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Developing A Quality Model For Abra Miki Noodle Enterprises In Bangued, Abra: Evidence From Operational Manage

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Abstract

This study examined the operational management practices and service quality of Abra Miki noodle enterprises in Bangued, Abra, to develop a context-specific quality model. A descriptive research design was employed, utilizing a structured questionnaire administered to owners, producers, sellers, and customers from selected public market stalls. Total enumeration and quota sampling were used, and mean scores served as the basis for data analysis. Findings revealed that the enterprises demonstrate strong operational practices aligned with established operations management principles, particularly in production efficiency, inventory control, workforce capability, and technology utilization. However, financial resources received relatively lower ratings, reflecting a common constraint among small enterprises and highlighting the need for improved access to financial support mechanisms. In terms of service quality, the enterprises were rated very high, especially in tangibles, reliability, and responsiveness. Nonetheless, consistent with the SERVQUAL Model, perceptual gaps between sellers and customers were identified in reliability, responsiveness, assurance, and empathy, indicating areas for improvement. Based on these findings, the study proposes the Abra Miki Noodles Quality Model, a structured and evidence-based framework designed to enhance both operational efficiency and service delivery. The model provides practical guidance for strengthening customer engagement, improving workforce competencies, and supporting long-term sustainability, competitiveness, and local economic contribution.

Keywords: *operations management, service quality, Miki Noodles, quality model*

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Introduction:

Across the world, entrepreneurs continue to improve their business operations to use resources more efficiently and respond to changing market demands. One important aspect of this effort is operations management (OM), which focuses on transforming resources such as raw materials, labor, technology, and information into products and services that satisfy customers (Heizer, Render, & Munson, 2017). Effective operations management helps businesses improve productivity, maintain quality, and remain competitive over time (Slack, Brandon-Jones, & Johnston, 2016). With increasing competition, changing consumer preferences, and rising production costs, businesses must constantly refine their operational processes to survive and grow (Dobbs, 2018; Dugdale, 2017).

Studies have consistently shown that operations management plays a vital role in the success of small and medium-sized enterprises (SMEs), especially in the food industry. O'Reilly et al. (2015) found that organized production planning systems help food manufacturing SMEs improve coordination and operational performance. However, many food enterprises in developing countries continue to face challenges such as limited access to capital, inadequate technology, and insufficient managerial knowledge (International Food Policy Research Institute [IFPRI], 2025). These problems often hinder small producers from expanding their operations and meeting increasing market demand.

Researchers also emphasize that operations management strategies should match the realities of SMEs. Van Assen (2021) explained that practices rooted in lean management and Total Quality Management (TQM) can strengthen the competitiveness of traditional businesses. Yet, many formal production systems were originally designed for large corporations and are often difficult for small enterprises with limited resources to adopt (O'Reilly et al., 2015). This challenge is more evident in developing countries where business performance largely depends on internal capabilities and limited external support (Aminu & Shariff, 2015).

In the Philippines, micro, small, and medium enterprises (MSMEs) are considered the backbone of the economy. Data from the Department of Trade and Industry (DTI, 2024) show that 99.63% of registered businesses in the country are MSMEs, with microenterprises making up the majority. These enterprises contribute significantly to employment generation and local economic development, especially in rural communities where job opportunities are limited. To support MSMEs, the government has implemented programs such as the One Town, One Product (OTOP) initiative, which promotes product development, quality improvement, and market access for local products (DTI, 2021). Studies have shown that enterprises participating in OTOP experienced improvements in income, sales, and production capacity (Aliasas, 2025; Aguilar, 2025). Despite these gains, many MSMEs still struggle with limited digitalization, weak inventory systems, and insufficient strategic planning (Llanes & Sebastian, 2024).

In the province of Abra, MSME development has become increasingly active through programs and services provided by the Department of Trade and Industry and various Negosyo Centers (Philippine Information Agency [PIA], 2024, 2025). Local enterprises regularly participate in trade fairs that promote Abrenian products and generate additional income (PIA,

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2022). Among the province's most recognized local products is linaddit, more popularly known as Abra Miki noodles. This traditional noodle dish consists of thick egg noodles served in a flavorful pork broth with annatto coloring, boiled egg, shredded pork, and chicharon (Agoot, 2019; PIA, 2023). The dish has become an important symbol of Abrenian culture and identity, and its cultural significance is celebrated annually during the Miki Festival every February (Sagunoy, 2019).

Despite its cultural and economic importance, the production of Abra Miki noodles remains largely traditional and labor-intensive. Producers still rely on manual methods and basic ingredients, while noodles are commonly sun-dried to preserve their texture and flavor. Although these traditional practices help maintain authenticity, they also create operational difficulties such as inconsistent supply of raw materials, limited mechanization, and inadequate packaging and distribution systems (Lazo, 2019; Salvador, 2020). These concerns are similar to the operational challenges faced by many food SMEs, including limited capital, insufficient technology, and weak production planning systems (IFPRI, 2025; Meshack & Prusty, 2021).

This study supports the conference theme, "elevating teaching, research, and school-university partnerships for transformative and future-ready education," by connecting academic research with community-based enterprise development. The study seeks to address real operational problems experienced by Abra Miki producers through the development of an evidence-based quality model. In doing so, it demonstrates how research can generate practical solutions that directly benefit local communities.

The study is also aligned with the growing emphasis on evidence-based innovation in Philippine education. The Department of Education's MATATAG curriculum highlights the importance of improving educational quality through collaborative and research-driven approaches (Department of Education, 2023). Likewise, initiatives such as the Teacher Education Excellence Center encourage stronger partnerships between educational institutions and communities in generating practical and research-based solutions. These developments create opportunities for studies that connect theory with practice and promote community-responsive innovation.

Beyond the context of Abra Miki noodles, this study contributes to the broader goal of strengthening research-based practices and sustainable community development. By combining operations management principles with service quality assessment, the study demonstrates how academic research can help local enterprises improve productivity, service delivery, and competitiveness. At the same time, it allows researchers to examine how management theories apply within small, traditional, and resource-constrained enterprises. This exchange of knowledge reflects the value of school-university partnerships in producing outcomes that are both academically meaningful and socially relevant.

This study is anchored on three theoretical frameworks. First, the Resource-Based View (RBV) Theory explains how enterprises achieve competitive advantage by maximizing valuable and unique internal resources such as traditional knowledge, skilled labor, supplier relationships, and cultural identity (Barney & Mackey, 2016). Second, Operations Management Theory

provides the framework for analyzing production systems, inventory management, quality control, and continuous improvement processes (Heizer & Render, 2017; Stevenson, 2020). Third, the SERVQUAL model developed by Parasuraman, Zeithaml, and Berry (1988) serves as the basis for evaluating service quality through the dimensions of tangibles, reliability, responsiveness, assurance, and empathy. Together, these frameworks provide a comprehensive basis for examining the operational practices and service quality of Abra Miki noodle enterprises.

This study addresses the problem that, despite the strong cultural identity and market potential of Abra Miki noodles, producers continue to face operational challenges such as limited mechanization, inconsistent supply chains, weak inventory systems, and varying service quality. These limitations affect the ability of enterprises to expand, compete effectively, and maintain consistent product standards. Without a practical and evidence-based quality model, many producers may continue operating with inefficient systems that limit their long-term growth and sustainability.

Specifically, this study aims to:

1. Assess the level of operations management practices among Abra Miki noodle enterprises in Bangued, Abra in terms of production, raw materials, technology, skills, financial resources, inventory, supplies, and time management.
2. Evaluate the level of service quality of Abra Miki noodles based on the SERVQUAL dimensions of tangibles, reliability, responsiveness, assurance, and empathy.
3. Identify the capabilities and constraints affecting operations management practices and service quality among Abra Miki enterprises.
4. Develop a quality model for Abra Miki noodles in Bangued, Abra based on the findings of the study.

Through these objectives, the study hopes to provide practical recommendations that can help Abra Miki producers improve their operational processes, strengthen competitiveness, and maintain consistent product quality. The proposed quality model is intended to be both research-based and practical, making it responsive to the actual needs and limitations of community-based food enterprises in the Philippines.

Methods:

Research Design. This study employed a descriptive research design, which involves systematically collecting and analyzing data to describe existing conditions, perceptions, and practices without manipulating variables (Creswell & Creswell, 2018; Hair et al., 2003). Unlike experimental designs that focus on cause-and-effect relationships, descriptive research provides an accurate representation of a current situation or phenomenon (Fraenkel et al., 2019).

This design was appropriate for the study as it examined the operations management practices of Abra Miki noodle enterprises in terms of production, raw materials, technology, skills, financial resources, inventory, supplies, and time management. It also assessed service quality using the SERVQUAL dimensions of tangibles, reliability, responsiveness, assurance, and empathy, while identifying strengths and limitations as a basis for developing a quality model.

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Descriptive research is commonly used in studies of small businesses and local enterprises because it captures real-world conditions without experimental manipulation (Saunders et al., 2019). In the Philippine context, it has been widely applied in MSME-related studies on operations and service quality (Cruz, 2021; Llanes & Sebastian, 2024; Reyes, 2020).

Locale and Participants. The study was conducted at the Public Market of Bangued, Abra, which serves as the main hub for the production and sale of Abra Miki noodles in the municipality. Public markets in the Philippines are key venues for small-scale food enterprises as they bring together producers, sellers, and consumers in one centralized location (Ramos & Tan, 2018). Preliminary mapping confirmed that most Abra Miki noodle producers and regular sellers operate within this market.

The respondents consisted of four groups: owners, producers, sellers, and customers of Abra Miki noodles. A combination of total enumeration and quota sampling was used to gather data.

Total enumeration was applied to owners and producers due to their small population size. All 90 owners and 10 producers within the market were included in the study, ensuring full representation and minimizing sampling error (Etikan et al., 2016; Neuman, 2014).

For sellers and customers, quota sampling was used to ensure adequate representation of both groups. A total of 200 sellers and 250 customers participated based on availability and willingness to respond. This approach is suitable when complete population lists are not available, but subgroup representation is necessary (Daniel, 2012) and has been widely applied in service quality studies (Parasuraman et al., 1988). The sample size was considered sufficient for descriptive analysis and for producing reliable statistical estimates (Tabachnick & Fidell, 2019).

Research Instrument. The study utilized a structured, researcher-administered survey questionnaire consisting of two main parts. Part I assessed the perceived level of operations management practices across eight dimensions: production, raw materials, technology, skills, financial resources, inventory, supplies, and time management. This section was adapted from validated instruments by Arce (2009), Julaton (2019), and Moreno (2001), previously used in Philippine MSME studies, and aligned with established operations management concepts (Heizer et al., 2017; Stevenson, 2020). Items were modified to suit the context of Abra Miki noodle production.

Part II measured service quality using the SERVQUAL framework (Parasuraman et al., 1988), covering tangibles, reliability, responsiveness, assurance, and empathy. Items were adapted from Gallardo (2022) and Junaidi (2024), both of whom validated SERVQUAL instruments in food service contexts.

Both sections used a five-point Likert scale ranging from 5 (Strongly Agree) to 1 (Strongly Disagree), which is widely used for measuring perceptions and attitudes due to its simplicity and suitability for statistical analysis (Joshi et al., 2015; Taherdoost, 2019).

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Content validity was established through expert evaluation by a business management academic, a local government licensing officer, and a food business owner. The instrument achieved a high Content Validity Index, indicating strong alignment with the constructs being measured.

A pilot test was conducted with 20 respondents from a similar market setting in Candon City, Ilocos Sur. Reliability testing using Cronbach's alpha yielded a coefficient of 0.96, indicating excellent internal consistency and reliability (Nunnally & Bernstein, 1994; Tavakol & Dennick, 2011).

Data-Gathering Procedures. Before data collection, permission was secured from the Office of the Municipal Mayor of Bangued, Abra, in compliance with local research protocols. After approval, the researchers personally administered the questionnaires to respondents at the public market.

A standardized procedure was followed to ensure ethical and systematic data collection. The researchers first explained the purpose and significance of the study. Informed consent was then obtained, with respondents being informed of voluntary participation, confidentiality, anonymity, and their right to withdraw at any time without consequences. Questionnaires were subsequently distributed, and respondents were given sufficient time to complete them. Clarifications were provided when needed, and all completed questionnaires were retrieved immediately to ensure completeness and data accuracy.

Data collection was conducted over three consecutive days (February 15–17, 2025) across different sections and time periods within the market. This time- and location-stratified approach helped capture variations in respondent availability and market activity, thereby improving the representativeness of the data set (Groves et al., 2009).

Statistical Treatment of Data. All collected data were encoded, verified for accuracy, and analyzed using appropriate statistical tools. The weighted mean was used to determine the level of operations management practices and service quality, as it effectively summarizes central tendencies in Likert-scale data and allows comparison across variables (Norman, 2010). Mean scores were computed per item and per subscale to provide a detailed assessment of each indicator.

To identify capabilities and constraints, mean scores ranging from 3.41 to 5.00 were interpreted as capabilities, while scores from 1.00 to 3.40 were classified as constraints. This classification facilitated the identification of operational strengths and areas requiring improvement within Abra Miki noodle enterprises.

All results were presented in tabular form with corresponding narrative interpretation. The findings served as the empirical basis for developing the proposed quality model for Abra Miki noodles.

Data Categorization. The following scale was used in interpreting the weighted mean scores for operations management practices and service quality:

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Scale	Statistical Range	Descriptive Rating	Interpretation
5	4.21–5.00	Strongly Agree	Very High
4	3.41–4.20	Agree	High
3	2.61–3.40	Neutral	Average
2	1.81–2.60	Disagree	Low
1	1.00–1.80	Strongly Disagree	Very Low

For the classification of capabilities and constraints, the following interpretation was applied:

Statistical Range	Descriptive Level
3.41–5.00	Capability
1.00–3.40	Constraint

These classifications helped simplify the identification of strengths and operational concerns that require intervention.

Ethical Considerations. The study adhered to the ethical standards outlined in the American Psychological Association (2017) Ethical Principles of Psychologists and Code of Conduct and the Philippine National Ethical Guidelines for Health and Health-Related Research (Philippine Health Research Ethics Board, 2017).

Before participation, respondents were informed of the study's purpose, procedures, expected duration, and their rights. Participation was voluntary, and respondents could withdraw at any time without penalty. Written informed consent was obtained from all participants, while verbal consent was documented through a witness for respondents who had difficulty reading the consent form.

Confidentiality and anonymity were strictly maintained. No names or personal identifiers were collected; instead, numerical codes were used. All data were securely stored in a password-protected device accessible only to the researchers, and results were reported in aggregate form to prevent identification of individual respondents.

Ethical clearance and local permissions were secured from the Office of the Municipal Mayor and market administration prior to data collection. The questionnaire was also reviewed to ensure that it posed minimal risk or discomfort to participants, and respondents were allowed to skip any item they were not comfortable answering. Data collection was conducted in a familiar environment without incentives that could influence participation.

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All data were used strictly for academic purposes, and the results will be shared with local stakeholders to support the improvement of Abra Miki noodle enterprises and benefit the participating community.

Results & Discussion:

A. Perceived Level of Operation Management Practices of Abra Miki Noodles

Table 1 presents the perceived level of operations management practices among Abra Miki noodle enterprises in Bangued, Abra, as assessed by owners and producers across eight indicators.

Table 1

Summary Table on the Perceived Level of Operations Management Practices of Abras Miki Noodles

Indicators	Owner		Producer		Overall	
		DL		DL		DL
a. Production	4.40	VH	4.78	VH	4.44	VH
b. Raw Materials	4.43	VH	4.53	VH	4.44	VH
c. Technology	4.22	VH	4.48	VH	4.25	VH
d. Skills	4.25	VH	4.50	VH	4.27	VH
e. Financial Resources	4.18	H	4.38	VH	4.20	H
f. Inventory	4.45	VH	4.53	VH	4.46	VH
g. Supplies	4.23	VH	4.48	VH	4.26	VH
h. Time Management	4.27	VH	4.53	VH	4.30	VH
Grand Mean	**4.30**	**VH**	**4.52**	**VH**	**4.33**	**VH**

The overall grand mean of 4.33, interpreted as very high, indicates that both owners and producers generally view the operations management practices of Abra Miki noodle enterprises as highly effective. Producers gave consistently higher ratings across all indicators, with a grand mean of 4.52 compared to the owners' grand mean of 4.30. This difference may be attributed to the producers' direct and daily involvement in production activities, while owners tend to focus more on broader managerial and business concerns (Latorre, Bautista, & Martínez, 2016).

Among the eight indicators, seven obtained a combined rating of very high. The highest-rated areas were inventory (= 4.46), production (= 4.44), and raw materials (= 4.44). These findings suggest that the enterprises are effective in managing production processes, monitoring supplies, and maintaining the quality and availability of raw materials. According to operations management principles, efficient production systems and proper supply coordination contribute to improved product quality, reduced waste, and better operational performance (Heizer, Render, & Munson, 2017; Stevenson, 2020). The strong performance in raw materials and inventory management also supports the Resource-Based View, which emphasizes the importance of reliable supplier relationships and internal resources in sustaining competitive advantage among small enterprises (Kozlenkova, Samaha, & Palmatier, 2014).

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Financial resources obtained the lowest combined mean of 4.20, interpreted as high. Owners rated this area lower (= 4.18) than producers (= 4.38). This difference may be explained by the fact that owners are more directly responsible for managing capital, expenses, and cash flow, making them more aware of the financial limitations faced by the enterprise (Cengage Learning, 2019). Although the indicator still received a favorable rating, the result suggests that financial management remains one of the weaker operational areas and may require greater attention in the development of the proposed quality model.

Technology (= 4.25) and skills (= 4.27) also received comparatively lower ratings, although both were still interpreted as very high. These findings may reflect existing limitations in mechanization, training, and workforce development, which are common challenges among traditional and small-scale food enterprises (Meshack & Prusty, 2021).

The findings show that Abra Miki noodle enterprises demonstrate strong operations management practices. However, financial resources, technology, and skills development emerged as areas that may benefit from targeted improvements to further strengthen operational efficiency and long-term sustainability.

B. Perceived Level of Service Quality of Abra Miki Noodles

Table 2 presents the perceived service quality of Abra Miki noodles based on the five SERVQUAL dimensions.

Table 2

Summary Table on the Perceived Level of Quality Service of Abras Miki Noodles

Indicators	Owner		Producer		Overall	
		DL		DL		DL
a. Tangible	4.46	VH	4.29	VH	4.37	VH
b. Reliability	4.42	VH	4.15	H	4.27	VH
c. Responsiveness	4.35	VH	4.13	H	4.23	VH
d. Assurance	4.33	VH	4.13	H	4.22	VH
e. Empathy	4.39	VH	4.08	VH	4.22	VH
Grand Mean	**4.39**	**VH**	**4.16**	**H**	**4.26**	**VH**

The overall grand mean of 4.26 (VH) shows that the service quality of Abra Miki noodles is generally viewed positively by both owners and producers. However, owners gave higher ratings (= 4.39, VH) compared to producers (= 4.16, H). This difference may indicate that owners tend to have a more favorable perception of service quality, while producers, who are directly involved in daily operations, are more aware of the actual challenges encountered during service delivery.

Among the five dimensions, Tangibles received the highest overall mean (= 4.37, VH). This suggests that the physical aspects of the enterprise, such as cleanliness, food presentation,

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and packaging, are highly appreciated. This finding supports the studies of Choudhury, Karim, and Ahmed (2016) and Tzeng, Teng, and Chen (2020), which emphasized that physical appearance and visible service elements significantly influence customer satisfaction in food service establishments.

Reliability (= 4.27, VH) and Responsiveness (= 4.23, VH) also received favorable overall ratings. However, producers rated these dimensions slightly lower, with means of 4.15 and 4.13, respectively, both interpreted as high. This may suggest that producers experience difficulties in maintaining consistent and prompt service, especially during peak hours or periods of high customer demand. Previous studies emphasized that reliable and responsive service is essential in building customer trust and satisfaction (Zarei, Bagheri, & Sadri, 2018; Badi & Bona, 2024).

Assurance and empathy both obtained an overall mean of 4.22. Nevertheless, producers gave lower ratings for these dimensions, particularly empathy, which received the lowest producer mean (= 4.08, H). This finding may indicate that producers find it difficult to consistently provide personalized attention and emotionally attentive service due to workload pressures or limited customer service training. Studies have shown that empathy helps strengthen customer relationships and encourages repeat patronage (Zhang, Zhang, & Wang, 2017; Lin & Wang, 2021).

The largest differences between owner and producer ratings were observed in empathy and reliability. These gaps suggest that while owners view service quality as an important business goal, producers encounter operational challenges that affect the consistent delivery of quality service. Therefore, the proposed quality model may focus on improving reliability, responsiveness, assurance, and especially empathy through practical customer service training and stronger operational support.

C. Capabilities and Constraints of Abra Miki Noodles

Table 3 summarizes the capabilities and constraints based on the perceived levels of operations management practices (assessed by owners and producers) and service quality (assessed by sellers and customers).

Table 3

Summary Table on the Capabilities and Constraints of Abras Miki Noodles

Perceived Level of Operation Management Practices	Owner		Producer		Overall	
	DL		DL		DL	
Inventory	4.45	Capability	4.53	Capability	4.46	Capability
Production	4.40	Capability	4.78	Capability	4.44	Capability
Raw materials	4.34	Capability	4.53	Capability	4.44	Capability

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Time management	4.27	Capability	4.53	Capability	4.30	Capability
Skills	4.25	Capability	4.50	Capability	4.27	Capability
Supplies	4.23	Capability	4.48	Capability	4.26	Capability
Technology	4.22	Capability	4.48	Capability	4.25	Capability
Financial resources	4.18	Capability	4.38	Capability	4.20	Capability
Grand mean	**4.30**	**Capability**	**4.52**	**Capability**	**4.33**	**Capability**
Perceived Level of Service Quality	**Seller**		**Customer**		**Overall**	
Tangible	4.46	Capability	4.29	Capability	4.37	Capability
Reliability	4.42	Capability	4.15	Capability	4.27	Capability
Responsiveness	4.35	Capability	4.13	Capability	4.23	Capability
Assurance	4.33	Capability	4.13	Capability	4.22	Capability
Empathy	4.39	Capability	4.08	Capability	4.22	Capability
Grand Mean	**4.39**	**Capability**	**4.16**	**Capability**	**4.26**	**Capability**

All indicators for operations management practices and service quality fell within the capability range, indicating that owners, producers, sellers, and customers generally perceive the operations and service delivery of Abra Miki noodles as effective and satisfactory. Among the operations management indicators, inventory (= 4.46), production (= 4.44), and raw materials (= 4.44) obtained the highest ratings, reflecting strong resource management and production practices. These findings support the principles of operations management, which emphasize the importance of effective inventory control and efficient production systems in improving enterprise performance (Heizer et al., 2017; Stevenson, 2020). Financial resources received the lowest mean (= 4.20), although still classified as a capability, suggesting that financial management remains an area that may require further improvement.

For service quality, tangibles obtained the highest mean (= 4.37), indicating that cleanliness, presentation, and packaging positively influence customer perceptions, consistent with the findings of Choudhury et al. (2016) and Tzeng et al. (2020). Meanwhile, Assurance and Empathy received the lowest overall means (both = 4.22), with customers rating Empathy lower (= 4.08), suggesting possible limitations in personalized and emotionally attentive service. Sellers consistently rated service quality higher than customers, particularly in empathy

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and reliability, supporting the SERVQUAL framework, which explains that service providers often perceive service performance more positively than customers do (Parasuraman et al., 1988). Overall, the findings suggest that while Abra Miki enterprises demonstrate strong operational and service capabilities, improvements in financial management and customer-centered service may further enhance enterprise performance and customer satisfaction.

D. Proposed Quality Model for Abra Miki Noodles in Bangued, Abra

Rationale:

The Abra Miki Noodles Quality Model was developed as a practical framework to enhance operations management practices and service quality among Abra Miki noodle enterprises in Bangued, Abra. It recognizes the importance of efficient production, effective resource utilization, and customer satisfaction in sustaining small food businesses.

Findings show that production, raw materials, and inventory management are strong, indicating effective operational practices. However, financial constraints remain a key challenge. While service quality is generally rated positively, differences between sellers' and customers' perceptions were observed, particularly in reliability, responsiveness, and empathy.

In response, the model integrates operations management and customer-focused service strategies guided by the Plan–Do–Check–Act (PDCA) cycle to promote continuous improvement. By aligning operational efficiency with service quality enhancement, the framework provides a sustainable approach to improving the performance and competitiveness of Abra Miki noodle enterprises.

Proposed Quality Model

The Abra Miki Noodles Quality Model uses the Plan–Do–Check–Act (PDCA) cycle as a practical guide for improving both financial performance and customer satisfaction continuously and systematically.

In the **Plan** stage, the enterprise identifies key issues such as financial limitations and areas where customer service—particularly empathy—needs improvement. In the **Do** stage, these concerns are addressed through practical actions like better budgeting and cost control, along with customer service training for workers.

The **Check** stage involves monitoring financial performance and gathering feedback from customers to see whether the changes are effective. Based on these results, the **Act** stage focuses on making necessary adjustments to improve both operations and service delivery.

The model combines operational management with customer-centered practices, ensuring that improvements are continuous and responsive. Its main goal is to support the long-term sustainability of Abra Miki noodle enterprises by strengthening financial stability while also enhancing customer satisfaction.

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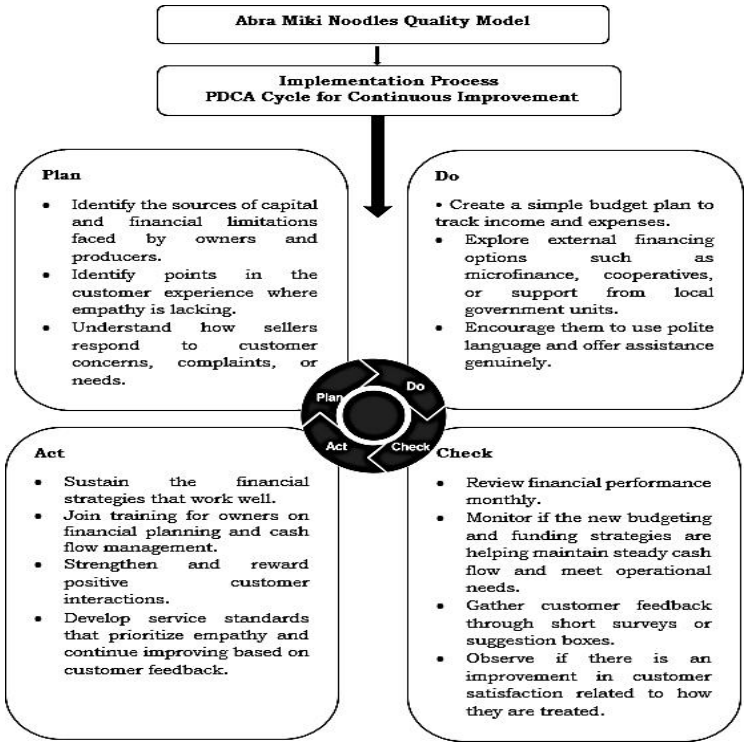
Figure 2 illustrates the PDCA-based framework guiding continuous improvement in financial health and service quality.



Conclusions:

1. The Abra Miki noodle enterprises in Bangued, Abra, show a very strong level of operations management, particularly in areas such as inventory control, production processes, and raw materials management.

2. The Abra Miki noodle enterprises in Bangued, Abra are generally viewed very favorably, with the physical aspects of service such as cleanliness, packaging, and presentation standing out as the strongest feature.

3. The Abra Miki noodle enterprises in Bangued, Abra are performing well in both operations and service delivery.

4. The proposed Abra Miki Noodles Quality Model is a practical, evidence-based model that directly responds to the findings of the study. It builds on the existing strengths of the enterprises while also addressing areas that need improvement, particularly in financial management, customer service, technology adoption, and workforce development.

Implications for Research:

Future studies may explore indigenous and community-based practices as alternative approaches to effective operations management in micro-enterprises, particularly in traditional

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settings. Researchers may also further examine how tangible service quality factors such as cleanliness, packaging, and presentation influence customer satisfaction, loyalty, and repeat patronage, with comparative studies across similar local food enterprises recommended.

Longitudinal research is likewise encouraged to assess the stability of operational and service quality capabilities over time, especially as enterprises expand or respond to changing market conditions. Finally, the LINADDIT Integrated Quality Framework may be tested in other contexts and compared with existing quality management models to determine its broader applicability and effectiveness in micro-enterprise development.

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