

Proceedings of the Annual Conference of the Agricultural Extension Society of Nigeria

Number: Twenty-Second Annual Conference

Theme: Mainstreaming Entrepreneurship in Agricultural Extension Practice in Nigeria

Date: 23rd -26th April, 2017. Venue: University of Port Harcourt, River State, Nigeria

ISSN: 1595 – 1421. <http://aesonnigeria.org/ConfProc> . Email: editorinchief@aesonnigeria.org

Benefits of Mobile Phone Usage among Cassava Processors in Lafia Local Government Area of Nasarawa State

<https://dx.doi.org/10.4314/jae.v22i1.10S>

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Abstract

This study investigated the benefits of mobile phone usage among cassava processors in Lafia Local Government Area of Nasarawa State. A simple random sampling technique was used to select 81 cassava processors across four processing centres as respondents. Data collection was by a structured interview schedule. Data analysis was done using descriptive statistics and a linear regression model. The results show that the majority (80.2%) of the respondents were females; the respondents' mean age was 37 years. All (100%) the respondents had one level of education or the other with a greater proportion (49.4%) of them having primary education. Their mean monthly income was N88, 395.06. The majority (72.8%) of them owned mobile phones which they used for business communication with customers. There was high level ($M > 2.0$) of use of mobile phones for business communication by the respondents. The perceived benefits of mobile phone usage were reduced cost of transportation (67.9%); stability of prices of raw materials (66.7%); easy access to market information (61.7%) among others. The regression results show that only membership of social group and ownership of mobile phone had significant effects on level of use of mobile phones for business communication. The major constraints to the use of mobile phones for business communication were poor mobile network services in rural areas (63%), Lack of /unstable power supply to charge phones (48.2%) and high cost of recharge cards (47%). It was recommended that governments at all levels should provide electricity to rural communities to promote agricultural production and processing. Cassava processors in the area need to be mobilized by extension service providers (ADP and private) to form cooperative groups to enhance their businesses.

Key words: Mobile Phone, Entrepreneurship Skills, Cassava Processors.

Introduction

Cassava (*Manihot esculenta*) production is vital to the economy of Nigeria as the country is the world's largest producer of the commodity (Ahmadu and Idisi, 2014). The crop is produced in 24 of the country's 36 states. In 1999, Nigeria produced 33 million tons, while in 2009 it produced approximately 45 million tons, which is almost 19% of production in the world. The average yield per hectare is 10.6 tons. Cassava production is well-developed as an organized agricultural crop in Nigeria. It has well-established multiplication and processing techniques for food products and cattle feed. There are more than 40 cassava varieties in use. Cassava is processed in many processing centers and fabricating enterprises set up in the country (Wikipedia, 2016).

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According to Ahmadu and Idisi (2014), cassava is produced in Nigeria predominantly (99%) by small farmers with 1-5 ha of land intercropped with yams, maize, or legumes in the rainforest and savannah agro-ecological zones of Southern, Central, and lately Northern Nigeria. Women are almost entirely responsible for processing and marketing of cassava products in most parts of the country.

According to Nhassico, Muquingue, Cliff, Cumbana and Bradbury (2008), cassava holds the position as a primary food security crop in Africa due to its resistance to drought and disease, flexible planting and harvest cycle, and tolerance of low-quality soils. It can remain in the ground for up to 18 months after reaching maturity (or more in the case of some varieties) and is well suited for a region that suffers both environmental and political hardships.

The major activities involved in the cassava value chain include production, collection, bulking, processing, storing, wholesaling, refining, packaging, retailing and marketing. In order to increase the efficiency and productivity of the value chain activities timely information dissemination among the actors is required for planning and decision-making. Regular exchange of information is critical for all stakeholders in agricultural value chains due to its nature. Information is the key element for establishing, developing and managing efforts to improve their competitiveness in local and international markets. Appropriate information can sharpen opportunities, clarify market access, and enable participants to make choices regarding how to deploy scarce resources. Increasing the efficiencies in an agriculture value chain is important to increasing productivity and reducing poverty. Creating a more efficient value chain involves productive engagement of the functional units in the value chain and how the information around these units is managed. One of the ways to achieve this is through the use of ICTs (particularly mobile phones).

According to Eriksson (2008), Mobile phone can be described as a small electronic device that facilitates the exchange of information and communication between two or more people simultaneously through several means such as text messaging, voice calling and emailing among others. It is a device that has been widely accepted by people irrespective of age, class, socio-economic status and location. Mobile phone technology is spreading rapidly in the rural areas of the developing countries including Nigeria. It has advantage over other ICT tools in terms of its appropriateness for the under-developed local conditions. Other ICT tools such as Internet enhanced technologies are not appropriate in the rural areas lacking electricity and network infrastructure. On the contrary, mobile phone technology has much less requirement on the infrastructure and hence wider applicability. Mobile phones enable both audio and video functions which can meet most of the basic needs of the poor. It also has greater affordability for the farmers than internet. In many developing countries more than 80% population have access to mobile phones (Fu and Akter, 2012).

According to Forneris, (2002), using a cell phone in business allows for increased flexibility when working, which has numerous advantages. The more flexible you are, the greater the chances you can show clients your business is the one to go with. If a manager is away from the office, clients can still communicate with him through mobile phone. Scheduling meetings becomes easier because you are not tied to a computer or desk. You can even conduct a teleconference via cell phone while you're on the go or traveling. Cell phones increase your ability to multitask. Mobile

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phone technology also provides different opportunities to transfer knowledge and information among players in the agribusiness value chain.

A study by FARM-Africa (2007) of animal health workers and farmers in two districts in Kenya documented the use of the mobile phone for the identification and management of livestock diseases, and for coordinating greater attendance and participation in organization meetings. Farmers indicated that mobile phones reduced their transportation costs by enabling them to gain remote access to agricultural information and group support. Aker (2008) studied the impact of the mobile phone rollout on grain markets in Niger and showed that mobile phone service had reduced grain price dispersion across markets by a minimum of 6.4 percent and reduced intra- intra annual price variation by 10 percent.

In a study of the adoption of mobile phones by dairy farmers in rural Uganda, Karamagi and Nalumansi (2009) highlighted the ability of mobile phones to provide information advantage and encourage greater efficiency. Rather than blindly searching for buyers of dairy products at the market which often left the farmers with thousands of litres of unsold milk, which would inevitably spoil and become worthless, the adoption of mobile phones enabled the farmers to use them to connect to *Food Net*, a service that supplies up to date price information for agricultural commodities, as well as contact details for interested buyers via SMS. Also, McNamara (2009) listed the potential benefits of Mobile phone technologies in extension and agricultural development to include:

- i) Increasing smallholder productivity and incomes;
- ii) Making agricultural markets more efficient and transparent;
- iii) Linking poor farmers to urban, regional and global markets;
- iv) Improving services and governance for the rural poor;
- v) Promoting – and including smallholders in – agricultural innovation;
- vi) Helping farmers manage a range of risks;
- vii) Improving land and natural resource management and addressing environmental pressures;
- viii) Helping poor farmers participate in higher-value agriculture, and;
- ix) Supporting the emergence of a more diverse rural economy, and supporting rural families' decisions about their mix of productive activities

Even though Mobile phone technology certainly plays a key role in contributing to reduced asymmetries of information and communication between stakeholders of agricultural value chain, and help reduce the vicious cycle of rural poverty, the positive impact on entrepreneurship depends to a large extent on the level of access and effective use of these ICT devices for business communication by entrepreneurs. The issues of affordability (high cost of mobile phones and recharge cards) and availability of network service in rural areas still remain major challenges affecting the strategic and effective use of mobile phones for business communication by resource poor agro-entrepreneurs in rural communities.

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Objectives of the study

The broad objective of the study was to determine the benefits of mobile phone usage by cassava processors in Lafia area of Nasarawa State, Nigeria. The specific objectives were to:

- i) describe the socioeconomic characteristics of the respondents;
- ii) identify the types of business communications in which Mobile phones are most frequently used;
- iii) determine the perceived benefits of mobile phone usage on respondent's business;
- iv) determine the effects of respondents' socioeconomic characteristics on their level of mobile phone use for business communication, and;
- v) identify the constraints to use of Mobile Phones for business communication by the respondents.

Methodology

This study was conducted in Lafia Local Government Area (LGA) of Nasarawa State. Cassava processors in Lafia LGA were the target respondents. There are four popular cassava processing centres in the area namely: Azuba Centre, Shabu, Angwan Nugu and Gidigidi. A simple random sampling technique was used to select 60% of the registered processors from each of the centres. This resulted to a total of 81 cassava processors selected as respondents. Data collection was by a structured interview schedule. Data analysis was done using simple descriptive statistics and a linear regression model. Level of Mobile phone use by the respondents was measured using a 3-point Likert - type scale with options Never used (1), Sometimes used (2) and Always used (3), with average value of 2. Therefore, any variable with mean score ≤ 2 implies low level of usage while variables with mean score > 2 implies high level of usage.

Table 1: Sampling frame for cassava processors in Lafia LGA of Nasarawa state

Cassava Centre	Processing	Number of Processors	Number selected (60%)
Azuba Centre		27	16
Shabu		37	22
Angwan Nugu		38	23
Gidigidi		33	20
Total		135	81

Results and Discussion

Socioeconomic Characteristics of Respondents

The socioeconomic characteristics of the respondents are summarised in Table 2. The results show that the majority (80.2%) of the cassava processors in the study area were females implying that the sector was female dominated. The mean age of the respondents was 37 years with the majority (66.7%) of them within the age bracket of 21-40 years. This implies that the processors were mostly young people

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who have found employment opportunities in agro-processing enterprises. The results also show that all (100%) the respondents had one form of education or the other, with a greater proportion (49.4%) of them having primary school level followed by 24.7% who completed senior secondary school. This shows a low level of education among the cassava processors. A majority (65.4%) of the respondents had between 6-10 years' experience in cassava processing with a mean of 10 years. This implies that the processors should have acquired reasonable entrepreneurship skills on the job including the use of mobile phones for business communication. Their mean household size was 10 members. The majority (86.4%) of the respondents were not members of any cooperative group. This is a negative attitude capable of affecting business growth negatively. According to Chambo (2009), some of the potential benefits of cooperatives include overcoming barriers to assets, credit, information services and marketing of agricultural commodities through the cooperatives. This being the case it means non cooperative members will face difficulties in accessing the essential services provided by cooperatives.

Table 2 also shows the that majority (72.8%) of the respondents owned mobile phones. This is a positive development because there is positive correlation between ownership of mobile phone and level of its use for business communication (Martin and Abbott, 2011). This implies that owners of mobile phones are most likely to use them for business communication than non-owners. The table also indicated that the majority (64.2%) of the respondents recorded a monthly income of between N1, 000 - 100,000 with a mean of N88, 395.06 per month. The mean monthly income of cassava processors in the study area is far above the present national minimum wage of N18, 000 in Nigeria. This shows that the enterprise is a very viable source of livelihood for self-employment especially for the rural women and youth.

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Table 2: Socioeconomic characteristics of respondents

Variable	Percentage	Mean
Sex		
Male	19.8	
Female	80.2	
Age		37 years
1-20yrs	4.9	
21-40yrs	66.7	
41-60yrs	28.4	
Level of education		
Primary school	49.4	
GCE/SSCE	24.7	
ND/NCE	8.6	
HND/First Degree	17.3	
Years of experience in Cassava processing		10 years
1-5 yrs	29.66	
6-10 yrs	65.4	
11-15 yrs	4.9	
Household Size		10 Members
1-10 members	63.0	
11-20 members	32.1	
Above 20members	4.9	
Membership of Cooperative Society		
Yes	13.6	
No	86.4	
Ownership of Mobile phone		
Yes	72.8	
No	27.2	
Monthly Income Level (N)		N88,395.06
N1,000 - 100,000	64.2	
N101,000 - 200,000	32.1	
N201,000 - 400,000	3.7	

Types of Business Communications in which Mobile Phones Were Used

Table 3 shows the mean distribution of respondents according to the types of business communication involving the use of Mobile phone technology. Six out of the nine types of business communications tested using a Likert – type scale had significant mean scores. These include the followings: contacting cassava farmers (M = 2.5); contacting cassava transporters (M =2.4); accessing market information (M = 2.3); contacting products buyers (M = 2.4); contacting other processors (M = 2.4), and contacting machine operators (M = 2.4). This implies that mobile phone technology was well utilised for several business communications by the respondents. In a study of the uses and perceived impacts of mobile phones among farmers in rural Uganda, Martin and Abbott (2011) found that a majority (87%) of the respondents used mobile phones for coordinating access to agricultural inputs, including agricultural training, seeds, livestock, and pesticides from local dealers, governmental and nongovernmental agriculture extension agents, and community members.

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Table 3: Types of business communications in which mobile phones are used

Uses of mobile phone	Mean scores
Contacting cassava farmers	2.5*
Contacting cassava transporters	2.4*
Accessing market information	2.3*
Contacting extension agents	1.8
Contacting products buyers	2.4*
Contacting workers/ hired labourers	2.1
Contacting creditors/Money lenders	2.0
Contacting other processors	2.4*
Contacting machine operators	2.4*

Benefits of Mobile Phone Usage

Table 4 shows the distribution of respondents according to perceived benefits of mobile phone usage by cassava processors. The major findings revealed the followings: Mobile phone has helped in reducing the cost of transportation (67.9%); market stabilization as a result of reduction in effects of middlemen (66.7%); access to market information has been made easy (61.7%); higher output prices resulting from elimination of market middlemen (59.3%); increased volume of production per week (59.3%) and reduced vulnerability to risk (55.6%). This implies that mobile phone usage among the cassava processors was very beneficial in promoting their business activities.

In a related study of the perceived impacts of mobile phones among rural farmers in Uganda, Martin and Abbott (2011) revealed that mobile phones were used for agricultural purposes such as accessing market information, increasing job opportunities, gaining agriculture advice, and saving valuable time and money through increased consultation and coordination. Not only were the farmers saving travel costs from no longer meeting with buyers face-to-face, but they were also saving the cost of transporting goods to markets in which there was no guarantee of a buyer.

Table 4: Benefits of mobile phone usage by respondents

Perceived benefits	Percentage
Mobile phone has helped in reducing the cost of transportation	67.9*
Market stabilization as a result of reduction in effects of middlemen	66.7*
Access to market information has been made easy	61.7*
Health tips from GSM service providers helps to keep fit	27.2
Easy contact with security agencies during communal clashes	37.04
Higher output prices resulting from elimination of market middlemen	59.3*
Easy access to educational information from SMS alerts	35.8
Easy access to loan and other incentives	35.8
Easy access to government regulations/information	38.3
Reduced vulnerability to risk	55.6*
Increased volume of production per week	59.3*
Increased sales and profit	28.4

Multiple responses

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Effects of Respondents Socioeconomic Characteristics on the Level of Use of Mobile Phones for Business Communication

Table 5 shows the regression results of the effects of socioeconomic characteristics of respondents on their level of use of mobile phones for business communication. Of all the variables tested only two (membership of social groups and ownership of mobile phones) showed significant effects on the level of mobile phone usage. This implies that membership of social groups and high income levels enhance high level of mobile phone usage. Nyamba and Mlozi (2012) in their study of the factors influencing the use of Mobile phones in communicating agricultural information in Kilolo District, Iringa, Tanzania found that education and income level had a positive correlation with mobile phone technology adoption among farmers.

Table 5: Effects of socioeconomic characteristics of respondents on level of use of mobile phones for business communication

Variables	Unstandardized Coefficients		Standardized Coefficients	T	Sig.
	B	Std. Error	Beta		
(Constant)	.099	.161		.617	.539
Age (yrs)	.001	.003	.020	.313	.755
Sex	.003	.067	.003	.047	.963
Household size	.002	.004	.027	.459	.647
Experience	-.006	.003	-.090	-1.634	.107
Education	-.001	.004	-.011	-.164	.870
Social group	-.223	.076	-.171	-2.914	.005**
Mobile phone Ownership	.869	.055	.869	15.694	.000***
Income level	2.63E-007	.000	.079	1.412	.162

$R^2 = 80.6\%$ Adjusted $R^2 = 78.5\%$

Constraints to Mobile Phones Usage for Business Communication

Table 6 shows the distribution of the respondents according to the factors constraining the use of mobile phones for business communication. The majority (63%) of the respondents reported poor mobile network services in rural areas as their major constraint followed by 48.2% who indicated lack/unstable power supply to charge phones and 47% who complained of high cost of recharge cards. These findings are similar to those of Nyamba and Mlozi (2012) who reported that mobile phones were too expensive in terms of buying and running costs. Other factors limiting mobile phone use to communicate agricultural information include lack of electric power for charging mobile phones, poor network coverage, poverty, illiteracy and lack of awareness of whom to call for particular information.

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Table 6: Constraints of mobile phones use for business communication by respondents

Constraint	Percentage
Cannot afford to buy a mobile phone	3.7
Illiteracy (difficulty in navigating through the phone menus)	11.1
Poor mobile network services in rural areas	63.0*
High cost of recharge cards	47.0*
Lack/unstable power supply to charge phones	48.2*
Cannot make/receive calls	29.7
Cannot write/read text messages	14.8
Lack of interest in using mobile phones	1.2

Conclusion and Recommendations

Some of the benefits of mobile phone usage to the respondents include the following: Mobile phone helps in reducing the cost of transportation; achieving market stabilization by reducing the effects of middlemen; easy access to market information and ensuring higher output prices resulting from elimination of market middlemen. However, the key challenges against effective use of the technology include poor network services in rural areas, high cost of recharge cards and lack of electricity to power the phones. It is therefore recommended that:

Governments should promote policies that will reduce the digital divide by opening the telecommunications market, as well as supporting legislations to regulate competition and the development of infrastructure to facilitate ICT access to rural areas thereby reducing the cost of mobile phones and air time.

Rural electrification should be intensified to link up rural communities with power supply. This will enhance effective use of mobile phones and other electronic devices

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