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The Role of Training in Increasing the Productivity of Tempe Sanan Chips MSMEs through Social Capital

A Perspective of the Creative Economy Ecosystem

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Abstract

This study is to analyze the effect of training on the productivity of tempeh chips MSMEs in the Malang City Sanan Center and the role of social capital as a mediating variable. Using a quantitative approach with an explanatory research design on 83 MSME actors selected through simple random sampling, with data collection using questionnaires and partial least square (PLS) analysis. The results of the study show that training has a significant effect on the productivity of MSMEs, both directly and through strengthening social capital, where trust, norms, networks, and mutual relationships play a role in strengthening the impact of training. This study shows that increasing the productivity of MSMEs is not enough only through technical training but needs to be integrated with efforts to strengthen social capital so that business actors are able to optimize production, marketing, and technology processes in a sustainable manner.

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Introduction

MSMEs are one of the important foundations of the national economy because of their role in absorbing labor and encouraging creative economy activities and can provide 97% of jobs to the community (Suhaili & Sugiharsono, 2019) . Based on data from the Ministry of Cooperatives and SMEs, the number of MSMEs in Indonesia reaches more than 65 million units and contributes around 61% to the national GDP. The rapid development of MSMEs is influenced by the ability of actors to adapt through various forms of innovation, so that business productivity can continue to increase (Supit et al., 2022). MSMEs that succeed in growing are those that are able to seize opportunities and use technology effectively (Merín-Rodrigáñez et al., 2024; Mishrif & Khan, 2023). The productivity of MSMEs, on the other hand, has not shown optimal results because it is still faced with various limitations, such as the lack of access to training according to needs, low technology adoption, and weak networks between business actors. This condition has an impact on less efficient production processes, inconsistent product quality, and declining competitiveness amid increasingly fierce market competition.

The development of MSMEs in Greater Malang also shows strong and relevant dynamics to be studied further. Data from Diskominfo 2024, shows that in Malang City, the number of MSME actors reached 27,662 units, with more than 57% moving in the culinary sector and in Batu City, there were 2,897 MSMEs, and 331 of them had upgraded or penetrated the export market. This shows the great potential of the MSME ecosystem in Greater Malang. Based on this data, it shows that the condition of community-based food MSMEs, one of which is the Sanan Tempe Chips center in Malang City and Bau City, which has long been a regional culinary icon and part of the creative economy. However, its business actors are now facing increasingly fierce competition, both from local producers and from processed food products (Mulyono & Syamsuri, 2023), for this reason, innovation and competitive strategies are important elements in business sustainability and growth in the midst of an increasingly competitive market environment (Keelson et al., 2024). This shows the need to formulate a model that can encourage increased productivity of MSMEs through the integration of training and social capital within the framework of the creative economy ecosystem.

Perspective view *Human Capital Theory*, training plays a role in increasing the competitiveness and sustainability of small businesses through human capital development (Syukri & Jamil, 2018) and business actors can improve their skills and competencies (Suci & Martono, 2020), so that it becomes more resilient in the face of market dynamics and rapid technological developments. On the other hand, from the perspective of *Social Capital Theory* emphasized that strong networks, trust, and social relationships are important assets that can facilitate coordination and strengthen collaboration between MSME actors (Boudreaux et al., 2022; Do et al., 2025). When these two aspects are combined, MSMEs not only gain an increase in individual competence, but also social network support that allows wider access to information, innovation, and business opportunities. This phenomenon is also seen in food MSMEs that grow in community environments, such as the Sanan Tempe Chips center in Malang City. Although the Sanan area has long been a local culinary icon and part of the creative economy, its business actors are now faced with an increasingly fierce level of competition, both from similar producers and from processed food products that are more varied and innovative. This condition emphasizes the need to increase the capacity of business actors and increase competitiveness through adding value to the business image and expanding networks that can support growth and strengthen business positions (Nguyen Thi & Vu Dinh, 2025; Pujianto et al., 2025).

The results of previous research show that training has a significant effect on increasing the productivity of MSMEs (Yahya et al., 2012), but other findings suggest that it has no significant effect (Jacob et al., 2024; Középvállalatok et al., 2025; Rochmad Bayu Utomo et al., 2025). The inconsistencies in the study are related to the quality of the material, effectiveness, relevance of the training to the needs of MSMEs and low technological readiness. These differences in findings show the need for a more in-depth study on how training plays a role in improving the performance of MSMEs. In addition, this study positions social capital as an element that can

increase the effectiveness of training. With better management of social capital such as knowledge and skills gained from training, it will have an impact on increasing productivity (Chen et al., 2024; Woolcock, 2001). Empirical studies that combine training and social capital in one analytical framework to explain the improvement of MSME performance are still not widely found, especially in food MSMEs that develop in a community environment such as tempeh sanan chip centers. These limitations show the need for a more comprehensive model to explain the increase in productivity of MSMEs.

This research makes a new contribution by formulating a model of productivity improvement by integrating the role of training and social capital in one comprehensive analytical framework. Although several recent studies (2024–2025) have examined training and social capital separately, an integrated approach that positions social capital as a mediating variable between training and productivity — particularly within community-based food MSME contexts — remains underexplored in the existing literature. Prior works have largely examined either training effectiveness or social capital dynamics in isolation, without systematically combining both within a single explanatory model for community-embedded MSMEs. The novelty of this research therefore lies not only in positioning training as a means of improving individual abilities, but also in incorporating social capital as a bridging mechanism that amplifies the impact of training on productivity. The integration of these two perspectives is expected to provide a more comprehensive picture of how Sentra Sanan tempeh chips MSMEs can increase their competitiveness during an increasingly competitive creative economy. Based on this background, this study addresses the following research question: Does social capital mediate the effect of training on the productivity of tempeh chips MSMEs at the Sanan Center in Malang City?

Research Methods

The research approach uses quantitative with an explanatory research method that aims to explain the causal relationship between training variables, social capital, and MSME productivity. The population in this study is all tempeh chips business actors located in the Sanan Tempe Chips Industry Center, Malang City. Based on information from the Diskopindag in 2024, there will be around 500 business actors engaged in the production of tempeh and tempeh chips. The sampling technique uses *a simple random sampling method*, where every MSME actor in the population has the same opportunity to be selected as a respondent. Although Slovin's formula was originally developed for homogeneous populations, its application in this study is considered appropriate because the population consists of tempeh chips business actors within a single industry center sharing similar business characteristics (type of product, scale of operation, and geographical location), which minimizes the degree of heterogeneity. Furthermore, the use of Slovin's formula in MSME research with comparable population structures has been widely adopted in the literature (Sugiyono, 2013). The sample size was thus determined using Slovin in formula 1.

$$\boldsymbol{n = \frac{N}{(1+N\,e^2)} = \frac{500}{(1+500\;x\;0{,}1^2)} = 83.33} \quad \text{..... 1}$$

This sample size of 83 is considered adequate for PLS-SEM analysis based on the ten-times rule of thumb proposed by Hair et al. (2017), which recommends a minimum sample size ten times the maximum number of paths directed at any construct in the model. In this study, the maximum number of arrows pointing to a single construct is three, yielding a minimum required sample of 30. Therefore, a sample of 83 respondents exceeds this threshold and provides sufficient statistical power for PLS-SEM estimation.

The research variables include: (1) Training. A series of activities that are systematically traced to improve the ability of business actors. The indicators (Urbancová et al., 2021; Wulandari & Nurhayati, 2025) including: (a) Training materials (b) Training objectives (c) Application of materials after training (d) Availability of training facilities and infrastructure. Meanwhile, the social capital variable is a benefit that arises from the relationship between individuals in a

business network. The Indicators (Asyriyanti & Hanifah, 2023) These include: (a) Trust (b) Norms (norms) (c) Network (network between members) (d) Reciprocity (joint actions that respond to each other) (e) Achievement of common goals. Furthermore, productivity is the ability of businesses to produce business output efficiently and optimally with indicators (Kurniawati & Yuliando, 2015) includes: (a) Human Resources (b) Marketing (c) Regulation (d) Technology

Result

In conducting a validity test using an outer model test tool with measurements of convergent and discriminant validity to make a comparison, namely the loading factor element to the indicator, then it can be said to be valid if the loading factor value is > 0.7 or the loading factor value ≥ 0.6 but for Average Variance Extracted 0.5 (Hair et al., 2017; Latan & Noonan, 2017). Based on the results of the analysis, the outer model in Table 1.

Table 1. Loading Factor

Variable	Dimensions	Loading Factor	Information
Training	Training Materials	0.896	Valid
	Training Objectives	0.889	Valid
	Application of Materials	0.796	Valid
	Facilities and Infrastructure	0.869	Valid
Social Capital	Trust	0.781	Valid
	Norm	0.920	Valid
	Networking	0.899	Valid
	Reciprocity	0.937	Valid
Productivity	Human Resources	0.711	Valid
	Marketing	0.920	Valid
	Regulation	0.815	Valid
	Technology	0.810	Valid

Source: Data analysis results with PLS

The table above shows that the loading factor value has met the rule of thumb (Ghazali, 2018), which is > 0.5 for each indicator, where all indicate that the indicator is valid.

Based on a statement from Ansori (2019), that the validity of the construct with the average variance extracted (AVE) value says that the value > 0.5. So, it can be shown in Table 2 that the AVE value of all research variables is ≥ 0.5.

Table 2. Average Variance Extracted (AVE)

Dimension	AVE	Information
Training	0.746	Valid
Social Capital	0.786	Valid
Productivity	0.635	Valid

Table 3. Cross Loading

Var	SOCIAL CAPITAL	TRAINING	PRODUCTIVITY
MS1	0,896	0,808	0,744
MS2	0,889	0,763	0,735
MS3	0,798	0,626	0,639
MS4	0,869	0,853	0,843
P1	0,666	0,781	0,605
P2	0,782	0,920	0,695
P3	0,834	0,899	0,820
P4	0,857	0,937	0,813
PROD 1	0,365	0,203	0,611
PROD 2	0,830	0,779	0,920
PROD 3	0,615	0,668	0,815
PROD 4	0,796	0,792	0,810

The statement from Anshori M (2020) is that by comparing the AVE value of a construct must be higher than the correlation between the latent variables, or by looking at the cross-loading value. The results of the analysis are presented in Table 3.The results of the analysis show that in this study it has a valid discriminant validity.

Based on the statement of the (23), the value of the construct is said to be reliable, if Cronbach's alpha value ≥ 0.6 and Composite reliability value ≥ 0.7. Composite reliability value ≥ 0.7. It can be seen in Table 4.

Table 4. Composite Reliability and Cronbach's alpha

Variable	Cronbach's Alpha	Composite Reliability	Test Result
Social Capital	0.856	0.896	Reliable
Training	0.908	0.920	Reliable
Productivity	0.810	0.864	Reliable

The table above shows that all constructs have Cronbach's alpha ≥ 0.6 and a Composite reliability value of > 0.7, so it can be said that all constructs are reliable. 0.6 and the Composite reliability value > 0.7, and all constructs can be said to be reliable

Inner Model Evaluation

Internal model testing is to predict causal relationships between variables and hypothesis testing is done by bootstrapping. The results of the analysis are as follows:

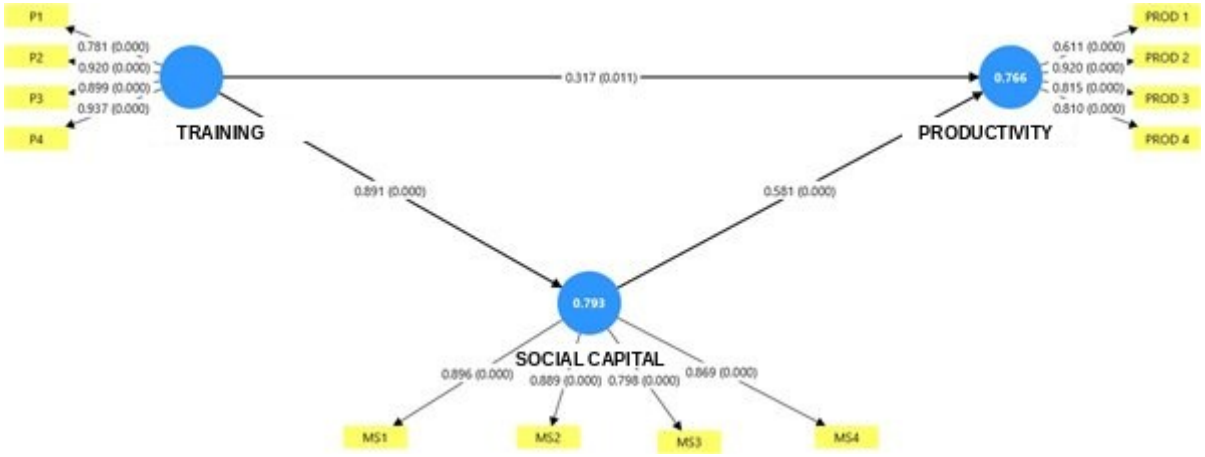

Figure 1. PLS Model Inner Path Diagram

In Table 5 this shows the coefficient of the path as follows:

Table 5. Path coefficient

	Original Sample	P-Value	Information
Training → Productivity	0.317	0.011	Significant
Social Capital→ Training	0.891	0.000	Significant
Social Capital → Productivity	0.581	0.000	Significant

The first coefficient value is 0.317 with a p-value of 0.011 so that it can be said that training influences productivity and H1 is accepted. While training on social capital is 0.891 and p value is 0.000, H2 is accepted. Furthermore, social capital for productivity with a p-value of 0.000, thus H3 is accepted.

Discussion

Training on Productivity

The findings of this study show that training has a real role in increasing the productivity of MSMEs, especially in tempeh chips business actors at the Sanan Center in Malang City. The training obtained can provide benefits by increasing insight and knowledge for MSME actors, especially related to the material and its objectives in accordance with the needs of the business being run. The training materials, namely the production process, improving the quality of Sanan chip products, packaging, and marketing, are expected to direct MSME actors to work efficiently and effectively. In addition, the purpose of the training will encourage them to create better so that they can follow and absorb from the material obtained. It can be explained that training is not only a formal activity but can be seen as a means to improve the way it works and improve business results in the future to be more optimal.

Furthermore, the increase in the productivity of MSMEs is also influenced by the results of the training taken by MSME actors and can be supported by adequate facilities and infrastructure. MSME actors can apply the knowledge from the training, such as by improving production flows to be more efficient, using available equipment more optimally, implementing new marketing strategies that are more challenging, which will have an impact on increasing productivity. Training that is practical, with assistance and evaluation, is more interesting than theoretical training. With supporting training facilities, namely the availability of practical tools and appropriate material delivery media, it will help to understand the material provided.

Training in Social Capital

Based on the results of the study, it is shown that training has a strong role in strengthening the social capital of MSME actors, especially by efforts to build trust between business actors. This training activity that can be followed together with members of MSME business actors will open space for interaction, effective communication, and exchange of experiences, where this will grow to understand each other's business conditions. An element of trust will arise; this is because business actors feel that they are in a safe learning environment or situation and support each other.

Furthermore, the training will also expand the network and strengthen the mutual relationship between MSME actors. With this training, not only do you get new knowledge, but there is also an opportunity to build relationships with fellow business actors, facilitators, and other supporting parties. This network will provide benefits for exchanging information, working together in product marketing so that the expected goals can be achieved. Thus, training not only increases individual capacity, but also becomes an effective means of strengthening the social capital of MSMEs which is characterized by a sense of trust, norms, widening a wider network, and the creation of mutually beneficial relationships.

Social Capital to Productivity

The results of the study explained that social capital variables have a fundamental role in encouraging increased productivity of MSMEs, especially through strengthening the quality of human resources. Social relations between MSME actors will form positive behavior, namely by sharing knowledge, experience, and skills related to the production process or business management that is run. Where this will encourage individuals to work more effectively, reduce errors during the production process, and can simplify and facilitate the implementation of work completion. In addition, faster and more accurate access to information can help MSMEs adjust their products and marketing strategies so that business activities run more efficiently and productively.

In addition to the human resources and marketing aspects that need to be considered, compliance with regulations and the use of technology in business activities must also be carried out properly. Social capital can also lead to the adoption of technology, both in the production process and marketing which ultimately helps MSMEs improve work efficiency, where tempeh chips business

actors in Sanan Center are encouraged to apply more efficient production equipment and make better use of digital media than before after obtaining information and experience from fellow business actors in the same community. When MSME actors feel supported by their social environment, they tend to be more courageous to try new technologies and improve business processes.

Indirect Effect: Social Capital as a Mediating Variable

Beyond the direct effects presented in each sub-section above, the mediation analysis results reveal that social capital plays a significant role as an intermediary variable between training and MSME productivity. The indirect effect of training on productivity through social capital can be estimated as the product of the two path coefficients: Training → Social Capital (0.891) and Social Capital → Productivity (0.581), yielding an indirect effect value of approximately 0.518. This substantial indirect effect indicates that a large portion of the total influence of training on productivity is channeled through the strengthening of social capital rather than operating purely through a direct mechanism.

This mediation pattern suggests that training alone is not sufficient to drive productivity improvements; rather, training achieves its fullest impact by first cultivating the social capital of MSME actors. When business actors participate in joint training activities, they build mutual trust, shared norms of cooperation, and broader inter-firm networks — collectively forming stronger social capital. This enriched social environment then becomes a conduit through which the knowledge and skills acquired during training are more effectively translated into productive business behaviors. These findings are consistent with the social capital literature, which emphasizes that relational assets such as trust and networks serve as enabling mechanisms that amplify the effectiveness of individual-level human capital investments (Woolcock, 2001; Chen et al., 2024). In the context of the Sanan tempeh chips industry center, this mediation dynamic implies that training interventions will be most effective when they are designed not merely as technical skill-building activities, but also as community-building processes that foster collaboration and strengthen the social fabric among MSME actors.

Conclusion

The conclusion in this study is that training has a significant effect on the productivity of tempeh chips MSMEs at the Sanan Center in Malang City, both directly and through strengthening social capital. Social capital is a bridge between training on business productivity. Training that is designed according to business needs, and supported by clarity of objectives, application of materials, and adequate facilities and infrastructure, is expected to improve the ability of business actors to manage the production process, marketing, and appropriate use of technology. In addition, this research also proves that social capital plays an important role in increasing the productivity of MSMEs, which is reflected in strengthening the quality of human resources, expanding marketing, making it easier to understand regulations, and increasing technology adoption. Thus, it can be shown that the increase in productivity of MSMEs is not only due to the training factor, but also depends on the ability of business actors to build social capital as a reinforcement of the training results. It is hoped that Sanan tempeh chips MSME actors will be more active in participating in practical and applicable training programs, especially training related to product innovation, the use of production technology, and digital marketing. For the next researcher, it is recommended to expand the scope of research by involving other MSME sectors or add external variables, such as institutional support and government policies, to gain a more comprehensive understanding of the factors that affect the productivity of MSMEs.

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