UTILIZATION OF SOCIAL MEDIA FOR ACCESSING INFORMATION ON CLIMATE CHANGE ADAPTATION STRATEGIES AMONG COCOA FARMERS IN ONDO STATE

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ABSTRACT

Social media refers to the internet-based digital tools for sharing and discussing information among people. Information on climate change needs to be assessable to farmers at the lowest cost through video, audio and multimedia outlet. climate change has emerged as one of the most devastating global environmental threats because it is projected to be major of the most important indices to agriculture, health, and water. Therefore, this research examined the utilization of social media for accessing information on climate change adaptation strategies among cocoa farmers in Ondo State, Nigeria. The data for this research was collected using structured interview schedule. Multi-stage sampling technique was used to select 160 respondents (cocoa farmers) from the study area. Descriptive statistics tool such as frequency counts, percentages, weighted mean score and ranking were used to analyze the objectives of the study while Pearson Product Moment Correlation (PPMC) was used to analyze the hypothesis. The result further revealed that majority (68.1%) of the respondents indicated targeting raining season for planting, planting of improved cocoa varieties 66.9% as the climate change adaptation strategies information accessed via social media platforms. The result revealed that WhatsApp had the highest weighted mean score of 3.94. The study also found out that high cost of facilities and high cost of operation (cost of subscription) constitute the major constraint to the use of social media platforms. It could be concluded that WhatsApp were frequently used for accessing information on climate change adaptation strategies among the cocoa farmers. Thus, Stakeholders involved in agriculture should strengthen network infrastructure in rural areas to improve connectivity, addressing one of the primary constraints identified by the study and enabling more seamless access to vital information on climate change adaptation strategies.
Keywords: utilization, social media, climate change, frequency, cocoa.

INTRODUCTION

Agriculture dominates the nation's economy. It is by far the most important sector of Nigeria's economy engaging about 70% of the labour force (Abudu *et al.,*2016). Agricultural land holdings are generally small and scattered, families often practice subsistence agriculture using simple tools and shifting cultivation. These small farms produce about 80% of the total foods. About 30.7 million hectares (76 million acres) or 33% of Nigeria land area are under cultivation Increasing smallholder productivity is one of the greatest challenges of the century, this is worrisome due to the growing populations, growing demand for food, rising poverty, economic stagnation, worsening environmental degradation, and climate change. The agricultural sector in most developing countries is becoming increasingly knowledge intensive. As researchers at the global, regional, and national levels continue to generate new information, agricultural systems is becoming more complex with farmers' access to reliable, timely and relevant information sources becoming more critical to their competitiveness (Thomas and Laseinde, 2015).

Information is power and agricultural information is pertinent to unlocking the potential of the agricultural sector, especially agricultural information dissemination. The world population is increasing, estimated to grow from 7.7 billion in 2019 to hit a record of 8.5 billion people by 2030, 9.7 billion by 2050 and 10.9 billion by 2100 (United Nations Department of Economic and Social Affair, 2019), with projected increases likely to come from sub-Saharan Africa. Social media provides the platform for effective agricultural information dissemination, communicating measures and practices and to utilize opportunities, address challenges facing agricultural sector in developing countries. Social media is important in the dissemination

and creation of awareness on agricultural technologies and development knowledge in real time (Ifejika, Asadu, Enibe, Ifejika & Sule, 2019). However, reaching farmers with only traditional extension system is a big challenge and may continue to prove abortive considering the barriers to effective agricultural extension in developing countries which seeks to create opportunities to connect more farm families with extension agents.

The evolution of social media (SM) provided a visible solution to this challenge. Social media refers to the internet-based digital tools for sharing and discussing information among people. It refers to the user generated information, opinion, video, audio, and multimedia that is shared and discussed over digital networks (Andres and Woodard, 2013). Social media enables blogging, tagging, discussion, networking, and so on. The various platforms include Facebook, Twitter, YouTube, Instagram, Google, WhatsApp, Blog, LinkedIn etc. Social networks are seen as an important mechanism for the spread of information and technology (Baerenklau, 2005 and Young, 2009). Also, it has also been considered to be an effective tool in disseminating agricultural information among farmers and they constitute the most powerful media for disseminating information quickly enabling farming community to make informed decisions regarding their farming activities, especially in the rural areas of developing countries (Kakade, 2013 and Lwoga, 2010). The overall objective of the study was to determine the frequency of use of social media for accessing information on climate   change adaptation strategies while the specific objectives were to; describe the socio-economic characteristics of the respondents; examine the information on climate change adaptation strategies accessed through social media, examine the frequency of use of social media for accessing information on climate change adaptation strategies, investigate the constraints in the use social media in accessing climate change adaptation strategies information. The hypothesis was tested and stated as: there is no significant relationship between socio-economic characteristics of the respondents and frequency of use of social media.

MATERIALS AND METHODS

The study was carried out in Ondo State, Nigeria. Its capital is Akure with latitude 7.100005 and longitude 4.841694. It is bounded to the East by Edo and Delta state, to the west by Ogun state and Osun state, to the north by Ekiti and Kogi state, and to the south by the Bight of Benin and the Atlantic Ocean. Some important cities and towns include Ondo, Owo, Ikare, Akungba-akoko, Ilaje, Ile-Oluji, and Owena. Ondo state lies in the equatorial rainforest belt and the rainfall around this area varies from 1800mm 2100mm per annum. It has distinct wet season from April to late October and dry season from November to March; the area has a mean annual temperature of $26.2^{0}C$, the humidity is high between July and December and low between December and February. The main occupation of the people is farming, and the farms are semi commercial units, which largely rely on rainfall as the main source of water supply. In addition, farming household structure is basically of two types; the nuclear type called farm family, and the extended type called the farming household. People of the state are mostly farmers, producing such food crops as yam, maize, cassava, cowpea and cocoyam. The cash crops grown include cocoa, kolanut and palm produce.

Multistage sampling technique was used for selecting the respondents (Cocoa farmers) for the study. Ondo state is divided into three (3) agricultural zones and eighteen (18) blocks for administrative convenience by the Ondo State Agricultural Development Programme (OSSAPADEP). In Ondo state, the agricultural zones are Owo/Akure zone (6 blocks), Ondo zone (7 blocks) and Idanre/Owena zone (5 blocks). The first stage involves purposive selection of Ondo and Owo agricultural zones of the state due to dominance of cocoa farmers. The second stage involved random selection of Odigbo and Ile-Olugi/Okeigbo blocks from Ondo agricultural zone and Akure and Owo blocks from Owo agricultural Zone. The third stage involved random selection of two cells from each of the selected blocks. From Odigbo block, Ominla and Oloruntedo were selected, Bamikemo and Ojowo were selected from Ileolugi/Okeigbo block, Oba-ile and Eleyewo were selected from Akure block and Isuada and Ogbese were

selected from Owo block. Finally, 50% of the cocoa farmers were selected at random from the selected cells through a snowball sampling technique. A total of 160 cocoa farmers were selected out of 314 from the selected cell.

Data collected were analyzed with descriptive statistics such as frequency, percentages and mean, the dependent variable was determined by frequency of use of social media and inferential statistical tool such as Pearson Product Moment Correlation (PPMC) was used to analyze the hypothesis.

RESULTS AND DISCUSSION

Socio-economic Characteristics of the Respondents

Results on table 1 revealed that the mean age of the cocoa farmers was 42years. The implies that the respondents sampled were still in their active age. Younger farmers may be more digitally savvy and thus more inclined to use social media platforms for information gathering. They may also be more receptive to new technologies and innovations on climate change adaptation. However, older farmers might face barriers such as limited access to technology, lower digital literacy, or traditional methods of information dissemination preference. This result is in line with Aromolaran *et al.,* (2017), where the mean age of the farmers used in his study was 49 years. The mean years spent in school was 11years. The findings showed that most of the respondents sampled in the study area were literate. Higher levels of education are generally associated with greater digital literacy and access to technology, including social media platforms. Farmers with more years of schooling are likely to be more proficient in using social media for information gathering, including accessing climate change adaptation strategies. This type of individuals are expected to have a better understanding of climate change and its impacts on cocoa. Chikezie (2012) posits that education is an important socio-economic factor that influences a farmer 's decision because of its influence on the farmer 's awareness, reception and the adoption of innovation that can increase production. The average household size was 6 members which are fairly large.

This result indicated that large households

might have reasons to increase their level of cocoa production and need to access social media platforms for required information to combat the effects of climate change on cocoa production The mean years of farming experience was 29 years indicating that respondents had vast experience in cocoa production, and this is expected to influence their frequency of use of social media for accessing information on cocoa production as well as information on climate change adaptation strategies due to the wealth of experience they have gathered over time on cocoa production. The result agreed with (Adah et al., 2007) who stated that the higher the years of experience of a farmer the greater such farmer's ability to manage general and specific factors that affect his/her business.

Climate change adaptation strategies information accessed through the social media platforms

Result in Table 2 identified climate change adaptation strategies information accessed through the social media platforms among the respondents in the study area. The result revealed that majority (68.1%) of the respondents indicated to have accessed via social media information on targeting rainy season for planting leading to either late or early planting as the climate change adaptation strategies, planting of improved cocoa varieties 66.9%, changing planting date 64.4%. Others include pest management 60.6%, crop diversification 60.0%, harvest and storage 56.3%, application of fertilizer 42.5%, weed control 38.1%, post-harvest processing 37.5%, diversification to non-farm activities 33.8%, soil conservation measures 26.3%, use of irrigation system 25.6%, and tree planting 20.6%. The result implied that various information on climate change adaptation strategies on cocoa production were accessed via social media platforms by the respondents in the study area. Access to information on climate change adaptation strategies via social media platforms may empower cocoa farmers to make informed decisions and implement effective strategies. It can enhance their awareness, knowledge, and adoption of relevant practices, ultimately contributing to their resilience against climate change impact on cocoa production.

Rank order of frequency of use of available social media platforms

On the frequency of use of available social media platforms, it was measured on four-point rating scale of often, sometimes, rarely and never and weighted mean score (X) was computed and ranked. The result revealed that WhatsApp had the highest weighted mean score of 3.94, followed by Facebook with weighted mean score of 2.63. Other frequency of use of social media platform are in following order: Email (X = 2.19), Messenger (X=2.08), Instagram (X = 1.96), YouTube (X =1.86), Twitter (X=1.47), Telegram (X=1.40), Linkedin and Snapchat (WMS=0.94) respectively while Zoom was the least with weighted mean score of (0.07). The above result implied that WhatsApp and Facebook were frequently used social media platforms among the respondents for accessing information on climate change adaptation strategies on cocoa production. The frequency of social media platforms usage among cocoa farmers could influence their access to information on climate change adaptation strategies. Higher usage implies that the respondents are likely to encounter relevant information, but it also depends on the relevance of the content, needs and preference.

Constraints facing social media usage for accessing climate change adaptation strategies information

Result in Table 8 identified the constraints faced by respondents in the usage social media for accessing climate change adaptation strategies information in the study area. The result revealed that majority (96.9%) of the respondents identified high cost of device and high cost of operation (cost of subscription), 81.9% identified unreliable power supply, 71.3% identified interrupted network while 66.3% of the respondents identified poor familiarization. The result implied that cocoa farmers in the study area usually experienced challenges in obtaining information due to numerous constraints and they can hinder social media platforms utilization. The findings agree with. Sokoya *et al.,* (2012) who claimed that poor quality of available ICTs and erratic electricity power supply were constraints limiting the use of social media as a source of information.

Test of Hypothesis

The result of the analysis in Table 5 revealed that age (r = 0.791**; P = 0.000), year spent in school (r = 0.705**; P = 0.000); primary occupation (r = 0.517**; P = 0.000) and year of experience (r = 0.644**; P = 0.000) showed significant relationship with the frequency of social media for accessing information on climate change adaptation strategies. The aforementioned socio-economic variables (age, year spent in school, primary occupation and year of experience) have decisive influence on the frequency of use of the identified social media among the respondents in the area. Therefore, the null hypothesis is rejected, hence alternative hypothesis was accepted:

Ho_3: There is significant relationship between the selected socio-economic characteristics of the respondents and the frequency of use of social media for accessing information on climate change adaptation strategies.

For the above hypothesis, age was positive and significant level of 1%. The positive relationship suggests younger farmers are more likely to frequently utilize social media platforms to stay informed on climate change adaptation techniques on cocoa farming. This could be due to the fact that younger farmers are frequently and always with their phones and other gadgets where they can easily access information. Year spent in school was positive and significant level of 1%. The positive relationship indicated that individuals that are literate tend to use social media more often to gather general information and other information that are related climate change and recommended strategies to curb its effects also primary occupation was positive and significant at 1%. The positive relationship implied that individuals whose primary occupation involves cocoa farming are more likely to utilize social media platforms to stay informed on cocoa production and how climate change effects can be best ameliorated through the adoption of accessed recommendation social media. Year of experience was also significant at 1%. The positive relationship indicated that cocoa farmers with certain years of experience in cocoa farming are more likely to have reasons to access information on climate change adaptation strategies through social media with

the intention to sustainably increase income and hence profit on cocoa production. Farmers with adequate years of experience would prefer to search and gather information on climate change and its effects on cocoa production. Hence, these farmers would adopt and utilizes available recommendations/strategies to curb these effects.

CONCLUSION AND RECOMMENDATIONS

Based on the findings of the study, it was ascertained that WhatsApp, Facebook and Messenger as the most widely used social media platforms among the respondents for accessing climate change information, with WhatsApp emerging as the most used social media platform. Key climate change adaptation strategies accessed through social media included adjusting planting schedule and adopting improved cocoa varieties. However, the study also highlighted several constraints to social media usage, such as high cost of social media gadget, technical issues, and poor network connectivity. Finally, socio-economic variable such as age, educational level, and farming experience were found to significantly influenced their use of social media in accessing climate change adaptation strategies in the study area. Thus, Stakeholders involved in agriculture should strengthen network infrastructure in rural areas to improve connectivity, addressing one of the primary constraints identified by the study and enabling more seamless access to vital information on climate change adaptation strategies.

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Table 1: Distribution of Respondents by Socio-economic Characteristics (n=160)

Age (years)			
≤ 30	8	5.1	42
31-40	96	59.6	
41-50	39	24.7	
Years spent in school			
≤ 6	43	26.9	11
7-12	45	28.2	
Household size			
≤ 5	60	37.6	6
6-10	89	55.6	
Above 10	11	6.9	
Years of experience			
≤ 10	22	13.8	
11-20	36	22.6	29
21-30	28	17.5	
Above 30	74	46.1	

Source: field survey, 2024

Table 2: Distribution of respondents according climate change adaptation strategies information accessed through the social media platforms (n=160)

Climate change adaptation strategies information	*Frequency	Percentage
Changing planting date	103	64.4
Diversification to non-farm activities	54	33.8
Planting of improved coca varieties	107	66.9
Crop diversification	96	60.0
Application of fertilizer	68	42.5
Tree planting	33	20.6
Targeting raining season of plant, leading to other later or early planting	109	68.1
Use of irrigation system	41	25.6
Weed control	61	38.1
Pest management	97	60.6
Harvest and storage	90	56.3
Soil conservation measures	42	26.3
Post-harvest processing	60	37.5
Soil conservation measures	41	25.6
Planting of drought resistant cocoa varieties	99	61.9

Source: Field survey, 2024
*Multiple responses

Table 3: Distribution of respondents according to frequency of use of available social media platforms (n = 60)

Social media platforms	Frequency (percentage)					
	Often	**Sometimes**	**Rarely**	**Never**	**X**	**Rank**
WhatsApp	153(95.6)	5(3.1)	2(1.3)	-	3.94	1st
Facebook	115(71.9)	30(18.8)	15(9.3)	-	2.63	2nd
Twitter	34(21.3)	30(18.8)	73(45.6)	23(14.4)	1.47	7th
Email	40(25.0)	110(68.8)	10(6.3)	-	2.19	3rd
Zoom	3(1.9)	1(0.6)	-	157(98.1)	0.07	11th
Snapchat	30(18.8)	10(6.3)	40(25.0)	80(50.0)	0.94	9th
Messenger	30(18.8)	120(75.0)	2(1.3)	8(5.0)	2.08	4th
Linkedin	30(18.8)	10(6.3)	40(25.0)	80(50.0)	0.94	9th
Instagram	17(10.6)	90(52.3)	41(25.6)	12(7.5)	1.96	5th
YouTube	28(17.5)	100(62.5)	12(7.5)	20(12.5)	1.86	6th
Telegram	27(16.9)	41(25.6)	60(37.5)	32(20.0)	1.40	8th

Source: Field survey, 2024
X: Weighted Mean Score

Table 4: Distribution of respondents according to constraints facing social media usage for accessing climate change adaptation strategies information (n=160)

Constraints	*Frequency	Percentage
Unreliable power supply	131	81.9
High cost of facilities	155	96.9
Interrupted network	110	68.8
Poor familiarization	106	66.3
Inadequate operational knowledge	114	71.3
High cost of operation (cost of subscription)	155	96.9

Source: Field survey, 2024
*Multiple responses

Table 5: Relationship between the selected socio-economic characteristics of respondents and frequency of use of social media for accessing information on climate change adaptation strategies

Variable	r-value	P-value	Remark	Decision
Age	0.791**	0.000	Significant	Reject Ho
Year spent in school	0.705**	0.000	Significant	Reject Ho
Primary occupation	0.517**	0.000	Significant	Reject Ho
Year of experience	0.644**	0.000	Significant	Reject Ho

**Correlation is Significant at 5%