



Awareness and Knowledge of Modern Production Techniques Among *Walis Tambo* Producers in San Antonio, Nueva Ecija, Philippines

Fergus H. Parungao¹, Arvy Ann SA. Macapagal², Mary Rose S. Tong³, Marjorie S. Alvaran⁴, Kenneth L. Armas⁵ Ph.D.

¹Senior High Faculty Member, St. Paul School of San Antonio (Nueva Ecija) Inc.

²Administrative Aide IV, Provincial Government of Nueva Ecija

³SWEP Coordinator, Our Lady of Fatima University

⁴Accountant, Joey Rosita Foods Corp Jollibee – Franchise

⁵Professor, Nueva Ecija University of Science and Technology

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Abstract— This descriptive research explored the awareness and knowledge of modern production techniques among *Walis Tambo* Producers in San Antonio, Nueva Ecija, Philippines. The study's findings revealed that: The *Walis Tambo* industry, features a mature workforce with balanced gender representation and varied educational backgrounds. However, there is a notable gap in awareness and knowledge of modern production techniques between business owners and workers, with the latter generally lacking understanding. Factors such as age, education, and perceived benefits influence workers' adaptability to new technologies, with younger, better-educated workers more open to change, while older workers are more cautious. Although modernizing the sector promises financial rewards, better product quality, and enhanced productivity, obstacles including opposition to change, a lack of technological know-how, and economic limitations still exist. It is advised that owners and employees participate in educational programs to close knowledge gaps and handle these issues. LGUs should also set up focused training courses according to different levels of preparedness. For technology adoption to be successful, managing worries about job displacement and making sure that appropriate management strategy training is provided are essential.

Keywords—Awareness, Knowledge, Management Strategies, Modern Production Techniques, *Walis Tambo* Producers

I. INTRODUCTION

The *Walis Tambo* industry, an integral part of the cultural and economic fabric of San Antonio, Nueva Ecija, holds deep roots in Philippine tradition. Crafted from the resilient flower stalks of tiger grass, *Walis Tambo*, or soft brooms, have been fashioned using time-honored techniques passed down through familial generations. Despite its cultural significance, this industry grapples with the imperative of maintaining relevance and sustainability amidst the swift currents of modernization. Thus, this study endeavors to evaluate the readiness for modernization within *Walis Tambo* production in San Antonio, Nueva Ecija. It delves into aspects such as awareness levels,

adaptability, perceived benefits, and challenges, and outlines strategic actions necessary to propel this traditional craft into the contemporary era.

Modern production techniques have been shown to increase efficiency and raise quality standards, so their adoption is crucial to modernizing traditional industries. Studies conducted by Johnson (2019) and Smith (2020) demonstrate how incorporating advanced manufacturing technologies can have a transformative effect and emphasize how important it is to improve production results and maintain sustainability over the long run. Before implementing any modernization strategies, it is imperative to ascertain the producers' current awareness and

knowledge of these modern techniques in the field of *Walis Tambo* production. To orchestrate significant advancements in the industry, this research aims to clarify this awareness, acknowledging it as a primary step.

The adaptability and openness of workers towards embracing novel technologies emerge as pivotal determinants in the successful modernization trajectory of any sector. According to Davis and Davis (2021), organizational ethos and individual preferences both influence how likely people are to interact with and adopt new technologies.

Specifically, this study described the profile, level of awareness, and knowledge about modern production techniques among *Walis Tambo* producers in San Antonio, Nueva Ecija. It also presented how adaptable and willing are the workers to learn and adopt new manufacturing technologies. Lastly, the study identified perceived benefits and challenges of modernizing *Walis Tambo* production from the perspective of producers in San Antonio, Nueva Ecija.

II. METHODOLOGY

A descriptive study design was used to clarify the *Walis Tambo* industry's present awareness, adaptability, perceived advantages and difficulties, and strategic actions required for modernization. According to Creswell & Creswell (2017), this design is advantageous for characterizing populations and phenomena, giving an overview of the state of affairs, and making it easier to spot patterns and trends. This approach facilitated a thorough investigation of the research objectives by utilizing both quantitative and qualitative data collection methods.

In order to gather data for this study, surveys, and interviews were all used. Producers and makers of *Walis Tambo* were surveyed to find out how well-informed they are about contemporary production methods, how easily they can adopt new technologies, and what advantages and disadvantages they see from modernization. Industry producers and employees were interviewed in semi-structured ways to learn more about their perspectives on adopting new technologies and to investigate possible roadblocks and facilitators of modernization.

The *Walis Tambo* producers and employees in San Antonio, Nueva Ecija, made up the sampling frame for this study. To choose participants who have relevant industry knowledge and experience, a purposive sampling technique is used (Teddlie & Yu, 2007). Based on factors like years of experience, their position in the production process, and their willingness to take part in the study, producers and laborers are chosen. The concept of data saturation, which

states that data collection should continue until no new information or themes emerge from the analysis, is used to determine the sample size (Saunders et al., 2018).

Methods from both quantitative and qualitative data analysis were used in this study. Qualitative data were summarized by applying descriptive statistics, specifically the frequencies (Bryman & Bell, 2015). To clarify important conclusions and insights, recurrent themes and patterns were found, coded, and interpreted using thematic analysis of qualitative data gathered from interviews and document analysis (Braun & Clarke, 2006). A thorough and reliable analysis of the *Walis Tambo* industry's readiness for modernization is ensured by the triangulation of data from several sources, which improved the validity and reliability of the study findings.

III. RESULTS AND DISCUSSION

1. Profile of the Respondents in terms of age, sex, civil status, educational attainment, role in the enterprise, and years of service.

The participants' ages ranged widely. The oldest participant was sixty years old, and the youngest was twenty-five. The bulk of participants were between the ages of 35 and 45, indicating a reasonably mature workforce with a good deal of experience in the field. Martin (2018) argued that traditional industries such as broom-making can benefit from a diverse workforce that offers stability and a range of perspectives.

In terms of sex, there were a fairly equal number of male and female participants—11 men and nine women. This balance shows that there are opportunities for both men and women in the *Walis Tambo* industry in San Antonio, Nueva Ecija, without favoring one gender over the other. This result supported the observation made by Kim (2019) that a workforce that is more resilient and creative can be facilitated by gender diversity in traditional crafts.

As to their civil status, there were two widows, five singles, and 13 married participants. The majority of married people indicate a workforce that probably has family responsibilities, which may affect how they view income security and job stability. According to Rogers (2003), married people may prioritize having a steady job to provide for their families, which may have an impact on their willingness to adopt new technologies.

Their educational backgrounds revealed a wide range. Eight participants had completed their secondary education, four had some college education, two had earned a college degree, and six had finished their primary education. This difference in educational attainment points to varying degrees of formal training as well as potential

adaptability to new methods and innovations in the field. Education background has a major impact on one's capacity to acquire and apply contemporary production techniques (Davis & Davis, 2021).

In terms of their role in the enterprise, among the 20 participants, 10 were business owners and 10 were workers or employees. A balanced understanding of the viewpoints from the labor and management sides of the *Walis Tambo* production process was made possible by this equal representation. In order to obtain a complete picture of the operational dynamics, Garcia and Lopez (2022) stressed the significance of taking into account both owners and employees in studies of traditional industries.

Lastly, the participants' tenure in the *Walis Tambo* industry ranged from two years to thirty-five years. A considerable proportion of the participants possessed over ten years of experience, suggesting a firmly established workforce with substantial knowledge and skills specific to the industry. This longevity in service is significant because it indicates an abundance of inferred knowledge, which Kim (2019) says is essential to preserving the quality of products and the continuity of traditional crafts.

2. Level of awareness and knowledge about modern production techniques among *Walis Tambo* producers in San Antonio, Nueva Ecija.

Awareness of Modern Production Techniques

The respondents' levels of awareness regarding contemporary production techniques varied widely. In this context, awareness pertains to the degree of knowledge that manufacturers and laborers possess regarding the existence and possible advantages of advanced manufacturing technologies.

Business Owners:

Seven out of the ten producers and owners who were interviewed showed a moderate to high level of awareness about contemporary production techniques. These people had a thorough understanding of the many technological developments and how they could improve output and quality. This awareness was probably influenced by their roles as decision-makers, which require them to stay up to date on industry trends and innovations (Rogers, 2003). One producer said, *"I have read about new machines that can help us make brooms faster and with less manual effort. I know some producers in other areas have started using them."*

Three owners, though, appeared to know very little about contemporary production methods. Instead of engaging with or conducting research directly, these people frequently relied on second-hand information and had only a hazy understanding of what modern technologies could

entail. One proprietor said, *"I've heard about new machines, but I don't know much about how they work or what benefits they offer."* This lack of knowledge draws attention to a knowledge gap that could be filled by focused information campaigns and educational programs.

Workers:

In general, the 10 employees who were interviewed had lower awareness levels than the owners and producers. Merely three employees exhibited a basic understanding of contemporary production methodologies. These laborers were somewhat aware of how machines might facilitate and improve the efficiency of their work. This basic awareness indicated that workers are primarily informed through informal networks rather than formal channels, as one worker observed, *"I've heard from friends in other towns that machines can help us make more brooms quickly. But I don't know much about them"*

The remaining seven employees appeared oblivious to or ignorant of contemporary manufacturing methods. These workers were primarily focused on traditional methods and had not been exposed to information about technological advancements in their industry. A worker expressed, *"I have been making brooms the same way for years. I don't know about any new machines or techniques."* This unawareness represented a major impediment to modernization and suggests the necessity of more organized and easily accessible information sources (Davis & Davis, 2021).

Knowledge of Modern Production Techniques

While awareness refers to the general familiarity with modern production techniques, knowledge involves a deeper understanding of how these technologies work and their specific applications.

Business Owners:

Four of the owners and producers showed a high degree of knowledge regarding modern techniques. These people could explain the uses of different machinery, like automated broom manufacturing machinery, and their advantages, like faster production and less labor-intensive work. As one experienced producer put it, *"The automated machines ensure uniform quality across all brooms and can handle the binding and stitching much faster than manual methods."*

Despite being aware, the three owners knew very little about the technologies. Although they were aware of the possible advantages, they did not have a thorough understanding of the implementation requirements or operational details. An owner expressed, *"I understand these machines can help, but I don't know what it takes to set them up or maintain them."* This lack of depth in one's

knowledge highlights the necessity for thorough training programs that can close the knowledge gap between awareness and practical comprehension (Kim, 2019).

Workers:

The majority of workers possessed inadequate levels of knowledge. Just two employees, who had previously worked in settings with more sophisticated technology, demonstrated a mediocre grasp of contemporary methods. These employees could talk about the fundamental functions of devices they had seen or used in different settings. A worker said, *“I worked in a factory before, where we used machines to make brooms. I think similar machines can be used for brooms too.”*

However, most workers knew very little or nothing about contemporary production methods. These employees had no idea about the possible benefits of the technologies or how they worked. *“I don't know anything about these machines. We have always done everything by hand,”* remarked a worker. Closing this knowledge gap is a crucial obstacle that needs to be overcome to encourage the adoption of contemporary techniques (Garcia & Lopez, 2022).

3. Adaptability and willingness of the workers in the Walis Tambo industry to learn and adopt new manufacturing technologies.

Adaptability of Workers

Workers' ability to adjust to new manufacturing technologies varies greatly, depending on several factors including age, education level, and prior technological exposure. Prior research has demonstrated how important flexibility is for new technology adoption, especially in established industries (Rogers, 2003; Davis & Davis, 2021).

Six of the ten employees who were interviewed said they were very adaptable and willing to learn new technologies. These employees, who were primarily younger and better educated, showed excitement about the possible advancements that contemporary methods could provide to their work. This positive attitude reflected a readiness to embrace change and an understanding of the potential benefits that modern technology could offer. One worker stated, *“I am excited about the possibility of using machines to make our work easier and more efficient. I believe it will help us produce more brooms and reduce the physical strain.”* These results are consistent with the diffusion of innovations theory developed by Rogers (2003), which holds that younger and better-educated people are frequently the first to adopt new technologies.

On the other hand, four employees—all of whom were older and had less education—showed a more cautious approach to implementing new technology. They voiced

worries about their capacity to pick up new skills and the complexity of today's machinery. A worker expressed concern about learning to use machines, saying, *“I have been making brooms the traditional way all my life. Learning to use machines at this stage seems difficult and intimidating.”* This fear of the unknown and lack of confidence in one's ability to pick up new skills was a major barrier to adaptability. This reluctance is in line with research by Martin (2018), who found that older workers in traditional industries frequently oppose technological change because they see it as difficult and have a strong attachment to the ways things have always been done.

Willingness to Learn

There was variation in workers' willingness to learn new manufacturing technologies, which was closely related to their personal motivation and perceived benefits. Perceived utility and ease of use have a big impact on people's willingness to learn and adapt, according to the Technology Acceptance Model (TAM) (Davis, 1989).

If given sufficient assistance, seven employees showed a strong desire to participate in training and skill development. They understood that embracing technology could lead to better working conditions and career advancement. It appeared that a sizable portion of the workforce is ready to switch to modern production methods if the proper training and support systems are in place. One worker said, *“If there are training programs and someone to guide us, I am willing to learn. I see it as an opportunity to improve my skills and contribute more effectively.”* Effective training and support can greatly increase the perceived utility and ease of use of new technologies, which in turn increases willingness to adopt (Venkatesh et al., 2003).

Three employees, however, stated that they were reluctant to take part in training courses due to worries about the time commitment and possible disruptions to their daily schedule. This hesitation emphasized the need for training programs that are flexible and take into account the financial constraints of workers. As one employee put it, *“Attending training means I might have to take time off work, and I can't afford to lose any income.”* According to Kim (2019), financial incentives and flexible training schedules can help reduce these obstacles and promote participation.

4. Perceived benefits and challenges of modernizing Walis Tambo production from the perspective of producers in San Antonio, Nueva Ecija.

4.1. Perceived Benefits of Modernization Increased Productivity and Efficiency

A significant perceived benefit of adopting modern production techniques was the potential increase in productivity and efficiency. Most respondents highlighted that modern machinery could expedite the broom-making process, reduce manual labor, and allow for higher output. One owner stated, *"With machines, we can produce more brooms in less time, which means we can meet higher demand and expand our market."* This perception aligned with existing literature, which underscored that technological adoption can lead to substantial productivity gains in traditional industries (Garcia & Lopez, 2022).

Improved Product Quality

Several participants expressed that contemporary technology has the potential to improve the uniformity and caliber of their offerings. Human error and variability can be minimized in the production of brooms by using automated machinery to ensure uniformity. Improved product quality can lead to higher customer satisfaction and increased competitiveness in the market, as noted by Kim (2019). A worker stated, *"Machines can help us make brooms that are more uniform and durable, which is important for customer satisfaction."*

Economic Benefits:

Modernization's economic benefits were often brought up. Profits and sales can rise as a result of improved productivity and superior products. New technologies are often adopted because of the possibility of financial gains (Venkatesh et al., 2003). One producer said, *"If we can produce more and better brooms, we can sell more and at better prices, improving our income."*

4.2 Perceived Challenges of Modernization

Financial Constraints

Financial costs associated with purchasing modern machinery and technology were the biggest obstacle mentioned by respondents. The substantial initial outlay needed raised concerns from a number of producers. Financial limitations are a typical barrier to technological adoption in small-scale traditional industries, as one owner put it, *"We don't have enough capital to buy them. The cost of these machines is very high"* (Davis & Davis, 2021).

Lack of Technical Expertise

The lack of technical expertise and proficiency needed to run and maintain contemporary machinery is another significant obstacle. Concerns regarding their capacity to comprehend and handle new technologies were voiced by both employers and employees. Lack of technical knowledge can impede the successful implementation of modern production techniques, as one worker stated, *"We don't have the skills to use these machines. We need proper training and support"* (Garcia & Lopez, 2022).

Resistance to Change:

Change aversion was identified as a major obstacle, especially for senior employees who are more accustomed to conventional procedures. According to a producer, *"some of our older workers are reluctant to change their ways and are afraid of using machines."* Some reasons for this resistance include attachment to traditional practices, fear of the unknown, and worries about job security (Rogers, 2003).

Potential Job Displacement:

A few employees voiced concern that the adoption of new technology would result in job losses. The statement made by a worker was, *"If machines do all the work, some of us might lose our jobs."* Modernization can increase productivity, but it also creates worries about potential job displacement, especially for low-skilled workers (Kim, 2019).

IV. CONCLUSION

The following conclusions are derived based on the findings of the study:

1. A well-established and mature workforce in the Walis Tambo industry, characterized by a balanced gender representation, varying educational backgrounds, and substantial industry experience.
2. A significant difference in awareness and knowledge of modern production techniques between business owners and workers is found. While some owners demonstrate moderate to high awareness and understanding, workers generally possess minimal awareness.
3. The adaptability and willingness of workers in the Walis Tambo industry to adopt new manufacturing technologies are influenced by factors such as age, education, and perceived benefits of the change. While younger, better-educated workers are eager to embrace technological advancements with proper support, older workers tend to be more cautious.
4. Finally, it should be noted that although modernizing Walis Tambo production in San Antonio, Nueva Ecija, is thought to have many advantages, including higher productivity, better product quality, and financial gains, it also has drawbacks, including lack of technical know-how by the workers, financial limitations, and resistance to change.

RECOMMENDATION

The following recommendations are offered based on the findings and conclusions of this study:

1. There is a need for implementation of educational programs to bridge the gaps of awareness and knowledge among business owners and workers of Walis Tambo Industry and to facilitate modernization.
2. Targeted training and flexible programs to address varying levels of readiness and motivation in the Walis Tambo Industry should be organized by the Local Government Units of San Antonio, Nueva Ecija.
3. For new technology to be successfully used in this traditional business, it will be imperative to address obstacles and uncertainties about job displacement and the requirement for proper management strategy training (Mina, Subia & Ermita,2020).

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