

RECONFIGURATION EFFECTS OF MOBILE PHONE USAGE ON RURAL DWELLERS' SOCIAL AND ECONOMIC ENGAGEMENTS IN SOUTHWEST NIGERIA

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ABSTRACT

This study was conducted across the selected rural communities with mobile telephony networks in Southwest Nigeria. Data were collected from randomly sampled 222 rural dwellers with the use of an interview guide and interactive discussions and analysed with the use of descriptive and inferential statistics. The results showed that 83.4% of the respondents were using basic mobile phones, 78.4% of them largely used the phone for voice calls, all (100%) of them used the phones for interpersonal communication, 89.2% used it for playing games and 84.2% used fit for listening to radio and music. Furthermore, mobile phones were used by 88.3% of the respondents for market creation or attracting customers, 77.9% used them for sourcing market information and used by 72.5% to facilitate the sales of goods and services. Interactive discussions with the respondents showed that usage of mobile phones had dynamically reconfigured the pattern of their social and economic engagement. Results of the binary logistic regression showed a significant association between mobile phones and the social and economic engagement of the rural dwellers at a coefficient ($\beta > 1$) greater than 1. It was concluded that, to an extent, mobile phone usage had a reconfiguration effect on the social and economic engagement of the rural dwellers; with the recommendation that the use of mobile phones should be intensified by the rural dwellers.

Keyword: Rural dwellers, mobile phones, social and economic engagements, rural lifestyle reconfiguration.

INTRODUCTION

Rural development, which entails the transformation of rural life from low ebbs to spirited social and economic buoyancy, takes different approaches or strategies. Studies in this regard show that the promotion of an inclusive and sustainable economy (Wu *et al.*, 2020), economic diversification and environmental enhancement, bottom-linked governance (Castro-Arce and Vanclay, 2020), and generation of dynamic interaction between the agriculture and industrial sector have significantly improved the living condition and/or reconfigure the lifestyle of the rural dwellers. On another note, there is the effect of the transformational value of communication technologies on the development of rural areas where such technologies have not only eliminated the barriers to rural economic participation but also facilitated rural adjacency to urban areas (Valentina *et al.*, 2020). A common trend of such communication technologies is the growing trends of mobile phone penetration in the global rural areas.

The mobile phone is though primarily designed to facilitate and enhance information communication between individuals or groups within and across geo-communities. Its integrated features that support photography, audio and video recording and playing, and games playing; have produced transformatory effects on social activities of the larger society (Lorenzo, 2022). Where the phones are internet-enabled, the manner of information access, time allocation and pattern of interactions among members of a social system have become substantially transformed (Valentina *et al.*, 2017; Md Jillur, 2022); empowering individuals to become engaged in social, political and economic interactions (Ogone, 2020), say between the

governed and government, buyers and sellers, service providers and consumers, over space for social and economic development.

Nigeria's progressive widespread of mobile phones in rural areas with which the rural dwellers could affect information exchange and other forms of interactions with individuals away from their vicinity. With this development, several studies have delved into the effects of mobile phone usage on the social and economic activities of Nigerian rural dwellers (Baro and Endouware, 2013; Afolayan *et al.*, 2015; Forenbacher *et al.*, 2019), but with no attention on the reconfigured lifestyle of the rural dwellers as a result of mobile phone usage. Based on this, it becomes necessary to ascertain the reconfiguration effects of mobile phone usage on the lifestyle of rural dwellers. To accomplish this task, the following research questions serve as guides:

1. What types of mobile phones are common to Nigerian rural dwellers?
2. To what social and economic engagement are the phones deployed?
3. In what way has mobile usage reconfigured the rural lifestyle?

Answers to these questions will not only showcase the reconfigured lifestyle of Nigerian rural dwellers as a result of mobile phone usage but will also contribute to knowledge development on the transformative influence of mobile phone connectivity on rural development in sub-Saharan Africa.

METHODOLOGY

The study was conducted in four, out of the six states in southwest Nigeria, namely Lagos, Ogun, Oyo and Osun States. While Nigeria's entire land space is about 923, 768 km², geospatial size of the

four states is about 57, 931 km², with Lagos accounting for 3, 245 km²; Ogun – 16, 981 km²; Oyo – 28, 454 km²; and Osun – 9, 251 km². All four states are adjoining to one another, with Ogun State directly sharing borders with Lagos and Oyo States; and on the other side Oyo shares a border with Osun States. Movement between the States is largely by road network to facilitate social and economic transactions. The larger proportion of each state's geospatial structure is largely rural areas, serving as food bases and sources of production resources for the urban areas.

The study population consists of all the rural dwellers whose communities have access to mobile telephony networks and are making use of mobile phones. The existence of the telephony network in the rural areas was ascertained by the presence of telephony-base-mast in and around the rural communities, and by making phone calls from the rural communities to fellow researchers and known friends in town and cities.

Given that no comprehensive list of all the rural dwellers was available, the study embarked on the use of a "pseudo-sampling frame" as proposed by Baley (1987). This was generated by selecting a minimum of 30 rural communities in each of the 4 states to give 120 rural communities. From each of the communities was selection a minimum of 30 respondents to give 480 respondents as the sampling frame. Based on Watson's (2001) probability sample size determination model, a total of 222 respondents were sampled for study at 95% confidence interval, 50% variability and ± 5 margin error.

Variables of interest in this study include type of mobile phones usage - measured at nominal level with basic phone and smartphone as indicators; social engagement - measured at nominal level, with attributes such as usage for interpersonal communication, audio-video recording, audio-video playing, game playing, photography, listenership to radio broadcast as indicators; economic engagement - measured at nominal level with parameters such as facilitation of sales of goods and services, attraction of customers /market creation, financial transaction, sourcing of agro-information, sourcing of market information, reaching out for social support services, as indicators; and reconfiguration status of the rural lifestyle - measured at nominal level with the use of items such as modes of: interaction, rural-urban connectivity, entertainment, time checks, time detection by sound, lighting source, and partnership formation (as social change), and modes of: marketing, financial transactions, phone-mediated businesses, and business partnership formation (as economic change)

In an attempt to make responses of the rural dwellers affirmative on mobile phone usage, the variables were measured at a nominal level with dichotomous (Yes or No) responses as indicators. The reconfiguration status of the rural lifestyle was however ascertained by the use of deductive theory, which provisions for reaching a conclusion based on available or observable evidence. Based on responses of the rural dwellers on actual usage of mobile phones and the social and economic engagement to which the phones were deployed, the pattern of changes brought about from the traditional to modern practices was thus reflected with indicators such as interaction over spaces, less isolation, entertainment acculturation, modern timing, the dependence of ringing alarm, phone-based torch light as social indicators; and marketing beyond the local market and middlemen, cash transfer, and the emergence of phone-mediated businesses as economic indicators.

Data for the study were collected using an interview schedule and interactive discussion with members of the selected communities who were willing to be part of the research. The data were subjected to both descriptive (frequency count and percentage) and inferential statistics (Binary logistic regression). This regression model was appropriate because it made it possible to establish a relationship between dependent and independent variables that were measured in binary.

RESULT AND DISCUSSION

Type of commonly used mobile phones by rural dwellers

In the surveyed rural communities was widespread use of mobile phones among the rural dwellers; with the majority (83.4%) of the rural dwellers making use of basic/simple phones for information exchange, and 16.6% making use of smartphones. This observation could be attributed to the relatively cheaper cost of basic phones in comparison to that of smartphones in Nigeria

Table 1 further shows that the majority (78.6%) of the rural dwellers largely used the phones for information communication by calls, with 21.4% using the phones for communication by both calls and text messages. The outstanding use of voice communication was due to convenience and time saving to texting messages. Text messaging, as pointed out by FAO (2016), was found, not only time-consuming but also prevents the possibility of multi-tasking as it requires complete concentration from initiation of the message to completion.

Table 1: Type of commonly used mobile phones by the rural dwellers (n = 222)

Variable	Freq	Percent
Type of phones		
Basic/simple cell phones	185	83.4
Smartphones	37	16.6
Mode of information communication		
Mainly voice call	174	78.4
Mainly text messaging	0	00
Both voice and text message communication	48	21.6

Social and economic activities facilitated by mobile phones among rural dwellers

Results in Table 2 shows the social and economic activities facilitated with use of mobile phones by the rural dwellers. From the social dimensions of mobile phone deployment, all the respondents obviously used mobile phones for interpersonal communication with concerned individuals for the fulfilment of certain social and economic needs. This is in line with Ebenezer *et al.* (2020) submission that mobile communication device helps individuals or groups of individuals to maintain interpersonal relationships with friends and relatives, as well as sustain connectivity with clients for the fulfilment of certain social and economic tasks.

Alongside this is the use of audio and video apps for playing music and videos by 89.2% of the respondents. Interaction with the rural dwellers revealed that local music is uploaded into the Secure Digital (SD) or memory cards for playing as the soul may demand or while busy handling household chores and/or farm-related activities. A few (17.6%)

of the rural dwellers deployed audio and video recording apps on their cell phones for recording and playback of events and events. Other forms of entertainment to which the cell phones were deployed by 36.5% of the respondents was game playing which ranged across ‘Ninja up’ ‘Nitro racing’, ‘Sudoku’, ‘Airstrike’ etc. With these and another set of games, the rural dwellers have fun beyond the traditional village games.

On another note, 84.2% of the rural dwellers largely deployed the radio feature of the phone for listening to radio broadcasts through which they monitor events happening in and around their communities. This is though, in line with the traditional use of transistor radios, usually powered by dry cell batteries, (Otene *et al.*, 2015; Mtega, 2018), the use of phone radio is fast overtaking the use of the transistor radio today information society. This is largely due to handiness of the cell phones and the use of rechargeable batteries which are found to be more convenient and less expensive in comparison with transistor radios.

Table 2: Social and economic activities facilitated by mobile phones among the rural dwellers (n = 222)

Variable	Freq	%
Social engagement*		
Interpersonal communication	222	100
Audio-video recording	39	17.6
Audio-video playing	198	89.2
Game playing	81	36.5
Photography	76	34.2
Listenership to radio broadcast	187	84.2
Participation in radio programmes	61	27.5
Economic engagement*		
Facilitation of sales of goods and services	161	72.5
Attraction of customers /market creation	196	88.3
Financial transaction	77	34.7
Sourcing of information on agro-services	152	50.5
Sourcing of marketing information	173	77.9
Reaching out for social support services	109	49.1

*Multiple responses

Economic activities to which mobile phones market creation or attract customers were affected by 88.3% of the rural dwellers. This was done by calls to partners in business for notification of goods and services available for sale and or to potential buyers that might have requested such goods and

services. As equally expressed by FAO (2016), this action constitutes a veritable means of partnership formation and networking among the rural dwellers through which sales of goods are effected for income generation.

Alongside this was the use of mobile phones by 77.9% of the respondents for sourcing market information, particularly on current market prices of certain farm produce and agro-inputs, thereby making it possible for them to keep up with the changing market prices and avoid financial loss through poor pricing (Alfred and Isaac, 2023). Similarly, 72.5% of the rural dwellers deployed mobile phones for fast-tracking sales of goods and services through calls to specific customers; and where the produce was sent through carriers, the mobile phones enabled both the sellers and buyers to monitor the movement of the produce from the point of sales to that of delivery, and confirmation of receipt.

With agriculture constituting the dominant economy of the rural dwellers, about half (50.5%) of them deployed mobile phones to source agro-information either from the public extension agents or agro-produce merchants for advice and action to be taken on production technique of certain farm enterprises and/or address emerging farm-based challenges (Nwafor *et al.*, 2020). This observation suggests that voice communication from person to person was the viable option for agro-information sourcing by rural dwellers (Gershon *et al.*, 2019). Through mobile phones, 49.1% of rural dwellers reach out to technical persons for support services about healthcare, repair or operation of agro-processing machines, fabrication of farm implements, and resource persons for guidance on certain issues of concern (Londhe *et al.*, 2014).

Regarding financial transactions, 34.7% of rural dwellers deployed mobile phones for this purpose. The less usage of phones for financial transactions was largely due to the fact the Nigerian economy

was a cash-running economy and as such, most financial dealings are by physical cash. In addition, no commercial banks exist in the rural areas and none of the surveyed rural dwellers had a bank account.

Mobile phone-mediated social life reconfiguration

Mode of interactions: Table 4 shows the observed reconfigured social and economic lifestyles among the rural dwellers. Against the traditional physical contacts for different forms of engagement, the deployment of mobile phones has reconfigured this mode of interaction to interactions over the space whereby individuals in the rural environment could readily interact with any other person, either within or outside the rural areas, without having to leave the comfort of their homes, farms or workshop. According to Cho (2015), the communication device helps individuals or group of individuals to maintain interpersonal relationships and enhance fulfilment of essential social and economic tasks.

Rural-urban linkage: Against the traditional isolation and rural-urban divide, mobile phone integration has enhanced linkages with the urban areas for social and economic interactions. According to Londhe *et al.* (2014), proliferation of mobile phones has greatly reduced rural-urban differential both in the developed and developing countries; enabling job prospects and superior social network.

Mode of entertainment: Entertainment, which could be conceived as antidote to boredom, is greatly prized by the rural dwellers as a way to refresh souls and spirits. Against the traditional

Table 4: Dimension of reconfiguration of the rural dwellers’ social and economic lifestyle (n = 222)

Engagement variables	Traditional engagement	Reconfigured engagement
Social engagement		
Mode of interaction	Physical contact	Space interaction
Rural-urban connectivity	Highly isolated	Less isolated
Mode of entertainment	Socio cultural entertainment	Entertainment acculturation
Mode of time checking	Traditional timing	Modern timing
Mode of sound for timing	Dependence on birds’ cooing	Dependence of ringing alarm
Mode of lighting source	Moonlight/torch light	Phone-based torch light
Economic engagement		
Mode of marketing	Mainly within local market or with middlemen	Beyond local market and middlemen
Financial transactions	Physical cash exchange	Cash transfer
Phone-mediated businesses	Never in existence	Emergence of phone-mediated businesses
Mode of partnership formation	Effected with individuals within and adjacent communities	Effected with interest groups farther apart

Mode of time checking and reminders: Traditionally, rural environment in Nigeria rely on nature to ascertain what time of the day is. This has though been reconfigured with availability of

modern clocks and wrist watches, and by listening to radio broadcast where time of the day is regularly relayed at the start of some programmes to be aired. This practice has equally become overturned with

the emergence of mobile phones with the incorporated clock apps in the phones. The rural dwellers thus relied on the phones to check the days' time. In the same vein is the use of the alarm app of the phones to schedule events to attend or tasks to be executed. This is against the traditional reliance on cueing of birds, particularly the crow of the cocks, by which the time of the day is ascertained for what tasks to be done.

Mode of lighting source: Rural areas in the Nigeria obviously lacked electricity supply and as such, the rural dwellers traditionally relied on fuelled lighting source to lighten their environment, especially in the night. Against this backdrop is deployment of the torch light app of the mobile phones as lighting source in the areas. With this feature, the rural dwellers could readily move about or do other chores when darkness sets in at the end of the day.

Binary logistic regression

Results in Table 5 shows the results of binary logistic regression analysis for the impact of mobile phone usage on social and economic engagements of rural dwellers in southwest Nigeria. Social

engagement, variables such as audio-video recording ($\beta = 1.078$), audio-video playing ($\beta = 2.170$), game playing ($\beta = 1.312$), photography ($\beta = 1.394$), and listenership to radio broadcast ($\beta = 1.535$), have coefficients greater than 1, indicating a positive relationship with mobile phone usage. Participation in radio programmes has a negative coefficient, suggesting a negative relationship with mobile phone usage. The constant term is significant, indicating a baseline effect on social engagement.

Economic engagement variables, such as facilitation of sales of goods and services ($\beta = 1.495$), financial transactions ($\beta = 1.041$), sourcing of agro-services information ($\beta = 1.455$), and sourcing of marketing information ($\beta = 1.249$) have coefficients above 1, showing a positive association with mobile phone usage. Attraction of customers/market creation and reaching out for social support services have coefficients below 1, indicating a weaker relationship with mobile phone usage. The constant term is significant, suggesting a baseline effect on economic engagement.

Table 5: Binary logistic regression of association between the types of mobile phone usage and rural dwellers' social and economic engagement

Variables	B	S.E.	Wald	df	Sig.	Exp (B)
Social engagement						
Audio-video recording	0.060	0.469	0.026	1	0.872	1.078*
Audio-video playing	0.775	0.770	1.013	1	0.314	2.170*
Game playing	0.271	0.375	0.523	1	0.470	1.312*
Photography	0.332	0.374	0.789	1	0.374	1.394*
Participation in radio programmes	-0.493	0.455	1.170	1	0.279	0.611
Listenership to radio broadcast	0.428	0.391	1.204	1	0.273	1.535*
Constant	-2.285	0.853	7.172	1	0.007	0.102
Economic engagement						
Facilitation of sales of goods and services	0.402	0.446	0.811	1	0.368	1.495*
Attraction of customers /market creation	-0.178	0.545	0.106	1	0.745	0.837
Financial transaction	0.040	0.400	0.010	1	0.920	1.041*
Sourcing of information on agro-services	0.375	0.419	0.802	1	0.370	1.455*
Reaching out for social support services	-0.785	0.398	3.895	1	0.048	0.456
Sourcing of marketing information	0.222	0.366	0.367	1	0.544	1.249*
Constant	-1.575	0.761	4.281	1	0.039	0.207

* Significant with coefficient above 1.

CONCLUSION AND RECOMMENDATIONS

Given the outcome of the analysed data in this study, it could be concluded that mobile phones have become integrated into Nigerian rural areas, enabling rural dwellers to engage socially and economically. This is an indication that there is rapid expansion and increased deployment of mobile phones among rural populations over time, indicating the growing significance of this communication technology in rural areas. The intensity of mobile phone usage among rural dwellers is influenced by economic activities and social networking highlighting the importance of

these factors in mobile technology adoption. With the use of mobile phones for social and economic activities, rural lifestyles have become reconfigured from traditional to more modern practices.

It is thus recommended that enhanced access to smartphones mobile phones would enable rural communities to bridge traditional practices with modernity, promoting connectivity and communication within and beyond their communities; policymakers, businesses, and organisations operating in rural regions can leverage these insights to develop tailored interventions and support systems to maximise the benefits of mobile

technology for rural dwellers in Nigeria and similar contexts worldwide.

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