitate business development in the fields of production and processing, marketing, human resources, and design and technology."

East Java Province has been instrumental in fostering the growth and development of SMEs, as evidenced by its receipt of the Elshinta Award 2025 Outstanding Contribution to Economic Development award. This recognition is a testament to the province's collaborative efforts in developing cooperatives and SMEs within the region. Conversely, Sidoarjo Regency has become the regency in East Java with the highest increase in the number of micro businesses. According to data from 18 districts spread across Sidoarjo Regency, the number of micro businesses reached 149,922 in 2022, while in 2023 it reached 151,043 micro businesses. This increase of 1,121 units, or approximately 0.75%, indicates quantitative growth in the micro-business sector over the course of one year. However, this increase in numbers does not necessarily reflect an improvement in the quality or competitiveness of existing micro-businesses. In the context of business development, particularly regarding the application of technology, micro-business operators still face challenges.

Despite their participation in training programs, micro businesses encounter restrictions in implementing digital marketing strategies, thereby constraining their potential for growth and expansion. Moreover, a reluctance to embrace change can impede the effective utilization of skills. This issue is not only related to the individual capacity of micro businesses but also reflects challenges in implementing programs for micro business operators. Consequently, the implementation of government policies is imperative to foster the potential of micro businesses in Sidoarjo District (Saifuddin et al., 2024). However, the extent to which these training programs impact the capacity and performance of micro businesses remains uncertain. The paucity of empirical studies that specifically measure the impact of training on microbusiness development renders this issue a salient one for research.

MSMEs require long-term strategies to develop their businesses so that they can survive and become independent (Mutiara Rakista & Anggi Permata Karismatika, 2024). The business development program facilities, provided by the Cooperative and Micro Business Department of Sidoarjo Regency. According to the Regulation of the Minister of Cooperatives and Small and Medium Enterprises of the Republic of Indonesia Number 18 of 2015 on Guidelines for Education and Training for Cooperative Human Resources, Micro, Small, and Medium Entrepreneurs, Article 1, paragraph (6), "Education and Training are efforts carried out in a targeted and continuous manner to improve quality and capacity in order to enhance the competencies of cooperative human resources and micro, small, and medium entrepreneurs." Based on this regulatory framework, it is anticipated that the training will effectively enhance the skills, productivity, and competitiveness of micro enterprise stakeholders (Soremekun et al., 2024).

This assertion is supported by the results obtained from Rahmadani & Subroto (2022), who concluded that the government plays a pivotal role in facilitating and fostering micro enterprises in Sidoarjo Regency through collaborative efforts with relevant institutions. This conclusion is corroborated by the findings of Purnawan (2024), the implementation of a comparative study between micro businesses that have undergone training can facilitate the identification of substantial discrepancies in the impact of such training. Furthermore, research conducted by Wulandari & Wibawani, (2025) suggests that existing training programs require optimization to achieve substantial impacts, particularly for program participants. The outcomes of such training have the potential to serve as a foundation for developing competencies in a sustainable manner (Khan & Bansal, 2023).

The urgency of this research is predicated on the need to assess the extent to which the training program administered by the Office of Cooperatives and Micro Enterprises can positively impact micro enterprises. The novelty of this research lies in its comparative approach, which was implemented before and after the participants' participation in the training program. The

distinguishing characteristic of this comparative approach is its unique application in research conducted in this region, which has not been previously observed. The focal variable of this inquiry pertains to business development. This variable is employed to observe the alterations in business development conditions that occur before and after the intervention through the training program. This methodological approach enables a more objective measurement of the program's impact. Consequently, the approach and variables employed in this study offer a novel perspective and contribute to the refinement of existing findings. This study can serve as a foundation for the development of more targeted policies aimed at empowering micro-enterprises in Sidoarjo District. Additionally, it can address existing knowledge gaps in this area. Therefore, the objective of this study is to identify significant differences in the impact of training on the development of micro-enterprises in Sidoarjo District.

Method

The research method employed was a quantitative approach, utilizing a comparative study design with a one-group pre-test post-test configuration (Sugiyono, 2017). The initial treatment was administered to the sample through a pre-test, followed by the sample receiving the treatment in the form of a digital marketing training program, and then a post-test was conducted. The pre-test was administered three weeks prior to the commencement of the training program. The training program was administered over a five different days, distributed across January and February of 2025, with three days occurring in the middle of January and two days in the middle of February. The post-test was administered two months after the training. The present study employs a single variable, namely business development, with indicators including increased income, an augmented number of customers, enhanced product quality, and improved human resource quality. The population of this study consists of micro-business owners who have participated in the training program organized by the Cooperative and Micro-Business Department of Sidoarjo Regency.

The population comprised 664 micro-businesses. The Slovin formula was employed to determine the sample size, with a margin of error set at 10% and a minimum sample size of 87 respondents. However, the researcher established a sample size of 100 respondents. Methodologically, the augmentation of the sample size in this study is intended to enhance data robustness and strengthen the validity of research findings. The determination of a larger sample size than the minimum estimated using the Slovin formula is intended to obtain a more accurate representation of the population and minimize potential bias.

The sampling technique employed in this study was simple random sampling, which ensures that every member of the population has an equal probability of being selected as a sample member. The selection of this technique was driven by the objective of averting selection bias and ensuring the representativeness of the sample in relation to the characteristics of the population. The data collection process involved the implementation of a five-point Likert scale questionnaire, with responses ranging from "strongly disagree" to "strongly agree."

The questionnaire employed in this study had previously undergone a validation process, involving a pre-test on 30 respondents as part of a study. The results of the validity test demonstrated that all items exhibited item-total correlation values greater than 0.361, indicating that all questions were considered valid based on the r table for n = 30. Additionally, the results of the reliability test indicated a Cronbach's Alpha value of 0.64 prior to the training intervention and 0.62 following the training. Despite being designated as adequate, these values are

nevertheless regarded as acceptable, given that this study is in its nascent stages and is primarily aimed at investigating fundamental information. Consequently, the questionnaire is considered an appropriate instrument for measuring the variables in this study. The measurement of the business development variable is achieved through the operationalization of each indicator with the assistance of several questions.

Measures of income growth are indicated by statements such as "My business has utilized digital technology to increase income." Indicators of customer growth are measured by statements such as "My business easily acquires new customers through online channels." Indicators of product or service quality improvement are measured by statements such as "I collect feedback or conduct customer satisfaction surveys." Measures of human resource quality improvement are gauged by statements such as "I am able to utilize digital technology to market products or services." The questionnaire instrument in this study utilizes the same statements in the pre-test and post-test to objectively measure changes in the conditions of micro-businesses. The discrepancy in responses prior to and subsequent to the training program attests to its impact on business development.

Subsequently, data analysis techniques were employed, encompassing prerequisite analysis tests, such as validity and reliability tests, in addition to classical assumption tests, including normality tests, homogeneity tests, and paired t-tests. The data analysis was conducted using SPSS Version 30. The following research hypothesis was determined through the implementation of the aforementioned tests:

Ho: There is no significant difference in the repercussions of training on micro enterprises development in Sidoarjo Regency

Ha: There is a significant difference in the repercussions of training on micro enterprises development in Sidoarjo Regency

Results And Discussion

Respondents Characteristics

This section delineates the characteristics of the research subjects that form the basis for analyzing the main findings. The data presented herein was obtained from a sample of 100 respondents who had participated in the training program. The measurement of relevant variables was conducted in accordance with the established research objectives. The characteristics that were analyzed include a general overview of the respondents profiles, as follows:

Table 1. Respondent Data Based on Gender

Gender	Total	Percentages
Female	81	81%
Male	19	19%
Total	100	100%

Source: The data was processed by researchers in 2025

As presented in Table 1, the predominant demographic among micro-entrepreneurs enrolled in the training program is female, notably housewives who leverage micro-enterprises as a means to augment family income while maintaining their domestic responsibilities. From a socio-cultural perspective, women tend to prioritize businesses that can be operated from their homes and provide flexible schedules. This finding suggests that women exhibit a degree of flexibility in their participation in government-organized training programs. This characteristic

has the potential to influence the training that can enhance technical, managerial, and sustainability skills in businesses operated by women in the informal sector. Concurrently, the underrepresentation of men is attributed to their predilection for formal employment or their limited perceptions of training programs. The following data on respondents is based on age:

Table 2. Respondent Data Based on Age

Age	Total	Percentages
21-30	4	4%
31-40	29	29%
41-50	48	48%
51-60	19	19%
Total	100	100%

Source: The data was processed by researchers in 2025

As presented in Table 2, the majority of micro-business owners fall within the 31–50 age range, which corresponds to the productive phase of life. This demographic group exhibits a strong motivation to develop their businesses in a sustainable manner. This phenomenon has a direct impact on the efficacy of training programs. Conversely, participation from the 21–30 and 51–60 age groups remains comparatively low. This finding suggests that young people encounter challenges, including a paucity of business development experience. The underrepresentation of the 51–60 age group can be attributed to physical limitations and a lack of interest. These characteristics bear implications for the design of training programs, as the approach and materials must be adapted to the capacity of each age group. The following data on respondents is based on education:

Table 3. Respondent Data Based on Education

Education	Total	Percentages
SMP	7	7%
SMA/SMK	36	36%
D1	3	3%
S1	54	54%
Total	100	100%

Source: The data was processed by researchers in 2025

As indicated by the data presented in Table 3, the majority of micro-business proprietors possess a high school diploma or a bachelor's degree. The majority of these individuals possess a fairly good level of education, which could potentially support their ability to understand training materials and apply them in their businesses. However, entrepreneurs with limited access to formal education encounter obstacles related to information access and technical proficiency. The impact of the program is also influenced by the educational background of the participants.

The following data on respondents is based on business type:

Table 4. Respondent Data Based on Business Type

Business Type	Total	Percentages
Food	58	58%
Drinks	4	4%
Traders	20	20%
Fashion	2	2%
Staple Food	4	4%
Handy Crafts	6	6%
Services	4	4%
Education	2	2%
Total	100	100%

Source: The data was processed by researchers in 2025

As presented in Table 4, the majority of micro-businesses operate within the food sector, thereby reflecting the prevalence of businesses that provide fundamental necessities and are characterized by ease of operation. Conversely, other sectors continue to be dominated by a

limited number of businesses. This phenomenon has ramifications for training programs, as the focus on enhancing marketing strategies tailored to the needs of the majority of micro-enterprises, particularly those in the food sector, becomes a central tenet. In contrast, smaller sectors necessitate a customized training approach. The following data set presents respondents according to the duration of their businesses:

Table 5. Respondent Data Based on Length of Business

Length in Business	Total	Percentages
2 years	3	5%
3 years	21	28%
4 years	27	32%
≥ 5 years	49	35%
Total	100	100%

Source: The data was processed by researchers in 2025

As presented in Table 5, the majority of micro-entrepreneurs have been operating their businesses for a substantial duration, specifically four years or more. This outcome is indicative of the resilience demonstrated by the businesses in question. Conversely, entrepreneurs who have been in business for 2–3 years are still in the nascent stages of development. Nevertheless, they continue to confront a range of challenges pertinent to business sustainability. These characteristics influence the training entrepreneurs receive. New entrepreneurs require intensive mentoring and materials that focus on strengthening the fundamentals of business. Older entrepreneurs, in contrast, require training for business development.

Validity Test

The objective of validity testing is to ascertain the extent to which an instrument is capable of measuring the intended variable. This test is imperative to ascertain the suitability of the data obtained for subsequent analysis. The validity test is presented in the following table:

Table 6. Validity Test Results Before Participating in the Training Program

Statement Items	r-count	r-table
P1	0,523	0,165
P2	0,637	0,165
P3	0,562	0,165
P4	0,533	0,165
P5	0,596	0,165
P6	0,646	0,165
P7	0,492	0,165
P8	0,592	0,165
P9	0,683	0,165
P10	0,669	0,165

Source: Processed data, SPSS 30 Years 2025

Table 7. Validity Test Results After Following the Training Program

Statement Items	r-count	r-table
P1	0,576	0,165
P2	0,546	0,165
P3	0,429	0,165
P4	0,571	0,165
P5	0,548	0,165
P6	0,702	0,165
P7	0,423	0,165
P8	0,480	0,165
P9	0,658	0,165
P10	0,599	0,165

Source: Processed data, SPSS 30 Years 2025

As illustrated in Tables 6 and 7, the r-count for all items was determined to be greater than the r-table of 0.165 established in the tables. This finding indicates that the R-value for all items was statistically significant, and the data were deemed valid. This finding indicates that the instrument possesses the capacity to assess the research variables, even in instances where the intervention in the form of a training program has been administered.

Reliability Test

Reliability testing serves as a method of assessing the consistency of an instrument in producing data.

Table 8. Reliability Test Results

Variable	Statement Items	Cronbach's Alpha Value
Before joining a training program	10	0,796
After attending the training program	10	0,748

Source: Processed data, SPSS 30 Years 2025

As illustrated in Table 8, the questionnaire instrument utilized in this study exhibited an acceptable level of reliability, both prior to and following the training intervention. This finding indicates that each item in the questionnaire possesses the capacity to measure variables consistently, despite the intervention of the training.

Descriptive of Research Variables

This explanation of the research variables offers a comprehensive depiction of the data characteristics as derived from the respondents. This descriptive data is presented to understand the distribution patterns and trends of the data. This section presents class interval value guidelines using a 1-5 measurement scale.

Table 9. Variable Indicator Interval Value Category

Class Sequence	Average Interval Class	Description
1	1,00 – 1,80	Strongly Disagree
2	1,81 – 2,60	Disagree
3	2,61 – 3,40	Disagree Less
4	3,41 – 4,20	Agree
5	4,21 – 5,00	Strongly Agree

Source: Sugiyono, 2017

By following these guidelines, researchers can identify general trends and analyze respondents' responses to the variables studied. The subsequent table presents the findings of the descriptive analysis of the business development research variables before and after participating in the training program.

Table 10. Results of Business Development Variable Interval Values (Before Training)

Indicator Variables	Average Value of Answers
X1 (Increase in Revenue)	3,11
X2 (Increase in Number of Customers)	3,11
X3 (Improved Product/Service Quality)	3,13
X4 (Improved Quality of Human Resources)	3,24

Source: The data was processed by researchers in 2025

The highest value in the business development variable prior to training is the indicator of enhancing the quality of human resources (X4), which has a value of 3,24. Conversely, the lowest values of the business development variables prior to the training period are the indicators of increased revenue (X1) and an augmented number of customers (X2), which register at 3,11.

Table 11. Results of Business Development Variable Interval Values (After Training)

Indicator Variables	Average Value of Answers
X1 (Increase in Revenue)	3,81
X2 (Increase in Number of Customers)	3,84
X3 (Improved Product/Service Quality)	3,79
X4 (Improved Quality of Human Resources)	3,92

Source: The data was processed by researchers in 2025

The highest score within the business development variable after the training corresponds to the indicator of enhancing human resource quality (X4), with a value of 3.92. Concurrently, the lowest value of the business development variable post-training is the indicator of enhancing product/service quality (X3) at 3.79. Conversely, supporting data is available regarding the average profits of micro enterprises both prior to and following the training program.

Table 12: Average Profit of Business Actors Before and After the Training Program

Average Profit			
Before Training		**After Training**	
Total (Rp)	Total (People)	Total (Rp)	Total (People)
Rp 1.500.000 - Rp 2.000.000	35	Rp 1.500.000 - Rp 2.000.000	18
Rp 2.000.000 - Rp 2.500.000	42	Rp 2.000.000 - Rp 2.500.000	46
Rp 2.500.000 - Rp 3.000.000	8	Rp 2.500.000 - Rp 3.000.000	14
Rp 3.000.000 - Rp 3.500.000	5	Rp 3.000.000 - Rp 3.500.000	10
Rp 3.500.000 - Rp 4.000.000	5	Rp 3.500.000 - Rp 4.000.000	3
Rp 4.000.000 - Rp 4.500.000	2	Rp 4.000.000 - Rp 4.500.000	4
Rp 4.500.000 - Rp 5.000.000	2	Rp 4.500.000 - Rp 5.000.000	4
≥ Rp5.000.000	1	≥ Rp5.000.000	1
Total	100	Total	100

Source: The data was processed by researchers in 2025

Table 12 shows a change in average profit before and after training. Before the training, most micro merchants were in the low-profit category. After the training, however, the proportion of micro merchants in the low profit category decreased, while the proportion in the higher profit category increased.

Normality Test

The normality test is conducted to assess whether the data utilized in this study conform to normal distribution.

Table 13. Results of Normality Test Before and After Participating in the Training Program

	Shapiro-Wilk		
	Statistic	**df**	**Sig.**
Pre Test	.980	100	.137
Post Test	.975	100	.058

Source: Processed data, SPSS 30 Years 2025

As shown by the findings in Table 13, both the Pre and Post Test demonstrate significance values exceed the α = 0.05 threshold, it can be concluded that there is no significant discrepancy between the data distribution and the normal distribution. Accordingly, it may be concluded that the pretest and posttest data conform to a normal distribution.

Homogeneity Test

The objective of homogeneity testing is to ascertain the uniformity of variant data across study groups.

Table 14. Results of Homogeneity Test Before and After Participating in the Training Program

	Levene Statistic	**df1**	**df2**	**Sig.**
Based on Mean	1.476	1	198	.226
Based on Median	1.612	1	198	.206
Based on Median and with adjusted df	1.612	1	197.516	.206
Based on trimmed mean	1.502	1	198	.222

Source: Processed data, SPSS 30 Years 2025

As illustrated in Table 14, the obtained significance value (0.226) exceeds the significance level (α = 0.05), This indicates that the variance between the groups does not differ significantly in a statistical sense. In other words, the data in the analyzed groups have homogeneous variances.

Paired t-Test

This test is employed to assess the extent to which training programs impact microenterprise development. The paired t-test is presented in the following table:

Table 15. Paired t-Test Results

	Mean	**Std. Deviation**	**t**	**df**	**Sig. (2-tailed)**
PreTest – PostTest	-6.950	3.948	-17.606	99	< 0,001

Source: Processed data, SPSS 30 Years 2025

The paired sample t-test results reveal a t-statistic of -17.606, with 99 degrees of freedom and a two-tailed significance level of less than 0.001. These findings demonstrate a highly significant difference between the respondents' pre-test and post-test scores. Furthermore, the negative t-value signifies that the mean post-test score exceeds the mean pre-test score. In the paired t-test, the sign of the t value (negative or positive) does not indicate the strength of the effect; rather, it indicates the direction of the difference. Subsequent to the administration of the post-test, a greater score was obtained in comparison to the score obtained prior to the administration of the test. Therefore, the difference between the two scores becomes negative. Despite the negative value, the magnitude of t = -17.606 is still employed to ascertain significance.

A p value of less than 0.001 indicates statistical significance. This finding suggests that the training treatment had a tangible impact on enhancing the measured outcomes. Moreover, the mean difference value of -6.95 signifies an increase of nearly 7 points following the treatment. This value is reinforced by the standard deviation of the difference of 3.95, which indicates that the improvement was consistent among most participants. This finding suggests that the

intervention implemented had a substantial impact on microenterprise development following the training program.

Comparative Analysis of the Impact of Training on Microenterprise Development in Sidoarjo Regency

The findings of this study indicate that the impact of training on microenterprise development is inseparable from the characteristics of microenterprises, such as gender, age, education, type of business, and length of business operation. The observed differences in gender characteristics appear to be indicative of a preponderance of female influence, particularly among housewives. This is due to the flexibility of time and location of the business, which facilitates women's participation in training. Concurrently, the underrepresentation of men can be attributed to their predilection for formal employment. Furthermore, the majority of business operators fall within the 31–50 age range, which corresponds to their productive years. This demographic has been observed to demonstrate a heightened responsiveness to training materials due to their well-developed adaptability and extensive experience in managing business dynamics. Conversely, entrepreneurs aged 21–30 encounter challenges related to their experience, thus necessitating more practical and mentoring-based training. Moreover, the respondents' educational attainment is predominantly characterized by high school and bachelor's degree recipients, thereby facilitating their comprehension of technical and managerial training materials pertinent to digital marketing. This assertion is corroborated by the findings of Buulolo & Buulolo, (2023), which demonstrate that micro-entrepreneurs with higher education levels exhibit increased responsiveness to training. This finding lends further support to the prevailing notion that educational attainment is associated with the efficacy of training programs. Conversely, entrepreneurs with limited educational attainment encounter difficulties in accessing information and utilizing training materials within their micro-enterprises, thereby impeding the efficacy of training programs.

Moreover, the preponderance of micro businesses is concentrated in the food sector, a domain characterized by its relative ease of operation and the presence of stable market demand. This finding aligns with data from BPS (2023), which indicates that the Sidoarjo Regency is predominantly characterized by the food and beverage processing industry. In 2023, its contribution to the Sidoarjo Regency's GDP was significant, accounting for 48.61 percent of the total GDP in the region. To date, there is an absence of evidence indicating substantial alterations in the structural composition of the economic sectors within Sidoarjo Regency. Consequently, the 2023 data remains pertinent as a reference point for comprehending the sectoral context of micro businesses. The preeminence of the food sector engenders a favorable environment for the implementation of training materials pertinent to that sector, such as digital marketing strategies, which exert a direct impact on business development. Conversely, businesses in other sectors, such as crafts and services, which are comparatively few in number, do not benefit optimally if training materials are excessively general or do not align with their sectoral needs. Moreover, micro-enterprises that have been in operation for a period exceeding four years tend to possess a more robust business foundation. Consequently, training functions as a facilitator for innovation and business expansion. In contrast, micro-enterprises with 2–3 years of operation necessitate foundational training that is both practical and phased.

As demonstrated in Table 10, the indicators of income increase and customer increase obtained the lowest average score prior to participating in the training, with a value of 3.11. This finding is indicative of a descriptive analysis result. This finding indicates that respondents' perceptions of income increase remain comparatively modest, suggesting potential constraints in the application of skills prior to the initiation of the training program. Concurrently, the

indicator for enhancement in human resource quality (HR) exhibited the highest mean score, at 3.24. This finding suggests that respondents possessed prior knowledge related to enhancing HR quality, despite not having received formal training. This factor may be influenced by internal motivation or prior experience that encouraged readiness to participate in the training. These findings suggest that prior to participating in the training, respondents exhibited a tendency to prioritize the enhancement of HR quality over income-related aspects. Consequently, positive perceptions of HR quality prior to the training are imperative for the success of the training program's implementation.

Conversely, the findings of the descriptive analysis presented in Table 11, subsequent to the training implementation, reveal that the indicator for product/service quality enhancement received the lowest mean score, specifically 3.79. While there was an enhancement in comparison to the lowest value recorded prior to the training, this figure suggests that respondents continue to encounter difficulties in implementing product/service quality improvements. Notwithstanding this fact, the training program was found to be effective in increasing revenue, customer base, and enhancing the quality of human resources. Nevertheless, the impact on the enhancement of product and service quality has been less than optimal. Concurrently, the indicator for enhancing human resource quality once again attained its zenith following the training intervention, exhibiting an average score of 3.92. This consistency suggests that the training program has effectively enhanced individual competencies in a sustainable manner. The high degree of consistency in perceptions regarding the quality of human resources indicates that training functions not only as a conduit for knowledge transfer but also as a tool for empowering micro businesses.

A comparative analysis revealed an increase in the average score across all indicators following the training, suggesting a positive impact of the program on respondents' perceptions. However, the variation in the degree of improvement among the indicators suggests that the impact of the training was not uniform. This finding suggests that the training was significantly influenced by internal factors, including experience and educational background, as well as external factors, such as infrastructure and market access. Training as a form of social intervention plays an important role in the empowerment process of micro-entrepreneurs. As posited by Narayan (Alimin et al., 2022), the process of empowerment is initiated when individuals gain access to resources, information, and the capacity to make independent decisions. In this context, training contributes not only to improving participants' cognitive aspects and technical skills but also to building business independence. This assertion is further substantiated by empirical evidence indicating substantial shifts in the impact of training on business development, as manifested by augmented revenue, expanded customer base, enhanced product/service quality, and human resource quality.

The results of the paired sample t-test yielded a t-value of -17.606, with a degree of freedom (df = 99) and a significance value (Sig. 2-tailed < 0.001). The findings suggest the presence of a statistically significant discrepancy between the respondents' pre-test and post-test scores following their participation in the training program. The p-value, which is far below the 0.05 threshold, indicates that the null hypothesis (H0), which states that there is no difference between the scores before and after the training, can be rejected and the alternative hypothesis (H_a), which states that there is a significant difference, can be accepted. This finding lends further credence to the hypothesis that the training program has a tangible impact on improving the measured indicators. Consequently, training can be regarded as a pertinent empowerment strategy that enhances the competitiveness and sustainability of microenterprises in their entirety.

The findings of this study are consistent with the results of previous studies conducted by Adiguna et al., (2024), which demonstrated that training significantly enhances knowledge and skills among participants, particularly in the utilization of digital technology for business management. This finding suggests that post-training improvements are a consistent pattern. Consequently, training functions as a public policy that addresses the discrepancy between the competencies of business operators and the demands of the contemporary market, thereby enhancing productivity and the sustainability of micro-enterprises. These findings are reinforced by the Regulation of the Minister of Cooperatives and Small and Medium Enterprises of the Republic of Indonesia Number 18 of 2015 concerning Guidelines for Education and Training for Cooperative and SME Human Resources, where Article 2 paragraph (2) states that the purpose of training is "to improve knowledge, skills, as well as attitudes and behavior." This underscores the notion that training encompasses more than just technical aspects; it is also instrumental in effecting a transformation in the character and mindset of micro-business operators, thereby fostering greater independence and competitiveness.

A comparative analysis of the impact of training reveals a positive change in the conditions before and after training, suggesting that training has a significant impact on improving the variables studied. Consequently, the training program that has been implemented can be recommended to be continued with ongoing evaluation for the improvement of materials, methods, and approaches. This assertion is further substantiated by the findings of Jaelani & Fidaris, (2024), which demonstrate that the efficacy of training in promoting SME development serves not only as an indicator of the program's effectiveness but also as a measure of the region's success in implementing participatory and sustainable empowerment policies.

CONCLUSION

Based on the findings from a descriptive and comparative analysis of data collected prior to and following the training program, it can be concluded that the training program has a positive impact on micro-business development, particularly in terms of enhancing the quality of human resources. This indicator demonstrates the highest consistent value, thereby reflecting the program's success in enhancing the capacity of individual business actors. Nevertheless, from an objective standpoint, the impact of training on enhancing income and quality of products/services remains comparatively negligible. This finding suggests that while the training has effectively enhanced knowledge and skills, their implementation in business activities remains to be fully optimized. Consequently, it is imperative to fortify program components that facilitate practical implementation in the field, including business mentoring, marketing facilities, and technology access. Furthermore, the training program must be designed in a manner that is adaptable to the unique characteristics of micro-enterprises. This approach will ensure that the training outcomes have a tangible impact on the development of micro-enterprises across all sectors. Consequently, the repercussions of training should extend beyond merely augmenting human resource capacity, but rather, should also contribute directly to the development of micro-enterprises in a comprehensive manner.

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