USE OF WHATSAPP AS EMERGING PLATFORM FOR ACCESSING EXTENSION SERVICES AMONG RICE FARMERS IN WUKARI LOCAL GOVERNMENT AREA, TARABA STATE, NIGERIA

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Abstract

This study analyzes factors influencing the use of WhatsApp as emerging platform for innovative agricultural extension service access among rice farmers in Wukari Local Government Area, Taraba State, Nigeria. A multi-stage sampling technique was used to collect primary data from 107 small scale rice farmers through a well-structured questionnaire. The study revealed that 65.4% of respondents were males, 84.1% had tertiary education, 82.2% had smart phone, 95.3 per cent had no access to steady network services, 93.5% lacked the ability to effectively operate smart phone. Also, the logit regression results show socio-economic factors as cost of WhasApp (X_1), gender (X_2), age (X_3), farming experience (X_6) and educational level (X_7) to be the significant variables influencing small scale rice farmer's adoption of WhatsApp. The study indicates that 97.2% had no access to constant electricity supply, as 82.2 % had no active whatsApp page as major factors affecting the use of whatsApp. The study concludes that factors influencing the use of WhatsApp as emerging platform for innovative agricultural extension service access among rice farmers in Wukari Local Government Area include: increased online criminal activities, high cost of smart phones and inadequate awareness about the use of WhatsApp platform for agricultural information dissemination. The study recommends the urgent need for increased supply of electricity among rice farmers in Wukari Local Government Area.

Keywords: WhatsApp, agriculture, innovation, extension service, rice farmers

Introduction

Social Media (SM) has been used in many areas, one of which is the agricultural industry. Farm Innovators are regularly exchanging information and their experiences using WhatsApp on their mobile phones. Most of the contents shared are knowledge intensive with a mix of personal farming experiences (Rajkhowa and Qaim, 2021; Bite and Anand, 2017). The potential of not only WhatsApp but other social media need to be exploited to bring location specific and commodity oriented transformative changes in the agriculture extension delivery system are now real (Patel and Kumar, 2021; Anderson, 2019,). The experimentation with innovative small scale rice farmers is not only helping in scaling the farmers' innovations but also institutional innovations at large. As all human resources (labour, management, innovation, creativity etc.) are products of social relationships, no one can reach maturity without the help of personally caring people, including their families, friends, neighbors and communities. Farms and agricultural enterprises also depend on the ability of people to work together toward the common goal of ecological, social, and economic sustainability through WhasApp (Nain and Rashmi, 2019; Nain, Rashmi, Mishra and Sharma, 2018).

Agricultural extension has since married the online world. This marriage between agricultural extension adversary services are creating synergies and bolstering small scale farmer's productivity (Suchiradipta and Saravanan, 2016). Taking extension service access online will not only ensure maximized and diversified extension service but also protect the famer and extension works from the endless farmers-herders crisis, increased cost of transportation and inefficient demand for highly trained extension workers in remote villages. The advent of e-extension service delivery has also developed a taste for online agricultural extension service counselling among small scale rice farmers which has ensures the survival and growth of many agricultural produces even where it was not cultivated before (Alabi and Nnaji, 2021; Thakur, 2016 and Vora, 2015).

WhatsApp platform allows users to exchange messages, audio, video, photographs. WhatsApping was first done by JanKoum and Brian Acton in 2009. This can be downloaded to a smart mobile phone with internet data access. Over 1.5 billon people are monthly active users of WhatsApp to stay in touch with colleagues, friends and family by December 2017 who are exchanging nearly 60 billion messages on a single day and the chat app had 300 million daily active Status users worldwide (Agwu, Ekwe, Ifeonu, Nwobodo, Cynthia, Anugwa and Okoro, 2022).

WhatsApp offers a communication approach that can be quite flexible, time wise as well as place wise. Beyond normal discussions, sufficient

snippets of information dissemination can also be delivered through WhatsApp, even hesitant and shy farmers can participate through encouragement and support (Orifah, Ijeoma, Olajide and Wigwe, 2017). User feedback is easier to receive, and it is prompt. One can communicate instantaneously through multiple ways in one to one, one to many and many to many ways. It is easier for farmers to communicate with peers, extension professionals and experts in real time. Many times, fellow farmers answer the queries of other farmers. This has the potential to build networking and trust among each other. Farmers are getting immediate advice on crop health to seed procurement, soil health, use of fertilizers and pesticides, on WhatsApp. Young farmers are using WhatsApp for marketing their vegetables in order to ensure a good range of produce, each grew different varieties of vegetables (Aguera, Berglund, Chinembiri, Comninos, Gillwald and Govan-Vassen, 2020; Anand and Kumaran, 2017).

However, several factors must be overcome in order to harnessed the power of WhatsApp and its numerous beneficial for the farming communities. WhatsApp can transform rice agribusinesses to record sales and generate revenue. WhatsApp platform has changed how rice farmers interacts with their extension agents in many developed countries of world (Naruka, Verma, Sarangdevot, Pachauri, Kerketta and Singh, 2017). Keeping all these views in mind, this study focused on the analysis of factors influencing the adoption of WhatsApp as emerging platform for innovative agricultural extension service access among small scale rice farmers in Wukari Local Government Area, Taraba State, Nigeria.

Research Methodology

The study was carried out in Wukari Local Government Area of Taraba State. Wukari Local Government Area is located in Southern Taraba State. The Wukari people are predominantly farmers, hunters and partly fishermen, while some are civil servants. Geographically, Wukari local government is situated in the southern part of Taraba State. Ibi local government area borders it to the north, east by Gassol local government area, from the south by Donga local government area of Taraba State, and to the west by Ukum local government area of Benue State.

The local government area has a total area of 4,308 km2 (1,663 Square mile), located between latitude 7°51′ N 9°47′ E and longitude 10°E and 12°E. According to 2006 National population Census (NPC) figures, Wukari has a population of 241,546 people, projected to 374,800 people in 2022. Wukari lies on the Guinea Savannah zones vegetation, which is marked by mainly forest and tall grass. The plain and fertile land and the consistent annual flood of the rivers and streams within the area make the land conducive for seasonal farming and grazing, and all seasons fishing. These

activities informed the distribution of cultural and natural resources of the area, and also make Wukari a very rich agricultural land.

Primary data was used for this study. The primary data were collected through the administration of well-structured questionnaire. Frequency, percentages, Likert Scale and logit regression was used for the analysis.

The population of the study represents small scale farmers in Wukari local Government Area. A multi-stage sampling technique was employed in this study to select a cross section of 107 farmers in the areas. The first stage involved the purposive selection of four (4) out of ten (10) wards where small scale rice farmers are found in large numbers in the study area. The second stage was the identification of registered small scale rice farmers through the Rice Farmers Association (RFA) in the selected wards from the Wukari local government, department of agriculture. The third stage involved the random sampling of small scale rice farmers from each ward base on rice farmers population as obtained from Wukari local government agricultural department. The Fourth and final Stage involved the purposive sampling of 30 rice farmers with smart phones from Puje ward, 31 from Hospital ward, 25 from Rafin Kada ward, and 21 from Tsokondi ward (Table 1)

Table 1 Sampling Technique

Ward	No. of Farmers	Percentage
Puje	30	28.0
Hospital	31	29.0
Rafin Kada	25	23.4
Tsokondi	21	19.6
Total	**107**	**100**

Source: Field Survey data, 2024.

Results and Discussions

Socioeconomic characteristics of the respondents

The results show that majority (65.4 per cent) of the respondents were males, 32.7 per cent were between the age group of 20-29 years, 39.3 per cent were married, 35.5 per cent of the household size had 3-6 persons, 30.8 per cent had 5-6. It is also observed that 41.1 per cent of the respondent's members had the least experience of (0-10) years farming experience, majority (84.1 per cent) had tertiary education, majority (49.5 per cent) had 2-3h farm size, majority (50.5 per cent) were not members of cooperative society, 82.2 per cent had smart phone, 95.3 per cent had no access to steady network services, 93.5 per cent lack the ability to effectively operate smart

phone while 6.5 per cent could perfectly operant their smart phone, majority (97.2 per cent) had no access to constant electricity supply as 82.2 per cent did not have an active whatsApp page, majority (39.3 per cent) had a monthly income greater than ₦50, 000.00 with an annual income that is more than ₦600, 000.00, 33.6 per cent, 45.8 per cent of the respondents smart phone cost between 50,000 – 100,000 naira

Table 1: Respondents demographic profile

Variable	Frequency (n =107)	Percent
Gender		
Male	70	34.6
Female	37	65.4
Age		
20-29	35	32.7
30-39	33	30.8
40-49	28	26.2
50-59	9	8.4
60 >	2	1.9
Marital status		
Married	64	59.8
Single	42	39.3
Divorce	1	.9
Farming experience		
1-10	44	41.1
11-20	23	21.5
21-30	27	25.2
31-40	6	5.6
41-50	3	2.8
51 >	4	3.7
Educational level		
Primary	3	2.8
Secondary	14	13.1
Tertiary	90	84.1
Membership of cooperatives		
Yes	53	49.5
No	54	50.5
Farm size		
0-1	25	23.4
2-3	53	49.5
4-5	23	21.5

6 >	6	5.6
Have a WhatsApp Page		
Yes	18	16.8
No	89	83.2
Income		
> 50,000	42	39.3
51-100,000	36	33.6
101,000 -150,000	16	15.0
151,000 – 200,000	6	5.6
> 201,000	7	6.5

Source: Field Survey data, 2024

Socioeconomic Factors Influencing the Use of WhatsApp

The result in table 3 reveals that cost of WhasApp (X_1), Gender (X_2), Age (X_3), Farming Experience (X_6) in years and Educational Level (X_7) in years were the significant variables influencing relevance of WhasApp among small scale rice farmers in Wukari local government area. Cost of WhasApp (X_1) was positive and significant at 1%, this implies that, as cost of WhasApp increases, there is increase adoption of whatsApp as an emerging platform for extension service delivery among small scale rice farmers in the study area by 0.00%. For the male Gender X_2, the coefficient was negative and significant at 1%, this means that, the increase in the number of female gender has a negative influence in WhatsApp relevance for agricultural extension services delivery. An increase in male gender of the extension agent in the study area increases the degree of WhatsApp relevance as an emerging innovative extension service delivery among the small scale rice farmers by -0.745. . Age (X_3) shows negative influence and was significant at 10% This means that, an increase in the age of small scale rice farmers in the study area increases the degree of the relevance of extension service delivery through the adoption of whatsApp in the study area by -0.093%. The coefficient of farming experience was positive and significant at 5% which shows that an increase in the number of farming experience by small scale rice farmers in the study area will increases the degree of the relevance of whatsApp utilization as an innovative extension services delivery platform by 0.105%. The coefficient of educational level was positive and significant at 5%, which means that the more the level of education of the small scale rice farmers in the study area, the more relevant whatsApp will be adopted by the small scale rice farmers as an innovation for extension advisory service delivery. This implies that, an increase in the level of education of the small scale rice farmers in the study area increases the degree of understanding whatsApp as an emerging platform for extension advisory services access by 0.118% among rice farmers

Table 3 Socioeconomic Factors Influencing the Use of WhatsApp

Variables	Coefficient	Standard error	t-value
Gender (X_1) varies	-0.745***	24303.281	0.000
Age (X_2) in years	-0.093*	24427.144	0.090
Marital Status(X_3) Varies	0.010	20572.329	0.836
Household Size (X_4) in numbers	0.053	1417.453	0.296
Farming Experience (X_5) in years	0.105**	0.094	0.043
Educational Level (X_6) in years	0.118**	14068.537	0.034
Constant	424319.531***	44028.388	0.000
R Square	0.769		
Adjusted R Square	0.752		

***1% significance, **5% and *10% respectively.
Source: Regression output, Field Survey Data, 2024

Constraints of WhatsApp Social Media Network (n = 107)

The result in Table 5 shows that majority of small scale rice farmers in the study area agreed that they are faced with the constraints of increase online criminal activities which were ranked 1st with 87.7 %. The study further revealed high cost of smart phones which ranked 2nd with 79.4 %. The inability of the government to control or regulate prices of smart phones has been a consistent occurrence which is due to high rate of inflation and thereby increasing the cost of smart phones. The implication of this is that small scale rice farmers may not be able to buy highly expensive smart phones which in turn will negatively impact on their ability to adopt whatsApp social media network platform as an emerging platform for extension service delivery. Also, the constraint of high cost of smart phones directly increases small scale rice farmers cost of rice farming and reduces their profit margin.

The constraint of inadequate awareness about the use of WhatsApp platform for agricultural information dissemination was ranked 3rd with 77.6 %, posting of non-agricultural related information on WhatsApp was ranked 4th with 62.6 % as a major constraint, lack of timely available agricultural information solution on WhatsApp platforms and low battery backup for most smart phones were ranked 5th with 60.6 % respectively. The constraint of high cost of smart phone battery charging disturbed the level of efficiency and the level of dedication to accessing agricultural information through the adoption of whatsApp social media

platform. The constraint of low battery backup is connected to poor power supply. This result from Negative government interference and lack of government assistance in the form of implementing national rural agricultural development policies and programmes in Nigeria. This also confirmed that, to promote agricultural development and achieve national goals, many social programmes must be put in place at one time or the other by the government, some of these include the provision of essential services including electricity generation and supply.

The data also revealed that lack of strong internet network was a major constraint. It was ranked 6th with 57.0% respondents. Poor network problem resulting from poor services provided by network companies such as MTN Nigeria, Glo with Pride Nigeria Air Tell communication network etc. This might have occurred not because the network services in excess but because of uncoordinated service and proper upgrade of network management programme. Poor access to good network for easy internet service is a major constraints facing small scale rice farmers ability to adopt whatsApp social media platform for agricultural extension service information accessibility.

The constraint of low income to purchase smart phone and biased information sharing and advertisement on WhatsApp platforms was identified and ranked 7th with 56.1% of respondents respectively. Many small scale rice farmers in the study area lacked adequate source of income to either operate their rice farm or expand them. Income constraint faced by the small scale rice farmers might be due to unwillingness of financial institutions to grant credit loans to the rice farmers or the loan were given at high interest rate.

Also, inconsistency in electricity supply was ranked 8th with 55.1% respondents. Lack of adequate electricity supply is one of the major problems facing small scale rice farmer's willingness to adopt whatsApp social media platform as emerging platform for agricultural extension information dissemination among small scale rice farmers. This might have occurred not because the supply is in excess but because of uncoordinated generation and supply of electricity services. The inadequate supply of electricity and power generating facility constitutes a major constraint for the scale rice farmers in the study area.

Language barrier problem was also identified and ranked 9th with 53.4 % response. This is similar to Orifah, *et al.,* (2017) findings which showed that 78.8% farmers who responded that the language used in social media platform messages was easy to understand and accurate. The constraint of non –tailored agricultural information service provision by WhatsApp platforms was ranked 10th with 51.4 respondents, while lack of adequate time for WhatsApping by small scale rice farmers was ranked 12th with 50.5 % respectively. However, high cost of charging smart phone battery was

ranked 11th with 51.4 %. Lack of privacy in WhatsApp agricultural information platform and inability to operate smart phones were ranked 13th with 45.8 % respectively. The constraint that WhatsApping is wastage of time took the last position in the ranking with 23.4 % ranked 15th as revealed by the data in Table 5.

Table 5: Constraints of Using WhatsApp (n = 107)

Constraint	Frequency	%	Rank
High cost of smart phones	85	79.4	2nd
Increased online criminal activities i.e. yahoo boys	94	87.9	1st
posting of non-agricultural related information on WhatsApp	67	62.6	4th
Lack of internet network	61	57.0	6th
Inconsistency in electricity supply	59	55.1	8th
Inability to operate Smart Phones	49	45.8	13th
lack of digital skills for using WhasApp	51	47.7	12th
High cost of data for using WhasApp	67	62.6	4th
Problem of low income to purchase smart Phone	60	56.1	7th
Gender barriers not allowing women to use WhatsApp	34	31.8	14th
Non-tailored agricultural information service provision by WhatsApp platform	55	51.4	10th
Language barriers problem	57	53.3	9th
Lack of adequate time for WhatsApping	54	50.5	11th
High cost of charging smart phone batteries	55	51.4	11th
Lack of privacy in WhasApp agricultural information platform	49	45.8	14th
Lack of timely available agricultural information solutions on whatsApp platforms	65	60.7	5th
Inadequate awareness about the use of WhatsApp platform for agricultural information dissemination	83	77.6	3rd
Biased information sharing and advertisement on WhatsApp platform	60	56.1	8th
WhatsApping is wastage of time	25	23.4	15th
Low battery backup	65	60.7	5th

Source: Field survey data, 2024

Conclusion and Recommendations

The knowledge of the emergence of whatsApp social media as an innovative platform for information dissemination among small scale rice farmers is important. Thus, understanding the adoption of whatsApp social media as

an innovative platform for agricultural extension information service delivery is critical to sustainability of the rice industry. WhatsApp social media has emerged as a widely acceptable media for agricultural extension information dissemination in Nigeria, and the surest way of maintaining optimum rice productivity is to ensure increased access to time information decimation and accessibility by agricultural extension agents to small scale rice farmers.

Based on this study, it is safe to note that the socioeconomic characteristics of small scale rice farmers encourages the adaption of whatsApp social media as an innovative platform for agricultural extension service delivery in the study area. From the results of the study it can therefore, be concluded that: cost of WhasApp social media, gender, age, farming experience and educational level were the significant variables influencing relevance of WhasApp social media adoption among small scale rice farmers in Wukari local government area. Despite the factors which served as constraints to WhatsApp social media adoption among the respondents according to the findings, all these results were shown for further improvement and by implication, create more viable ways of using whatsApp social media as an emerging platform for agricultural extension service delivery in Wukari local government area, Taraba State. Based on the findings of this study, the following recommendations were made. The activities of online criminals/yahoo boys should be controlled to encourage small scale rice framers fully adopt whatsApp social media as an innovative platform for agricultural information dissemination, thereby enhancing more rice production in Wukari Local Government Area. There is need to revive the informal sources of agricultural information dissemination among small scale rice farmers, as well as encourage formal agricultural extension sectors to wake up to their responsibilities in the areas of agricultural extension service access.

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