

USE OF SOCIAL MEDIA TOOLS IN TECHNOLOGY TRANSFER AMONG MAIZE FARMERS IN OBIO/AKPOR LOCAL GOVERNMENT AREA, RIVERS STATE, NIGERIA

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ABSTRACT

The study examined the utilization of social media in technology transfer among maize farmers in Obio/Akpor Local Government Area, Rivers State, Nigeria. Specifically, the study was aimed at describing the socio-economic characteristics of the farmers; examining the influence of social media platforms on maize farming practices; identifying the agricultural technologies transferred through social media; evaluating the effectiveness of these platforms in technology transfer; and identifying the constraints to farmers. The population comprised 100 maize farmers registered under the Rivers State Agricultural Development Programme, selected through a multi-stage sampling technique. Data were collected via a structured questionnaire utilizing Likert-type scales and analyzed using descriptive statistics such as percentages and mean scores, with regression analysis applied to test the hypothesis at a 0.05 significance level. The results indicated that the majority of the farmers were female (53%), with most falling within the age range of 31–40 years (40%). A significant proportion of the respondents had secondary or tertiary education (32%), and the average household size was 3 persons. Facebook (38%) and YouTube (36%) were identified as the primary social media platforms facilitating technology transfer among maize farmers. The most commonly transferred agricultural technologies included conservation tillage (mean = 2.68), automated irrigation systems (mean = 2.61), and maize-legume rotation and intercropping (mean = 2.60). Social media platforms were particularly effective for providing visual demonstrations of farming techniques (mean = 2.77) and offering communication solutions for problem-solving (mean = 2.57). However, several constraints were noted, including high transportation costs (mean = 3.00), high costs of fertilizers and farm tools (mean = 2.90), and inadequate storage and processing facilities (mean = 2.77). Regression analysis indicated no significant relationship between socio-economic characteristics such as age, education, and household size, and the effectiveness of social media in technology transfer. The study concludes that while social media—particularly Facebook and YouTube—plays a vital role in the dissemination of agricultural technologies, infrastructural and financial challenges hinder its optimal effectiveness. Addressing these barriers is essential for enhancing the role of social media in promoting agricultural productivity and sustainability among maize farmers.

Keywords: Social Media, Tools, Technology and Maize

INTRODUCTION

Social media are important in providing information for enabling the rural communities to make informed decision regarding farming activities, especially in the rural areas of developing countries (Lwoga, 2010). Information as we know, is the key for success in the

operation and management process of agricultural activities. To a large extent, mass media serves as a veritable instrument for information dissemination in agriculture.

In the agricultural sector, farmers stand to benefit significantly from the integration of social media into technology transfer initiatives. Here are several ways in which social media can be leveraged to facilitate knowledge exchange and technology adoption among farmers:

Access to Information: Social media platforms serve as repositories of information on various agricultural practices, techniques, and technologies. Farmers can access timely updates on weather patterns, market trends, pest outbreaks, and best agricultural practices through social media channels such as Twitter, Facebook groups, and agricultural forums. Overall, the integration of social media into technology transfer initiatives holds immense potential for enhancing knowledge dissemination, capacity building, and collaboration among farmers. By harnessing the power of social media, agricultural stakeholders can empower farmers with the information, skills, and resources they need to thrive in a rapidly changing agricultural landscape.

The adoption of social media tools in agriculture is increasingly recognized as a vital mechanism for enhancing technology transfer among farmers. In regions like Obio/Akpor Local Government Area, Rivers State, Nigeria, the integration of social media can bridge the gap between agricultural innovations and smallholder farmers, who often lack access to timely information and resources.

Research indicates that social media platforms facilitate knowledge sharing, community building, and direct engagement between farmers and agricultural experts, which is crucial for effective technology adoption (Murphy, 2024; Quinn, 2024). Additionally, studies show that farmers who utilize social media report improved productivity and economic gains, highlighting its role in modern agricultural practices. Understanding how these tools influence technology transfer can provide insights into enhancing agricultural productivity and sustainability in Nigeria's diverse farming landscape (Murphy, 2024).

Objectives of the Study

The broad objective of the study was to ascertain the use of Social Media tools in technology transfer among maize farmers in Obio/Akpor Local Government Area, Rivers State. The specific objectives were to;

- i. describe the socio-economic characteristics of Maize farmers.
- ii. identify the types of social media tools utilized by maize farmers.
- iii. ascertain relevant technologies transferred among maize farmers through social media
- iv. ascertain the effectiveness of social media tools in technology transfer to maize farmers
- v. determine the constraint to the use of social media in maize technology transfer among maize farmers in the study area.

Hypothesis of the Study

Ho₁: There is no significant relationship between the socio-economic characteristics of maize farmers and the use of social media platform in maize technology transfer in the study area.

METHODOLOGY

The study was conducted in Obio/Akpor Local Government Area, Rivers State, Nigeria. It was created on the 3rd of May 1989 with its headquarters located at Rumuodumaya Town. It's coordinates approximately latitude 4.8315° N and longitude 6.9288° E. The predominant language is Igbo, alongside English. The climate is tropical monsoon, characterized by high rainfall (about 2,000 mm annually) and relative humidity around 80%25. Vegetation includes tropical rainforest, supporting crops like cassava, yam, and oil palm. The main livelihoods are agriculture, trade, and services, with a rich cultural heritage including festivals and traditional music.

Obio/Akpor is bordered by Ikwerre Local Government Area in the North, Port Harcourt City Local Government Area in the South, Emohua Local Government Area in the East and Oyigbo Local Government Area in the West. This strategic location makes it a significant urban and commercial centre within Rivers State (Emmanuel et al., 2024).

Obio/Akpor LGA has a projection population of 665,000. Obio/Akpor 665,000 Population [2022] – Projection 263.1 km² Surface 2,527/km² Population Density [2022] 2.3% Annual Population Change [2006 → 2022]. It is one of the major centres of economic activities in Nigeria, and one of the major cities of the Niger Delta region, with industries and companies.

RESULTS AND DISCUSSION

The part of the study is very important as it covers the respondent's gender, age, marital status, household size, other occupation, educational qualification, fish farming experience (years), monthly income, association membership, access to agricultural extension service and scale of fish farming. The result is presented in the table below using frequencies and percentage and mean.

Table 1: Distribution of Respondents According to their Socio-economic Characteristics

Variables	Category	Frequency	Percentage (%)	Mean
Gender	Male	54	54.0	
	Female	46	46.0	
Age (years)	Below 20	10	10.0	33 years
	21-30	36	36.0	
	31-40	28	28.0	
	41-50	21	21.0	
	51 and above	5	5.0	
Marital status	Single	14	14.0	
	Married	60	60.0	
	Divorced/separated	10	10.0	
	Widow/widower	16	16.0	
Household size	1-4	31	31.0	6 persons
	5-8	44	44.0	
	9 and above	25	25.0	
Other occupation	Fish farming only	36	36.0	
	Trading	49	49.0	
	Others	15	15.0	
Educational qualification	Non formal	10	10.0	

	Primary	30	30.0	
	Secondary	42	42.0	
	Vocational	10	10.0	
	Tertiary	8	8.0	
Fish farming experience (years)	1-10	45	45.0	
	11-20	27	27.0	14 years
	21-30	23	23.0	
	31 and above	5	5.0	
Monthly income (₦)	21,000 - 30,000	43	43.0	
	31,000 – 40,000	18	18.0	₦40,000
	41,000 – 50,000	15	15.0	
	51,000 – 60,000	10	10.0	
	61,000 – 70,000	6	6.0	
	71,000 – 80,000	5	5.0	
	81,000 and above	3	3.0	
Association Membership	Cooperative society	26	26.0	
	Fish farmers' association	12	12.0	
	None	62	62.0	
Access to Agricultural Extension service	Yes	19	19.0	
	No	81	81.0	
Scale of fish farming	Subsistence	64	64.0	
	Commercial	36	36.0	

Field Survey, 2025

Table 2: Types of Social Media Platforms used by Maize Farmers in the Study Area

S/N	Social Media	Frequency	Percentage
1.	Facebook	35	38
2.	Instagram	7	8
3.	YouTube	33	36
4.	Twitter	5	5
5.	WhatsApp	12	13

Field Survey, 2025

Table 3: Benefit of Television Programmes in Promoting Fish Farming in the Study Area

Agricultural Technology	SA (%)	A (%)	D (%)	SD (%)	Mean	Remark
Organic Farming	2 (2.17)	65 (70.65)	19 (20.65)	6 (6.52)	2.65	Agreed
Conservation Tillage	6 (6.52)	60 (65.22)	17 (18.48)	9 (9.78)	2.68	Agreed
Drought Tolerant Maize Variety	11 (11.96)	31 (33.70)	36 (39.13)	14 (15.22)	2.42	Disagree

Integrated Management	9 (9.78)	23 (25.00)	40 (43.48)	20 (21.74)	2.22	Disagree
Automated Irrigation System	23 (25.00)	42 (45.65)	16 (17.39)	11 (11.96)	2.61	Agreed
Maize legume rotation and inter-cropping	15 (16.30)	35 (38.04)	33 (35.87)	9 (9.78)	2.60	Agree

Field Survey, 2025

N/B: SA =Strongly Agreed, A = Agreed, D = Disagreed, Strongly Disagreed = SD
Criterion Mean: ≥ 2.50

Table 4: Effectiveness when using social media in Maize Farming in the Study Area

S/N	Agricultural Technology	SA (4)	A (3)	D (2)	SD (1)	Mea n	Remark
1.	Visual demonstration of farming techniques	23	35	24	10	2.77	Agreed
2.	Dissemination and communication for problem solving	18	31	29	14	2.57	Agreed
3.	Collaborative discussion and knowledge sharing	12	29	36	15	2.41	Disagreed
4.	Access to expert and resources	13	27	37	15	2.41	Disagreed
5.	Visual learning	13	26	33	20	2.34	Disagreed

Field Survey 2025

N/B: SA =Strongly Agreed, A = Agreed, D = Disagreed, Strongly Disagreed = SD
Criterion Mean: ≥ 2.50

Table 5: Constraints faced by maize farmers in using social media tools

Table 4.3 shows summary statistics of the constraints affecting Maize Farmers in Obio/Akpor Local Government Area using Total Mean Score and Remark.

S/N	Problem	SA (4)	A (3)	D (2)	SD (1)	Mean	Remark
1.	Limited Digital Literacy	16	39	27	10	2.66	Agreed
2.	Poor Internet Connectivity	30	39	16	7	3.00	Agreed
3.	Lack of Access to Devices	16	39	29	8	2.68	Agreed
4.	Language Barriers	26	39	19	8	2.90	Agreed
5.	Social and Cultural Barriers	21	37	26	8	2.77	Agreed
6.	Time Constraints	15	28	33	16	2.45	Disagreed

Field survey 2025

N/B: SA =Strongly Agreed, A = Agreed, D = Disagreed, Strongly Disagreed = SD
Criterion Mean: ≥ 2.50

Table 6: Linear Regression Relationship Between Socio-Economic Characteristics of Maize and the use of social media in Technology Transfer

Model	Coefficients ^a			t	Sig.
	Unstandardized Coefficients		Standardized Coefficients		
	B	Std. Error	Beta		
(Constant)	1.350	0.751		1.798	0.076
Age	0.129	0.172	0.094	0.751	0.455
Gender	0.089	0.232	0.042	0.385	0.701
1 Marital status	-0.078	0.164	-0.058	-0.483	0.630
Household size	0.075	0.122	0.069	0.613	0.542
Occupation	0.150	0.133	0.123	1.130	0.262
Farming experience	-0.094	0.120	-0.094	-0.786	0.434
Income	0.178	0.131	0.146	1.356	0.179

Field Survey, 2025
tailed)

***P>0.05 level (2-**

DISCUSSION

Result from table 1 above shows the socio-economic characteristics of farmers.

Age: The study indicated that majority of the respondents 40% were between the age of 31 -40 years, 32% were between 41 – 50 years, 28% are those between 20 – 30 years.

Gender: The study revealed that 47% of the respondents were male while 53% of the were female. This implies that a slightly higher ratio of females is into maize farming compared to men. The Table also indicated that 22% of the respondents attained primary level of education, while 24% of the respondents attained secondary level of education. In addition, 32% of the respondents which are the majority of the respondents attained tertiary education and 23% of the respondents were not educated.

Marital Status: The table also revealed that 60% of the respondents which makes up the majority were married while 33% of the respondents are single and 8% were widow/widower. The Table also indicated that 23% of the respondents had 1 -2 persons in their households while 36% making up the majority of the respondents had 3 – 4 persons also in their household. Also, 26% of the respondents had 5 -6 persons in their household and 14% of the respondents were above 6 in their household.

Farming Experience: The table showed that 32% of the majority of respondents had an experience of 11 – 20 years of farming experience and 24% of the respondents had 1 – 10 years of farming experience and also 24% of the respondents still had 21 – 30 years of experience in farming then 21% of the respondents had a farming experience above 30 years.

Occupation: The Table indicated that 37% the majority of the respondents were employed and 35% of the respondents were farmers and 22% of the respondents are self-employed while 7% of the respondents were traders.

Income: The Table also shows that majority of the respondent which is 44% earn between ₦21,000 – ₦30,000 and 7% of the respondent earns between ₦1,000 - ₦10,000. The table

also shows that 19% of the respondent earns between ₦11,000 – ₦20,000 and 32% of the respondent earns above ₦30,000.

Table 2 above shows shows summary statistics of the types of Social Media platforms used in technology transfer among maize farmers in Obio/Akpor Local Government Area. The result on table 2 indicates that 38% of majority of the respondents agrees that Facebook as a platform is more available for technology transfer while 36% of the respondents agrees that YouTube is also available for the transfer of technology technique. Also, 8% of the respondent agrees that Instagram is a useful platform to transfer technology techniques and 13% agrees that WhatsApp is a better option for the transfer of technology while 5% shows the respondents that twitter is a platform available for transfer of technology technique.

Table 3 above shows the shows the agricultural technology transferred among maize farmers in the study area. For the organic farming, there is a mean of 2.65 agreed that organic farming is available for maize cultivation. Also, conservation tillage technology mean 2.68 agreed that conservation tillage is readily available for maize farming. For genetically modified organism, mean of 2.4 also disagreed that it is available for agricultural technology. Integrated management, also a part of agricultural technology has a mean of 2.42 which clearly indicate that respondents disagreed to availability of integrated farming. The availability of automated irrigation for maize farming has a mean of 2.61 indicating that respondents agreed to its availability. Bio-technology availability have a mean score of 2.60 showing that respondents disagree that bio-technology for maize farming is not readily available.

Table 4 above shows summary statistics of the effectiveness when using Social Media among maize farmer in Obio/Akpor Local Government Area. The information provided for table 4 showed that the respondents agreed that the use of social media is effective on maize farming (Mean score > 2.5). Particularly, Effectiveness in farmers knowledge when using social media has the highest mean score of 2.77. In increase in the quantity of produce, social media has shown effectiveness in this area as shown in the table. Table 4.4 also indicates that increase in social farmers' income is also as a result of the effectiveness of social media. The respondents also agree that in as much as social media is effective, it still does not have environmental hazard.

Table 5 below indicates the constraint affecting maize farming. The respondent agreed to all the constraint affecting maize farming (Mean 3.00). Majority of the respondent agreed that high Transportation is a major constraint to affecting maize farming after production. Next to high cost of fertilizer with a mean of 2.90 showing that respondents has limited or no access to fertilizers to aid maize farming. Also, Inadequate storage and processing is a factor that the respondents agreed to in preserving maize and seeds before and after farming, with a mean of 2.77. The result also showed that Improper marketplace, poor quality variety and environmental hazard are constraint affecting maize farmers with mean of 2.66, 2.68 and 2.45 respectively, the table shows that environmental hazard affect maize farming.

Table 6 above shows the relationship between Socio-Economic Characteristics of Maize and the use of Social Media in Technology Transfer. Using the multiple linear regression model was used to analyzed and test for hypothesis of the study as presented in table 6 above. Results shows that none of the independent variables were significant as all P-values were greater than 0.05. Specifically, the explanatory variables (age, gender, marital status, educational level, household size, occupation, farming experience, and income) were not statistically significant in predicting the level of education. The result shows that the correlation coefficient (R) is equal to 0.249, which indicates a weak positive relationship between the independent variables and the dependent variable (level of education). The R-square value of 0.062 suggests that only 6.2% of the variance in the level of education can be explained by the model. Some of the independent variables (age, gender, household size, occupation, and income) had positive coefficients, implying a proportionate relationship with the dependent variable. This indicates that an increase in these variables would theoretically lead to a corresponding increase in the level of education, although these relationships were not statistically significant. On the other hand, two of the independent variables (marital status and farming experience) had negative coefficients, implying an inverse relationship with the dependent variable. This suggests that an increase in these variables would theoretically lead to a decrease in the level of education, but again, these relationships were not statistically significant. Finally, since the P-value of the overall model (0.596) is greater than the significance level of 0.05, we fail to reject the null hypothesis. Therefore, we conclude that the socio-economic characteristics of the respondents do not significantly influence the level of education in the study area. These results suggest that factors other than the socio-economic characteristics examined in this study may be more influential in determining the level of education among the respondents.

CONCLUSION

The study concluded that in the study area, the major source of technology transfer was through Facebook, followed by YouTube and then WhatsApp and these medium was used at many levels by maize farmers. The study also concluded that social media wasn't effective in the transfer of agricultural technology among maize farmers in the study area. The respondents also identified lots of constraints that mitigated the usage of social media in the transfer of agricultural technology.

RECOMMENDATIONS

According to results, the following recommendations were made:

1. **Social Media Training:** Providing training on effective social media tools can enhance market access and information sharing among farmers.
2. **Improved Transportation Infrastructure:** Enhancing rural road networks and logistics can reduce transportation costs and delays, making fertilizers more accessible.
3. **Subsidy Programs:** Expanding government subsidy programs for fertilizers can lower costs for farmers, similar to Malawi's Farm Input Subsidy Program.
4. **Precision Agriculture:** Utilizing technology for variable-rate nutrient application helps optimize fertilizer use, reducing waste and costs while improving crop yield.

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