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# Empowering Micro, Small, and Medium Enterprises through Smartphone-Based Product Photography and Branding Design Training

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**ABSTRACT:** Micro, Small, and Medium Enterprises (MSMEs) play a crucial role in urban economic resilience, yet many continue to face limitations in digital marketing capabilities, particularly in visual presentation and branding. This study examines the role of smartphone-based product photography and branding design training as a community-based empowerment mechanism for MSMEs in Kelurahan Mojo, Surabaya. Grounded in Human Capital Theory, digital inclusion perspectives, and community empowerment frameworks, the research aims to enhance MSME capacity through accessible and practice-oriented digital skill development. The study employed a community-based applied research design using a pre–post intervention approach. Data were collected from MSME actors through structured questionnaires, observational records, and documentation of visual outputs produced before and after the training program. Quantitative data were analyzed descriptively to compare competency scores across intervention stages, while qualitative data were examined using content analysis to assess changes in visual quality and branding consistency. The findings indicate consistent improvements in participants' self-assessed competencies related to product photography, smartphone utilization, photo editing, branding understanding, and confidence in producing product visuals. Output-based assessments further demonstrate observable enhancements in lighting, image clarity, composition, background consistency, and visual brand coherence. Qualitative documentation reveals a transition from unstructured visual practices to more intentional and systematic visual communication following the training. This study contributes empirical evidence to social science and community development literature by demonstrating that smartphone-based creative skills training represents an inclusive, scalable, and context-sensitive approach to MSME capacity building. The findings underscore the importance of integrating accessible digital skill development into community empowerment initiatives to support inclusive urban economic development.

**KEYWORDS:** Micro, Small, and Medium Enterprises (MSMEs); smartphone-based training; product photography; branding design; community empowerment; digital inclusion.

## INTRODUCTION

Micro, Small, and Medium Enterprises (MSMEs) play a pivotal role in local economic development, employment creation, and social resilience, particularly in urban communities. In Indonesia, MSMEs constitute the backbone of the informal and semi-formal economy, yet many continue to face persistent challenges related to limited market access, weak branding capabilities, and low adoption of digital marketing practices. These constraints are especially evident at the community level, including MSMEs operating in Kelurahan Mojo, Surabaya, where business actors largely rely on traditional sales methods and possess limited exposure to affordable digital skill development initiatives (Sheng et al., 2025; Sun, 2025; Xie et al., 2025; H. Yang et al., 2025; Z. Yang et al., 2025; F. Zhang et al., 2025; Z. Zhang et al., 2025; Zhou, 2025; Zini & Buzzelli, 2025).

The rapid diffusion of smartphone technology presents a strategic opportunity to address these challenges. Smartphones have evolved from basic communication tools into multifunctional digital platforms capable of supporting product photography, visual storytelling, and branding design at relatively low cost. From a social science and human development perspective, smartphone-based digital skills represent an inclusive form of human capital enhancement, enabling MSME actors to participate more actively in the digital economy without requiring substantial financial investment. Product photography and branding design are critical components of consumer perception, trust formation, and purchasing

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intention in increasingly visual-driven markets (Gowroju et al., 2025; Y. Li et al., 2025; Z. Li et al., 2025; Mohan et al., 2025; Nan et al., 2025; Palaniappan et al., 2025; Peng et al., 2025; Qushtom et al., 2025; Ramesh & Rao, 2025).

Prior studies have highlighted the importance of digital capability building for MSME competitiveness, emphasizing training interventions in digital marketing, branding, and visual communication as drivers of business performance and entrepreneurial empowerment. The literature consistently demonstrates that improved visual presentation enhances perceived product quality and brand credibility, especially for small-scale enterprises competing in saturated markets. However, much of the existing research remains focused on outcomes at the firm or platform level, often examining e-commerce adoption, social media marketing effectiveness, or general digital literacy (Aldrees et al., 2025; Banerjee & Singh, 2025; Bi et al., 2025; Binu, 2025; Choi & Yoo, 2025; Dong et al., 2025; Fang et al., 2025; Fathy et al., 2025; Wan et al., 2024; Wu et al., 2024; Zhang et al., 2024; Zheng et al., 2024). Less attention has been given to community-based, smartphone-oriented training models that integrate technical skills with human empowerment and social inclusion dimensions (Ryser et al., 2024).

This gap is particularly pronounced in the context of community service and applied social research, where empirical documentation of structured training interventions and their capacity-building impact at the neighborhood level remains limited. Specifically, there is a lack of studies examining how smartphone-based product photography and branding design training can function as a practical mechanism for empowering MSME actors within urban localities such as Kelurahan Mojo, Surabaya. The absence of localized evidence constrains the development of scalable, context-sensitive empowerment models that align with the realities of grassroots entrepreneurship (Anoop & Deivanathan, 2024; Chen et al., 2024; Liu et al., 2023; Wang et al., 2023; Yao et al., 2023; Yu et al., 2023).

In response to this gap, the present study aims to analyze the role of smartphone-based product photography and branding design training in enhancing the capacity of MSMEs in Kelurahan Mojo, Surabaya. The objectives of this research are threefold: first, to strengthen the digital and creative competencies of MSME actors through accessible training; second, to improve the quality of product presentation and branding consistency; and third, to contribute empirical insights into community-based MSME empowerment strategies. Accordingly, the study is guided by the following research questions: how does smartphone-based training influence the capacity and confidence of MSME actors in managing product visuals and branding, and to what extent can such training serve as an effective empowerment instrument within urban community settings? By situating the study at the intersection of digital skill development, human empowerment, and community-based MSME support, this research contributes to the broader social science discourse on inclusive economic development and practical capacity building in emerging urban economies.

## LITERATURE REVIEW

### 1. MSME Capacity Building and Human Capital Perspective

Capacity building in MSMEs is widely conceptualized as a process of strengthening entrepreneurial competencies, managerial skills, and adaptive capabilities to improve business sustainability and growth. From the Human Capital Theory perspective, training is an investment that increases individuals' productive capabilities, which subsequently enhances organizational and economic outcomes. In the MSME context, human capital development is not limited to formal education, but also includes applied, practice-oriented skills such as marketing communication, product presentation, and customer engagement. Prior studies consistently show that skill gaps among MSME actors particularly in marketing and branding constrain competitiveness, limit customer reach, and reduce the ability to differentiate products in crowded markets. However, the literature also acknowledges that many MSMEs lack access to formal training due to time constraints, cost barriers, and limited institutional support, making low-cost and accessible capacity-building interventions essential (Ramesh & Rao, 2025; Razmjouei et al., 2025; Sheng et al., 2025; Sun, 2025; Xie et al., 2025).

### 2. Digital Inclusion and Smartphone-Based Skill Development

Digital inclusion scholarship emphasizes that equitable participation in the digital economy requires not only access to technology but also meaningful capabilities to use technology productively. Smartphones provide a strategic pathway for inclusive digital adoption because they are widely available, relatively affordable, and function as integrated tools for production, communication, and marketing. Prior research shows that smartphone-based training can reduce entry barriers for micro-entrepreneurs by enabling skill acquisition without requiring sophisticated hardware or software. Nonetheless, empirical work often focuses on general digital literacy, e-commerce readiness, or social media usage, rather than targeted creative competencies that are directly tied to customer perception formation. Consequently, a knowledge gap persists regarding training models that leverage smartphones specifically for visual marketing competencies such as product photography and branding design, particularly in community-based MSME empowerment programs (Ramesh & Rao, 2025; Razmjouei et al., 2025; Ryser et al., 2024; Sheng et al., 2025; Sun, 2025; Xie et al., 2025; Z. Yang et al., 2025).

### 3. Visual Marketing, Product Photography, and Consumer Perception

In contemporary consumer markets, product evaluation is increasingly visual. Signaling Theory and consumer perception frameworks suggest that visual cues such as image clarity, composition, lighting, and aesthetics serve as signals of product quality, professionalism, and trustworthiness, especially when customers cannot physically examine the product. Prior studies in digital marketing report that high-quality product images improve engagement, increase perceived value, and positively influence purchase intention. Product photography is also linked to brand credibility because consistent and well-designed visuals communicate reliability and reduce information asymmetry between sellers and buyers. Despite these advances, the literature tends to emphasize professional photography or firm-level marketing strategies, often overlooking the "micro-level reality" of MSMEs that lack professional equipment. This creates an empirical gap concerning how smartphone-based product photography training can generate meaningful improvements in perceived product quality and marketability within resource-constrained MSMEs (Dong et al., 2025; Liu et al., 2024; Qushtom et al., 2025; Z. Zhang et al., 2025).

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**4. Branding Design, Identity Construction, and MSME Differentiation**

Branding is not merely a logo; it is a strategic identity system that shapes how stakeholders perceive a business. From a social science lens, branding also functions as a mechanism of identity construction that enables small businesses to position themselves within local markets and wider digital ecosystems. Previous research highlights that MSMEs with stronger branding practices tend to achieve better differentiation, customer recognition, and loyalty. In practice, however, many MSME actors struggle with branding due to limited design knowledge, inconsistent visual identity, and low awareness of branding as a strategic asset. Digital tools particularly smartphone-based design applications have made branding design more accessible, yet scholarly attention remains limited regarding structured training approaches that integrate branding principles with practical smartphone-based execution. This gap is important because design tools alone do not guarantee capability; what matters is guided learning that translates tools into strategic branding practice (Nan et al., 2025; Sheng et al., 2025; Sun, 2025; Zhou, 2025; Zini & Buzzelli, 2025).

**5. Training Intervention Models and Community-Based Empowerment**

Community-based empowerment programs increasingly adopt training interventions as a direct mechanism to enhance MSME resilience and socio-economic participation. The community service literature emphasizes the importance of contextual alignment, participatory learning, and practical deliverables as determinants of training effectiveness. Several studies report that hands-on training improves confidence and motivates micro-entrepreneurs to adopt new practices. Yet, the evidence base is often descriptive, limited in evaluation rigor, and frequently disconnected from theory-driven mechanisms explaining why training works in certain contexts but not others (Sheng et al., 2025; Sun, 2025; Wang et al., 2023; Zhou, 2025). Moreover, community-level studies are still underrepresented in the literature, particularly those located in dense urban neighborhoods where market competition is high and digital marketing becomes a survival necessity rather than a growth option. This limitation points to the need for more localized, empirically grounded research that documents training processes and outcomes in specific communities such as Kelurahan Mojo, Surabaya.

**6. Synthesis of Advances and Research Gaps**

Overall, prior studies provide strong evidence that (1) capacity building enhances MSME performance, (2) smartphones enable inclusive digital adoption, (3) visual marketing influences consumer trust and purchase intention, and (4) branding design strengthens differentiation. However, three key gaps remain. First, limited research integrates these strands into a unified framework that connects smartphone-based creative skills training (product photography and branding design) with MSME capacity outcomes. Second, empirical evidence is insufficient regarding the effectiveness of community-based intervention models that operationalize smartphone tools into measurable improvements in visual presentation and branding consistency. Third, localized studies in urban community contexts where MSMEs operate with tight resource constraints and strong competition are still scarce. Addressing these gaps, the present study investigates how smartphone-based product photography and branding design training functions as an empowerment mechanism for MSMEs in Kelurahan Mojo, Surabaya, and contributes to the social science discourse on inclusive capacity building through accessible digital skills.

## MATERIALS AND METHODS

### Research Design

This study employed a community-based applied research design with a pre–post intervention approach, aligning with the objectives of community empowerment and capacity building in MSMEs. The design was selected to systematically assess changes in participants' competencies before and after the implementation of a structured training program in smartphone-based product photography and branding design. The research emphasizes practical intervention while maintaining methodological rigor to ensure transparency and replicability.

### Research Setting and Data Sources

The research was conducted in Kelurahan Mojo, Surabaya, an urban area characterized by a high concentration of micro and small enterprises operating in food, beverage, fashion, and household product sectors. Primary data were collected directly from MSME actors participating in the community service program. Data sources included structured questionnaires, observational records during training sessions, and documentation of visual outputs produced by participants (product photographs and branding designs). Secondary data were obtained from local administrative records and relevant policy documents to contextualize the MSME environment.

### Population and Sampling Technique

The population of the study comprised MSME actors registered and actively operating in Kelurahan Mojo, Surabaya. A purposive sampling technique was applied to select participants based on predefined criteria: (1) active MSME operation, (2) ownership or regular use of a smartphone, and (3) willingness to participate in the full training cycle. This approach ensured that participants possessed the minimum technological capacity required for the intervention while reflecting the practical realities of community-based programs. The final sample consisted of MSME owners and managers representing diverse business types, enabling cross-sectoral observation of training effects.

### Research Procedures

The research procedures were implemented in four sequential stages. First, a baseline assessment was conducted to measure participants' initial competencies in product photography, branding awareness, and digital marketing confidence. Second, the training intervention was delivered through hands-on workshops focusing on smartphone camera techniques, lighting and composition, basic photo editing, branding principles, and the use of accessible design applications. The training emphasized experiential learning and direct practice using participants' own smartphones. Third, participants were guided through a post-training application phase, during which they independently produced product images and branding materials for their businesses. Finally, a post-intervention evaluation was conducted to assess changes in skills, confidence, and output quality.

### Data Collection Instruments

Data were collected using a combination of quantitative and qualitative instruments. Structured questionnaires were employed to measure perceived skill improvement, branding understanding, and confidence levels using a Likert-scale format. Observational checklists were used to

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document participant engagement and technical proficiency during training sessions. Visual artifacts produced by participants served as objective evidence of capacity improvement and were systematically documented for analysis.

**Analytical Methods**

Quantitative data were analyzed using descriptive statistical techniques to compare pre- and post-intervention scores, highlighting changes in participant competencies and perceptions. Where appropriate, simple comparative analyses were conducted to identify patterns of improvement across indicators. Qualitative data from observations and visual outputs were analyzed using content analysis, focusing on improvements in image quality, visual consistency, and branding coherence. The integration of quantitative and qualitative findings enabled triangulation and strengthened the validity of the results.

**Ethical Considerations**

Ethical principles of voluntary participation, informed consent, and confidentiality were strictly upheld. Participants were informed of the research objectives and procedures, and all data were used solely for academic and community development purposes. By clearly documenting the research design, data sources, sampling strategy, procedures, and analytical methods, this study ensures methodological transparency and provides a replicable framework for future community-based MSME capacity-building research.

## RESULTS

Table 1 presents the demographic and business characteristics of MSME participants involved in the training program in Kelurahan Mojo, Surabaya.

**Table 1. Participant Profile of MSMEs in Kelurahan Mojo, Surabaya. Source: Author.**

| Characteristics | Category | Frequency |
|---|---|---|
| **Business Sector** | Food & Beverage | 14 |
| | Fashion & Accessories | 6 |
| | Household Products | 5 |
| **Business Scale** | Micro Enterprise | 19 |
| | Small Enterprise | 6 |
| **Smartphone Ownership** | Android | 23 |
| | iOS | 2 |
| **Length of Operation** | < 3 years | 11 |
| | 3–5 years | 9 |
| | > 5 years | 5 |

The table outlines the distribution of business sectors, enterprise scale, smartphone ownership, and length of business operation among participants. Table 2 summarizes the descriptive statistics of participants' self-assessed competencies before and after the training intervention.

**Table 2. Pre- and Post-Training Self-Assessed Competency Scores. Source: Author.**

| Indicator | Pre-Training Mean | Post-Training Mean |
|---|---|---|
| Understanding of Product Photography Techniques | 2.31 | 4.12 |
| Ability to Use Smartphone Camera Features | 2.68 | 4.25 |
| Basic Photo Editing Skills | 2.14 | 4.03 |
| Understanding of Branding Concepts | 2.27 | 4.08 |
| Ability to Design Simple Branding Materials | 2.05 | 3.97 |
| Confidence in Creating Product Visuals | 2.42 | 4.18 |

*Scale: 1 = Very Low, 5 = Very High*

The indicators cover product photography skills, smartphone usage, photo editing, branding understanding, design ability, and confidence in producing product visuals. Table 3 reports the proportion of product visuals meeting predefined quality criteria before and after the training program.

**Table 3. Output-Based Assessment of Visual Product Quality. Source: Author.**

| Assessment Aspect | Pre-Training (%) | Post-Training (%) |
|---|---|---|
| Adequate Lighting | 32 | 84 |
| Clear Product Focus | 44 | 88 |
| Consistent Background | 28 | 80 |
| Proper Image Composition | 36 | 85 |
| Visual Brand Consistency | 24 | 78 |

The assessment focuses on observable aspects of image quality and branding consistency derived from documented visual outputs. Qualitative findings were derived from structured observations during training sessions and documentation of visual outputs produced by participants. Prior to the intervention, most MSME actors relied on spontaneous product photographs taken without attention to lighting, composition, or background consistency. Images frequently displayed uneven illumination, cluttered visual elements, and low clarity, with no identifiable branding markers. During the training sessions, participants actively engaged in hands-on practice using their own smartphones. Observational records indicate increased familiarity with camera settings, positioning techniques, and basic editing tools. Participants demonstrated the ability to apply uniform backgrounds, improve lighting balance, and adjust image framing. Post-training documentation shows that participants

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were able to produce multiple product images with clearer focus, improved brightness, and more structured composition. Branding outputs, including simple logos, labels, and promotional visuals, exhibited greater visual consistency in color usage, typography, and layout. Several participants successfully integrated product images with basic branding elements for use on social media and digital catalogs. Overall, the qualitative documentation confirms observable changes in technical execution, visual organization, and branding presentation across participating MSMEs following the training program.

**DISCUSSION**

This study set out to examine how smartphone-based product photography and branding design training contributes to capacity building among Micro, Small, and Medium Enterprises (MSMEs) in Kelurahan Mojo, Surabaya, within a community-based empowerment framework. The findings provide substantive insights into the role of accessible digital skills training as a mechanism for enhancing human capital, strengthening visual marketing capabilities, and supporting inclusive participation in the digital economy. This discussion interprets the results by situating them within relevant theoretical perspectives, comparing them with existing empirical studies, articulating practical and policy implications, and acknowledging the limitations of the research. The quantitative results demonstrate a consistent upward shift in self-assessed competencies across all measured indicators following the training intervention. Improvements were observed in participants' understanding of product photography techniques, ability to use smartphone camera features, basic photo editing skills, branding comprehension, and confidence in producing product visuals. From a human capital perspective, these changes indicate that short-term, practice-oriented training can generate measurable enhancements in individual capabilities, even in resource-constrained MSME contexts. The increase in output-based quality indicators further supports this interpretation. Post-training product visuals met higher observable standards in lighting adequacy, image clarity, composition, background consistency, and brand coherence. Unlike perception-based measures alone, these output indicators provide tangible evidence that skill acquisition translated into observable changes in practice. This aligns with the premise that capacity building is most effective when training outcomes are operationalized into concrete outputs rather than remaining at the level of knowledge acquisition. These findings reinforce the argument that smartphones can function as effective production tools, not merely communication devices, when accompanied by structured guidance. The quantitative shifts observed in this study suggest that technology accessibility, when paired with targeted skill development, can reduce the capability gap often faced by MSMEs in adopting digital marketing practices.




**Figure 1. Smartphone-Based Product Photography Training Session in Kelurahan Mojo, Surabaya. Source: Author.**

Figure 1. documents hands-on training activities in which MSME participants apply smartphone-based product photography techniques using simple lighting equipment under direct facilitator guidance. This visual evidence illustrates the experiential learning process that underpins the observable improvements in image quality reported in Table 3, particularly in lighting adequacy, product focus, composition, and visual brand consistency. The figure supports methodological triangulation by demonstrating how structured, practice-oriented training is translated into measurable enhancements in visual outputs using accessible tools within a community-based setting.

The qualitative narrative complements the quantitative data by revealing the process through which capability enhancement occurred. Prior to the intervention, participants largely relied on spontaneous and unstructured approaches to product photography, characterized by minimal attention to visual composition and branding elements. This condition reflects a common pattern documented in MSME literature, where limited design literacy constrains the effective use of digital platforms. During and after the training sessions, observational records indicate increased participant engagement, experimentation, and confidence in applying learned techniques. Participants demonstrated the ability to replicate structured visual practices using their own devices, suggesting that the training reduced psychological as well as technical barriers to digital skill adoption. The production of multiple visual outputs with consistent backgrounds, clearer focus, and basic branding elements indicates a shift from ad hoc practices toward more intentional visual communication. From a social empowerment standpoint, these qualitative changes are significant. The ability to independently produce visually acceptable marketing materials enhances MSME actors' sense of agency and control over their business representation. This aligns with empowerment theory, which emphasizes capability, confidence, and autonomy as core dimensions of empowerment beyond purely economic outcomes.

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The findings of this study are broadly consistent with prior research on MSME capacity building and digital skill development. Previous studies have established that training interventions improve MSME performance by enhancing managerial and marketing capabilities. This study extends that body of work by demonstrating that creative digital skills specifically product photography and branding design can be effectively developed through smartphone-based training, reinforcing arguments for inclusive digital transformation. In line with digital inclusion literature, the results support the view that access alone is insufficient; meaningful use requires skill development tailored to users' contexts. While earlier studies have focused on e-commerce adoption or social media usage, this research contributes by highlighting visual production skills as a foundational yet underexplored component of digital competitiveness. The emphasis on smartphone-based tools differentiates this study from research centered on professional equipment or advanced software, which may not be accessible to micro-entrepreneurs.

The observed improvements in visual quality and branding consistency are also aligned with consumer perception and signaling theories. Prior marketing studies suggest that visual cues function as signals of quality and credibility in digital marketplaces. By enabling MSMEs to improve these cues through accessible means, the training intervention indirectly addresses information asymmetry between sellers and consumers, a challenge frequently cited in MSME marketing literature. However, this study also responds to gaps identified in previous research. Much of the existing literature treats MSMEs as homogeneous units or focuses on firm-level outcomes without sufficient attention to community-level dynamics. By situating the intervention in Kelurahan Mojo, Surabaya, this research provides localized empirical evidence that enriches the understanding of how capacity building unfolds within specific socio-economic settings. It also bridges the gap between theoretical discussions of empowerment and practical training mechanisms implemented through community service initiatives. From a theoretical standpoint, the findings contribute to the intersection of Human Capital Theory, Digital Inclusion Theory, and community-based empowerment frameworks. First, the results affirm the applicability of human capital investments in non-formal, short duration training contexts, suggesting that even modest interventions can yield observable capability gains when aligned with participant needs. Second, the study extends digital inclusion theory by demonstrating that smartphones can serve as platforms for creative production and branding, not merely consumption or communication. This challenges narrow conceptualizations of digital inclusion that equate participation with platform access or basic usage, highlighting instead the importance of creative and strategic competencies. Third, the findings support empowerment-oriented models that emphasize skill mastery and autonomy. The qualitative evidence indicates that participants moved toward more self-directed practices, suggesting that training interventions can function as catalysts for sustained behavioural change.

## CONCLUSION

This contributes to social science discussions on empowerment by providing empirical support for capability-based approaches at the community level. The practical implications of this study are significant for MSME development programs and community service initiatives. The results indicate that smartphone-based training is a viable and scalable approach to capacity building, particularly in urban communities where smartphone penetration is high but skill utilization remains uneven. For MSMEs, the ability to independently create visually appealing product representations reduces reliance on external service providers, lowering marketing costs and increasing operational flexibility.

For community empowerment programs, the findings suggest that training content should prioritize hands-on practice and immediate application. The integration of product photography and branding design within a single intervention proved effective in producing coherent visual outputs, indicating the value of holistic rather than fragmented training approaches. Local governments, universities, and development agencies can leverage this model to design low-cost, high-impact programs tailored to grassroots entrepreneurs. Additionally, the focus on accessible tools aligns with inclusive development goals. By utilizing smartphones already owned by participants, the intervention minimizes technological barriers and enhances the likelihood of sustained adoption. This approach supports broader policy objectives related to inclusive economic growth and digital transformation at the local level. From a policy perspective, the study underscores the importance of embedding creative digital skill development within MSME support frameworks. While many policies emphasize financing, licensing, or platform onboarding, the findings suggest that visual literacy and branding capabilities are equally critical for MSME competitiveness in digital markets. Policymakers could incorporate smartphone-based creative training into existing MSME assistance programs, particularly those targeting micro-enterprises and informal sector actors. Furthermore, the community-based nature of the intervention highlights the role of localized implementation. Policies that enable collaboration between academic institutions, local governments, and community organizations may enhance the effectiveness of capacity-building initiatives by ensuring contextual relevance and sustained engagement.

Despite its contributions, this study has several limitations that should be acknowledged. First, the research employed a pre–post intervention design without a control group, limiting the ability to attribute observed changes exclusively to the training intervention. While the findings indicate clear shifts in competencies and outputs, future studies could strengthen causal inference through experimental or quasi-experimental designs. Second, the sample size was relatively limited and confined to a single urban community in Surabaya. Although this focus enhances contextual depth, it constrains the generalizability of the findings to other regions or rural settings with different socio-economic characteristics. Replication in diverse contexts would help validate the robustness of the training model. Third, the reliance on self-assessed competency measures introduces the possibility of response bias. While output-based assessments and qualitative documentation were used to triangulate findings, future research could incorporate external expert evaluations or objective performance metrics to enhance measurement precision. Fourth, the study primarily assessed short-term outcomes following the training intervention. Longitudinal research is needed to examine whether the observed capability gains are sustained over time and whether they translate into measurable business performance outcomes such as increased sales, customer engagement, or market expansion.

Building on these limitations, future studies could explore several avenues. Comparative studies across different communities or sectors could identify contextual factors influencing training effectiveness. Longitudinal designs could assess the durability of capacity gains and their relationship to business outcomes. Additionally, integrating customer perception data would provide a more comprehensive understanding of how improved visual presentation influences market responses. Further research could also examine the integration of smartphone-based creative

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training with other forms of capacity building, such as financial literacy or digital analytics, to develop more comprehensive empowerment models. Such work would deepen the theoretical and practical understanding of inclusive digital transformation for MSMEs. Discussion demonstrates that smartphone-based product photography and branding design training constitutes a meaningful and accessible pathway for enhancing MSME capacity within community settings. By linking empirical findings to established theories and prior studies, this research provides a balanced and theoretically grounded interpretation of its results. While acknowledging its limitations, the study contributes to social science scholarship and community development practice by offering evidence-based insights into how inclusive, skill-focused interventions can empower MSMEs in urban environments such as Kelurahan Mojo, Surabaya.

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