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EVALUATION OF COMMUNICATION SUPPORT MATERIALS USED FOR AGRICULTURAL DEVELOPMENT PROJECTS IN SELECTED STATES IN NORTH CENTRAL NIGERIA

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ABSTRACT: *Food is indispensable for the survival of every human being and for Nigeria to move away from an oil dependent economy we need to invest in agriculture. One of the ways to boost food production and other agricultural products is through Agricultural Development Projects (ADPs). ADPs Extension agents in selected North Central States effectively used communication support materials to disseminate information to less schooled adult farmers on how to improve their farming techniques. Did the farmers understand them? How effective were these materials and of what value? It is based on this premise that the researcher evaluated communication support materials used for farmers in selected states in North Central Nigeria. The researcher adopted a survey design. The study population included all the states in North Central Nigeria: Benue, Kwara, Niger, Nassarawa, Plateau and Kogi. From these six states Benue, Nassarawa and Kwara States were selected through purposive sampling technique because they are the most agriculturally endowed states. The sample size of 1500 farmers were selected from the 973,380 farmers through a combination of systematic and proportional sampling techniques from the list of the registered farmers from the states. The breakdown is as follows: Benue State– 478,060, Kwara State – 313,983, and Nassarawa State – 180,433. The major instrument used was questionnaire. The questionnaire was validated through a pilot test on 20 people in Ogbomoso, Oyo State, Nigeria while the reliability of the questionnaire was established through Cronbach Alpha Analysis. The score ranged from 0.70-0.772. The data was analyzed using frequency distribution, Cross tabulation, ANOVA and Linear regressing using SPSS Software version 20.0. The linear regression analysis of the hypothesis depicts that there is no significant effect between farmers lifestyle and usage of communication and support materials among respondents (P>.0.05). Findings revealed that, majority of respondents received extension training through leaflets. The result shows that out of 1356 respondents, 1116 (86.1%) agreed that extension agents attended training very often. The study concluded that majority of farmers in selected North Central States received extension training through communication support material. On the basis of the findings, it was recommended that, extension agents should continue to use communication support materials for training farmers. However, they should ensure that these communication support materials are attractive, persuasive, easy to understand and acceptable by farmers. Furthermore, the State governments in North Central States should as a matter of priority inject more funds to the Agricultural Development Projects so as to enable the ADPs achieve their mandate of improving agricultural productivity and raising the income of small-scale farmers.*

KEYWORDS: extension, communication, farmers, agricultural development

INTRODUCTION

The importance of agriculture in the Nigerian economy cannot be over emphasized. According to Liverpool-Tasie, Kuku and Ajibola, (2011), agriculture remains a crucial sector in the Nigerian economy being a major source of raw materials, food and foreign exchange; employing over 70 percent of the Nigerian labour force, and serving as a potential vehicle for diversifying the Nigerian economy. In fact, the Asby commission set up by the Federal Government of Nigeria in (1959) has this to say on agriculture:

Three out of four Nigerians work on the land. Seventeen shillings out of every pound earned from Nigerian exports come from agricultural products. Investment in agricultural improvement and agricultural education could increase Nigeria's yield, yet investment in agriculture is inadequate and is rarely in the public eye. Publicity goes to industrialization, construction and the like (p. 2).
Food is indispensible for the survival of every human being and for Nigeria to move away from oil dependent economy we need to invest in Agriculture. One such way to boost food production and other agricultural products is through Agricultural Development Projects (ADPs). To address this, government established the ADPs. Agricultural Development Projects (ADPs) are State institutions with the mandate to improve the level of Agricultural Production and improve the living standards of the rural population. Agricultural Development Projects (ADPs) provide technical support through extension services to small holder farmers as a means of promoting improved farming techniques (FMAWR, Abuja 2014). Amalu (1998) cited in Iwuchukwu and Igbokwe (2012) explains that ADP formerly known as Integrated Agricultural Development Projects (IADPs) was earlier established in 1974 in the North East (Funtua), North West (Guasau) and North Central Gombe (Gombe) states as pilot schemes. The earlier impressive result of the programme led to its replication in 1989 in the entire then nineteen states of the Federation. This approach to agricultural and rural development was based on collaborative efforts and tripartite arrangement of the Federal Government, States and World Bank. Agricultural Development Programme (ADP) focuses on rural integrated development strategy for agricultural and rural development. The establishment of these statewide ADPs raised the hope of farmers in government genuine commitment to the eliminations of the social, political and economic that kept them in cycle of poverty (Akinbode, 1989). According to Benor and Baxter (1984) in Ayansina (2011):
the ADPs across the country in 1986 adopted the Training and Visit system (T & V) in order to boost production, solve the prevailing extension problem, foster staff reliance and sustain in the agricultural sector. The Training and Visit (T & V) extension system had essential features such as (a) professionalism (b) single line of command (c) time bound work (d) concentration of efforts (e) regular and continuous training (f) farm and field orientation (g) regular and extension linkage (p. 52).

Today, this has grown to become the major agricultural and rural development programme existing in all states in Nigeria. The important features of the programme are reliance on the small scale farmers as the main people that will bring about increase in food production and the feedback information mechanism which is a decentralized decision making process that allows farm

households to give their responses to an important technology; incentive, subsidies and so on, according to their judgment. The objectives of the programmes were to appropriately utilize the funds from the World Bank, the ADPs were established to provide extension services, technical input support and rural infrastructure to farmers in the rural areas. Some problems that occurred in the course of executing the projects were shortage of funds due to decline in oil prices that started in 1982 which led to delays in recruiting competent staff and provision or purchasing of materials and facilities needed for the projects implementation. This made implementation much slower than scheduled. Secondly, ADP emphasizes more on modern or high input technology such as sole cropping while majority of the farmers practiced mixed relay cropping. There was also late supply of subsidized input supply for the programme. Present problems of ADP include; high frequency of labour mobility, limited involvement of input agencies, dwindling funding policies and counterpart funding, intricacies of technology transfer and others.(Ayoola, 2001; lwuchukwu and Igbokwe, 2012).

Statement of the Problem

Agricultural development projects managers have been using Communication Support Materials to disseminate information to small scale farmers on how to improve their farming techniques. It is not in doubt that, carefully designed communication materials aid interaction between extension agents and farmers hence these materials are called "communication support materials". Communication supports materials are produced by Agricultural Communication Specialists and Field Extension Workers (FEWs). Kombol (2012) explains that Extension planners design and print communication support materials which are meant for use during extension activities. Communication support materials such as: Supplementary feeds and feeding for cattle, Improved Beniseed production, Banana and Plantain production and How to improve dry season vegetable garden were effectively used by extension agents on less schooled adult farmers. Did they understand them?; were they correctly designed and appropriately used on farmers?; how effective were these materials and of what value?. It is based on this premise that the researcher evaluated communication support materials used for farmers in North Central Nigeria.

Research Questions

1. To what extent does demographic factors such as age, gender, education, income influence the usage of communication support materials among farmers in North Central Nigeria?
2. How were the Communication Support Materials produced?
3. What are the constraining factors in the production of Communication Support Materials for farmers in selected North Central States?
4. How effective were the methods used by extension agents for training farmers in North Central Nigeria.
5. What is the degree of difference in farmers' utilization of Communication Support Materials in Benue, Kwara and Nassarawa States?

THEORETICAL FRAMEWORK

Visual Literacy Theory

According to Akinwande (1900), visual literacy is the ability to recognize pictures. It is acquired over time just as in numeracy and readability of figures, letters, symbols and so on. Messaris and Morlarity (2014) says visual literacy is a label for an important concept, namely the viewer awareness of the conventions through which the meanings of visual images are understood. Visual literacy has been defined variously as a hierarchy of skills (Fransecky and Debes, 1972), a set of competences (Debes, 1969), elements and strategies of communication (Dondis, 1973), a set of components or dimensions, visual thinking and visual learning. A common factor in these definitions is the view of visual literacy as a learned skill. Visual literacy is the learned ability to interpret messages and to create such message; visual literacy emphasizes both comprehension and the creation or use of visual message. Visual literacy is the ability to understand and use images, including the ability to think, learn and express oneself in terms of images.

This theory is relevant to the study because it will assist the extension worker who acting like a salesman, seeks the adoption of his product not only by those directly exposed to his information through personal contact but essentially by a large number of people through demonstration and special effects. The extension worker wishes to induce change of audience through audio visual materials because of the following reasons (Bamford, 2013).

1. Oral presentation combined with a visual one is more impressive than either one by itself. More people will be reached this way with better result.
2. The audience is moved more by what it hears, but more permanently by what it sees, so things shown are more remembered.
3. There are more visually minded people than there are audio minded ones.
4. In oral presentation, emphasis can be given to certain key points by representing them two or three times. The best way to repeat statements is by telling the story first with a graph or diagram, secondary oral and third with pictures. (Andh, 1956).

The extension worker with a good grasp of the principles of the theory will produce communication support materials that will easily understandable by farmers in North Central zone of Nigeria. This will help introduce changes in the farming practices of rural farmers in North Central, Nigeria. According to Kemp (1973), effective communication can no longer be considered possible with words alone. The very nature of our language, coupled with 'the limited experiences of most people, often makes it difficult to convey ideas and information essentially without resources beyond words. Audio visual expression is clear, interesting and purposive communication. Capable extension agents must add to their communication skills the abilities to select ready-made instructional materials or to transfer ideas into specific visual forms that help them to teach more effectively. This is because when such audio visual materials as photographs, slides, filmstrips, overhead transparencies and motion pictures are carefully prepared and properly used, they can:

Ofuoku and Agumagu (2008), stated visual communication is the communication between people through expression and action without using words. Agbamu (2006) says visual forms of communication appears to the eyes, to the sense of sight of a given audience or target person. Visual relates to seeing some examples of visual methods of communication include posters, slides, chart, flannel-graphs and flash cards. It also involves result demonstration conducted by a participating farmer, under extension worker guidance to prove by evidence that the demonstrated practice, particularly on a farmers' farm is superior to an existing practice and appeals to our sense of sight. (Agbamu, 2006).

Research Design

This study adopted survey research design in gathering the quantitative data. Obadara (2007) says this type of research involves collecting and analyzing data from only a few people or items considered to be representative of the entire group. The survey research always covers only a few subjects from the Population of interest in a way that they are simple representatives of such population. According to Fink (1995), a survey is a system for collecting information. By asking questions, or having participants respond to stimuli statements, researchers can collect data that can be used to describe, compare or explain knowledge, attitudes or behaviour.

Population

The population of the study includes all the six states that constitute the North Central Nigeria. Due to paucity of funds and time, the total population was not studied. Consequently, from the six (6) states that constitute the North Central Nigeria: Benue, Kwara and Nassarawa were selected through purposive sampling (A, technique. These states were elected because they are the most endowed agriculturally.

Sample Size and Sampling Technique

The selection of sample size is germane in any research endeavor. Consequently, in this study, adults who are 18 years and above and are considered to have knowledge on the subject matter of the study were sampled. The sampling of the target population provided the number of participants to participated in the study.

The sample size of 1500 farmers were selected from the 973,380 farmers through a combination of systematic and proportional sampling techniques from the list of registered farmers in the states. The breakdown of farmers in the selected states is as follows:

Benue - 478, 060
Kwara - 313,983
Nassarawa - 180,433

Total - 973,380

https://www.eajournals.org/ https://doi.org/10.37745/ijaerds.15

Table 1: List of local governments that were sampled in Benue State through proportional sampling

S/N	Name of Local Government	% of total selected LG population	Proportional Allocation of Respondents
1	Gboko	29%	145
2	Konshisha	42.6%	213
3	Ogbadibo	13.5%	68
4	Tarka	14.7%	74
	Total	**100%**	**500**

Source: Researcher, 2014

Proportional Sampling

Total population in selected Local Government Areas in Benue = 111,105

Gboko = $\frac{32,528}{111,105}$ x100 = 29% of 500 respondents allocated to the state

= $\frac{29\%}{100\%}$ x 500 = 145 respondents which is 29% of 500

Konshisha = 47,382 (Total population)

= $\frac{47,382}{111,105}$ x 100 = 42.6% of population

= $\frac{42.6}{100}$ x 500 = 213 respondents which is 42.6% of 500

Ogbadibo = 14,968 (Total population)

= $\frac{14,968}{111,105}$ x 100 = 13.5% of population

= $\frac{13.5}{100}$ x 500 = 67.5 approximated to 68 respondents which is 13.5% of 500

Tarka = 16,227 (Total population)

= $\frac{16,227}{111,105}$ x 100 = 14.7% of population

= $\frac{14.7}{100}$ x 500 = 74 respondents which is 14.7 of 500

https://www.eajournals.org/ https://doi.org/10.37745/ijaerds.15

Table 2: List of local governments that were sampled in Kwara State through proportional Sampling.

S/N	Name of Local Government	% of total selected LG population	Proportional Allocation of Respondents
1	Ifelodun	64%	320
2	Isin	15%	75
3	Oyun	21%	105
	Total	**100%**	**500**

Source: Researcher, 2014

Total population in selected Local Government Areas in Kwara = 64,009

Ifelodun = 40802 (Total population)

= 40802 x 100 = 63.7% approximately 64% of population
64009

= 64 x 500 = 320 respondents which is 64% of 500
100

Isin = 9498 (Total population)

= 9498 x 100 = 14.8% approximately 15% of population
64009

= 15 x 500 = 75 respondents which is 15% of 500
100

Oyun = 13709 (Total population)

= 13709 x 100 = 21% of population
64009

= 21 x 500 = 105 respondents which is 21% of 500
100

Table 3: List of local governments that were sampled in Nassarawa State through proportional sampling.

S/N	Name of Local Government	% of total selected LG population	Proportional Allocation of Respondents
1	Keana	31.3%	157
2	Obi	68.7%	343
	Total	**100%**	**500**

Source: Researcher, 2014

Total population in selected Local Government Areas in Nassarawa State = 8520

Keana = 8520 (Total population)

= 8520 x 100 = 31.29% approximately 31.3% of population
27228

= 68.7 x 500 = 343.5 approximately 343 respondents which is 31.29% of 500 \
100
Obi = 18708 (Total population)
= 18708 x 100 = 68.7% of population
27228
= 31.3 x 500 = 156.5 approximately 157 respondents which is 31.3% of 500
100

The study adopted the probability and non-probability sampling techniques namely purposive sampling, systematic sampling and proportional sampling techniques in determining the geographical spread for the study. The scholar drew a sampling frame of all Local Government Areas (LGAs) in Benue, Kwara and Nassarawa States. Each of the Local Government Area which forms a sampling unit was listed alphabetically, then the researcher systematically selected every 5th LGA on the list thus:

Table 4: Farmers Village Listing Survey of Benue State

LGAs IN BENUE STATE				
Ado 12,770	Agatu 20,445	Apa 27,176	Buruku 39,016	Gboko 32,528
Guma 13,833	Gwer East 17,357	Gwer West 2,665	Katsina Ala 27.939	Konshisha 47,382
Kwande 12,272	Logo 16,334	Makurdi 6,388	Obi 19,567	Ogbadibo 14,968
Ohimini 11,332	Oju 42,728	Okpokwu 14,189	Otukpo 31,176	Tarka 16,227
Uum 12, 351	Ushongo 8,544	Vandeikya 30,877		
			Total	478,064

Source: Planning, Monitoring and Evaluation Department, Benue Agricultural and Rural Development Authority (BNARDA), Makurdi, Benue State, 1992.

From the sampling above, the four (4) selected local governments were Gboko, Konshisha, Ogbadibo and Tarka.

Table 5: Farmers Village Listing Survey of Kwara State

LGAs IN KWARA STATE				
Asa - 16,917	Baruten - 23,491	Edu — 31,269	Ekiti — 11,683	Ifelodun - 40,802
Ilorin East - 19,095	Ilorin South — 10,736	Ilorin West — 16,652	Irepodun - 35,947	Isin — 9,498
Kalama - 9,650	Moro 34,923	Oke-Ero — 8,014	Offa — 759	Oyun — 13,709
			Total	**313,983**

Source: Planning, Monitoring and Evaluation Department, Kwara Agricultural Development Project (KADP), Ilorin, Kwara State, 2013

Each of the LGAs which forms a sampling unit was listed alphabetically, then the researcher systematically selected every 4th LGA on the list. For Kwara State, the three (3) selected local governments were Ifelodun, 'sin and Oyun.

Table 6: Farmers Village Listing Survey of Nassarawa State

LGAs IN NASSARAWA STATE				
Akwanga - 6,743	Awe 13,844	Doma — 21,385	Karu — 16,041	Keana — 8,520
Kokna - 9,773	Lafia — 27,627	Nassarawa - 24,321	Nassarawa-Egon 13,451	Obi — 18,708
Toto - 7,724	Wamba — 6,375	Keffi — 5,921		
			Total	180,433

Source: Report of the Farmers Village Listing Survey conducted in year 2000, Prepared by Planning, Monitoring and Evaluation Department, Nassarawa Agricultural Development Project (NADP)

Each of the LGAs which forms a sampling unit was listed alphabetically, then the researcher systematically selected every 4th LGA on the list.

While in Nassarawa State, the two (2) selected local governments were Keana and Obi.
Next, the researcher proceeded to select farmers who are 18 years above who volunteered to participate from each of the selected LGAs based on proportional sampling technique. Proportional sampling technique is a technique whereby the population is divided into sub-populations (strata) and random samples are taken of each stratum (The free dictionary, 2015). This is because the number of farmers in the selected LGA areas is not the same. Copies of the questionnaire were then administered to the selected farmers. At the end of the survey, a semi structured Focus Group Discussion was imperative based on the findings of the survey to offer more explanations to challenges related to the communication support materials. Thus, a semi-structured Focus Group Discussion where the moderator conducted the sessions with the aid of unstructured discussion was necessary for smooth flow of the discussion. The scholar targeted farmers in three randomly selected Local Government Areas in Benue, Kwara and Nassarawa States who are 18 years and volunteered to participate in the Focus Group Discussion by asking questions from a prepared discussion guide containing the issues to be addressed.

A list of 23 Local Government Areas was obtained from a pamphlet entitled: The Making of the Food Basket of the Nation by Agishi, Ogu, Ila and Odoh (2011), from the list, four (4) LGAs were picked through systematic sampling in Benue. A list of Local Government Areas for Kwara and Nassarawa was obtained from the internet. From there three (3) Local Government Areas were

picked through systematic sampling for Kwara State and two (2) Local Government Areas were selected through systematic sampling from Nassarawa state.
The farmers were screened for biases and to further establish their willingness and ability to comprehend the questions, the following questions were asked to screen them in order to determine if they were qualified as research respondents:

1. Are you a farmer in this community?
2. Are you willing to participate in this study?
3. Can you read and write?
4. Are you above 18 years?

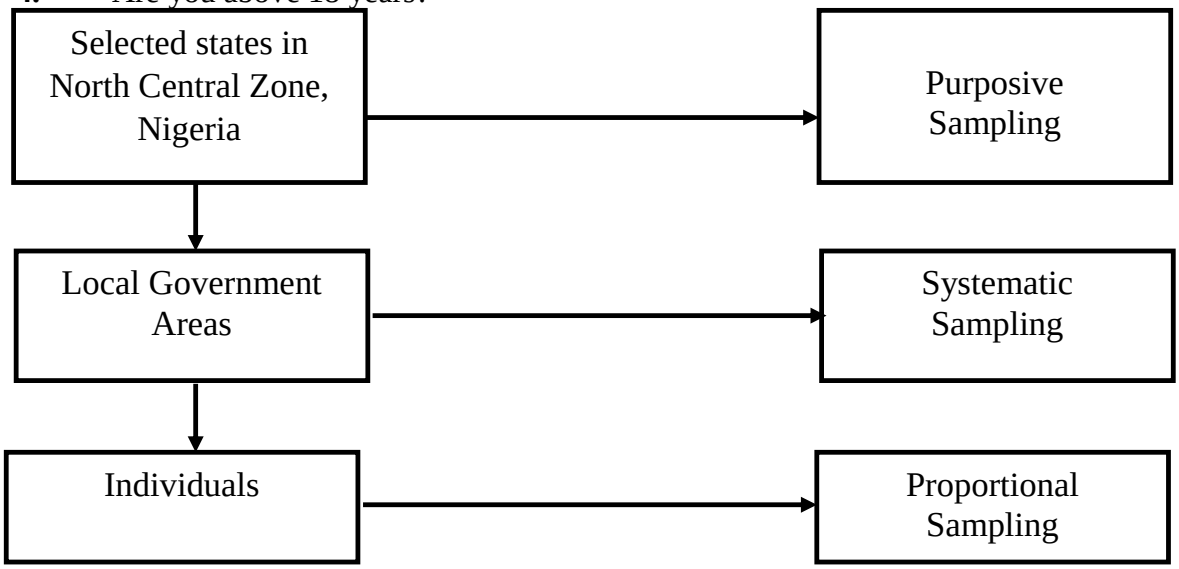

Fig.2: Sampling Procedure for Field Study

Research Instrument
The major instrument used was complimented by Focus Group Discussion and Scheduled Interview. The twenty-four (24) item questionnaire made up of six of sections – ABCDEF was designed to include: demographic, extension methods, adoption of communication support materials by farmers and effect of communication support materials.

Validity of Research Instrument
Validity according to Obadara (2007) refers to accuracy or truthfulness of a measurement. According to Tejumaye (2003), validity is defined as the degree to which a measuring instrument measures what is supposed to measure.
To Thatcher (2010), validity is the extent to which a measuring instrument measures what it is intended to measure. Validity in research is important because it enables the possibility of repeat and generalization of research findings. While Validity determines the extent to which the instrument measures what it sets out to measure, reliability on the other hand, entail that once

variables are consistently measured they must produce similar results within a similar environment.

The instrument was validated using face validity by giving it to my supervisor and renowned professors in Mass Communication to examine its suitability for the study. Pretest was carried out by administering some copies of the questionnaire on some residents in the selected North Central States. The subjects related positively to the questionnaire by providing the necessary information. The questionnaire was further validated by crosschecking it with the research questions to ensure that the questions measure the constructs to be measured. This was done by ensuring that each item in the questionnaire is woven into research questions for the study. Also, a pilot test was conducted on 20 people in Ogbomoso, Oyo State to detect questions that were not properly structured and may easily be misinterpreted. This was rephrased for proper understanding and participation.

Reliability of Research Instrument

A measurement that yields consistent results over time is said to be reliable (Obadara, 2007). The reliability of the research instrument was established through Cronbach Alpha Analysis.

The Cronbach Alpha score for the questionnaire is 0.772.

Table 7: Reliability Statistics Table

Reliability Statistics	
Cronbach's Alpha	N of Items
0.772	24

Source: Researcher, 2021

Administration of Instruments/Data Collection Procedure

Two research assistants who understand the language of the farmers were trained to assist the researcher in the administration and collection of questionnaire in each of the three states as well as to serve as assistant moderator. The questionnaire copies were gathered for analysis by the researcher at the conclusion of the survey exercise.

3Method of Data Analysis

The study adopted quantitative method of data analysis using a combination of frequency distribution, cross tabulation, ANOVA and Linear Regression. Research question one was analysed using cross tabulation while research question two and three were analysed using scheduled interview, whereas research question four was analysed using frequency distribution. For research question five the researcher used ANOVA. Data collected was analyzed using SPSS software version 20.0. This method assisted the researcher to obtain opinions from farmers in selected North Central States on the communication support materials used by extension agents for agricultural development projects in selected North Central States.

DATA ANALYSIS, RESULTS AND DISCUSSION OF FINDINGS

This section deals with the presentation, analysis and interpretation of data from the questionnaire administered. The statistical methods used include frequency distribution, cross-tabulation, ANOVA and linear regression. One thousand five hundred (1500) questionnaires were distributed. However, only 1356 copies of the questionnaires representing 90.4% were returned while 144 copies representing 9.6% were not returned. Therefore, the analysis of the study was based on the number of questionnaires returned.

Table 4.1 Distribution of Respondents by Area of Population

Variables	Frequency	Percent %
State of Respondents		
Benue	437	32.2
Kwara	452	33.3
Nassarawa	467	34.4
Total	1356	100

Source: Field Study, 2021

Table 4.1 shows that respondents were almost equally represented across the three North Central states (Benue= 32.2%, Kwara= 33.3%, Nassarawa= 34.4%). Out of 1356 (100%), 473 (32.2%) respondents participated in Benue while for Kwara 452 (33.3%) respondents participated. Furthermore, for Nasarawa 467 (34.4%) participated.

Table 4.1.2 Gender Distribution of Respondents

Gender	Frequency	Percent %
Male	1025	75.6
Female	331	24.4
Total	1356	100

Source: Field Study, 2021

Table 4.1.2 shows that male respondents were more represented than females (Male =75.6%, Female =24.4%).

Table 4.1.3 Range of Farmers Income per year

Range of Income	Frequency	Percent %
N10,000 – N20,000	230	16.9
N21,000 – N30,000	265	19.5
N31,000 – N40,000	335	24.7
N41,000 – N50,000	245	18.1
N51,000 – N100,000	281	20.7
Total	1356	100

Source: Field Study, 2021

Table 4.1.3 shows the income range of farmers with the highest proportion of representation was N31,000 – N40,000, with 335 respondents (24.7%), followed by farmers within the income bracket of N51,000 – N100,000 who were 245 (20.7%) while those within income bracket of N21,000-

N30,000 were 265 (19.5%). Respondents within the income bracket of N41,000 – N50,000 were 245 (18.1%) while the least respondents was within the income of N10,000 – N20,000, 230 (16.95).

Table 4.1.4 Distribution of Respondents by Marital Status

Marital Status	Frequency	Percent %
Single	11	0.8
Married	1332	98.2
Divorced	4	0.3
Widow	7	0.5
Widower	2	0.1
Total	1356	100

Source: Field Study, 2021

Table 4.1.4 shows that the most represented marital status was "Married" (98.2%). Those respondents who were single were 11 (0.8%) while respondents who were divorced 4 (0.3%). Furthermore, respondents who were widows were 7 (0.5%) and widowers were 2(0.1%). The finding conforms with Adefarasin (2000) and Kuponiyi (2003) in Ayansina (2011) who designed that larger percentages of their respondents were married in their studies. Marital status is a variable tool that determines an individuals' resolve to demonstrate or show a mark of social responsibility and sometimes indicate a complimentary source of labour input.

Table 4.1.5 Distribution of Respondents by Age

Respondents' Age	Frequency	Percent %
Below 30 years	247	18.2
Between 31-40 years	745	54.9
Between 41-50 years	358	26.4
51 and older	6	0.4
Total	1356	100

Source: Field Study, 2021

Table 4.1.5 shows that the age range with the highest proportion of representation was 31-40 years (54.9%), followed by 41-51 years (26.4%), while the least was 51 years and older (0.4%).

Table 4.1.6 Distribution of Respondents by Educational Qualification

Educational Qualification	Frequency	Percent %
Never attended any school	505	37.2
Primary School Uncompleted	38	2.8
Primary School Completed	302	22.3
Secondary School Uncompleted	31	2.3
Secondary School Completed	441	32.5
OND	39	2.9
Total	1356	100

Source: Field Study, 2021

Table 4.1.6 shows that the most represented educational qualification was "*Never attended any school*" (37.2%), followed by "*Secondary School Completed*" (32.5%) while the least educational qualification was "*Secondary School Uncompleted*" (2.3%).

Distribution of Variables

4.1.2.1 Extension Methods

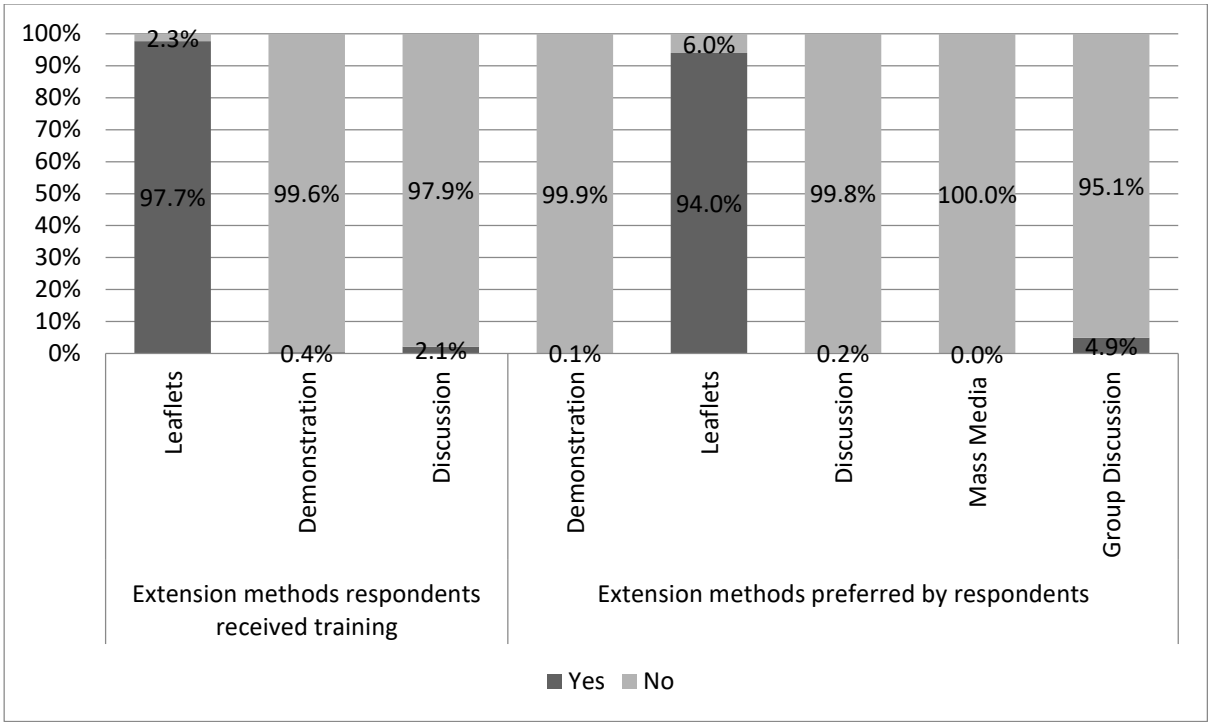

Figure 4.1: Use and preference of extension methods for training respondents
Source: Field Study, 2021

Figure 4.1 indicates that out of 1356 respondents, (97.7%) respondents received extension training through leaflets. Furthermore, Figure 4.1 shows that out of 1356 respondents, those who prefer the use of leaflets for their training were (94%).

4.1.2.2 Frequency of Exposure to Training Programmes

Table 4.2.1 - 4.2.4 Illustrate the frequency of respondents' exposure to training programmes

Table 4.2.1: Frequency of attendance at training on how to produce banana and plantain

	Frequency	Percent %
Very Often	1167	86.1
Fairly Often	128	9.4
Occasionally	61	4.5
Total	1356	100.0

Source: Field Study, 2021

Table 4.2.1 indicates that out of 1356 participants, 1167 (86.1%) participants agreed that extension agents attended training on how to produce banana and plantain *very often*. Those respondents who said extension agents attended training on how to produce banana and plantain *fairly often* were 128 (9.4%), while those respondents who said extension agents attended training on how to produce banana and plantain *occasionally* were 61 (4.5%)

Table 4.2.2: Frequency of attendance at training on how to improve Beniseed production

	Frequency	Percent %
Very Often	1167	86.1
Fairly Often	128	9.4
Occasionally	61	4.5
Total	1356	100.0

Source: Field Study, 2021

Table 4.2.2 illustrates that out of 1356 respondents, 1167 (86.1%) admitted that extension agents attended training *very often* on how to improve beniseed production. The result on this table further indicates that respondents who said extension agents attended training *fairly often* were 128 (9.4%). Those who said agents *occasionally* attended training sessions for improved beniseed were 61 (4.5%).

Table 4.2.3: Frequency of attendance at training on how to improve dry season vegetable garden

	Frequency	Percent %
Very Often	1167	86.1
Fairly Often	128	9.4
Occasionally	61	4.5
Total	1356	100.0

Source: Field Study, 2021

Table 4.2.3 indicate that out of 1356 participants, a total number of 1167 (86.1%) respondents admitted that extension agents attended training on how to improve dry season vegetable garden *very often*. Furthermore, those who said extension agents attended training on how to improve dry

season vegetable garden *fairly often* were 128 (9.4%) while those who said extension agents attended training on how to improve dry seasons vegetable garden *occasionally* were 61 (4.5%).

Table 4.2.4: Frequency of attendance at training for supplementary feeds/feeding for cattle

	Frequency	**Percent %**
Very Often	1167	86.1
Fairly Often	128	9.4
Occasionally	61	4.5
Total	1356	100.0

Source: Field Study, 2021

Table 4.2.4 shows that out of 1356 respondents, 1167 (86.1%) respondents confirmed that extension agents attended training on how to supplement feeds/feeding for cattle *very often*. Those who admitted that extension agents attended training on how to supplement feeds/feeding for cattle *fairly often* were 128(9.4%). While those who said extension agents attended training on how to supplement feeds/feeding for cattle *occasionally* were 61 (4.5%).

4.1.2.3 Adoption of Ideas from Communication Support Materials by Farmers

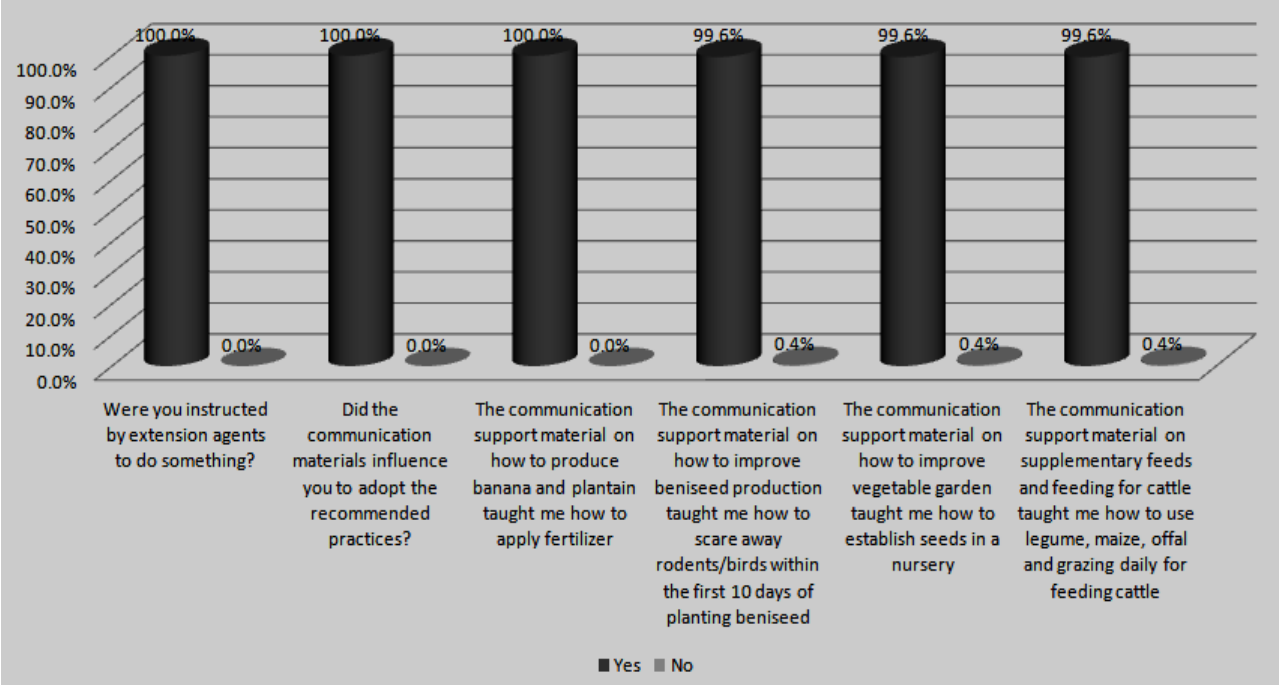

Table 4.3: Respondents Preference of Language

	Frequency	Percent %
English	227	16.7
Hausa	91	6.7
Mada	11	0.8
None	683	50.4
Yoruba	344	25.4
Total	1356	100.0

Source: Field Study, 2021

Table 4.3 indicate that out of 1356 respondents, 227 (16.7%) preferred English language, while those who prefer Hausa were 91 (6.7%). The participants who preferred Mada language were 11 (0.8%). Those who preferred Yoruba were 344 (25.4%) whereas those who were undecided were 683 (50.4%). The implication is that most respondents preferred *Yoruba* (25.4%) and *English* (16.7%) for the production of communication support materials.

Research Question One: To what extent does demographic factors such as age, gender, education, income influence the usage of communication support materials among farmers in North Central Nigeria?

Tables 4.4.1 to 4.4.4 depict the extent to which demographic factors influence communication support materials among farmers in North Central Nigeria.

Table 4.4.1: Use of Communication Support materials and Gender

			Gender		Total
			Male	Female	
Use of Communication Support materials	Yes	Freq (%)	1020 (99.5%)	331 (100%)	1351
	No	Freq (%)	5(0.5%)	0	5
Total		Freq	1025	331	1356

Source: Field Study, 2021

From Table 4.4.1, Male (99.5%) and Female (100%) respondents used communication support materials to a very large extent. This implies that both of them used communication support materials and they were convinced to put into practice the knowledge they acquired.

Table 4.4.2: Use of Communication Support materials and Age

			Age				Total
			Below 30 years	Between 31-40 years	Between 41-50 years	51 and older	
Use of Communication Support materials	Yes	Freq (%)	247 (100%)	740(99.3%)	358 (100%)	6(100%)	1351
	No	Freq (%)	0	5(0.7%)	0	0	5
Total		Freq	247	745	358	6	1356

Source: Field Study, 2021

https://www.eajournals.org/ https://doi.org/10.37745/ijaerds.15

Table 4.4.2 shows that neither of the age group has any significant advantage over the other in the use of communication support materials. The result indicates that out of a total number of 1356 respondents those below 30 years said "yes" they used communication support materials were 247 (100%) none of them said "no". Participants between 31-40 years who said "yes" they used communication supporting materials were 740 (99.3%) while only5 (0.7%) within the age bracket said they did not use communication support materials. Furthermore, respondents within the age bracket of 41-50 years who said "yes" they used the communication support materials were 358 (100%), none of them said that they did not use communication support materials, whereas those 51 years and above who said "yes" they used communication support materials were only 6(100%).

Table 4.4.3: Use of Communication Support materials and Educational Qualification

			Educational Qualification						**Total**
			Never attended any school	**Primary School Uncompleted**	**Primary School Completed**	**Secondary School Uncompleted**	**Secondary School Completed**	**OND**	
Use of Communication Support material	Yes	Freq (%)	505(100%)	38(100%)	302(100%)	31(100%)	436(98.9%)	39(100%)	1351
	No	Freq (%)	0	0	0	0	5	0	5
Total		Freq	505	38	302	31	441	39	1356

Source: Field Study, 2021

Table 4.4.3: The results indicate that those respondents who *Never attended any school* from the selected North Central States and used the communication support materials were 505 (100%). None of the respondents under this category said they did not use communication support materials. Those who *did not attend primary school* and said they used communication support materials were 38 (100%). None of the respondents under this category said they did not use the communication support materials.

Furthermore, those who *completed primary school* and admitted they used the communication support materials were 302 (100%). In the same vein, none of the respondents under this category said they did not use the communication support material. Participants who *completed secondary school education* and used the communication support materials were 31 (100%), none of them denied using the communication support materials. Under the category of those *who completed secondary school*, 436 (98.9%), none of them denied using the communication support materials. The last category are those with National Ordinary Diploma (OND) certificate, 39 (100%) of them agreed they used the communication support materials.

This implies that, educational qualification did not influence the use of communication support materials among respondents.

Table 4.4.4: Use of Communication Support materials and Income improvement among farmers

			My income has improved			Total
			Completely True	Somewhat true	Unsure	
Use of Communication Support material	Yes	Freq (%)	1344 (99.1%)	3 (0.2%)	4 (0.3%)	1351
	No	Freq (%)	5 (0.4%)	0	0	5
Total		Freq	1349	3	4	1356

Source: Field Study, 2021

Table 4.4.4 shows that respondents enjoyed improvement in income status due to usage of communication support materials to a very large extent (Completely true = 99.1%), while only 5(0.4%) of respondents said they did not enjoy improved income status in their usage of communication support materials. Those who said it is *"somewhat true"* their income status had improved due to their usage of communication support materials were 3 (0.2%) while those respondents who said they were unsure were 4 (0.3%).

Research Question Four: How effective were the methods used by extension agents for training farmers in North Central Nigeria?

Table 4.5.1: Response to "How would you rate the communication support materials presented to you by extension agents?"

	Frequency	Percent %
Excellent	713	52.6
Very Good	579	42.7
Good	64	4.7
Total	1356	100.0

Source: Field Study, 2021

Table 4.5.1 shows that out of 1356 respondents, 713 (52.6%) rated the communication support materials "very high". While the respondents who rated the communication support materials "very good" were 579 (42.7%). Furthermore, respondents who rated the communication support materials as "good" were 64 (4.7%). This implies that the communication support materials were carefully produced and effectively used, hence the respondents positive attitude.

Table 4.5.2: Response to "How would you rate the language in the communication support materials?"

	Frequency	Percent %
Excellent	713	52.6
Very Good	579	42.7
Good	64	4.7
Total	1356	100.0

Source: Field Study, 2021

Table 4.5.2 indicate that out of 1356 participants, majority of the respondents rated the language in the communication support materials very high as those who said the communication support materials were "excellent" were 713 (52.6%) while those who admitted the communication support materials were "very good" were 579 (42.7%). Furthermore, those respondents who said the communication support materials were "good" were 64 (4.7%). This signifies that majority of farmers in the selected North Central States clearly understood the communication support materials.

Table 4.5.3: Response to "By using the communication support materials, my production has improved"

	Frequency	Percent %
Completely true	1349	99.5
Somewhat true	3	.2
Unsure	4	.3
Total	1356	100.0

Source: Field Study, 2021

Table 4.5.3 clearly indicate that out of 1356 respondents, 1349 (99.5%) admitted it is "completely true" that the use of communication support materials had led to the improvement in their productivity. Those who said it is "somewhat true" that the use of communication support materials had led to the improvement in their productivity were 3 (.2%). While those who were "unsure" that the use of communication support materials had led to the improvement in their productivity were 4 (.3%). This signifies that the productivity of majority of the farmers in selected North Central States had improved due to their usage of communication support materials.

Table 4.5.4: Response to "My standard of living has improved since I started using the communication support materials"

	Frequency	Percent %
Completely true	1348	99.4
Somewhat true	4	.3
Unsure	4	.3
Total	1356	100.0

Source: Field Study, 2021

Table 4.5.4 shows that out of 1356 respondents, 1348 (99.4%) said it is "completely true" that their standard of living had improved as a result of using the communication support materials while those who said it is "somewhat true" that their standard of living had improved as a result of using the communication support materials were 4 (.3%), whereas those who said they are not sure their standard of living had improved as a result of using the communication support materials were also 4 (.3%). This implies that the living standard of farmers had improved as a result of using the communication support materials.

Table 4.5.5: Response to "My income has improved since I started using the communication support materials"

	Frequency	**Percent %**
Completely true	1349	99.5
Somewhat true	3	.2
Unsure	4	.3
Total	1356	100.0

Source: Field Study, 2021

Table 4.5.5 illustrates that out of 1356 participants, 1349 (99.5%) respondents indicated that it is "completely true" that their income had improved as a result of their use of communication support materials. Those who said "somewhat true" that their income had improved due to their usage of communication support materials were 3(.2%), while those who admitted that they are not very sure their income had improved due to their usage of the communication support materials were 4 (.3%). This signifies that the income of most of the farmers in the selected states had improved as a result of their use of communication support materials.

Table 4.5.6: Response to "I shared the knowledge I acquired from the communication support materials with others"

	Frequency	**Percent %**
Completely true	1349	99.5
Somewhat true	3	.2
Unsure	4	.3
Total	1356	100.0

Source: Field Study, 2021

Table 4.5.6 shows that out of 1356 participants, 1349 (99.5%) respondents said it is "completely true" that they shared the knowledge they acquired from the communication support materials with others. Those respondents who said it is "somewhat true" that they shared the knowledge they acquired from the communication support materials with others were 3 (.2%) while those who said they were not sure they shared the knowledge they acquired from the communications support materials with others were 4 (.3%). The significance of this is that neighbours have been found to assist in accelerating adoption rate.

Research Question Five: what are the significant differences in farmers' utilization of communication support materials in Benue, Kwara and Nassarawa?

Table 4.6.1: ANOVA Analysis of farmers' utilization of communication support materials in Benue, Kwara and Nassarawa

Use of Communication Support materials					
	Sum of Squares	**Df**	**Mean Square**	**F**	**Sig.**
Between Groups	0.172	2	0.086	5.045	**0.007**
Within Groups	23.070	1353	0.017		
Total	23.242	1355			

Source: Field Study, 2021

Table 4.6.1 illustrates an Analysis of Variance of farmers' utilization of communication support materials in Benue, Kwara and Nassarawa. The results showed that there is a significant difference in the utilization of communication support materials in Benue, Kwara and Nassarawa. Therefore, a *post hoc* test was required in order to know the state(s) where the difference in the utilization of communication supports materials lie (see Table 4.6.2).

Table 4.6.2: Multiple Comparisons of farmers' utilization of communication support materials in Benue, Kwara and Nassarawa

(I) State	**(J) State**	**Mean Difference (I-J)**	**Std. Error**	**Sig.**	**95% Confidence Interval**	
					Lower Bound	**Upper Bound**
Benue	Kwara	-0.02389*	0.00876	**0.024**	-0.0454	-0.0024
	Nassarawa	0.00000	0.00869	1.000	-0.0213	0.0213
Kwara	Benue	0.02389*	0.00876	**0.024**	0.0024	0.0454
	Nassarawa	0.02389*	0.00862	**0.022**	0.0028	0.0450
Nassarawa	Benue	0.00000	0.00869	1.000	-0.0213	0.0213
	Kwara	-0.02389*	0.00862	**0.022**	-0.0450	-0.0028

*. The mean difference is significant at the 0.05 level.
Dependent Variable: *Use of Communication Support materials* ***Scheffe***

Source: Field Study, 2021

Table 4.6.2 show a multiple comparison of farmers' utilization of communication support materials in Benue, Kwara and Nassarawa. From the table, a comparison of utilization of communication support materials between Benue, Kwara and Nassarawa indicated that the significant difference in the utilization of communication support materials is in Benue and Kwara, Kwara and Nassarawa and ($p<0.05$).

The result indicates that Kwara was the only state that had a significant difference in the farmers use of communication support materials when compared with other states. This signifies that the use of communication support materials in Benue and Nassarawa is not significantly different. From the mean in table 4.6.2 the upper bound of 0.0454 in the use of communication support

materials by farmers in Kwara and Benue is at the highest level than that of Kwara and Nassarawa as revealed in the upper bound of 0.0450.

DISCUSSION OF FINDINGS

Based on the objectives of the Agricultural Development Projects (ADPs) to provide technical support for farmers as a means of promoting best farming techniques, the study specifically determined to evaluate the contribution of communication support materials to agriculture in the selected States of North Central Nigeria to find out if they were designed and used appropriately on the farmers.

The main findings of this study are outlined below:

1. A vast majority of farmers received extension training through leaflets. The result on table 4.1 indicates that out of 1356 respondents, 1167 (86.1%) agreed that extension agents attended training very often. This finding validates the tenet of the audience centered theory and presented in chapter two. This theory emphasizes what the farmers can do with the leaflets as a communication medium. In related findings, Andh (1956), the agricultural extension worker acting very like a salesman extension worker of his product not only by those directly exposed to his information through personal contact but essentially by a large number of people through demonstration and other effects. The extension workers wishes to induce changes in the way people in his area react to problems. According to him, oral presentation combine with a visual one is more impressive than either one by itself. More people will be reached this way with better result. The audience is moved by what it hears, but more permanently by what it sees, so things shown are remembered. There are more visually minded people than there are audio minded ones.

2. A very large population of the farmers were trained by extension agents on how to produce banana and plantain; how to improve beniseed production, how to improve dry season vegetable and how to supplement feeds/feeding for cattle.
This resonates the thesis of the visual learning theory that hinged this study. The result indicate that out of 1356 respondents, 1344 (99.1%) participants admitted their income status had improve due to usage of communication support materials while only 5 (0.4%) respondents said they did not enjoy improved income status in the usage of communication support materials. Furthermore, 1349 (99.5%) respondents agreed it is completely true that the use of communication support materials had led to the improvement in their productivity. In the same vein, table 4.5.5 illustrates that out of 1356 (100%) respondents, 1349 (99.5%) indicated that it is completely true that their standard of living had improved as a result of their use of communication support materials. Another finding indicate that communication support materials contains visuals that aids quick learning. A comprehensive study in Nepal in 1976 for example showed that simple three-tone drawing of familiar objects which omitted superfluous or confusing details were organized by 72% of adult villagers who had not attended school.
3.

4. The farmers used the ideas from the communication support materials in areas ranging from how to produce banana and plantain and application of fertilizer to improve vegetable garden and establishing nurseries. Out of 1356 (100%) respondents, 1349 (99.5%) said it is completely true that they shared the knowledge they acquired with other farmers. The significance of this is that the neighbours have been found to accelerate adoption rate. This findings conforms with the tenet of the diffusion of innovation theory as captured in chapter two. This theory emphasizes the need for farmers to adopt new ideas from extension agents with a view to improving their productivity.

5. Demographic factors such as age, gender education, income influenced the usage of communication support materials among farmers in North Central Nigeria. For instance, result on table 4.4.1 show that out of 1356 (100%), 1020 (99.5%) were males while female participants were 331 (100%). This implies that both of them used communication support materials and they were convinced to put into practice the knowledge they acquired from the communication support materials into practice. Also the result shows that neither of the age group had any significant advantage over the other in the use of communication support materials. Out of 1356 (100%) participants, those below 30 years who said "yes" they used communication support materials were 247 (100%) none of them said "no". Participants between 31-40 years who said "yes" they used communication support materials were 740 (99.3%) while only 5 (0.7%) within the age bracket said they did not use communication support materials. Furthermore, respondents within the age bracket of 41-50 years who said "yes" they used communication support materials were 358 (100%) none of them denied using the communication support materials. Those of them 51years and above who said "yes" they used communication support materials were only 6 (100%). This result resonates the thesis of the development media theory as captured in chapter two. The agricultural extension agent is supposed to disseminate agricultural information that will improve the economic and social status of small scale farmers.

6. Most farmers prefer the use of leaflets for their training. Out of 1356 (100%) respondents (94.9%) prefer leaflets for their training. In related findings, two factors which must be considered in evaluating the effectiveness of the methods employed in extension teaching (1) the success of the methods, and (2) the amount of teaching effort expended on it.

7. Farmers rated the communication support materials used by extension agents for training farmers very high. Out of 1356 (100%), 713 (52.6%) rated the communication support materials "very high". While the participants who rated the communication support materials "very good" were 579 (42.7%). Furthermore, respondents who rated the communication support materials as good were 64 (4.7%). This finding validates the tenet of the visual learning and social learning theory as captured in chapter two.

8. In order to establish, there is significant differences in farmers utilization of communication support materials in Benue, Kwara and Nassarawa, analysis of variance was carried out. To further establish where the difference in the utilization of communication support materials in Benue,

Kwara and Nassarawa lie a post hoc test was carried out. The result indicates that Kwara state had a significant difference in the use of communication support materials when compared to Benue and Nassarawa. This implies that, the use of communication support materials in Benue and Nassarawa is not significantly different. From the mean in table 4.6.2, the upper bound of 0.0454 in the use of communication support materials by farmers in Kwara and Benue is higher than that of Kwara and Nassarawa with upper bound of 0.0450. This supports the position of Hanumanaikar (2008) that, effectiveness of any extension method depend on its ability to disseminate the message properly and resulting in desirable gain in knowledge for adoption of agricultural practices in future. Thus communication support materials which are in printed form are a veritable medium of disseminating information to farmers. The finding conforms with the thesis of the social learning theory as captured in chapter two. According to this theory, farmers can learn by observing from the demonstrations of the agricultural extension agents.

Summary

This study was carried out to investigate the contribution of communication support materials to agricultural development in North Central, Nigeria. Many programmes have been initiated by state governments in North Central, Nigeria to increase food production. Some of the programmes include: the establishment of Agricultural Development Programmes (ADPs) to raise income of small-scale farmers. Agricultural Development Programme managers have been using communication support materials to disseminate information to small scale farmers on how to improve their farming techniques. The study is anchored with Visual Literacy Theory.

The researcher adopted survey design. The study population included all states in North Central Nigeria. From these six states: Benue, Kwara and Nassarawa were selected through purposive sampling technique because they are the most agriculturally endowed. The sample size of 1500 farmers were selected from the 973,380 farmers through a combination of systematic and proportional sampling techniques from the list of registered farmers from the states. The major instrument used was questionnaire complimented by Focus Group Discussion and Scheduled Interview.

The data gathered from the field and opinion surveys revealed that the communication support materials have contributed greatly to agriculture in the selected North Central States. For instance, out of 1356 (100%) participants, 1344 (99.5%) admitted their income status had improved as a result of the use of communication support materials. Furthermore, 1349 (99.5%) agreed that the use of communication support materials had led to improvement in the productivity. Also, 1349 (99.5%) admitted their standard of living had improved due to their use of communication support materials. However, there seems to be many challenges in the production of communication support materials in all the Agricultural Development Projects in the selected North Central States. These challenges range from inadequate funding, power supply and lack of political will by governments in the affected states on issues relating to the Agricultural Development Projects and inadequate staffing. This seems to be the reason why all the communication support materials the researcher used for this study were designed and produced by NAERLS Press, Ahmadu Bello University Zaria in Kaduna State. This is because of all the extension units in selected North

Central States design and produce their communication support materials outside their organizations. This present effort is therefore a wake-up call for policy makers to pay attention to the challenge confronting Agricultural Development Projects (ADPs) of their states.

CONCLUSION

There is no gainsaying that, communication support materials aid adoption of new technology by farmers with a view to improving their farming techniques. Extension agents in Agricultural Development Projects (ADPs) in selected North Central States have been using communication support materials to disseminate information to small scale farmers on how to improve their farming techniques. This is why the study attempted to answer a very germane question on: how effective were the methods used by extension agents for training farmers in North Central Nigeria? The evaluation of communication support materials used for Agricultural Development Projects in selected States in North Central Nigeria showed positive development based on the findings of the study. It was concluded that majority of farmers in selected North Central States received extension training and they prefer leaflets for their training. The overwhelming acceptance of leaflets as the preferred communication support material is because the farmers participated in the design of the materials. Out of 1356 (100%), 94% admitted they prefer leaflets. It is therefore concluded that the communication support materials were carefully produced and effectively used by extension agents hence the respondents' positive attitude. Thus these materials contributed positively to agricultural development programmes in selected North Central States. It is also concluded that the communication support materials were clearly understood by participants and that they were interesting enough to attract and hold the attention of the farmers.

Against this backdrop, this study has contributed to knowledge: The design of the model in order to explain the relationship among key variables in the study is undoubtedly a major achievement. This model entitled Evaluating Communication Support Materials Study, 2015 was constructed to help elucidate the envisaged relationship between the dependant (communication support materials) and independent variables (Agricultural Development Projects). The outcome of the study further validates the pivotal role of communication support materials to agricultural development. It is expected that the model will guide and enrich subsequent scholarly endeavours in this area.

Furthermore, the research established that, communication support materials especially leaflets are very effective in disseminating information to farmers.
Lastly, the findings and recommendations of the study will no doubt assist all stakeholders to emphasize the use of communication support materials especially leaflets in all training sessions with farmers in Nigeria.

Recommendations

Communication support materials are used to disseminate information to farmers on how to improve their farming techniques. There is a general consensus by many scholars that extension agents use communication support materials to train small scale farmers. Therefore based on some

lessons learnt in the different extension methods of the past and present realities arising from this study, the following recommendations are made:

1. Extension agents should continue to use communication support materials in training farmers. However they must ensure that these communication support materials are interesting enough to attract and hold the attention of the farmers.

2. The state governments who are in-charge of Agricultural Development Projects (ADPs) should as a matter of priority inject more funds to the Agricultural Development Projects (ADPs). This has become necessary for these (ADPs) to achieve their mandates of producing enough food to feed the citizenry.

3. Since this study like many others proved that communication support materials (leaflet) is the preferred extension method for disseminating information to farmers, there is the urgent need for the states governments to revive the information units in Agricultural Development Projects and equip them adequately for the production of communication support materials.

4. The extension units in all the Agricultural Development units should be manned by qualified specialists and not just anybody who read any agriculture related course.

5. Policy-makers in all the states must lay emphasis on the effective use of communication support materials by extension agents in all their training sessions with farmers.

6. To encourage farmers to continue to use communication support materials, extension agents should devise creative ways of making these materials relevant, easy to understand and interesting. Thus, it is very important that communication support materials should be translated in the local languages of the communities using them.

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