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EFFECTS OF INFORMATION COMMUNICATION AND TECHNOLOGY (ICT) USAGE ON POULTRY FARMERS IN JALINGO LOCAL GOVERNMENT AREA OF TARABA STATE, NIGERIA

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Abstract

The study assessed the effects of information and Communication Technology usage among poultry farmers in Jalingo local government area of Taraba State, Nigeria. The data was collected using well-structured questionnaires and inferential and descriptive statistics were used to analyze the data. Multi-stage random and purposive sampling techniques were used to select ninety (90) respondents using for the study. Socio-economic characteristics of the respondents showed that 84.4% were male and 15.5% were female and 40.5% of them were within their productive age while 53.6% were married and majority was literate. The study also revealed that the most accessible and used ICT facilities in the area included: radio, mobile phones and television. The access and use of ICTs in the study area was also high. Some of the constraints associated with usage of ICT facilities were identified in the study include high cost, inconveniences, lack of availability and reliability. The major sources of information for farmers in the study area were telephone calls, radios, televisions, words of mouth, text messages and training. The main factors affecting the use of ICT facilities by poultry farmers in the study area were Sex, age, educational status and source of income. Based on these findings, the study recommended that relevant policies aimed at improving agricultural productivity should ensure farmers have adequate access to ICT facilities. Extension workers should also help to improve farmer's knowledge and skills of ICT facilities to enhance adoption of ICT facilities by farmers and thus improve productivity.

Key words**:** *Information Communication Technology, poultry farmers*

INTRODUCTION

Many human civilizations have modified their social structures over thousands of years to reflect the requirement for agricultural productivity. A growth in population with an adaptation to farming practices that lead to increased crop yields. However, the globe is currently confronted with rising populations, restricted crop yields, and significant amounts of waste generated by both the food supply chain and consumers in Western economies. In regard to the increase in the world population, the need for increase in production will be achievable if information, communication and technology (ICT) are put in place. An expanding ICT sector can help to boost overall productivity, GDP, and trade. As individuals continue to embrace ICT in order to improve their lives, it may have an impact on how they live and how quickly they develop [6]. In conjunction with megatrends which include globalization, weather change, urbanization, and getting old populations, the effect of generation on our each day lives and monetary interactions is undeniable; ICT is assisting to convert our society and the monetary systems which have fashioned the muse of industries because the business revolution. The globe is shifting from a period of abundant food to one of shortage [2].

The internet is used by more than 40% of the world's population. There are considerable initiatives underway to link those sectors that are still disconnected, mostly in developing countries' rural areas. The rapid transition from mobile phones to broadband has facilitated the rapid creation of a slew of new

information and communication channels, including social media, portable cloud computing, big data, and smart terminals, all of which are unquestionably influencing human life. Mobile phone subscriptions are affecting not only people's lives but also how data and information is collected, saved, analyzed, and shared, as well as providing new ways to do business online and offline in terms of buying, selling, marketing, and financial transactions [5].

Information and communication technologies (ICTs) have long had an impact on agriculture, and many forms of indigenous knowledge continue to play an important role in agricultural management [12]. However, in the developing world, the mobile phone is a ubiquitous technology of urban-rural socio-economic speed, and it is seen as a development tool for "leaping froging" legacy infrastructure and innovating faster than through traditional industrial forms. Farmers' access to, interchange of, and manipulation of information is being accelerated by mobile phones, which is reshaping the way farmers engage with markets and cities. Farmers are increasingly using social and commercial networks to focus, search, and extract important and up-to-date market information [4, 7]. The internet, cell phones, radio, and television are the most essential communication instruments for farmers seeking agricultural expertise and information. Positive results in agricultural development have been attained by implementing these technologies in many countries [3].

Statement of the Problem

The globe is transitioning from a period of abundant food to a period of shortage. The world's grain reserves have shrunk by a third in the last decade. Food prices have more than doubled globally, sparking a global land rush and ushering in new food geopolitics. Food is believed to be the new oil, and land is considered to be the new gold [2]. The dissemination of better technologies to farmers is a crucial task in agricultural growth. It is critical that ICTs be used to gather information regarding poultry farming in Nigeria.

For Nigeria, poultry farming is a very important sector of agriculture where profitable small business is developed either in broilers and layers rearing [1, 8, 11].

One of the strategies to enhance poultry production in Nigeria, according to [7], is to provide the relevant information through acceptable channels that are accessible to the farmers for whom the information is intended. The poultry industry in Nigeria can benefit from the availability of ICTs to increase chicken output. To do so, it'll be necessary to figure out how many poultry farmers have access to and use ICTs for development [9, 10].

Objectives of the Study

The study was designed to determine the effects of ICT on poultry farmers in Taraba state. Specifically, the objectives were to describe the socioeconomic characteristics of the respondents in the study area, identify ICT facilities in the study area, examine the effects of ICT usage on poultry farmers in the study area, describe the constraints associated with ICT usage among poultry farmers determine the as well as factors influencing the usage of ICT among farmers in the study area.

MATERIALS AND METHODS

The investigation was conducted in Jalingo Local Government area of Taraba state, Nigeria. The state comprises of sixteen local government areas and geographically consists of undulating landscape dotted with few mountains features. Jalingo is arguably the most successful local government area in the State; it is also the most populated with a high range of development when compared to other states. About 25 miles southeast of the Benue River, Jalingo is located in the savanna-covered slopes of the Shebshi Mountain. It is a market town with a government dairy farm and is linked to Yola and Wukari via road. It has population inhabitants of 660,213 and a population density of 3,456.6/km^2 (8,952.6/sq mi). Geographically it is located between latitude 8.9, and longitude 11.3667, 8^0 54’0” North, $11^0$22’0” East. It holds the prime position of

being the headquarter of the Muri Emirate Council and capital city of Taraba State.

Sampling Procedures

Purposive sampling and multi-stage random sampling technique was used to select respondents in the study area. Six (6) wards were selected from the 10 wards in the first stage. The six wards selected are Kona, Mayo Goi, Sintali, Turaki A, Turaki B and Barade. In the second stage, 3 farming communities and 15 famers were selected giving a sample size of 90.

Method of Data Collection

The study data were mainly from primary data with the use of well-structured pre-tested questionnaires administered to the farmers

Method of Data Analysis

Objective 1, 2, 3 and 4 were analyzed using descriptive statistics such as frequencies, Likert scale while objective 5 was analyzed using binary logistic regression. Objective 3 and 4 were analyzed using a 5 point Likert scale which was be scored as; Very high = 5; High = 4; Fairly High = 3; fair = 2; and Low = 1.

The mean score was then used as the endogenous variable in the regression model. Objective 5 was analyzed using regression technique. The model was specified as follows:

$$Yi=\beta_0+\beta_1X_1+\beta_2X_2+\beta_3X_3+\beta_4X_4+\beta_5X_5+\beta_6X_6+\mu$$

where:
Y=Usage of ICT
X_1= sex of the respondent (Dummy: 1=male, 0=female)
X_2= Age in years
X_3= Occupation
X_4= Farming experience in years
X_5= Years of schooling
X_6 = Source of income

RESULTS AND DISCUSSIONS

Socio-economic Characteristics of the Respondents

The socio-economic characteristics of the respondents revealed that 40.5% of the respondents fell within the age bracket of 21-30 years and age bracket of 31-40 years accounted for 33.3% while 97.6% of the respondents had formal education and 2.4% of them having only informal education. The results also showed that farming experience (1- 5 years) constituted about 48.8% while those with 6-10 years of farming experience accounted for about 40.5% of the respondents. The major (44.0%) source of livelihood discovered in the study area was farming and followed by civil servant (22.6%), artisan (22.6%) and trading (10.7%).

Table 1. Distribution of Respondents by Socio-economic Characteristics

	Frequency	%
Age		
21-30	34	40.5
31-40	28	33.3
41-50	19	22.6
>50	3	3.6
Total	84	100.0
Educational Qualification		
Secondary	9	10.7
High institution	73	86.9
Informal education	2	2.4
Total	84	100.0
Farming experience		
1-5	41	48.8
6-10	34	40.5
11-15	8	9.5
>15	1	1.2
Total	84	100
Source of income		
Farming	37	44.0
Trading	9	10.7
Civil servant	19	22.6
Artisan	19	22.6
Total	84	100.0
ICT Facilities		
Radio	57	67.9
DVD	13	15.5
Computer	9	10.7
Phone	84	100.0
Television	68	81.0
Internet	63	75.0
Flash drives	16	19.0
CDROM	5	6.0

Source: Field Survey, 2022

67.9% of the respondent made use of radios to access relevant information while only 10.7% of the respondent made use of computers. This could however be as a result of the inaccessibility of usage of computers when

compared to other Information Communication Technology facilities as well as its relative complexity of use. All (100%) the respondents selected used of mobile phones in sending and receiving messages and making calls to their customers while 81.0% of the respondent in the study area made use of television in getting and listening to relevant information, 75% of the respondents made use of internet, 19.0% of the respondent make use of flash drives in saving their files and other documents while only 6.0% made use of the CDROM. This might be as a result of the fact that CDROMs are outdated and are not widely used currently.

Usage of ICT Facilities

The data on Table 2 revealed that tablets extent of use has a mean score of 2.26 which implies that it was not widely used among the poultry farmers.

This might be as a result of the fact that tablets are expensive and not affordable in the study area. Also the study revealed that GSMs and Audio visual equipment had mean scores of 4.52 and 4.26 respectively which imply that they were widely used by poultry farmers in the study area because the fact that they are relatively easy and cheap to use.

Table 2. Extent of use of ICT Facilities

Facilities	Very High (5)	High (4)	Moderate (3)	Low (2)	Very Low (1)	Total population	Mean score	Percentage %
Tablet	1	1	26	38	11	77	2.26	91.7
Laptop	2	6	29	27	15	79	2.41	94.0
GSM	48	31	3	1	-	83	4.52	98.8
Audio visual equipment	30	45	4	1	1	81	4.26	96.1
Calculator	-	-	8	17	55	80	1.41	95.2

Source: Field Survey, 2022.

ICT Facilities Used by Poultry Farmers in the Study Area

Table 3 shows ICT facilities used for the production of poultry had a mean score of 3.08 and network service availability had 3.80. Access to internet service and use of personal cell phone to receiving agricultural Information had 3.10 and 3.39 respectively. This indicates poultry farmers in the study area made use of ICT and its facilities on their farms.

Table 3. ICT use by Poultry Farmers in the Study Area

Usage of ICT facilities	High (4)	Medium (3)	Low (2)	Not at all (1)	Total respondents	Mean score
Use of ICT in your farm practice	27	43	9	5	84	3.08
Network service availability	68	16	-	-	84	3.80
Awareness about mobile Apps	24	33	24	3	84	2.92
Access to internet service	29	37	16	2	84	3.10
Use of personal cell phone to receiving agricultural Information	43	33	7	1	84	3.39

Source: Field Survey, 2022.

Access to internet and use of personal mobile phones for accessing agricultural information had mean scores of 3.10 and 3.39 respectively which implied that a slight majority of the poultry farmers had access to internet service as well as used personal cell phones to receive agricultural related information.

Constraints Associated With ICT Usage by Poultry Farmers

From Table 4, we may see that about 98.8% of the respondents have a mean score of 1.84 for convenience which implied that convenience of use of ICT facilities would affect adoption by majority of the respondents. The same can be said for other factors such as availability, relative advantage, reliability, educational status, social influence, and cost of the product which had mean scores of 1.58, 1.59, 1.41, 1.34, 1.91, and 1.23 respectively, all of which imply that they would all significantly affect the adoption of ICT facilities among poultry farmers in the study area.

Table 4. Constraints associated with ICT use in the Study Area

Factors	Yes	Neutral	No	Mean Score
Convenience	41	83	14	1.84
Availability	57	22	4	1.58
Relative advantage	50	17	14	1.59
Reliability	59	11	12	1.41
Educational status	67	12	4	1.34
Social influence	30	23	29	1.91
Cost of the product	71	7	5	1.23

Source: Field Survey, 2022.

Factors affecting ICT use

The regression result showed a significant R^2 value of 0.531 which implies that 53.1% of the variation present in the independent variable was explained by the dependent variables. Four dependent variables such as sex, age, educational level and source of income were significantly affected the use of ICT. Sex and age had negative relationship with the use of ICT and significant at 1% (Table 5).

Table 5. Factors influencing ICT usage by the respondents

Y	B	Sig	Exp(B)
Sex	-2.652	.008	.071
Age	-1.747	.003	0.174
Occupation	.527	.169	1.694
Farming experience in years	1.014	.108	2.757
Years of schooling	3.235	.005	25.395
Source of income	1.366	.003	3.919
Constant	-6.918	.005	.001

Source: Field Survey, 2022

This indicates that increase in age and sex of the respondents lead to decrease in the usage of ICT facilities in the study area. On the other hand, year of schooling and source of livelihood had positive influence on the usage of ICT facilities among the respondents in the study area.

CONCLUSIONS

Based on the findings of this study, sex, age, educational qualification and source of income are the key variables and factors that determine the use of ICT by poultry farmers. It can thus be concluded that increased access to ICT facilities is as effective strategy for increasing agricultural productivity particularly poultry production generally as well as the fact that high cost of ICT facilities is a major constraint associated with ICT use among poultry farmers and its applications on poultry farms. Based on the findings of this research, it is recommended that relevant policies aimed at improving agricultural productivity should ensure farmers have adequate access to ICT facilities. Extension workers should also help to improve farmer's knowledge and skills of ICT facilities to enhance adoption of ICT facilities by farmers and thus improve productivity.

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