

EFFECTIVENESS OF CONDUCT OF FORTNIGHTLY TRAININGS (FNTs) IN THE TRANSFER OF AGRICULTURAL TECHNOLOGIES TO EXTENSION AGENTS IN IMO STATE, NIGERIA

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ABSTRACT

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This study assessed the effectiveness of conduct of Fortnightly Trainings (FNTs) in the transfer of agricultural research findings to extension agents in Imo State, Nigeria. By simple random sampling technique, a total of one hundred and ten (110) respondents were selected from statutory participants in the regular Fortnightly Trainings (FNTs) of Imo State Agricultural Development Programme (ADP) which served as the sample size for the study. Structured questionnaire were used to elicit data from the respondents while descriptive and inferential statistics were used to analyse the data collected. Results indicated that mean age of extension agents was 41 years with majority being females (58.2%). Also, majority of respondents possessed Bachelor of Science/Higher National Diploma certificates in agriculture (96.4%) and had only 1-10 years of working experience (61.0%). Furthermore, the results revealed a grand mean score of 3.45 (for effectiveness of FNTs) which was higher than the benchmark of 2.5 indicating that generally conduct of FNTs in the transfer of agricultural research findings to extension agents in Imo State ADP was effective. Also, results of the multiple regression analysis revealed the double log function to be the best fit model and that 75.6% variation in the observation was accounted for by the variables considered in the study. Specifically, availability of fund, provision of mobility for staff; adequacy of technically competent staff as well as conducive physical environment for conduct of FNTs showed relationships with effectiveness of FNTs in Imo State ADP at $P \leq 0.05$ level. It was thus recommended that Management of Imo State ADP should improve in provision of transport facilities to extension agents (EAs) so as to enhance their attendance and participation in FNTs. Also, relevant technical supports should equally be given to the subject matter specialists in order to sustain the quality conduct of FNTs in Imo State ADP.

Keywords: *Agricultural Technologies, Fortnightly training, Extension agents,*

INTRODUCTION

The Agricultural Development Projects (ADPs) in Nigeria has three distinct generations. The first generation comprises all enclave projects that covered limited local government areas in the northern guinea savannah zone of Nigeria. Successful appraisal of the former paved way for the establishment of second generation enclave projects in the middle belt and in the southern rain forest ecological zone. Finally, the ADP system of extension services delivery received nation-wide acceptance as a strategy for agricultural and rural development in Nigeria (Federal Agricultural Co-ordinating Unit, 1991). Thus ADPs emerged to be the official Government owned extension delivery agency in Nigeria while each State Government funds and oversees the activities of its own ADP. The system encourages strong linkages with agricultural research institutions, places great emphasis on a professional approach to extension and requires an exclusive devotion to extension work (Okwuche *et al.*, 2012). According to Akinsorotan and Adah (1997), success of ADPs depend on large scale adoption of improved agricultural technologies by farmers and brilliant performance of frontline extension workers, that is, Extension Agents (EAs), Block Extension Agents (BEAs) and Block Extension Supervisors (BESs) saddled with this responsibility. The key functions performed by State ADPs include the promotion and dissemination of improved agricultural technologies as well as facilitating adoption of the new technologies among farmers and other end users. The functions are carried out through target activities such as Monthly or Quarterly Technology Review Meetings (MRTM or QTRM), Fortnightly Training (FNT), Block Review Meeting (BRM), Contact Farmers Training (CFT), Small Plot Adoption Techniques (SPAT), On-Farm-Adaptive-Research (OFAR) and Management Training Plots (MTP) (Anaeto, 2003). Specifically, Fortnightly Trainings (FNTs) constitute the tasks of continuously up-grading and up-dating the professional skills of Extension agents (As) and the Block Extension Supervisors (BES) through periodic interaction with the Subject Matter Specialists (SMSs). Such interactions holds for one full day every fortnight. At each session, the EAs/BES review farmers' reactions to previous recommendations, and are taught chunks of specific practices that would be taught farmers during the coming two weeks. Reports of the farmers' input and marketing situations are also represented in such forum. Also, EAs' report field problems or conditions that needed attention of the Subject Matter Specialists or even the Research Institutes. The FNT encourages interactive discussion and knowledge/information sharing among the SMS, BES and the EAs. The close interaction is

essential in identifying and selecting new technologies based on farmers' felt needs as well as evolving strategies for enhancing rapid uptake of the technologies among the end users. Thus the FNT also promotes a constant flow of information on new and improved practices, necessitating a two-way communication process.

It therefore becomes necessary to state that FNTs occupy strategic position in the technology pathway from the research institutes to farmers and therefore can substantially determine success of ADP extension delivery. This is partly because they provide the requisites learning situations for EAs who serve as the adoption facilitators. According to (Agbaraevo (2013), effectiveness of the extension delivery mechanism is to a large extent responsible for success or failure of extension programme and should always be used in measuring extension effectiveness. Again, the effectiveness of extension organizations like the ADPs in conducting its technology transfer activities can be used to assess success of programmes. This is because if appropriate teaching/learning situation is provided, it follows that learning or relatively permanent and positive change in behavior of the farmer would take place. Such teaching/learning situations are effectiveness indicators (Misra, 1997). The Imo State Agricultural Development Programme utilizes the fortnightly trainings to transfer farm technologies to farmers through the frontline extension agents. The FNTs conducted by organization provides a learning environment to extension agents for the uptake of the technologies meant to be disseminated to farmers. In view of the foregoing, this paper therefore seeks to assess the effectiveness of conduct of Fortnightly Trainings (FNTs) in transfer of agricultural research findings to Extension agents in Imo State, Nigeria. The specific objectives include was to describe the socioeconomic characteristics of extension agents in the study area; examine the effectiveness of conduct of FNTs in Imo State ADP as well as determine the organizational factors that affect effectiveness of FNT in Imo State ADP.

METHODOLOGY

This study was carried out in Imo State, Nigeria. To facilitate effectiveness in the delivery of extension services through the activities of Agricultural Development Programme (ADP), the State is divided into three agricultural zones. They include Orlu, Okigwe and Owerri which were covered in this study. All the extension agents (about 189 persons) in Imo State ADP who also were statutory participants at the FNTs served as the study population. By simple random techniques forty extension agents were selected from each of the zones to obtain a sample size of 120 respondents for the study. Structured questionnaire were distributed to the respondents for collection of relevant and data for the study. However, only one hundred and ten respondents returned their questionnaire. Descriptive and inferential statistics were used to analyze the data collected. Specifically, Ordinary Least Square Model was used to determine the relationship between certain organizational factors that may affect the effectiveness of conduct of FNTs in Imo State ADP. The model is shown below in implicit form as

$Y = F(x_1, x_2, x_3, \dots, x_n + e)$; and explicitly stated as

Linear

$$Y = \beta_0 + \beta_1 x_1 + \dots + \beta_k x_k + e \dots \dots \dots (2)$$

Exponential

$$\log y = \beta_0 + \beta_1 x_1 + \dots + \beta_k x_k + e \dots \dots \dots (3)$$

Semi log

$$Y = \beta_0 + \beta_1 \log x_1 + \dots + \beta_k \log x_k + e \dots \dots \dots (4)$$

Double log

$$\log y = \beta_0 + \beta_1 \log x_1 + \dots + \beta_k \log x_k + e \dots \dots \dots (5)$$

Where

Y= effectiveness of conduct of FNTs in Imo state ADP (measured by respondent's mean score)

X_n = organizational factors affecting the effectiveness of FNT listed below and measured in a 4 point Likert-type scale (where 1 = very inadequate.....4 = very adequate)

X₁ = regular and timely release of fund (mean score of 4 point Likert type response)

X₂ = number of staff (mean score of 4 point Likert type response)

X₃ = Availability mobility to EAs (mean score of 4 point Likert type response)

X₄ = Training facilities (mean score of 4 point Likert type response)

X₅ = logistic/motivational support to SMS and EAs (mean score of 4 point Likert type response)

X₆ = necessary logistics for the work (mean score of 4 point Likert type response)

X₇ = monitoring and evaluation of the FNTs (mean score of 4 point Likert type response)

E = error term

RESULTS AND DISCUSSION

Demographic characteristics of the respondents

Table 1 shows the age distribution of participants in the FNTs of Imo State ADP. The results revealed that the mean age of the participants was 41 years while more than half of the respondents (58.2%) were within the age range of 35-44 years. The results suggested that most of the respondents were still in their active age, when they have enough energy to work and earn a living. The results also corroborate Ekumankama *et al.* (2008) that

majority of extension agents in the ADPs were in their middle age and were still active on their duties. Results presented in Table 1 also indicated that more than half (58.2%) of FNT participants were females, while 41.8% were males. This implies that females dominated the FNTs of Imo State ADP. Also, the results in presented Table 1 showed that most of the participants in FNTs (81.8%) were married. This implies that married individuals who were committed with a lot of family responsibilities constituted majority of FNT participants in Imo State ADP. Anyanwu (2011) had noted that a married person has more responsibilities than a single person which could affect trainings and jobs performances.

Furthermore, results in Table 1 show that most (96.4%) FNTs participants had at least Higher National Diploma/Bachelor of Science in Agriculture indicating an impressive level of educational qualification for such calibre of staff. It is important to note that well-trained, educated and productive extension staff makes for the success of the Agricultural Development Programme (Ukanwolu, 2014). This agrees with the findings of Tokula (2008) that majority (54.0%) of National Agricultural Systems (NAS) staff had at least Higher National Diploma (HND). Results in Table 1 further reveal that majority of FNT participants (60.9%) had between 1-10 years of working experience. The results indicate that the extension agents were still growing in their working experience which also further necessitates their participation in FNTs as they still have much to learn in order to grow in their working experience.

Table 1: Distribution of respondents according to socio-economic characteristics

Variables	Frequency	Percentage
Age		
25-34	17	15.4
35-44	64	58.2
45-54	27	24.5
55-64	2	1.8
Mean	41	
Sex		
Male	46	41.8
Female	64	58.2
Marital status		
Married	90	81.8
Single	16	14.6
Widowed	4	3.6
Educational status		
OND	2	1.8
HND/B.Sc	106	96.4
M.Sc	2	1.8
Ph.D	0	0
Household size		
1-5	69	62.8
6-10	37	33.6
11-15	4	3.6
Mean	5.0	
Year of experience		
1-10	67	60.9
11-20	29	26.3
21-30	14	12.7
31-40	0	
Mean	12.0	

Source: Field Survey 2014. Figures in the bracket represent percentage

Conduct of the fortnightly trainings

Regarding the conduct of the FNTs in Imo State ADP, results in Table 2 showed that generally FNT activities were effectively carried out in the processes of transferring agricultural technologies to extension agents in the State. This was evidenced by the grand mean score (3.45) for effectiveness in carrying out FNT activities which was above the stipulated benchmark score of 2.5. Results showed that all individual FNT activities were effectively carried as their response mean scores were either above or same as the benchmark of 2.5. Specifically activities such as maintenance of regular training meetings (3.65); training of Extension agents (EAs) on new agricultural technologies by the Subject Matter Specialists (SMSs) (3.66) as well as practical demonstration of the new technologies at the skill plot by the SMSs (3.56) were rated effective by the participants. Similarly, the participants equally considered as effective other activities such as assessing EAs' levels of knowledge/skill in the new technologies (3.45); review of technologies disseminated previously (3.29) as well as review of prevailing climatic conditions and market situation of agricultural products (3.28). Llewellyn (2007), had reported that technology review forum makes for new ideas and techniques to be more effectively illustrated thereby improving

the impact of extension and training. Therefore a "demand-driven" technology transfer mechanism such as the FNTs is needed for extension agents to receive the transfer of the new agricultural technologies released from the research institutes to the extension organizations like Imo State ADP. The results showed that the FNTs could be such effective mechanism for the transfer of new research findings to extension agents in Imo State ADP to enhance extension services delivery in the State. Equally, Ekwe *et al.*, (2016), had shown that in same Imo State, Technologies Review Meetings (TRMs) were used as effective means of transferring new research findings to extension personnel.

Table 2: Frequency distribution of the effectiveness of fortnightly trainings

Variables	Very effective	Effective	Ineffective	Very ineffective	Mean	Remark
Transfer of Improved Technology by SMS to EAS	81 (73.6)	21 (22.7)	2 (1.2)	2 (1.8)	3.66	Effective
Field Visit to Skill Plot for Demonstration	67 (60.9)	40 (36.4)	2 (1.8)	1 (0.9)	3.56	Effective
Review of Technologies disseminated Previously	42 (38.2)	60 (54.5)	7 (6.4)	1 (0.9)	3.29	Effective
Upgrade Knowledge/Skill of AEs	54 (49.1)	48 (43.6)	6 (5.5)	2 (1.8)	3.45	Effective
Review of prevailing Climatic Conditions and market situations of their area	56 (50.9)	34 (30.9)	16 (14.5)	4 (3.6)	3.28	Effective
Regularity of Meetings	74 (67.3)	34 (30.9)	2 (1.8)	0 (0.00)	3.65	Effective
Grand Mean					3.45	Effective

Source: Field survey 2015, Figures in brackets () are percentages

Factors influencing conduct of fortnightly trainings in Imo State ADP

The results in Table 3 showed the regression estimates of the organizational factors that affect the effective conduct of FNTs in the transfer of agricultural technologies to extension agents in Imo State ADP. Double Log function was chosen as the lead equation out of the four functional forms estimated because it had highest R^2 estimate, the highest number of significant variables and conformed to *a priori* expectation. Again, the result of coefficient of multiple determinations (R^2) indicated that use of Double Log function gave a good fit analysing the data. The results further showed that 75.6% of variations in the effective conduct of fortnightly trainings while transferring agricultural technologies to Extension agents in Imo State ADP were accounted for by the variables considered in the study. Specifically variables such as regular and timely release of Fund (0.157), Provision of mobility to FNT Participants (i.e the extension agents)(0.151), adequacy of well-trained technical staff (same as Subject matter Specialists)(0.353), availability of suitable training facilities (0.106) were positively influenced the conduct of technology transfer process (Fortnightly trainings in Imo State ADP. This implies that conduct of FNTs is more noticeable effective if such variables are enhanced. Variables like Logistics/Motivational Support to SMSs and EAs as well as Monitoring and evaluation of FNTs positively influenced conduct of FNTs in Imo State ADP also but not to a noticeable proportion.

The results also collaborated Agbaraevu (2013) who reported that the organizational factors such as mobility, logistic and job design affected performance of technology transfer process in the Cross Rivers ADP. Moris (1991) had earlier noted that the institutional factors affecting the transfer of technologies to the target field staff include inadequate funding, inadequate staffing due to poor remuneration, which has failed to attract competent and qualified personnel into the extension work system, and inadequate logistics due to high maintenance cost.

Also, Regasa *et al.* (2016), reported that EAs' difficulties in accessing technologies were due to lack of fund and mobility as well as low technical competencies of agents. These constraints pose serious challenge to the sustenance of the extension service. Thus technology transfer mechanisms like the FNTs need to be provided with the enabling environment to elicit effective participation of the extension agents in the learning situations and activities. In this paper, the organizational factors that influenced effectiveness of conduct of the FNTs in the transfer of agricultural technologies to Extension Agents in Imo State ADP has been established and discussed already.

CONCLUSION AND RECOMMENDATIONS

The conduct of fortnightly training in Imo State ADP was found to be very effective and a proven mechanism for the transfer of new agricultural technologies to extension agents. Some organization related factor that influenced the effective conduct of FNTs in the State included regular and timely release of fund, provision of transportation facilities for FNT participants, adequacy of well-trained technical staff as well as availability of suitable training facilities. It was thus recommended that Management of Imo State ADP should improve in provision of transport facilities to extension agents (EAs) so as to enhance their attendance and participation in FNTs. Also, relevant

technical supports should equally be given to the subject matter specialists in order to sustain the quality conduct of FNTs in Imo State ADP.

Table 3: Analysis of factors influencing the conduct of Fortnightly trainings in Imo State ADP

Variables	Linear	Double Log	Semi-Log	Exponential
Constant	2.125*** (11.869)	0.870*** (15.350)	2.221*** (11.711)	0.819*** (14.886)
Regular and timely release of Fund	0.083 (1.261)	0.157*** (3.331)	0.569*** (3.598)	0.026 (1.281)
Provision of Mobility to participants	0.084 (1.057)	0.151** (2.369)	0.540** (2.522)	0.032 (1.312)
Monitoring/evaluation of FNTs	0.030 (0.865)	0.020 (0.882)	0.080 (1.060)	0.008 (0.783)
Adequacy of well trained Staff	0.544*** (7.772)	0.353*** (6.337)	1.243*** (6.667)	0.161*** (7.476)
Logistic/Motivational Support to	0.004 (0.130)	0.006 (0.215)	0.008 (0.090)	0.002 (0.163)
Training Facilities	0.518*** (3.244)	0.106*** (3.856)	0.008 (1.456)	6.864*** (3.109)
R ²	0.659	0.756	0.668	0.745
R adjusted	0.636	0.739	0.645	0.728
F statistics	45.111***	27.914***	29.052***	42.586***

Source: Field Survey, 2014. *** Significant at 1%, ** Significant at 5%,

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