



Full Length Research Article

**ANALYSIS OF WOMEN EXTENSION AGENTS EFFECTIVENESS IN TECHNOLOGY
TRANSFER IN IMO STATE, NIGERIA**

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ARTICLE INFO

Article History:

Received 24th April, 2013
Received in revised form
18th May, 2013
Accepted 09th June, 2013
Published online 19th July, 2013

Key words:

Analysis, Effectiveness,
Women Extension Agents,
Technology Transfer.

ABSTRACT

Women Extension Agents in technology Transfer in Imo State, Nigeria was the major issue. The study specifically ascertained women extension agents (WEAs) effectiveness in the transfer of technology and investigate the influence of socio-economic characteristics of the WEAs in relation to their effectiveness in technology transfer. Simple random and purposive sampling techniques were adopted in selecting 120 Contact Farmers (CFs) and 24 WEAs. A structured questionnaire was used to obtain the primary data which was subjected to both Chi-squared and regression analysis. Chi-square application showed significant effects of the factors on WEAs effectiveness as χ^2 – calculated (180.663) was greater than χ^2 – critical (43.77) at 5% level of probability which implied very effective, and hence rejection of the hypothesis which states that WEAs are not very effective in technology transfer (T.T). Results further showed that age, educational level and household size of WEAs were positively related to effectiveness. Specialization was statistically significant at 10% level of probability which indicates tremendous contributions to effectiveness and hence rejection of the hypothesis which states that “the socio-economic characteristics of WEAs do not influence their effectiveness in T.T. process”. The study recommends adequate encouragement and motivation to WEAs to ensure sustainability of their effectiveness.

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INTRODUCTION

Agricultural extension aims at providing farmers with the necessary education, skill and technical information to enable them take effective farm management decisions to enhance their daily practices. This can only be realized with effective extension delivery process. Technology according to Cusumano and Ekenkor (1994) refers to the ways in which people use discoveries to satisfy needs and desires and to alter the environment to improve their lives. However, technology's value varies unless it can be transferred to a user who can apply the technology to create a tangible benefit. The usage and application of a given technology depends on the transfer process and the effectiveness of the agent charged with the responsibility of transferring the technology. Technology transfer (T.T) has often been used to describe the process by which ideas and concepts are moved from the laboratory to the market place (Philips, 2002; Williams and Gibson, 1990). “Market Place” here applies to the farm. Hoffman and Girvan (1990) argue that technology transfer needs to be perceived in terms of achieving three core objectives which includes:

introduction of new techniques by means of investment of new plants; improvement of existing techniques, and generation of new knowledge. The concept “agricultural technology transfer” is used to describe the process of formally transferring new agricultural discoveries, improved practices or innovations that may result from research institutions into the agricultural sector (Williams, 1985). A pertinent question remains: Who and Who are involved in agricultural technology transfer? FAO (1993) estimated that there are 600,000 extension workers in 1988 worldwide. The proportion of women extension agents in the said period was about 16% (FAO, 1993). In Africa, female extension agents make up of only 7% of total number of extension agents (Madu, 2000). According to him, this figure is very low. It is a widely held belief today that extension programs employing agriculturists that do not utilize female extension agents reach fewer women and have a negative impact not only on women participation but also on the durability of the program itself. Truitt (1999) posited that the presence of women in technical positions on agriculture extension teams enable programme to reach a great number of female beneficiaries. He further stated that female agricultural extension agents have proven their ability to produce changing results in the field, and today, many agencies prefer the work done by their women agents.

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An FAO Spread survey of 2007 agricultural extension Organization in 113 countries indicates that 31% of the field agricultural extension agents in Trinidad were female, 28% in Thailand, 14 % in Syria and 0.62% in Nigeria (FAO, 1989). The low involvement of women in extension delivery; could it be that they are not effective or competent enough to transfer technologies to the target audience? Acceptability of innovations depends greatly on the delivery process. Adoption of technologies depends on the nature of the technology, farmers level of understanding, and competence of the delivery system. Literature have shown that women extension agents are less competent in technology transfer (Chukwu, 2008), and this has being found to influence adoption of technologies. Onazi (1975) posited that female extension agents are less involved in the process of technology transfer. Study by Chukwu (2007) confirmed Onazi (1975) assertion that male extension field workers are more in number and mainly found in the field than the females. He further stated that, not only that they are mainly used in extension services, they have proved more effective than their opposite sex in discharge of duties which includes technology transfer. This assertion motivated this study to assess the effectiveness of the few female extension agents involved in technology transfer process. The study also moved a step forward to investigate the socio-economic characteristics of WEAs influencing their effectiveness in the process of technology transfer.

Two hypothesis were postulated and these includes:

1. Women Extension Agents are not effective in technology transfer.
2. The Socio-economic characteristics of women extension agents do not influence their effectiveness in technology transfer process.

MATERIALS AND METHODS

The study was carried out in Imo State, located in the Southeastern area of Nigeria. The state lies between latitude $5^{\circ}45'N$ and $6^{\circ}35'N$ of the equator and longitudes $6^{\circ}35'E$ and $7^{\circ}28'E$ of the Greenwich Meridian (Microsoft Corporation, 2009). It has an average annual temperature of $28^{\circ}C$, and average annual relative humidity of 80%, average annual rainfall of 1800-2500mm and an altitude of about 100m above sea level (Imo ADP, 1990). The population of the state was 3,934,899 persons with many subsisting in farming (NBS, 2007). The state has Agricultural Development Programme (ADP), and its extension unit is responsible for agricultural technology transfer and other agriculture information dissemination to farmers. Both random and purposive sampling techniques were adopted to select the respondents. Twelve (12) Local Government Areas (LGAs) were selected randomly followed by purposive selection of two communities from each of the LGAs. These communities are where WEAs are used for extension service delivery. Each of the communities has one WEA given a total of twenty four (24) WEAs. Five contact farmers (C.Fs.) were randomly selected from each of the communities given a total of 120. The C.Fs. are used because of their direct contact with the extension agents. A total of 120 C.Fs. and 24 WEAs were used for the study. The primary data was obtained through structured questionnaire. Data were subjected to inferential statistic (Chi-square and regression) analysis. Data on socio-economic characteristics was analyzed using log it regression model,

while that of effectiveness was analyzed using Chi-square. Effectiveness of the WEAs was subjected to Likert scale rating of Very Effective (VE) 4, Effective (EFF) 3, Not Effective (NE) 2, and Undecided (UD)1. The regression model used to determine the influence of socio-economic characteristics of WEAs on their effectiveness on technology transfer was implicitly stated as:

$$y = f(x_1, x_2, x_3, x_4, x_5, x_6, e)$$

where

y = Effectiveness of WEAs

x_1 = Age of WEAs (years)

x_2 = Educational level of WEAs (years)

x_3 = Field Experience of WEAs (years)

x_4 = Specialization

x_5 = Marital Status (Dummy Variables: Single = 0; Married = 1)

x_6 = Household Size of WEAs (Persons)

e = error term

The null hypotheses were tested using regression model and Chi-square.

RESULTS AND DISCUSSION

Table 1 ascertained WEAs effectiveness in the transfer of technology. Results of the four points Likert scale shows that the WEAs was adjudged very effective in all the factors except on "Development of programs for special clientele" where it was said to be only effective. In overall therefore, the WEA with weighted mean of 3.28 on the four points scale is conclusively said to be very effective in transferring technology. This result is in agreement with Truitt (1999) who posited that female agricultural extension agents have proven their ability to produce changing results in the field. But in disagreement with Chukwu (2008) who opined that women extension agents are less competent in technology transfer. The Chi-Square application on the data shows significant effect of the factors on WEAs effectiveness. This is because, the χ^2 - cal (180.663) was greater than the χ^2 - critical (43.77) at 5% level of probability. Therefore, the factors have affected WEAs effectiveness tremendously thereby rejecting the hypothesis which states that WEAs are not very effective in technology transfer.

Result in Table 2 showed multiple log it regression relating socio-economic characteristics with WEAs effectiveness in technology transfer. Age of the WEAs, education and household size were positively related to effectiveness. That is to say that as these variables increased the effectiveness of extension agent increased. Experience, specialization and marital status were negatively related to effectiveness. Specialization was statistically significant at 10% level of probability, which shows that it contributed tremendously to effectiveness. The Pseudo R^2 was just 0.089 or 9% indicating low explanatory power of the set of the regression. However, the LR Chi-square was significant at 5% indicating the overall usefulness of the model. With the result, the hypothesis which states that the socio-economic characteristics of WEAs do not influence their effectiveness in technology transfer process is hereby rejected.

Table 1. Distribution of farmers on WEA effectiveness in the Transfer of Technology

ITEM	VEF	EF	NEF	UND	TOTAL	RESULT	REMARK
• Human Relation quality	61	44	7	8	120	3.32	Accept
• Communication quality	56	47	9	8	120	3.16	Accept
• Ability to carry out method demonstration	79	32	6	3	120	3.56	Accept
• Ability to Explain a given innovation	64	43	7	6	120	3.38	Accept
• Ability to profer solutions to farmer's problems	54	57	6	3	120	3.35	Accept
• Advisory Quality	48	56	5	11	120	3.18	Accept
• Ability to carry out result demonstration	71	35	10	4	120	3.44	Accept
• Ability to convince clients to adopt a given innovation	44	59	6	11	120	3.13	Accept
• Motivational quality	43	60	5	12	120	3.12	Accept
• Technically Competency	58	45	9	8	120	3.28	Accept
• Teaching based on field experience	80	31	8	1	120	3.66	Accept
• Organization of field trips with clients	56	45	13	6	120	3.25	Accept
• Provision of current information	54	55	5	6	120	3.31	Accept
• Respond to request for assistance by farmers	41	63	7	9	120	3.13	Accept
• Knowledge application	53	49	9	9	120	3.22	Accept
• Development of programs for special clientele	25	74	5	16	120	2.9	Accept
• Provision of accurate information	55	48	9	8	120	3.25	Accept
• Provision of practical information	77	31	10	2	120	3.53	Accept
• Ability to help sort out conflicting agricultural information	38	67	8	7	120	3.13	Accept
• Provision of rich agricultural extension programs	73	37	6	4	120	3.49	Accept
• General rating of WEA effectiveness	48	45	21	6	120	3.12	Accept
Total	1178	1023	171	148	2520	3.24	Accept

Source: Field Survey, 2012

Key: Very Effective (VEF); Effective (EF); Not Effective (NEF); Undecided (UND)

Table 2. Estimated Multiple Logit Regression Relating Socio-economic Characteristics and Women Extension Agents Effectiveness

Variable	Coefficient	Z-value
Constant	0.9418393	0.42
Age(X_1)	0.0490146	1.14
Education (X_2)	0.0053162	0.10
Experience (X_3)	-0.0535295	-0.27
Specialization (X_4)	-2.417503	-1.84
Marital Status (X_5)	-0.094399	-0.39
Household Size (X_6)	0.1972762	0.25
Pseudo R ²	0.089	
LR Chi-Square	5.14	
Log Likelihood	-26.085	

Source: Field Survey, 2012.

Conclusion

Having analyzed women extensionist in the transfer of agricultural technologies in Imo State, Women/Female extension agents are found to be very effective and therefore should be encouraged. It was further revealed that age, educational level and household size of WEAs are positively related to their effectiveness in technology transfer.

Acknowledgements

The author acknowledged his post-graduate students who assisted in collection of data for this study which is of interest to the state Agricultural Development Programme.

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