

Perceived Effects of Mobile Phones on the Livelihood of Rural Dwellers in Niger State, Nigeria

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Abstract

The study assessed the perception of rural dwellers on agricultural uses of mobile phones and its effects on their livelihood in Niger State, Nigeria. Snowball sampling technique was used to select 125 respondents from eighteen (18) rural areas. Interview schedule was used to elicit data from the respondents. Data were analysed using frequency, percentage, and mean. The result shows that The majority (61.60%) of the respondents involved in the use of mobile phones were males. From the result 40.80% of the respondents were within the youthful age bracket of 21- 40 years, while 42.70% of them had secondary education. The majority (70.40%) of the respondents used mobile phone to access market information. The result shows that the respondents expressed positive perception towards seven (7) statements bordering on effects of mobile phone on rural livelihood. The highest perceived constraint on the use of mobile phones by rural dwellers was high cost of maintenance of mobile phones (76.00%). Low cost of mobile phone acquisition and subscription charges will help in enhancing the livelihood rural dwellers in the study area. The χ^2 results revealed a significant relationship between age ($\chi^2 = 59.4$; $P < 0.05$), level of education ($\chi^2 = 41.36$; $P < 0.05$), sex ($\chi^2 = 6.73$; $P < 0.05$) and perception of rural dwellers on the effects of mobile phones on their livelihood in the study area.

Key words: Perception of Mobile phone, Livelihood.

Introduction

Access to information can play major role in improving smallholder agricultural production and linkages to remunerative markets, thus improve rural livelihoods, food security and national economies. In many developing countries, mobile phones significantly reduces communication and information costs for the rural poor and give new opportunities for rural farmers to access information on agricultural technologies and also to use ICTs in agricultural extension services (Aker, 2011). Mobile phones have the potential to ease, amplify the speed, and to introduce new modes with which information is communicated (Sife, Kiondo and Lyimo-Macha, 2010).

In the developing world, Nigeria inclusive, there is evidence that many emerging mobile phone users are found in rural areas (Sood, 2006), and Africa has the world's fastest growing mobile phone subscriptions (ITU, 2006). The link between ICTs such as mobile phones and its effect on the livelihood of rural dwellers stems from the recognition that information is a critical factor for development purposes. The application of mobile phones as carriers and conduits of information can enhance development of agriculture and the general livelihood of the rural community. The introduction of mobile phone leads to greater social cohesion, decrease the feeling of isolation, and improve social relationships. Similarly, it serve as devices for communicating emergencies in a wide range of situations which may result to efficient coordination of transportation, especially during emergencies, ability to coordinate for access to agricultural inputs, reduction in transportation and transaction costs thereby saving time and money. Mobile phone also enables the rural dwellers to concurrently handle several livelihood activities efficiently (Sife, Kiondo and Lyimo-Macha, 2010).

Through mobile phones, the rural farmers are able to know the prevailing market prices of agricultural commodities in various markets through which they acquire a prior knowledge of prevailing market prices so as to enhance negotiation for better prices for their commodities. Mobile phone have enhanced the effectiveness of rural dwellers' agricultural productivity through access to resources such as information on agricultural advices resulting in improved crop yields and livestock production, knowledge and access to agricultural inputs (such as seeds, plant cuttings, livestock, and loans) and dissemination and retrieval of market information, especially for buying and selling (Burell, 2008). The research conducted by FARM - Africa (2007) revealed that farmers indicated that mobile phones reduced their transportation costs and this enabled them greater access to information and group support. Similarly, the research also revealed that as a result of the advantage of information received on market prices for milk and the location of interested buyers, the dairy farmers were able to coordinate before expending time and money in travelling resulting in a decrease of spoiled milk and an increase in profits.

Mobile phones have diffused rapidly into the rural countryside of Nigeria providing new opportunities for communicating information that will be useful to limited resource farmers and small agricultural businesses. According to Ochu (2000), proper information dissemination serves as a vital ingredient for promoting agricultural and rural development. Access to information through the use of information and communication technologies (ICTs) like mobile phone is critical to economic growth, especially in resource-constrained environments of rural areas. ICTs like mobile phones can provide long-term improvements in living standards for the rural poor through provision of require resources and innovations to facilitate access to new markets and improve production capacity.

Rural residents, who comprise a substantial The majority of the world's poorest, expend substantial amounts of valuable resources such as time and money to facilitate communication with family, trading partners, health providers, and other suppliers of economic necessities, instead of travelling to communicate, but ICTs, especially mobile

phones, offer faster and cheaper means for interaction (Martin, 2010). Research efforts on effects of mobile phones on livelihood of rural dwellers will contribute positively to knowledge on the role mobile phone plays in the economy of the developing countries in the supply of information to a large number of populations and also improvement of livelihood for the rural populace. As such, it is worth to know how mobile phone has served as a viable tool for economic growth and facilitator of sustainable livelihoods among those engaged in agricultural-based livelihood activities. This study also provide an insight on the role mobile phone plays in the provision of quality information to rural farmers for increased social and economic activities especially in the areas of agricultural production, processing, marketing and social interaction. It is based on the foregoing; the research seeks to assess the perceived effects of mobile phones on the livelihood of rural dwellers in Niger state, Nigeria. The specific objectives are to: describe the socio-economic characteristics of the respondents in study area, identify agricultural uses of mobile phone by the respondents in the study area, assess the perceptions of rural dwellers on the social and economic impact of mobile phone on their livelihood in the study area, and determine the constraints rural dwellers face in using mobile phone in the study area.

Methodology

The study was carried out in Niger State which is located between latitude 8°22'N and 11°30'N and longitude 3°30'E and 7°20'E. The area is characterized by wet and dry seasons with average temperature of 27°C to 34°C, has annual rainfall of about 1000mm-1500mm and covers a total land area of 74, 244 Km which is about 8% of Nigeria's total land area. The research design was a descriptive survey method and only rural dwellers that have acquired mobile phone were used as respondents. Multi stage sampling technique was employed for the study. The first stage involved selection of one local government area from each of the three (3) agricultural zones of the state through the use of simple random sampling technique. Similarly, simple random sampling technique was used to select six rural areas from each of the selected local government area and about seven respondents were selected from each rural areas based on their population through snowball sampling technique (in which participants are identified through another participant who provides the researcher the name of another possible participant, who in turn provides the name of another and so on). A total of 125 respondents were selected from the rural areas base on their proportion. Interview schedule was used to elicit data from the respondents. The responses were analyzed using frequency counts and mean score. The perceptions of rural dwellers on the social and economic effects of mobile phone on their livelihood was measured with the help of a five point Likert rating scale and was scored as: Strongly agree (SA = 5), Agree (A = 4), (Undecided (U = 3), Disagree (DA = 2) and Strongly disagree (SD = 1). A mean score of 3 was used as base of categorization of rural dwellers perception as either 'Agreed or Disagreed'. The hypothesis of the study was: There is no significant relationship between the rural dwellers' personal characteristics (age, sex, educational level) and their perception on the effects of mobile phones on their livelihood. Chi-square was used to test the formulated hypothesis.

Results and Discussion

Demographic profile of the respondents:

Sex: The result in Table 1 revealed that male respondents constitute the major users of mobile phone taking 61.60% of the total sampled population in the study area. Table 1 also shows that only 38.40% of the rural women owned and utilized mobile phone in the study area. This implies that the usage of ICT such as mobile phone is low among the female folk. This may be as a result of low knowledge on the technicalities associated with the use of mobile phone among rural women. This agree with the findings of Sijapati-Basnett (2008) which reported that rural women were more likely than men to lack awareness of how to use mobile phones. Hence, there is need to provide technical training to rural women on this aspect, this is to increase their participation in the operations and management of mobile phones to serve as tool for opening up emerging opportunities especially in agricultural related activities and ultimately improving their social and economic means of livelihood.

Age: The result in Table 1 shows that most (48.40%) of the respondents were in the age bracket of between 21- 40 years. This is an indication that The majority of the respondents are within the youthful age, active, more prone to innovation; and more likely to adopt and understand the technicalities in using mobile phones. Age is a major factor that influences ones behavior and widens the vision of an individual through experience. Age also influences individuals' ability in taking rational decisions regarding the adoption of latest and improved agricultural technologies (Luqman *et al.*, 2013; Tyabo *et al.*, 2014).

Educational status: The result in Table 1 indicates that 47.20% and 26.40% of the respondents have respectively acquired primary and secondary education in the study area. This implies that The majority of the respondents have low level of literacy. The AED (2003) opined that Low literacy rates in many rural areas in the developing world present challenges to the effective use of ICTs in the rural areas. The low level of literacy may have negative effect on the level of understanding of the technicalities of ICT such as mobile phones to boost their efficiency and effectiveness in using it as a means of communication and exchange of information that will improve their social and economic activities. The level of individuals' education is likely to help in the development of individual's mental ability to gain knowledge about a particular concept, understanding and utilization of technology or practice. According to Mamen and Paxson (2000) good level of education can influence individual's ability to higher economic returns, better access to technology and sources of information.

Table 1: Socio-economic characteristics of respondents in the study area

Variables	Percentage (n = 125)
Gender	
Male	61.60
Female	38.40
Age (years)	
<20	19.20
21 – 30	24.00
31 – 40	24.00
41 – 50	14.40
>50	18.40
Educational Status	
No formal education	18.40
Primary	47.20
Secondary	26.40
Tertiary	8.00

Source: Field survey, 2014

Agricultural uses of mobile phones

The result presented in Table 2 reveals that The majority (70.40%) of the respondents use mobile phones to access market information, this is followed by using it to monitor financial transaction (60.80%) (these includes calling friends, relatives, family members and businessmen for financial loans and assistance) and accessing agricultural inputs (56.80%) (This includes coordinating access to seeds, fertilizers, herbicides etc from local suppliers and agricultural extension agents). These findings can be supported by Aker and Mbiti (2011), who reported that households and firms use mobile phones as avenues to search for information in a variety of areas that include input prices, output prices, jobs, potential buyers and sellers, natural disasters and new technologies, politics. Mobile phone has advantage of ease of usage, good geographic coverage and drastically reduced personal travelling cost, which can be relatively high with a

combination of long distances and poor roads. Furthermore, rather than being passive recipients of information, mobile phones allow individuals and firms to be active participants in the information search process, enabling them to ask questions and corroborate information with multiple sources. Information and Communication Technology (ICT) like mobile phones plays critical roles in facilitating rapid, efficient and cost effective means of information dissemination through which smallholder farmers acquired agricultural information, advices as well as location-specific market information on production inputs, gathering information on where to sell, customers, relatives and agents (UNDP, 2012; Cáceres and Fernández-Ardèvol (2012).

Table 2: Distribution of respondent by agricultural uses of mobile phones

Agricultural uses of mobile phones	Percentage*	Rank
Use mobile phone to access market information	70.40	1 st
Monitors financial transactions	60.80	2 nd
Access to agricultural inputs	56.80	3 rd
Consult other experts for advice	34.40	4 th
Use mobile phones for agricultural problem solving	34.40	4 th
Calls agricultural extension Agents	28.80	5 th
Store Agricultural information on phone	26.40	6 th
Use mobile phones for weather information	18.40	7 th

* *Multiple responses.*

Source: Field survey, 2014

The result in Table 3 shows the distribution of the mean scores and standard deviation of the respondents' perception towards effects of mobile phone on the livelihood of rural dwellers in the study area. The result shows that the respondents expressed positive perception towards seven (7) out of Ten (10) favourable statements bordering on effects of mobile phone on rural livelihood. Specifically, seven out of the ten statements in respect to attitudes of rural dwellers towards effects of mobile phones on their livelihood that elicited the most favorable perception from the respondents include: Mobile phone have improved relationships and contact with friends and relatives (mean = 4.4080),

mobile phone have significantly improved the conduct of business in the rural areas (Mean = 4.2960), mobile phone has cut down the need to travel (mean = 3.9600), mobile phone has enhance individual ability to know proper prices for agricultural products before going to the market so that rural people are no longer cheated (mean = 3.9680), mobile phones have improved coordination of social activities (mean = 3.8640), the use of mobile phone increases ability to gain information more quickly (mean = 3.4800) and the use of Mobile phones have improved the efficiency of your daily activities (mean = 3.3200). This finding shows that The majority of the respondents have positive perception towards the effects of mobile phone on their livelihood. The impact of telecommunication is positive for social and economic as both rural and urban users perceived that increasing access to telecommunication such as mobile phones is leading to more contact with family and friends, improving information regarding family events (social interaction), reducing cost of traveling and increasing speed of communication (Sijapati-Basnett, 2008). In a similar vein, Cáceres and Fernández-Ardèvol (2012) reported that communication with family and friends, which strengthens social bonds, is one of the predominant uses for mobile telephones in many rural areas. This implies that, if adequate awareness and motivation is provided to them, mobile phones will have better effects on the social and economic status of the rural dwellers in the study area.

Table 3: Distribution of the respondents based on their perception on the level of effect of mobile phone on livelihood in the study area

Perception on the effect of mobile phone rural livelihood	Mean (Std)
Mobile phone has cut down the need to travel	3.9600(.72290)*
Mobile phone have significantly improved the conduct of business in the rural areas	4.2960(1.0161)*
Mobile phones have improved coordination of social activities	3.8640(1.08764)*
Mobile phone have brought great involvement in consulting others for advice on Agricultural Production	2.7920(1.20011)
The use of Mobile phones have improved the efficiency of your daily activities	3.3200(1.16813)*
The use of mobile phones have greatly improved monitoring of financial transactions	1.9120(1.26374)
Ability to use mobile phone has increase agricultural outputs through access to agricultural inputs in the rural areas	1.8640(1.29106)
The use of mobile phone increases ability to gain information more quickly	3.4800(1.18185)*
Mobile phone has enhance individual ability to know proper prices for agricultural products before going to the market so that rural people are no longer cheated	3.9680(1.30715)*
Mobile phone have improved relationships and contact with friends and relatives	4.4080(1.00077)*

*Mean ≥ 3

Source: Field survey, 2014

Table 4 reveals the constraints rural dwellers face in using mobile phone in the study area. From the result presented, The majority (76.0%), (71.20%) and (60.80%) of the respondents reported that mobile phone is expensive to maintain because of high cost of tariff, inadequate technicians to service and repair mobile phones and difficulty in accessing credit in their area. Other constraints identified include mobile phone is meant for high income earners because it is expensive to purchase (52.80%) and poor network services in the study area (36.00%). This finding agrees with that of Haruna, Jamilu, Abdullahi and Murtala (2013) which identified high cost of subscription charges, high cost of maintenance, poor adequate skills for its operation and power problem as constraints to effective use of mobile phone in Nigeria.

Table 4: Distribution of respondents based on perceived constraints of using mobile phone

Perceived constraints of using mobile phone	Frequency	Percentage*	Rank
Mobile phone is expensive to maintain because of high cost of tariff	95	76.00	1 st
No adequate technicians to service and repair mobile phones	89	71.20	2 nd
Difficult to access credit in my area	76	60.80	3 th
Mobile phone is meant for high income earners because it is expensive to purchase	66	52.80	4 th
Poor network services in my area	45	36.00	5 th

**Multiple responses*

Source: Field Survey, 2014

Relationship between the rural dwellers' personal characteristics (age, sex, educational level) and perception on the effects of mobile phones on their livelihood

The result in Table 5 shows the relationship between the rural dwellers' personal characteristics (age, sex, educational level) and their perception on the effects of mobile phones on their livelihood. The results revealed a significant relationship between age ($\chi^2 = 59.4$; $P < 0.05$), level of education ($\chi^2 = 41.36$; $P < 0.05$), sex ($\chi^2 = 6.73$; $P < 0.05$) and perception of rural dwellers on the effects of mobile phones on their livelihood in the study area. This can be supported by the findings of Luqman *et al.*, (2013); Mamen and Paxson, (2000) that as individuals' age and level of education increases, the more likely they are prone to understand, evaluate and use mobile phones as a means of communication and exchange of information that will improve their social and economic activities to enhance their means of livelihood. The significant relationship between sex and perception on the effects of mobile phones on their livelihood implies that there is still gender inequality on this aspect which is a challenge in the study area. Hence, there is need to bridge the inequality gap so that the community will have equal access to knowledge and opportunities on how to use mobile phones. This can be enhanced through training of the rural women to increase their awareness and participation in the operations and use of mobile phone. Through this, it can serve well as a means of communication and a as tool for opening up emerging opportunities especially in areas

that will ultimately improve their social and economic means of livelihood of the rural dwellers.

Table 5: Relationship between the rural dwellers' personal characteristics (age, sex, educational level) and perception on the effects of mobile phones on their livelihood

Variables	χ^2	Df
Age	59.408*	36
Level of education	41.368*	3
Sex	6.728*	1

* $P \leq 0.05\%$

Source: Field survey, 2014

Conclusion and recommendations

The study revealed that the use of mobile phone is low among the female fork, The majority of the respondents were youths within the active age bracket of between 21- 40 years which are more likely to be prone to innovation and understand the technicalities in using mobile phones. From the study, it can be inferred that The majority of the respondents use mobile phones to access market information especially in search of input prices, output prices, potential buyers and sellers. On the perception of effects of mobile phone on rural livelihood, the study revealed that, mobile phone have played significant roles in improving relationships and contact with friends and relatives, conduct of business in the rural areas, has cut down the need to travel, has enhance individual ability to know proper prices for agricultural products, coordination of social activities, increases ability to gain information more quickly and have improved the efficiency of daily activities. The highest perceived constraints on the use of mobile phones by rural dwellers were high cost of maintenance of mobile phones. Low cost of mobile phone acquisition and subscription charges will help in enhancing the livelihood rural dwellers in the study area. The roles and capacity of mobile phone as a system of communication should also be strengthened in order to accommodate the inherent difficulties associated with its usage so that individuals can have equal access to knowledge and opportunities on how to use mobile phones as a means of communication to improve their social and economic means of livelihood.

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