AJEMATES
African Journal of Educational Management, Teaching and Entrepreneurship Studies
VOL.19 (1), September-December, 2026; https://ajemates.org

FACTORS INFLUENCING THE USE OF MOBILE PHONES TECHNOLOGY IN ENHANCING AGRICULTURAL PRODUCTIVITY IN ANAMBRA STATE, NIGERIA

Ihediwa, A.A.
Department of Entrepreneurship Studies
E-mail aa.ihediwa@unizik.edu.ng

Nnabugwu Obiageli Chinwe
Department of Entrepreneurship Studies. Nnamdi Azikiwe University, Awka.
E-mail: oc.nnabugwu@unizik.edu.ng

Agbachukwu Okeife Ezeife
Department of Entrepreneurship Studies,
Faculty of Management Sciences. Nnamdi Azikiwe University, Awka
ao.ezeife@unizik.edu.ng

ABSTRACT

The Study was carried out to examine the factors Influencing the use of mobile phone technology in enhancing Agricultural Productivity in Anambra State, Nigeria. Eighty (80) Farmers were randomly selected from four Agricultural zones (AZs). Data for the study were collected with structured questionnaires administered to the respondents. Data were analyzed using four-point-type scale and regression model. The result revealed that 61% of the respondents indicated that the use of mobile is highly effective in enhancing Agricultural productivity, while the result of regression revealed that the livelihood ratio of 14.32 was significant at 5% level of probability. This implies that all the variables in the model jointly influenced the use of mobile phone. The parameter estimated for age was negative and significant at 5% while household size was positive and significant at 10%. Membership of corporative society was also significant at 5% while gender, education and farm size were positive and not significant. It was recommended that old farmers in the study area should be more sensitised and encouraged in the use of mobile phones.

Introduction

Agriculture is one sector that can provide so many opportunities because of the idea range of businesses that exist along the agricultural value chain. However, the employment potential of agriculture does not automatically make it attractive to young people. Agriculture is often associated with subsidence farming, hard physical labour, low income and rural life. Such perceptions can discourage young people from considering agriculture as a serious career or business opportunity. The National Youth Policy of Nigeria also recognized the need to address negative perceptions of agriculture among young people and promote agriculture

as an important means of employment and enterprise development (Federal Republic of Nigeria, 2019).

Modern agriculture, however, has developed beyond traditional farming. It now includes food processing, packaging, storage, transportation, mechanisation, digital marketing, agricultural technology, value addition and many other services. The use of technology is also changing the way agricultural activities are carried out. Nigeria's Digital Agricultural Strategy 2020-2030 recognises the importance of digital technologies in transforming the agricultural sector and improving productivity, access to information and agricultural services [National Information Technology Development Agency (NITDA), 2020].

Communication in agriculture is the process of imparting or exchanging information to expose the rural farmers to a better way of farming (FAO, 2008). It therefore calls for a communication development strategy that is democratic, participatory and productive or result oriented which can be achieved through interaction amongst the various systems of information dissemination (Akpan, 2008). The cost of using communication media as greatly reduced cost of extension services. For example, anchor of broadcasting programme can reach a mass of rural farmers by clients in urban areas within a short period (Crisscrossed, 2006). Communication as an instant means for exchange of ideas helps the rural farmers not only to express their needs, but also to know the efforts so far made by the government to ameliorate the problem confronting them.

Above all, rural farmers need a wide range of agricultural information access in all areas of agricultural activities such as land clearing, burning, weeding, planting, harvesting and processing. The information received helps to enlighten them on the latest species of diverse crops and the current prices for agricultural produce (Hall and Crendu, 2010). In recent years, the use of mobile phones has witnessed an upsurge in many rural areas of Nigeria. Technical Center for Agriculture and Rural Cooperative (CTA) opined that the use of ICT has witnessed an upsurge in recent years in almost all areas of rural life in several African countries, despite the persisting problems of access, connectivity and illiteracy (Ofuoku et al., 2007). Kiplaget (2005) stipulated that mobile phones companies and service providers often think that it is difficult and expensive to supply communication services to rural areas where majority of the agricultural production takes place (Annewse, 2009). So, as a result, most of the rural areas are not well covered in terms of network, even where there is network, the network is not reliable.

Poor access to information is major constraint to agricultural development in rural areas and the situation is aggravated by the high level of illiteracy among the rural farmers. Some researchers have categorized these problems or factors into five (5). These factors influenced the use of mobile phones in enhancing agricultural productivity. These

AJEMATES
African Journal of Educational Management, Teaching and Entrepreneurship Studies
VOL.19 (1), September-December, 2026; https://ajemates.org

factors are technological and they include: Network connectivity, smartphone availability, internet access, ease of use, mobile application (Kolapo et al 2024). The economic factors involved include: cost of phone, cost of data, electricity charging (Mohammed 2024). Farmer's characteristics also affect the use of mobile phones; Age, education, digital literacy, gender, farming experience (Ogungbemj and Filusi 2026).

Then the social factors namely: the extension services cooperative, government support, peer influence etc. (Gland et al 2026). Lastly, the perceived factors which implies farmers perception on the usefulness, ease of use, benefits, risks, trust and value of mobile phones (Okekeazi and Eke, 2026). FAO (1993) noted that, knowledge and information have become the most important currency for productivity, competitiveness and increased wealth and prosperity. There is need to advocate farming in the language they will understand better. Therefore, this study is carried out to examine the factors influencing the use of mobile phones in enhancing agricultural productivity in Soba Local Government Area of Kaduna State.

Methodology

The study was carried out in Anambra State, Nigeria. The state is located between latitudes 6° 13' N and longitude 6° 57' E (GPS coordinates, 2023). Anambra State occupies an area of 4,844 sq. km and has a population of 4,177,828 according to the 2026 census (City population, 2017). The State comprises 21 local government areas (LGAs), 181 communities and four agricultural zones (AZs), which are Aguata, Anambra, Awka and Onitsha Agricultural zones (Nigerian Investment Promotion Commission, 2022; Ugwu et al, 2021). Eighty (80) farmers were randomly selected from the four agricultural zones (AZs) mentioned above. Twenty (20) farmers each were randomly selected respectively to make total of 80 farmers. The information was collected through a well-structured questionnaire and interned schedule. Some of the information collected from the farmers include: effectiveness of mobile phones in agricultural productivity and information on factors Influencing the use of mobile phones in agricultural production. To ascertain the effectiveness of the mobile phones usage in agricultural productivity, respondents were asked to rate options from the list of possible factors using scales of highly effective 3, moderately effective=2, less/little effective=1, and not effective at all=0. Logit regression model was used to determine the factors Influencing the use of mobile phones in enhancing better productivity. The logit regression model is implicitly specified as:

Y= F (X1, X2, X3, X4, X5, X6, X7 + u: where
Y= Usage of mobile phones = 1, Non usage of mobile phones= 0
X1 = Age (year)
X2 = Gender (male = 1, female = 0) dummy

AJEMATES
African Journal of Educational Management, Teaching and Entrepreneurship Studies
VOL.19 (1), September-December, 2026; https://ajemates.org

X3 = Marital status (single = 1, married = 2)
X4 = Household size (number of household)
X5 = Level of education (number of years in formal school)
X6 = Farm size (in hectare)
X7 = Membership of association (years of membership of cooperative association)
u = Error term, which represents the effect of another variable not included in the model

Results and Discussion

The result in Table 1 shows that majority (48%) of respondents indicated that the use of mobile phones was highly effective in agricultural productivity, 20% were of the opinion that mobile phones were moderately effective, 8% indicated that the use of mobile phones was less/little effective, while 4% of the respondents indicated that mobile phones usage was not effective at all in agricultural production.

Table 1: Effectiveness of respondents on the mobile phone in Agricultural productivity

Farmer's assessment of mobile phone effect	Frequency	Percentage	
Highly effective		48	48
Moderately effective		20	20
Less/little effective		8	8
Not effective at all		4	4
Total		80	80

The result in Table 2 revealed the factors Influencing the use of mobile phones in enhancing better productivity. The log likelihood ratio (14.32) was significantly at 5% level of probability. This implied that all the variables in the model jointly influenced the use of mobile phones. The parameter estimate obtained from age as negative and significant at 5% level which implies that increase in age could decrease the probability of using mobile phone. This means that the use of mobile phone was common among young farmers.

Household size was positive and significant at 10% level of probability. The implication of this is that, as household size increases, the probability of using mobile phones also increases. The estimated coefficient of membership of cooperative was positive and significant at 5% level. This implied that participation in cooperative societies would increase the probability of mobile phones. Farmers in cooperative societies may have access to finance and could be more sensitive about the importance of mobile phones in accessing information and farming activities. Gender education and farm size were positive. However, these variables did not significantly influence the use of mobile phones.

AJEMATES
African Journal of Educational Management, Teaching and Entrepreneurship Studies
VOL.19 (1), September-December, 2026; https://ajemates.org

Factors Influencing the use of mobile phones

Variables	Coefficient	Standard error	t-ratio
Constant	3.141	1.994	1.58
Age	-0.081	0.041	-1.95**
Gender	-0.918	0.740	-1.32
Marital status	0.529	0.562	0.92
Household size	0.140	0.084	1.67*
Education	0.179	0.343	0.52
Farm size	0.464	0.234	0.20
Cooperative	2.261	1.107	2.04**

Log likelihood ratio 14.32**

Conclusion

The result from the findings showed that the use of mobile phones was highly effective in agricultural productivity especially in the area of information on current market price and information on demand or goods and quantities available at the market. The regression result revealed that the parameters estimated obtained for age as negative and significant at 5% level which implies that increase in age would decrease the probability of using the mobile phones. Also, the estimated coefficient of membership of cooperative societies was positive and significant at 5% level. This also implies that participation in cooperative would increase the probability of mobile phone usage. The result further showed that household size was positive and significant at 10% level of significance while gender, educational level and farm size were positive but not significant in influencing the use of mobile phones in enhancing better productivity. It was recommended that older farmers should be sensitised and encouraged to use mobile phones to enhance better agricultural productivity. These factors are technological factors which include: Network connectivity, smartphone availability, internet access, ease of use, mobile application (Kolapo, et al).

REFERENCES

Akpan, A. (2003). Information technology and globalization "New Nigeria Weekly, 15th February 2003 pp 20.

Annaruse D. (2003). " Making the system work" ICT update, Issue 47, February 2006, pp 3City population (2017). Anambra State in Nigeria. Retrieved from http:// www, city population. de// php/Nigeria - admin.php?admlid=NGA 004. does adoption of technology result in increased agricultural productivity London

Crisscrossed, (2006). "Perspective on constraints of ICT in Africa. http//www.crisscrossednet.e-

agriculture 2008, the impact of cell phones on grain marketing in Niger. http://www.e-agriculture.org/240

FAO (2008). A market facilitator's guide to participative agro-enterprise development, FAO, Rome, Italy. Pp. 11-12

FAO (1993). The potentials of microcomputers in support of agricultural extension education and training, Rome, FAO

Glanda, GG. Ibrahim M.B., and Ibrahim, S. (2026). Social capital and agricultural technology adoption among small holder farmers in rural Adamawa state, Nigeria. Journal of Agricultural Research and Development 22(2), 26-45. Https://doi.org/io.4314/jard vol.2212.3

Hellendendu, E.S. (2010). Effect of mobile phones on agricultural extension education and training, Rome, FAO

Kolapo A., Didunyemi, A I. (2004) Effects of exposure on adoption of agricultural smartphone apps among small holder farmers in Southwest, Nigeria. Implications on farm level-efficiency agriculture and food security

Mohammed, N. (2024). Socio-economic variables Influencing the use of information and communication technologies (ICTs) in agricultural extension service delivery amongst farmers in Yobe state, Nigeria. Asian journal of Research in Agriculture and Forestry, 10/2), 102-118. https://doi.org/10.9734/ajraf/2024/V10;2290

National Information Technology Development Agency (2020). Nigeria Digital Agriculture Strategy (2020-2030). Draft: National Information Technology Development Agency

Nigerian Investment Promotion Commission (2022). Nigeria States- Anambra State retrieved from Https://www.nipe.gov.ng/nigeria states/anambra-state/.

Ogungbemi O. A. and Filusi, T.A. (2026). Determinants of mobile phone technology utilization among cassava farmers in Ekiti state, Nigeria. International journal of social sciences.

Okekeazi, C.C. and Eke C. (2026). Digital Technology adoption among small holder farmers in FCT, Abuja. Pattern drivers and barriers. International journal of Research and Innovation in Social Science 10(5), 11215-11230.

Onyekami, O. (2006). Increase relevance for IT in 2006. This Day Newspaper 5th January, pp 31-32

Yanki, Y.B. (2006). Problems and prospect of information and communication technology (ICT) in Agriculture: an unpublished postgraduate project, Faculty of Agriculture, ABU Zaria Pp 1-3