

**COMMUNICATION EFFECTIVENESS BETWEEN CATFISH FARMERS AND KEY
VALUE CHAIN ACTORS IN EDO SOUTH AGRICULTURAL ZONE, EDO STATE,
NIGERIA**

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Abstract

Agriculture plays a central role in Nigeria's economy, with catfish farming emerging as a major commercial aquaculture enterprise. However, inefficiencies persist within the catfish value chain due to communication gaps among farmers, hatchers, marketers, and processors. This study examined the effectiveness of communication between farmers and other value chain actors in the Edo South Agricultural Zone. A cross-sectional survey of 150 purposively selected catfish farmers was conducted using an interview schedule. Data were analysed using descriptive statistics and multiple regression analysis. Results showed that communication effectiveness between farmers and other value chain actors was generally moderate, with information often conveyed clearly between farmers and hatchers ($M = 2.51$), marketers ($M = 2.69$), and processors ($M = 2.82$). Major communication barriers included technical difficulties ($M = 2.26, 2.74, \text{ and } 2.63$) and poor mobile network access ($M = 2.25, 2.47, \text{ and } 2.45$) in interactions with hatchers, marketers, and processors, respectively. One-way ANOVA revealed no significant differences in communication effectiveness across the three actor groups ($F = 2.28, p = 0.109$). The study concludes that communication between catfish farmers and other value chain actors is moderately effective. It recommends strengthening communication systems through farmer groups, development organisations, and extension service providers to improve information exchange and overall value chain performance.

Keywords: Catfish farming, communication effectiveness, value chain actors, aquaculture, Edo State, Nigeria

Word count = 207 words

Introduction

Agriculture continues to occupy a central position in Nigeria's economy, not only as a source of food and raw materials but also

as a major livelihood system for millions of rural households (FAO, 2025). Within the sector, aquaculture has gradually shifted from a supplementary activity to a

commercially significant enterprise driven by rising demand for affordable animal protein, urbanisation, and declining capture fisheries. Catfish farming has expanded rapidly over the last two decades because of the species' adaptability, relatively short production cycle, and strong market acceptance across Nigerian cities and rural communities alike (Srikulnath et al., 2025). Nigeria currently ranks among the leading aquaculture producers in Africa, with African catfish accounting for a substantial proportion of domestic aquaculture output (FAO, 2025). In States such as Edo, catfish farming has become deeply embedded in local food systems and informal economies, supporting hatchery operators, feed suppliers, transporters, processors, retailers, and restaurant businesses.

Yet the growth of the industry has not necessarily translated into an efficient or coordinated value chain. In practice, catfish production and marketing in Nigeria remain heavily shaped by uneven access to information. Farmers often struggle to obtain timely market prices, reliable input information, or feedback from processors and buyers. At the same time, marketers complain about inconsistent supply conditions and fluctuating prices, while consumers face uncertainty regarding product quality and sourcing. These communication gaps create a form of information asymmetry that weakens trust and increases transaction costs across the value chain (Mohammed et al., 2022; Oluwafemi et al., 2022). A farmer in a peri-urban community in Edo South, for example, may sell fish at a lower price simply because accurate market

information did not reach him on time, while a processor several kilometres away simultaneously searches for supply through intermediaries. The problem, therefore, is not merely increasing production but coordination between farmers and other actors.

Mobile telephony and digital communication technologies were expected to reduce these inefficiencies. Nigeria's telecommunications expansion since the introduction of GSM services in 2001 has significantly improved physical access to communication tools (Adogla, 2009). However, access alone has not guaranteed effective use within agricultural value chains. Questions now extend beyond ownership of communication devices to the quality, reliability, timeliness, and trustworthiness of information exchanged among actors (Zhang et al., 2010). In many aquaculture systems, communication remains fragmented, informal, and poorly coordinated despite increased connectivity.

Although previous studies have examined aquaculture profitability, production practices, and fish marketing in Nigeria, limited attention has been given to communication effectiveness among actors within the catfish value chain, particularly in the Edo South Agricultural Zone. This study therefore examines communication effectiveness between catfish farmers and key value chain actors in Edo South Agricultural Zone, Edo State, Nigeria, with specific attention to the barriers shaping communication outcomes within the sector. The specific objectives are already stated;

- i. examine the socioeconomic characteristics of catfish farmers
- ii. Compare the effectiveness of communication among the different categories of value chain actors
- iii. examines the barriers to communication effectiveness between catfish farmers and other value chain actors

Hypothesis

Communication effectiveness does not vary between catfish farmers and key value chain actors

Background of Literature

In Nigeria, where catfish farming remains one of the fastest-growing segments of the aquaculture industry, communication plays a critical role in reducing transaction costs, facilitating market coordination, strengthening trust, and enhancing value chain performance. Recent evidence indicates that increasing commercialisation and market integration within aquaculture systems have intensified the need for timely and reliable information exchange among farmers, input suppliers, processors, marketers, and consumers (Srikulnath et al., 2025). Despite this growing importance, research on communication effectiveness within catfish value chains remains limited and fragmented.

Imade et al. (2022) surveyed catfish farmers in Edo State and found that most were middle-aged, educated, and operated small-to-medium-scale farms. Education and farming experience improved engagement with information systems and adoption of improved practices. However, the study focused primarily on production

and profitability, with limited attention to communication dynamics with other value chain actors. Similarly, Ogunwale et al. (2021) reported that younger and more educated aquaculture farmers in southwestern Nigeria were more likely to use digital platforms for extension services. While highlighting the role of mobile technologies, the study was limited to farmer-extension interactions and did not explore broader multidirectional communication involving marketers, processors, and input suppliers.

Olayemi et al. (2022) found that mobile phones significantly improved smallholder farmers' access to market information and coordination in Nigeria. However, the study focused mainly on technology access and gave limited attention to the quality, reliability, trustworthiness, and responsiveness of information exchanged within value chains. More recently, FAO (2025) reported that digital communication platforms are increasingly being integrated into Nigerian aquaculture systems, facilitating information sharing on input procurement, disease management, production planning, and market opportunities. Nevertheless, disparities in access, digital literacy, and network infrastructure continue to constrain effective communication among actors.

Studies on agricultural value chains have highlighted persistent communication gaps. Adeola et al. (2020) showed that communication failures among producers, marketers, and processors in Nigerian agribusiness led to delays, misinformation, and weak market integration. The study, however, adopted a broad agribusiness

lens. Eze et al. (2021) similarly stressed the importance of responsive information exchange for adaptive value chain management but paid limited attention to localised barriers facing smallholder farmers. Recent studies have further emphasised that information asymmetry remains a major challenge in aquaculture value chains, often resulting in poor coordination, price uncertainty, and reduced bargaining power among producers (Srikulnath et al., 2025).

Research on communication barriers has identified key constraints. Bello et al. (2022) found that technical difficulties, inadequate infrastructure, and inconsistent internet access severely limited agricultural communication in rural Nigeria, particularly for smallholders reliant on informal networks. Tunde et al. (2023) echoed this, noting that unstable mobile networks disrupted interactions in peri-urban areas. Similarly, recent assessments of aquaculture development in Nigeria have highlighted inadequate communication infrastructure, weak institutional linkages, and fragmented stakeholder networks as continuing barriers to efficient information flow across the value chain (FAO, 2025). These studies usefully highlight infrastructural issues but often underemphasize social and institutional factors such as trust, reciprocity, and coordination mechanisms.

Trust is increasingly recognised as central to communication effectiveness. Adebayo et al. (2021) argued that distrust among agricultural actors hinders information sharing and collaboration, with intermediaries often viewed as unreliable.

Mohammed et al. (2022) found similar information asymmetries in fish marketing systems, creating uncertainty for producers and consumers. Recent literature suggests that sustainable aquaculture development requires stronger stakeholder relationships built on trust, transparency, and consistent communication practices (Srikulnath et al., 2025). However, most studies examine trust mainly from a market perspective rather than as an integral component of communication processes across the aquaculture value chain.

Few studies adopt a multidimensional view of communication effectiveness that simultaneously considers timeliness, reliability, responsiveness, trust, and contribution to decision-making. Many focus on isolated relationships, particularly farmer-extension interactions, while neglecting communication among hatchery operators, feed suppliers, processors, marketers, and other actors. In summary, existing literature establishes the importance of socioeconomic factors, technological access, and institutional support in aquaculture production. However, it inadequately explains how communication effectiveness varies among catfish value chain actors and how communication barriers influence information exchange across the value chain. The present study addresses these gaps by examining communication effectiveness between catfish farmers and other key actors in Edo South Agricultural Zone, Edo State.

Methodology

This study was conducted in the Edo South Agroecological Zone of Edo State, Nigeria.

Edo State is administratively and agriculturally divided into three agroecological zones, namely Edo South, Edo Central, and Edo North. The Edo South Agroecological Zone comprises key urban and peri-urban local government areas, including Oredo, Ikpoba-Okha, Egor, Ovia North-East, Ovia South-West, Orhionmwon, and Uhumwonde. The zone is characterised by a humid tropical climate with relatively high rainfall, abundant surface water resources, and a network of rivers and tributaries linked to the Niger Delta system. These environmental conditions provide favourable opportunities for aquaculture production, particularly catfish farming in earthen and concrete pond systems. Edo South Agroecological Zone was selected for this study because of its high concentration of catfish farming activities and its strategic position in the state's fish value chain. The study was conducted during the 2024 production season.

A cross-sectional survey design was employed for the study. The population of the study comprised all catfish farmers operating within Edo State. A multi-stage sampling procedure was adopted to obtain the study sample. In the first stage, Edo South Agricultural Zone was purposively selected because of the intensity of catfish farming activities in the area. In the second stage, four Local Government Areas, namely Oredo, Ikpoba-Okha, Ovia Northeast, and Egor, were purposively selected due to the prevalence of fish farming activities and their closeness to tributaries of the Niger River. In the third stage, nine communities with predominant catfish farming activities were purposively

selected. These included Oko, Ugbor, Aideyan Quarters, and Evbuodia communities in Oredo LGA; Ekiuwa community in Ikpoba-Okha LGA; Olumoye and Oba Ewuare II Farm Settlement in Ovia Northeast LGA; and Uselu and Okhoro communities in Egor LGA. In the final stage, individual catfish farmers were purposively selected based on their presence at farmers' meetings and association gatherings. A total of 150 farmers participated in the survey. The sampling approach was adopted because there was no complete and verifiable sampling frame of registered catfish farmers in the selected LGAs, a challenge commonly reported in smallholder agricultural research in Nigeria (Darko et al., 2021). Data were analysed using descriptive and inferential statistical techniques with the aid of the IBM SPSS Statistics software package 23.

Results and Discussion

Socioeconomic Characteristics of Catfish Farmers in Edo State

The socioeconomic characteristics of the catfish farmers are presented in Table 1. The result showed that 59.3% of the respondents were male, while 40.7% were female. Regarding marital status, the majority (71.3%) were married, whereas 22.7% were single. Only a small proportion were separated (3.3%), divorced (1.3%), or widowed (1.3%). The educational distribution indicated that the respondents were relatively well educated. About 32.0% possessed a bachelor's degree, 23.3% held a Higher National Diploma (HND), 13.3% had an Ordinary National Diploma (OND), and 5.3% possessed a master's degree.

Respondents with secondary and primary education accounted for 22.0% and 3.3%, respectively, while only 0.7% had a Ph.D. The age distribution revealed that 43.3% of respondents were between 41 and 50 years old, followed by 32.0% in the 31–40 years age category. The mean age was 43 years, with ages ranging from 20 to 58 years.

The result further showed that more than half (54.7%) of the respondents had household sizes of five persons or less, while 39.3% had household sizes between 5 and 9 persons. The mean household size was 5 persons. In terms of farming experience, 51.4% had five years or less experience in catfish farming, while 33.8%

had between 5 and 9 years of experience. The mean farming experience was 5 years, with a range of 1 to 20 years. Farm enterprise characteristics indicated that 41.7% of the farmers operated between 5 and 9 ponds, while 33.3% owned five ponds or fewer. The mean number of ponds was 7. Stocking capacity ranged from 1,000 to 22,000 fish, with an average of 5,847 fish. Most respondents (74.6%) stocked 5,000 fish or fewer. Annual income from catfish farming ranged from ₦18,000 to ₦20,000,000, with a mean income of ₦3,236,464.29. Approximately 69.7% of the respondents earned ₦1,000,000 or less annually from catfish farming, whereas 19.7% earned above ₦5,000,000.

Table 1: Socioeconomic Characteristics of Catfish farmers in Edo state

		Freq	%	Min	Max	Mean
Sex	Male	89	59.3			
	Female	61	40.7			
Marital Status	Single	34	22.7			
	Married	107	71.3			
	Separated	5	3.3			
	Divorced	2	1.3			
	Widowed	2	1.3			
Highest level of education	Primary	5	3.3			
	Secondary	33	22.0			
	OND	20	13.3			
	HND	35	23.3			
	B.Sc.	48	32.0			
	M.Sc.	8	5.3			
	Ph.D.	1	.7			
Age	20 and below	1	.7	20	58	43
	21 – 30	8	5.3			

	31 – 40	48	32.0			
	41 – 50	65	43.3			
	51 – 60	28	18.7			
Household size	5 and below	82	54.7	1	12	5
	5 – 9	59	39.3			
	10 and above	9	6.0			
Catfish farming experience	5 and below	76	51.4	1	20	5
	5 – 9	50	33.8			
	10 – 14	16	10.8			
	15 – 19	2	1.4			
	20 – 24	4	2.7			
	25 and above	0	.0			
Number of ponds	5 and below	4	33.3	0	38	7
	5 – 9	5	41.7			
	10 and above	3	25.0			
Stocking capacity	5000 and below	103	74.6	1000	22000	5847
	5001 – 10000	25	18.1			
	10001 – 15000	3	2.2			
	15001 – 20000	5	3.6			
	20001 and above	2	1.4			
Estimate income	1000000 and below	53	69.7	18000	20000000	3236464.29
	1000001 – 2000000	4	5.3			
	2000001 – 3000000	1	1.3			
	3000001 – 4000000	0	.0			
	4000001 – 5000000	3	3.9			
	5000001 and above	15	19.7			

Source: Field Survey, 2024

Communication Effectiveness Between Catfish Farmers and Value Chain Actors

The results presented in Table 2 show the perceived effectiveness of communication between catfish farmers and three major value chain actors: hatchery operators, marketers, and processors. Across all actor categories, mean scores ranged from 1.48

to 2.82, indicating generally low to moderate levels of communication effectiveness. Among communication indicators involving hatchery operators, the highest mean score was recorded for “information is conveyed clearly” ($M = 2.51$, $SD = 1.418$), while the lowest mean score was recorded for “trust information received from value chain actors” ($M =$

1.64, SD = 1.234). Similarly, communication with marketers recorded the highest mean score for "information is conveyed clearly" (M = 2.69, SD = 1.268), whereas "easy access to information on new technologies" had the lowest mean score (M = 1.49, SD = 1.098). Communication with processors followed a similar pattern. The highest mean score was observed for "information is conveyed clearly" (M = 2.82, SD = 1.227), while the lowest mean scores were recorded for "trust information received from value chain actors" (M = 1.48, SD = 1.011) and

"easy access to information on new technologies" (M = 1.48, SD = 1.155). Across all actor categories, respondents reported relatively low scores for the reliability of communication channels, timely access to market price information, trust in information received, communication-induced productivity improvement, and access to technological information. These findings suggest that although communication occurs among actors in the catfish value chain, its effectiveness remains limited in several critical dimensions.

Table 2: Effectiveness of communication channels used by catfish farmers in Edo State.

	Hatchers	Marketers	Processors
	Std. Mean Deviation	Std. Mean Deviation	Std. Mean Deviation
Keep each other informed	2.10 1.360	2.08 1.188	2.02 1.145
Inform each other of changing needs	2.14 1.264	2.53 1.417	2.13 1.192
Information is conveyed clearly	2.51 1.418	2.69 1.268	2.82 1.227
Communication channels with value chain actors are reliable	2.02 1.257	2.18 1.132	2.03 1.114
Receive timely market price information	1.70 1.236	1.95 1.163	1.77 1.226
Trust information received from value chain actors	1.64 1.234	1.58 1.222	1.48 1.011
Communication with value chain actors improves my farming productivity	1.91 1.254	1.73 1.146	1.85 1.198
Value chain actors respond promptly to my inquiries	2.03 1.282	2.18 1.094	2.10 1.297
Communication with other farmers helps me improve practices	1.96 1.320	2.02 1.207	1.91 1.277
I have easy access to information on new technologies	1.63 1.263	1.49 1.098	1.48 1.155

Source: Field survey, 2024

Barriers to effective communication between catfish farmers and value chain actors in Edo State

The results presented in Table 3 show the perceived barriers to effective communication between catfish farmers and hatchery operators, marketers, and processors. Among the barriers associated with hatchery operators, technical difficulty recorded the highest mean score ($M = 2.26$, $SD = 1.551$), followed by limited access to mobile network/internet ($M = 2.25$, $SD = 1.591$) and phone signal disruptions ($M = 2.20$, $SD = 1.587$). Language barriers ($M = 0.82$, $SD = 1.201$) and cultural differences ($M = 0.82$, $SD = 1.187$) recorded the lowest mean scores. For communication with marketers, technical difficulty constituted the most prominent barrier ($M = 2.74$, $SD = 1.327$), followed by limited access to mobile network/internet ($M = 2.47$, $SD = 1.387$), phone signal disruptions ($M = 2.44$, $SD = 1.499$), and lack of trust in information

from value chain actors ($M = 2.43$, $SD = 1.268$). Language barriers ($M = 0.77$, $SD = 1.167$) recorded the lowest mean score.

Similarly, among processors, technical difficulty ($M = 2.63$, $SD = 1.361$), limited access to mobile network/internet ($M = 2.45$, $SD = 1.458$), lack of trust in information from value chain actors ($M = 2.26$, $SD = 1.439$), and phone signal disruptions ($M = 2.31$, $SD = 1.577$) emerged as the most important barriers. In contrast, language barriers ($M = 0.72$, $SD = 1.051$), cultural differences ($M = 0.98$, $SD = 1.300$), and geographical distance ($M = 1.02$, $SD = 1.269$) were perceived as relatively minor constraints. Overall, technical difficulty, poor mobile network/internet access, phone signal disruptions, and lack of trust in information were the most prominent barriers to communication across all categories of value chain actors, while language barriers, cultural differences, and geographical distance were considered less significant.

Table 3: Barriers to effective communication between catfish farmers and other value chain actors in Edo State

	Hatchers		Marketers		Processors	
	Mean	Std. Deviation	Mean	Std. Deviation	Mean	Std. Deviation
Language barriers hinder communication with value chain actors	.82	1.201	.77	1.167	.72	1.051
limited access to mobile network/internet	2.25	1.591	2.47	1.387	2.45	1.458
Lack of trust in information from the value chain	2.13	1.526	2.43	1.268	2.26	1.439
Technical difficulty	2.26	1.551	2.74	1.327	2.63	1.361
Value chain actors are unresponsive	1.61	1.393	1.95	1.364	1.77	1.360
cultural difference	.82	1.187	1.02	1.294	.98	1.300
Lack of standard communication protocols	1.94	1.445	2.20	1.313	2.16	1.378
Information overload from value chain actors	1.82	1.441	2.20	1.250	1.92	1.379
geographical distance from value chain actors	.95	1.251	1.10	1.236	1.02	1.269
Phone signals disrupt communication	2.20	1.587	2.44	1.499	2.31	1.577

Source: Field Survey, 2024

Hypothesis

The results of the one-way Analysis of Variance (ANOVA) used to examine differences in communication effectiveness among hatchery operators, marketers, and processors are presented in Table 4. The analysis showed that the between-group sum of squares was 2142.209, while the within-group sum of squares was

208612.605. The calculated F-value was 2.228 with a corresponding probability value ($p = 0.109$). Since the p-value (0.109) exceeded the 0.05 level of significance, the null hypothesis of no significant difference was accepted. This indicates that communication effectiveness did not differ significantly among hatchery operators, marketers, and processors.

Table 4 Communication Effectiveness ANOVA

Communication effectiveness

	Sum of Squares	Df	Mean Square	F	Sig.
Between Groups	2142.209	2	1071.105	2.228	.109
Within Groups	208612.605	434	480.674		
Total	210754.815	436			

Source: Field Survey, 2024

Discussion of Findings

The predominance of male respondents suggests that catfish farming in the study area remains largely male-dominated. This finding may be attributed to the capital requirements, managerial responsibilities, and commercial orientation associated with aquaculture enterprises. The result is consistent with the findings of Imade et al. (2022) and Akinbile et al. (2021), who reported that men constitute the majority of fish farmers in Nigeria due to their greater access to production resources and investment capital. The relatively high educational attainment of the respondents is noteworthy, as the majority possessed tertiary education qualifications. Educated farmers are generally more likely to adopt innovations, utilise digital communication platforms, and engage effectively with extension personnel and other value chain actors (Ogunwale et al., 2021; Olayemi et al., 2022). This educational profile therefore suggests a favourable environment for effective communication and information exchange within the catfish value chain. The mean age of 43 years indicates that most respondents were within their economically active and productive years. Farmers within this age bracket are more likely to combine physical capacity with practical experience, thereby

facilitating active participation in production and communication activities. This finding agrees with Imade et al. (2022), who similarly reported that catfish farming in Edo State is predominantly undertaken by middle-aged individuals. According to Eze et al. (2021), farmers within this age group are often more responsive to information and innovation than older farmers, thereby enhancing their interactions with other stakeholders.

The average household size of five persons suggests the availability of family labour to support production and marketing activities. Larger households often provide additional labour resources and social networks that facilitate information sharing and communication among farming households (Adeola et al., 2020). Consequently, household members may contribute to information dissemination and strengthen linkages with other actors within the value chain. The mean farming experience of five years indicates that many respondents entered catfish farming relatively recently. This may reflect the continuing expansion and attractiveness of aquaculture as a livelihood and business enterprise in Nigeria (Srikulnath et al., 2025). Farmers with fewer years of experience often depend more heavily on

communication with extension agents, input suppliers, experienced farmers, and marketers to acquire technical and market information necessary for effective decision-making (Ogunwale et al., 2021). Small-scale aquaculture producers generally rely on regular interactions with suppliers, buyers, extension personnel, and fellow farmers to access production inputs, technical information, and market opportunities (FAO, 2025). Although the mean annual income suggests that catfish farming can generate substantial returns, the large proportion of respondents earning ₦1,000,000 or less indicates considerable variation in enterprise performance. Previous studies have shown that differences in access to information, market intelligence, and communication networks can influence farm profitability and market participation (Mohammed et al., 2022; Srikulnath et al., 2025). This finding underscores the importance of strengthening communication effectiveness among value chain actors to enhance information flow, coordination, and economic outcomes.

The findings also indicate that communication between catfish farmers and other value chain actors was generally weak to moderate, suggesting that information exchange within the value chain remains suboptimal. Although respondents perceived that information was conveyed relatively clearly, communication effectiveness was constrained by deficiencies in reliability, timeliness, trust, and access to technological information. This suggests that communication among actors exists but may not be sufficiently structured to

support efficient value chain coordination and decision-making. The relatively higher scores for information clarity across hatchery operators, marketers, and processors indicate that communication messages are generally understandable when exchanged. However, the lower ratings for communication reliability suggest that farmers may not consistently receive information when needed. Effective value chain communication requires not only clarity but also consistency, dependability, and accessibility. Similar concerns were reported by Adeola et al. (2020), who found that weak communication systems in Nigerian agribusiness value chains contributed to information gaps and poor coordination among actors.

Delays in receiving market intelligence may expose farmers to unfavourable market conditions and reduce their ability to maximise returns. This finding supports Fawole et al. (2018), who reported that inefficient information flow contributes to market inefficiencies and weakens farmers' competitive position. The result also aligns with Olayemi et al. (2022), who emphasised that timely access to market information is critical for improving coordination and reducing transaction costs in agricultural value chains. Trust emerged as one of the weakest dimensions of communication effectiveness across all categories of value chain actors. The finding corroborates Adebayo et al. (2021), who observed that distrust among agricultural stakeholders undermines collaboration and weakens collective action. Similarly, Mohammed et al. (2022) reported that information asymmetries and

limited transparency in fish marketing systems often create uncertainty among value chain participants.

The findings further revealed that respondents generally disagreed that communication with value chain actors significantly enhanced productivity or improved farming practices. This finding contrasts with Ojo et al. (2023), who found that effective communication positively influenced agricultural productivity through improved access to technical information and innovation. The disparity may be attributable to differences in institutional support systems, extension service availability, and communication infrastructure. Another finding is the low level of access to information on new technologies. This suggests that communication networks within the catfish value chain may not be functioning effectively as channels for innovation diffusion. According to FAO (2025), effective communication systems play an important role in disseminating innovations and strengthening value chain performance.

The findings on constraining factors suggest that communication effectiveness within the catfish value chain is constrained not only by interpersonal factors but also by weaknesses in the communication infrastructure upon which information exchange increasingly depends. This finding supports Bello et al. (2022), who reported that inadequate digital infrastructure and poor connectivity significantly hinder agricultural communication among rural producers in Nigeria. Similarly, Tunde et al. (2023)

observed that unstable network services frequently disrupt information exchange among agricultural stakeholders. The finding also aligns with Olayemi et al. (2022), who emphasised that the benefits of digital communication technologies in agriculture are often undermined by infrastructural deficiencies and inconsistent connectivity.

Another finding is the relatively high perception of lack of trust in information received from value chain actors. This result complements the findings presented in Table 2, where trust also recorded low effectiveness scores. Trust is fundamental to effective communication because it influences actors' willingness to share information, act on received information, and engage in collaborative relationships. The finding corroborates Adebayo et al. (2021), who found that distrust among agricultural stakeholders weakens cooperation and reduces the effectiveness of information-sharing systems. Mohammed et al. (2022) similarly reported that information asymmetries and concerns about information credibility often undermine interactions within fish marketing systems. The results further indicate that the absence of standard communication protocols constitutes a moderate barrier across all actor categories. This suggests that communication may occur without clearly established procedures regarding information sharing, feedback mechanisms, or responsibilities among actors. According to Eze et al. (2021), the absence of structured communication systems can contribute to misunderstandings, information

inconsistencies, and poor coordination within agricultural value chains.

The ANOVA revealed no significant differences in communication effectiveness among hatchery operators, marketers, and processors. This suggests that the communication experiences of catfish farmers are relatively similar across the different categories of value chain actors. In other words, the strengths and weaknesses associated with communication are not confined to a particular actor group but appear to be distributed throughout the value chain. The absence of significant differences may be attributed to the shared operating environment within which these actors function. Hatchery operators, marketers, processors, and farmers are exposed to similar infrastructural conditions, communication technologies, institutional arrangements, and market realities. The finding further suggests that communication challenges within the catfish value chain are systemic rather than actor-specific. According to Eze et al. (2021), effective value chain coordination depends on the quality of information exchange among all participants rather than the performance of any single actor. Similarly, FAO (2025) emphasises that weaknesses in communication systems often affect entire agricultural value chains because actors are interconnected through production, processing, and marketing activities.

Conclusion and Recommendations

The study established that communication between farmers and hatchers, marketers, and processors was moderately effective, constrained by low trust, poor access to timely market information, unreliable communication channels, and limited access to technological information. Technical difficulties, weak mobile network infrastructure, and lack of standard communication protocols emerged as the most significant barriers affecting communication between catfish farmers and other key actors. It showed an absence of significant differences in communication effectiveness across value chain actors, indicating that communication challenges are systemic and embedded within the broader institutional and infrastructural environment of the aquaculture sector. The study showed that effective communication is central to improving coordination, trust, market integration, and productivity within catfish value chains. The study recommends that strengthening communication systems within aquaculture should therefore be treated as an integral component of agricultural development practice by various intervening bodies like extension service providers, development organisations and farmer groups. Addressing communication inefficiencies may contribute significantly to improving the sustainability and competitiveness of catfish production systems in Edo State and Nigeria more broadly.

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