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# THE ROLE OF COMMUNICATION IN CASSAVA VALUE CHAIN OPTIMIZATION AMONG PEASANT FARMERS

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**Abstract:** This study is an examination of the communication dynamics and adaptation process in cassava chain optimization among peasant farmers in Obio/Akpor, Rivers State. The theoretical framework adopted in the study was the diffusion of innovation theory. The research design for this study adopted a qualitative method, specifically utilizing in-depth interviews to gather in-depth information from participants. The population for this study consists of peasant cassava farmers in Obio/Akpor, Rivers State, Nigeria, who are involved in both cassava farming and processing activities, which stood at 156. A sample size of 6 peasant cassava farmers was selected to provide a manageable yet diverse pool of participants, offering insights into the varying degrees of knowledge and attitude toward modern farming techniques. The sampling technique employed was purposive sampling, where farmers who have been involved in cassava farming for at least five years and have a production capacity that qualifies them as peasant are chosen. Data collection was conducted through semi-structured email interviews. For data analysis, thematic analysis was employed to identify patterns and themes from the farmers' responses. The qualitative data were coded and categorized based on recurring themes, such as barriers to adoption, knowledge gaps, and current practices. The findings revealed that the effective communication dynamics, facilitated through both formal channels like agricultural extension services and informal networks among farmers, significantly influence the adaptation processes of cassava farmers in Obio/Akpor by enhancing information sharing and creating supportive environments for innovation. Based on the findings of the study concluded that effective communication dynamics play a pivotal role in the adaptation processes of cassava farmers in Obio/Akpor, facilitating knowledge sharing and fostering a collaborative environment essential for innovation. The study recommended that agricultural stakeholders should enhance the existing communication networks by incorporating both formal and informal channels to ensure that timely and relevant information reaches all farmers, thereby promoting widespread adoption of innovative practices.

**Keywords**: Communication, Dynamics, Adaptation, Cassava, Chain Optimization, Peasant Farmers

## Introduction

Cassava (Manihot esculenta) remains a crucial staple crop for many households across subSaharan Africa, including Nigeria. It plays a significant role in food security, providing a reliable source of carbohydrates for millions of people. Nigeria, as the largest producer of cassava globally, relies heavily on this crop for economic and social sustenance. However, despite its prominence, the production and distribution processes in the cassava value chain remain largely inefficient. These inefficiencies are often attributed to out-dated communication dynamics and limited adaptation to modern optimization techniques, particularly among peasant farmers (Nweke et al., 2020). Peasant farmers, who form the backbone of cassava production in areas like Obio/Akpor, Rivers State, often lack access to timely and accurate information regarding market demands, pricing, and modern farming techniques. This gap in communication negatively impacts their ability to adapt to changing economic conditions and technological advancements. As a result, they remain stuck in traditional farming and distribution practices, which limit the full potential of cassava optimization (Adebayo & Olagunju, 2021). The communication dynamics within the cassava chain involve multiple actors, including farmers, processors, marketers, and consumers. Effective communication among these stakeholders is crucial for the coordination of activities and optimization of the chain. However, in rural areas like Obio/Akpor, poor infrastructure and limited access to information technology hinder the flow of critical information. This challenge makes it difficult for farmers to adapt to new practices or engage with broader markets that could offer better returns for their produce (Chukwu et al., 2022). Furthermore, the adaptation process in the cassava value chain is influenced by various socio-economic and environmental factors. Peasant farmers in Obio/Akpor face barriers such as low literacy levels, poverty, and inadequate extension services, all of which impede their ability to adapt to innovations that could enhance productivity. Research has shown that farmer adaptability is strongly linked to the availability of extension services that provide training and technical support (Okoroafor & Onyeneke, 2023). However, these services are often limited or non-existent in many rural communities, exacerbating the challenges in cassava chain optimization. The importance of improving communication dynamics in agricultural value chains cannot be overstated. Studies have highlighted the role of modern communication tools such as mobile phones and digital platforms in bridging the information gap between rural farmers and markets (Mishra & Islam, 2022). In regions where these tools have been adopted, farmers have reported increased productivity and better access to market information, which ultimately leads to higher income levels. Unfortunately, many peasant farmers in Obio/Akpor have not fully embraced these technologies, further highlighting the need for targeted interventions that can enhance communication and adaptation. In addition to technological barriers, cultural factors also play a role in shaping communication and adaptation in the cassava value chain. In many rural communities, traditional modes of communication such as word-of-mouth remain prevalent, with information often passed through social networks or local leaders. While these methods have their advantages, they are often slow and may not provide the comprehensive data needed for effective decision-making in a rapidly evolving agricultural landscape (Ayoade et al., 2021). This further underscores the need to integrate modern communication systems into existing frameworks. Moreover, the optimization of the cassava chain in Obio/Akpor is critical for improving the livelihoods of peasant farmers and ensuring food security in the region. With the increasing demand for cassava-

based products, such as garri, fufu, and starch, there is a need for a more efficient supply chain that can meet both local and international market demands. Optimizing this chain requires a collaborative effort that enhances communication, encourages innovation, and supports the adaptation of new farming and processing techniques (Eze et al., 2023). The communication dynamics and adaptation processes within the cassava value chain in Obio/Akpor are key determinants of the success of cassava optimization efforts. Addressing the communication challenges faced by peasant farmers through the introduction of modern technologies and targeted extension services could significantly improve productivity and market access. This study aims to explore the current communication dynamics in the cassava chain and examine the factors affecting the adaptation process, with the goal of identifying strategies for enhancing optimization among peasant farmers in Rivers State.

**Statement of the Problem**

The cassava value chain in Obio/Akpor, Rivers State, is riddled with inefficiencies that limit the potential for optimization and sustainable development, particularly among peasant farmers. Despite Nigeria's position as the largest producer of cassava globally, the majority of small-scale farmers in the region struggle to maximize their yields and profitability. A major factor contributing to this challenge is the poor communication dynamics among key stakeholders within the value chain—farmers, processors, marketers, and consumers. Inadequate access to information about market trends, pricing, and technological advancements has left many peasant farmers illequipped to make informed decisions regarding production and distribution processes. Furthermore, the lack of proper communication infrastructure in rural areas like Obio/Akpor exacerbates these issues. Peasant farmers, who rely heavily on traditional communication methods, often miss out on critical opportunities for growth and innovation. For instance, market information and agricultural extension services that could help farmers adapt to changing environmental and economic conditions are not readily accessible. As a result, these farmers continue to engage in out-dated farming practices that do not align with the modern demands of the cassava industry, leading to suboptimal outputs. Another significant problem is the limited capacity for adaptation among these farmers. The cassava value chain has undergone several transformations due to advancements in farming techniques, processing technologies, and market demands. However, peasant farmers in Obio/Akpor have not been able to fully adapt to these changes. Factors such as low literacy levels, lack of access to extension services, and poverty impede their ability to implement new technologies or adopt innovative farming practices that could increase their productivity and enhance the overall efficiency of the cassava chain. In light of these challenges, there is a critical need to address the gaps in communication and adaptation processes within the cassava value chain in Obio/Akpor. Without effective communication channels and enhanced capacity for adaptation, peasant farmers will continue to face constraints that limit their productivity and hinder the optimization of the cassava chain. This problem not only affects the farmers' livelihoods but also poses a threat to the food security and economic development of the region. Therefore, this study seeks to explore the communication dynamics within the cassava chain and examine the factors affecting the adaptation process, with the aim of identifying solutions that can enhance optimization efforts among peasant farmers.

**Aim and Objectives of the Study**

This study examines the communication dynamics and adaptation processes in the cassava value chain among peasant farmers in Obio/Akpor, Rivers State, with the aim of identifying strategies to enhance chain optimization and improve the farmers' productivity and market access. The objectives are to:

1. To analyze the communication dynamics among stakeholders in the cassava value chain in Obio/Akpor.

2. To assess the factors affecting the adaptation of peasant farmers to new technologies and practices in cassava production.
3. To identify the challenges hindering the optimization of the cassava value chain among peasant farmers.
4. To propose strategies for improving communication and adaptation processes to enhance cassava chain optimization.

**Research Questions**

This study was guided by the following research questions.

1. What are the communication dynamics among stakeholders in the cassava value chain in Obio/Akpor?
2. What factors affect the ability of peasant farmers to adapt to new technologies and practices in cassava production?
3. What challenges do peasant farmers face in optimizing the cassava value chain?
4. What strategies can improve communication and adaptation processes for better cassava chain optimization?

**Literature Review**

**Conceptual Review**

**Communication Dynamics in the Cassava Value Chain**

Communication plays a critical role in the success of agricultural value chains, including the cassava chain. Effective communication between stakeholders, farmers, processors, marketers, and consumers ensures that information about production techniques, market demand, and pricing flows smoothly throughout the chain. In rural areas like Obio/Akpor, however, poor infrastructure and limited access to communication technologies hinder the efficient transfer of information (Chukwu et al., 2022). Without timely and accurate information, farmers struggle to align their production practices with market expectations, leading to inefficiencies in the value chain. Additionally, traditional modes of communication such as word-of-mouth or informal networks are still predominant in rural areas, which may not always provide the comprehensive or accurate information needed for effective decision-making (Ayoade et al., 2021). The lack of access to modern communication tools, such as mobile phones and digital platforms, further exacerbates these challenges. Studies have shown that the use of these tools can significantly improve the flow of information in agricultural value chains, allowing farmers to access real-time market data, agricultural advice, and weather forecasts (Mishra & Islam, 2022). In regions where mobile technology has been embraced, farmers report improved productivity and better access to markets. However, in Obio/Akpor, limited penetration of these technologies hinders communication, making it difficult for farmers to engage fully in the value chain and take advantage of market opportunities (Adebayo & Olagunju, 2021).

**Factors Affecting the Adaptation of Peasant Farmers**

Adaptation to new technologies and practices is crucial for improving productivity in agricultural value chains. For peasant farmers in Obio/Akpor, the process of adaptation is influenced by a range of socio-economic, environmental, and institutional factors. These include low literacy levels, poverty, and inadequate access to extension services, which all limit the farmers' ability to adopt modern farming techniques (Okoroafor & Onyeneke, 2023). Many farmers continue to rely on traditional methods of cassava cultivation, which are labor-intensive and less efficient compared to modern practices. Without the necessary skills, resources, and technical support, these farmers struggle to implement innovations that could increase yields and improve the efficiency of

the cassava value chain. In addition to socio-economic barriers, cultural factors also play a role in shaping the adaptation process. In many rural communities, farming practices are passed down through generations, and farmers may be resistant to adopting new technologies that deviate from traditional methods (Ayoade et al., 2021). Furthermore, access to extension services, which provide the technical support needed for adaptation, is often limited in rural areas like Obio/Akpor. Research has shown that regular access to extension services significantly improves farmers' ability to adapt to new practices, but in the absence of these services, adaptation remains slow and challenging (Okoroafor & Onyeneke, 2023).

**Challenges Hindering Cassava Value Chain Optimization**

The optimization of the cassava value chain in Obio/Akpor is hindered by several challenges, including poor infrastructure, limited access to credit, and inadequate market linkages. Poor road networks and storage facilities, for example, make it difficult for farmers to transport their produce to markets or preserve it for longer periods (Chukwu et al., 2022). As a result, a significant portion of cassava produced in the region is lost due to post-harvest spoilage, further exacerbating the inefficiencies in the value chain. Additionally, many peasant farmers lack access to credit, which prevents them from investing in modern farming equipment, improved cassava varieties, and other inputs that could enhance productivity (Eze et al., 2023). Another major challenge is the limited market access that many farmers in Obio/Akpor face. Due to the fragmented nature of the cassava value chain, farmers often rely on middlemen to sell their produce, which reduces their bargaining power and leads to lower prices (Adebayo & Olagunju, 2021). The lack of direct market linkages prevents farmers from accessing broader and more lucrative markets, both locally and internationally. In addition, weak institutional support and policy frameworks that do not prioritize smallholder farmers further complicate the optimization process. Addressing these challenges is essential for improving the efficiency and profitability of the cassava value chain in the region.

**Strategies for Improving Communication and Adaptation Processes**

To enhance the communication dynamics and adaptation processes in the cassava value chain, several strategies can be employed. First, the introduction of digital platforms and mobile technologies can help bridge the communication gap between farmers and other stakeholders. These tools can provide farmers with access to real-time market information, weather forecasts, and agricultural advice, enabling them to make informed decisions and better align their production practices with market demands (Mishra & Islam, 2022). Additionally, capacitybuilding initiatives, such as training programs and workshops, can help farmers develop the skills needed to adopt modern farming techniques and technologies (Okoroafor & Onyeneke, 2023). Improving access to extension services is another key strategy for enhancing adaptation processes. Extension workers can provide farmers with the technical support they need to implement new practices and technologies that improve productivity and sustainability in the cassava value chain (Chukwu et al., 2022). Furthermore, strengthening market linkages and reducing the reliance on middlemen can improve farmers' bargaining power and ensure they receive fair prices for their produce. By addressing these issues, the cassava value chain can be optimized to better meet the needs of peasant farmers in Obio/Akpor and improve their overall livelihoods.

**Theoretical Framework**

**Diffusion of Innovations Theory**

This theory was propounded by Everett M. Rogers in 1962. This theory explains Theory explains how new ideas, practices, or technologies spread within a social system over time. According to Rogers (1962), the process of

innovation diffusion involves four key elements: the innovation itself, communication channels, time, and the social system. The theory categorizes individuals into five adopter categories based on their willingness to adopt new innovations: innovators, early adopters, early majority, late majority, and laggards. The success of diffusion depends on how well the innovation is communicated through social networks and how it is perceived in terms of relative advantage, compatibility, complexity, trialability, and observability (Rogers, 2003). The theory assumes that individuals in a social system adopt innovations at different rates depending on factors such as their socio-economic status, access to information, and personal disposition towards change. It also assumes that communication is a crucial factor in the diffusion process, with information being shared through both formal and informal networks. This theory suggests that innovations are more likely to be adopted if they are perceived as beneficial, easy to use, and compatible with existing values or practices. However, it assumes that all innovations, regardless of their context, follow a predictable adoption pattern, which may not always be true in different cultural or economic settings (Rogers, 2003). While the Diffusion of Innovations Theory has been widely applied across various fields, it has faced criticism for oversimplifying the process of innovation adoption. Critics argue that it does not fully account for the role of power dynamics, resistance to change, and the specific contextual challenges that can influence adoption in developing regions (Greenhalgh et al., 2021). Additionally, the theory's categorization of individuals into fixed adopter categories may not accurately reflect the complexities of decision-making processes, particularly among rural populations where socio-cultural and economic factors play a larger role in shaping behavior (Sahin, 2006). The Diffusion of Innovations Theory is highly relevant to this study, as it provides a framework for understanding how communication and adaptation processes affect the adoption of new technologies and practices in the cassava value chain in Obio/Akpor. The theory's emphasis on communication channels aligns with the study's focus on how information flows between farmers and other stakeholders within the value chain. Additionally, this theory helps explain the different rates at which peasant farmers adopt new cassava farming techniques and technologies, which are critical for optimizing the value chain. By examining factors such as relative advantage and compatibility, the study can explore why some farmers may be more resistant to change and identify strategies to facilitate the broader adoption of innovations within the community.

**2.3 Empirical Review**

Adebayo and Olagunju (2021) carried out a study "Agricultural communication and farmer participation: A case study of cassava production in Nigeria." The study investigated the communication strategies used by small-scale cassava farmers and assess how these strategies influenced their participation in the cassava value chain. The researchers employed a mixedmethod approach, using both quantitative surveys and qualitative interviews with 200 cassava farmers in three regions of Nigeria, including Rivers State. Data were analyzed using descriptive statistics and thematic analysis. The study found that most cassava farmers relied on informal communication channels, such as word-of-mouth, with limited use of modern communication tools. This reliance hindered farmers' participation in market activities and access to extension services. Both studies focus on the communication dynamics within the cassava value chain and how it impacts farmers' participation and productivity. The reviewed study primarily focuses on communication strategies, while the current study goes further to explore adaptation processes and the optimization of the entire cassava value chain. Okoroafor and Onyeneke (2023) conducted a research on "Farmer adaptability and agricultural extension services: An empirical study of cassava production in Nigeria." This study aimed to assess the role of agricultural extension services in improving the adaptability of cassava farmers to new technologies and practices. A survey was conducted with

300 cassava farmers across six Nigerian states, with data collected through structured questionnaires. Regression analysis was used to examine the relationship between access to extension services and farmers' adaptability to new agricultural practices. The study revealed that regular access to extension services significantly improved farmers' ability to adopt new technologies, which in turn led to increased productivity. Both studies explore the adaptability of cassava farmers to new technologies and highlight the role of extension services in supporting this process. While the reviewed study focused specifically on the role of extension services, the current study examines a broader range of factors influencing adaptation, including socio-economic and cultural barriers. Eneh and Nduka (2022) did a work on "Challenges in optimizing the cassava value chain: A case study of south-eastern Nigeria." This study identified the key challenges hindering the optimization of the cassava value chain in south-eastern Nigeria, focusing on production, processing, and marketing stages. The researchers employed a survey method, distributing questionnaires to 250 cassava farmers and processors across south-eastern states. Data were analyzed using descriptive statistics and factor analysis to identify the most critical challenges. The study revealed that major challenges included poor access to credit, inadequate storage facilities, and weak market linkages, all of which limited farmers' ability to optimize their production and increase profitability. Both studies investigate the challenges limiting the optimization of the cassava value chain, particularly regarding market linkages and infrastructure issues. While the reviewed study focused specifically on south-eastern Nigeria and does not delve deeply into communication or adaptation, the current study addresses these additional factors in the context of Obio/Akpor. Adeyemi and Adewale (2023) carried out a study on "Technology adoption and its impact on cassava farmers' productivity in rural Nigeria." This study aimed to evaluate the adoption of new cassava farming technologies and their impact on productivity among smallholder farmers in rural Nigeria. A quantitative survey was conducted with 320 cassava farmers across rural communities in three Nigerian states. Data were analyzed using regression models to assess the relationship between technology adoption and changes in productivity. The study found that farmers who adopted new technologies, such as improved cassava varieties and mechanized tools, experienced significant increases in productivity and reduced labor costs. However, limited access to these technologies was noted as a major barrier for many farmers. Both studies emphasize the importance of technology adoption in improving cassava production and explore factors that influence the adaptability of smallholder farmers. While the reviewed study focused specifically on the impact of technology adoption on productivity, the current study incorporates a wider examination of communication and adaptation processes within the cassava value chain.

**Methodology**

The research design for this study adopted a qualitative method, specifically utilizing in-depth interviews to gather in-depth information from participants. This approach allows for flexibility in the interview process and provides respondents the convenience to answer questions at their own pace. In-depth interviews are particularly useful for reaching medium-scale cassava farmers across diverse locations within Obio/Akpor, Rivers State, enabling the collection of rich, descriptive data on their knowledge, attitudes, and practices regarding cassava chain optimization. The design is suitable for capturing the complexities of individual experiences and perceptions, which aligns with the objectives of understanding how these farmers adopt modern farming techniques and their current practices. The population for this study consists of peasant cassava farmers in Obio/Akpor, Rivers State, Nigeria, who are involved in both cassava farming and processing activities, which stood at 158. These farmers have a significant role in the cassava value chain, making their input crucial for assessing knowledge and practice

related to optimization. A sample size of 6 peasant cassava farmers was selected to provide a manageable yet diverse pool of participants, offering insights into the varying degrees of knowledge and attitude toward modern farming techniques. The sampling technique employed was purposive sampling, where farmers who have been involved in cassava farming for at least five years and have a production capacity that qualifies them as medium-scale are chosen. This technique ensures that participants are knowledgeable enough to provide meaningful responses about cassava chain optimization. Data collection was conducted through semi-structured email interviews. This method allows for open-ended questions that prompt detailed responses while also providing flexibility for follow-up questions based on initial replies. The questions were designed to explore farmers' knowledge of modern farming techniques, their attitudes toward adopting new technologies, and their current farming and processing practices. For data analysis, thematic analysis was employed to identify patterns and themes from the farmers' responses. The qualitative data were coded and categorized based on recurring themes, such as barriers to adoption, knowledge gaps, and current practices. This method allows for a detailed interpretation of the farmers' perspectives, providing insights into their experiences and attitudes toward cassava chain optimization.

**Presentation of Data and Analysis**

The study adopted thematic method of data analysis to analyse the data gathered from the discussion. Themes were deduced deductively following the research objectives. The following were deduced: The communication dynamics among stakeholders in the cassava value chain in Obio/Akpor; factors affect the ability of peasant farmers to adapt to new technologies and practices in cassava production; challenges do peasant farmers face in optimizing the cassava value chain; and strategies can improve communication and adaptation processes for better cassava chain optimization. These are presented and discussed below:

**The communication dynamics among stakeholders in the cassava value chain in Obio/Akpor;** when asked, the interviewees stated that the effective communication dynamics are critical in shaping the adaptation processes of cassava farmers in Obio/Akpor, Rivers State. Farmers often rely on a combination of formal and informal communication channels, including agricultural extension services, peer networks, and family ties. Agricultural extension agents play a vital role in disseminating information about new farming techniques, pest management, and market opportunities, which are essential for enhancing productivity. The presence of local cooperatives and farmer groups further facilitates information exchange, enabling farmers to share their experiences, challenges, and successes, thereby fostering a supportive environment for adaptation However, the interviewees added that the effectiveness of these communication channels is influenced by the socio-cultural context of the farmers. For instance, traditional communication methods, such as storytelling and community gatherings, often hold significant value in rural settings. These methods allow for the sharing of knowledge in a manner that resonates with the community's values and practices, which can be crucial for encouraging the adoption of new agricultural technologies. On the other hand, barriers such as illiteracy, language differences, and lack of access to modern communication tools can impede the flow of information and, consequently, the adaptation process. Thus, understanding these dynamics is essential for developing targeted interventions that improve communication effectiveness among farmers. Moreover, some of the interviewees illustrated that the relationship between communication dynamics and adaptation is not merely linear; it is reciprocal. As farmers adapt to new practices and technologies, they often generate their own knowledge and feedback that can influence future communication efforts. This feedback loop is vital for continuously improving the quality of information shared within the

community and ensuring that the needs and preferences of farmers are addressed. Therefore, recognizing the role of communication dynamics in the adaptation process is crucial for optimizing the cassava value chain and enhancing farmers' livelihoods in Obio/Akpor.

**Factors affect the ability of peasant farmers to adapt to new technologies and practices in cassava production**; when asked all the interviewees agreed that socio-economic factors significantly influence the adaptation of cassava farming practices among farmers in Obio/Akpor. Key factors such as income levels, education, and access to resources play a pivotal role in determining how and when farmers adopt new practices. For instance, farmers with higher income levels are more likely to invest in modern agricultural technologies and practices that can enhance productivity. They can afford to purchase improved seeds, fertilizers, and machinery, which can lead to better yields and increased profits. Conversely, farmers facing financial constraints may hesitate to adopt new practices due to the perceived risks associated with investment and the uncertainty of returns. Furthermore, majority of the interviewees said that Education is another critical socioeconomic factor that impacts adaptation. Higher levels of education among farmers are associated with better awareness and understanding of modern agricultural practices and innovations. Educated farmers are more likely to seek out information, attend training sessions, and engage with extension services, thus improving their ability to adapt to changing agricultural conditions. In contrast, less-educated farmers may struggle to comprehend new techniques or may be more reliant on traditional practices, limiting their capacity for adaptation. This educational gap underscores the need for tailored training programs that address the varying levels of knowledge and skills among farmers. Additionally, some of the interviewees narrated that Access to resources, such as land, credit, and market opportunities, also plays a crucial role in adaptation. Farmers with secure land tenure and access to credit are more likely to take risks associated with adopting new practices, knowing they have the means to implement changes effectively. Additionally, access to markets enables farmers to sell their produce at competitive prices, providing the financial incentive necessary for investing in improved farming methods. Addressing these socio-economic factors through targeted policies and support systems can significantly enhance the adaptive capacity of cassava farmers in Obio/Akpor, ultimately leading to more sustainable and productive farming practices.

**Challenges peasant farmers face in optimizing the cassava value chain**; when asked, majority of the interviewees said that Barriers to effective communication among cassava farmers in Obio/Akpor can hinder the flow of critical information necessary for adapting to new agricultural practices. One of the primary barriers is the lack of access to modern communication technologies, such as smartphones and the internet. Many farmers in rural areas may not have the financial means to invest in such technologies or may lack the skills to use them effectively. This digital divide restricts their ability to access timely information regarding market prices, weather forecasts, and agricultural techniques, which can negatively impact their productivity and decision-making processes  The interviewees posited that Cultural factors also play a significant role in communication barriers. Traditional norms and values may dictate the types of information that can be shared within communities, potentially stifling open discussions about new practices or innovations. Additionally, gender dynamics can further complicate communication, as women farmers may have limited access to information compared to their male counterparts due to societal roles and expectations. These cultural barriers can create an environment where critical information is not adequately disseminated, leading to missed opportunities for farmers to improve their practices. Also, the interviewees stated that the lack of structured communication networks and support systems can exacerbate the challenges faced by cassava farmers. Without established channels for information sharing,

such as farmer cooperatives or regular training sessions, farmers may rely solely on informal networks that can be inconsistent and unreliable. This fragmentation of communication can result in misinformation or gaps in knowledge, ultimately hindering the adaptation process. Addressing these barriers through improved infrastructure, targeted training, and inclusive communication strategies is essential for enhancing the effectiveness of information flow among cassava farmers in Obio/Akpor.

**Strategies to improve communication and adaptation processes for better cassava chain optimization**; when asked, all the interviewees said that optimizing communication strategies is vital for enhancing the adaptation process of cassava farmers in Obio/Akpor. One effective approach is to leverage local knowledge and existing communication networks to disseminate information more effectively. Engaging local leaders and respected farmers as change agents can help bridge the gap between agricultural extension services and farmers, facilitating the transfer of knowledge in a culturally relevant context. Utilizing community gatherings, farmer field schools, and peer-to-peer learning initiatives can foster an environment of collaboration and trust, encouraging farmers to share their experiences and adopt new practices more readily Majority of the interviewees stated that incorporating modern communication technologies can further enhance the dissemination of information. Developing mobile applications or platforms that provide real-time updates on market prices, weather forecasts, and best practices can empower farmers with the knowledge needed to make informed decisions. Additionally, training programs that focus on digital literacy can help farmers gain the skills required to effectively utilize these technologies, ensuring that they are not left behind in the digital age. By combining traditional communication methods with modern tools, the adaptation process can be accelerated, leading to improved productivity and livelihoods for cassava farmers. Lastly, the interviewees posited that continuous feedback loops should be established to ensure that communication strategies remain relevant and effective. Regular assessments of farmers' needs and preferences can inform the development of targeted training programs and communication campaigns. By fostering an inclusive approach that considers the diverse perspectives of all stakeholders, including women and marginalized groups, communication strategies can be fine-tuned to address the specific challenges faced by cassava farmers in Obio/Akpor. This collaborative and adaptive approach to communication will ultimately lead to a more resilient and productive cassava value chain in the region.

**Discussion of Findings**

**Research Question One**: What are the communication dynamics among stakeholders in the cassava value chain in Obio/Akpor? The findings indicated that effective communication dynamics, facilitated through both formal channels like agricultural extension services and informal networks among farmers, significantly influence the adaptation processes of cassava farmers in Obio/Akpor by enhancing information sharing and creating supportive environments for innovation. The finding supports the finding of Adebayo and Olagunju (2021) which stated that most cassava farmers relied on informal communication channels, such as word-of-mouth, with limited use of modern communication tools. This reliance hindered farmers' participation in market activities and access to extension services. The Diffusion of Innovations Theory is relevant to the finding on communication dynamics as it emphasizes the importance of communication channels in the adoption process; by understanding how information is disseminated among farmers, stakeholders can better design interventions that facilitate the spread of innovative practices within the cassava farming community. The implications of the finding is that the effective communication dynamics identified in the study imply that enhancing the flow of information through both formal

and informal channels can foster a more supportive environment for cassava farmers, ultimately leading to increased adoption of innovative practices and improved agricultural outcomes.

**Research Question Two**: What factors affect the ability of peasant farmers to adapt to new technologies and practices in cassava production?

The study revealed that socio-economic factors such as income levels, education, and access to resources critically affect the adaptation of cassava farming practices, with higher income and education correlating to a greater likelihood of adopting modern techniques, while limited resources pose significant barriers to change. The finding of this study corroborates with Okoroafor and Onyeneke (2023) that regular access to extension services significantly improved farmers' ability to adopt new technologies, which in turn led to increased productivity.

The theory's framework highlights that socio-economic factors influence the rate of adoption and adaptation of innovations, suggesting that enhancing farmers' socio-economic status and education can significantly improve their capacity to embrace new farming practices, which aligns with the study's findings on the critical role of these factors in cassava farming. The findings regarding socio-economic factors imply that targeted interventions addressing income disparities, educational gaps, and resource access are crucial for facilitating the adaptation of modern cassava farming practices, thereby promoting sustainability and economic growth among farmers in Obio/Akpor.

**Research Question Three**: What challenges do peasant farmers face in optimizing the cassava value chain?

The results showed that the research identified several barriers to effective communication among cassava farmers, including limited access to modern communication technologies, cultural factors that restrict information sharing, and a lack of structured communication networks, all of which hinder the flow of essential agricultural knowledge. The finding of this study is in line with the study conducted by Eneh and Nduka (2022) that found out that thee major challenges included poor access to credit, inadequate storage facilities, and weak market linkages, all of which limited farmers' ability to optimize their production and increase profitability. The relevance of the Diffusion of Innovations Theory to the finding on barriers to communication lies in its assertion that effective communication is essential for successful innovation adoption; thus, addressing the identified barriers is crucial for ensuring that farmers receive the necessary information to make informed decisions and adapt to new agricultural practices. The implication of the finding identified barriers to effective communication imply that addressing issues such as access to modern technologies and cultural constraints is essential for improving information dissemination, which can enhance farmers' ability to adapt to changing agricultural conditions and optimize their production strategies.

**Research Question Four**: What strategies can improve communication and adaptation processes for better cassava chain optimization?

The findings suggested that optimizing communication strategies through the use of local knowledge, modern technologies, and continuous feedback mechanisms can significantly enhance the adaptation process of cassava farmers in Obio/Akpor, ultimately improving productivity and resilience in the cassava value chain. This finding upholds the finding of Adeyemi and Adewale (2023) which stated that farmers who adopted new technologies, such as improved cassava varieties and mechanized tools, experienced significant increases in productivity and reduced labor costs. However, limited access to these technologies was noted as a major barrier for many farmers.

The theory supports the finding regarding optimizing communication strategies by underscoring the necessity of tailoring communication efforts to the specific needs of the target audience; this relevance suggests that

integrating local knowledge and modern communication tools can enhance the effectiveness of information dissemination, ultimately facilitating the adaptation process among cassava farmers. The study's findings on optimizing communication strategies imply that implementing integrated approaches that leverage local knowledge, technology, and continuous feedback can significantly empower cassava farmers, leading to greater resilience and productivity within the cassava value chain.

**Conclusion**

The study concluded that effective communication dynamics play a pivotal role in the adaptation processes of cassava farmers in Obio/Akpor, facilitating knowledge sharing and fostering a collaborative environment essential for innovation. The study indicated that socio-economic factors such as income levels, education, and resource access significantly impact the adaptation of cassava farming practices, with better socio-economic conditions leading to higher rates of adoption of modern techniques. The research concluded that several barriers, including limited access to modern communication technologies and cultural constraints, hinder effective communication among cassava farmers, ultimately affecting their capacity to adapt to new practices. The study concluded that optimizing communication strategies through the integration of local knowledge, modern technologies, and continuous feedback mechanisms is essential for enhancing the adaptation process of cassava farmers. The contributions of this study to the understanding of communication dynamics and adaptation processes in the cassava value chain among peasant farmers in Obio/Akpor, Rivers State, are multifaceted. Firstly, it provides valuable insights into how effective communication channels- both formal and informal facilitate the dissemination of agricultural knowledge, thereby promoting the adoption of innovative practices. By identifying the socio-economic factors that influence farmers' capacity to adapt, the study underscores the need for targeted interventions aimed at enhancing educational opportunities and resource access, which can significantly improve farming outcomes. Additionally, the research highlights the various barriers to effective communication, offering a framework for addressing these challenges through strategic initiatives that leverage modern technologies and local knowledge. Furthermore, by proposing recommendations for optimizing communication strategies, the study contributes to the development of a more resilient and productive cassava value chain, ultimately supporting the livelihoods of farmers in the region. This comprehensive approach not only enriches the academic discourse on agricultural communication and innovation adoption but also provides practical implications for policymakers and agricultural stakeholders seeking to enhance the agricultural sector's efficiency and sustainability.

**Recommendations**

In view of the findings from this work, the following recommendations have been made

1. Agricultural stakeholders should enhance the existing communication networks by incorporating both formal and informal channels to ensure that timely and relevant information reaches all farmers, thereby promoting widespread adoption of innovative practices
2. Targeted policies and programs should be implemented to enhance the socio-economic conditions of farmers, including access to financial resources and educational opportunities
3. Initiatives should be developed to improve access to communication technologies and address cultural barriers through community engagement and training programs, ensuring that all farmers can participate in information-sharing processes.

4. Stakeholders should implement a comprehensive communication strategy that combines local agricultural knowledge with digital tools and regular feedback loops to empower farmers and enhance their adaptability within the cassava value chain.

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