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Comparative Analysis of Female Extensionists and Researchers' Attitude Towards Information and Communication Technology (ICT) in Southeast Nigeria

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Abstract: This study compared attitude of female extension workers and female researchers towards Information and Communications Technology in South-East Nigeria. The sample for the study was 133 respondents made up of 106 female researchers and 27 female Extensionists. Data analysis was by frequencies, means and Z-test. Findings of the study showed that respondents were young with mean age of 38 years and 31 years respectively for female researchers and female extensionists, with mean working experience of 6 and 4 years. Most respondents had MSc as highest degree. Female researchers had ICT mean self-rating of 1.49, while female extensionists had ICT mean self rating of 2.29. Findings showed that both female researchers and female Extensionists have favourable attitude towards information and communication technology. Analysis of the result reveals that mean attitudinal score for female Researchers was 76.04 (SD = 7.18), while the mean score obtained for female Extensionists was 15.96 (SD = 1.89). However, Z-test showed no significant difference in the attitudes of female Researchers and female Extensionists towards information and communication technologies. This means that both female Researchers and female Extensionists appreciate the importance of ICT for agricultural development.

Key words: Female extensionists and researchers' attitude, Information and Communication Technology (ICT)

INTRODUCTION

Information Technology is a recent innovation in the agricultural sub-sector in Nigeria. It is composed of a series of computer-related mechanisms for communicating agricultural information effectively. Information is a major prerequisite for agricultural development. If the right type of information is passed on to end-users through the appropriate channels and in the right amount, meaningful progress is expected in agricultural development. Aina[1] reported that information is one of the resources required for the improvement of agricultural production. It is defined as the data for decision-making. Decision making is done by different categories of users hence agricultural information user populations are categorized into policy makers and planners, researchers, extension staff, educators, students, agro-based industries, service staff and farmers. Each of these sectors contributes in various ways to the improvement of agriculture hence relevant information provided to each category will enhance agricultural development.

For the purpose of this study, two categories of the user populations mentioned will be focused upon, that is extension staff and researchers. The emphasis on the categories is informed by the fact that they provide technical and scientific information. This type of information arises from research and development work carried out in various agricultural research institutions including university, development organizations[1]. The result of such research is aimed at increasing agricultural production by providing high yielding seedlings, control of major pests and diseases. The provision of information and services to the end users, who are the clienteles, is an important part of agricultural communication. However, traditional methods of information dissemination cannot effectively complete the communication cycle if efficient means are not put in place. The advent of Information and Communication Technology (ICT) is the solution required in this regard.

Agricultural information comes mainly from research institutions which generate new technologies to farmers. This means that the agricultural research information service centre is the custodian of several information resources including CD ROM databases, multi-media knowledge bases, in-house databases, regional databases, national and in-house publications. Other sources also include agricultural information providers such as international organizations and local non-governmental organizations and community based organizations. The main modes of information delivery

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include magazines, newspapers, posters, leaflets, handbooks, radio, television, films and videos[2]. These modes of delivery are still traditionally needed to be complemented with contemporary modes of delivery such as ICTs.

The female extension agents do not get enough attention they require hence female farmers do not get adequate information in the right quarters. The contribution of women to the development of agriculture is not in doubt. This is especially so because over 50% of the agricultural activities are performed by women in many parts of the world, yet women's substantial contribution continues to be systematically marginalized and undervalued in conventional agricultural and economic analyses and policies, while men's contribution remains the central, often the sole focus of attention[3]. The situation is even more serious in Nigeria and Southeastern region particularly because women do not have adequate access to the necessary agricultural information that will empower them for sustainable agricultural development. Jiggins, *et al.*[3] reported that agricultural extension services do not attach much importance to reaching women farmers or women on the farm.

One of the reasons for this inadequacy is the fact that there are inadequate female extension agents in the extension service. According to Atala, Abdullahi and Shebayan[4] only 7% of the extension agents in Northern States of Nigeria were female. This is grossly inadequate and does not augur well for agricultural development. The case is also similar in the research institutes. However, female scientists have contributed and are still contributing immensely to agricultural development in Nigeria. Female Extension agents and researchers play complementary roles in communicating agricultural information to end users. It is worthy of note that since women form the hub of agricultural production activities in South Eastern Nigeria and other parts of Nigeria, the need to determine how female change agents feel towards modern communication facilities like Information and Communications Technologies (ICTs). This study therefore compares female extensionists' and female researchers' attitude towards ICT with a view to ascertaining the implication for effective extension delivery in South Eastern Nigeria.

MATERIALS AND METHODS

The study area is South East geographical region of Nigeria. It is comprised of Ebonyi, Anambra, Imo, Abia and Enugu, states. From the five states, two States were randomly chosen for the study. they are Abia and Imo States. the following organizations were involved in the study: Agricultural Development Programmes, Universities, Colleges of Agriculture, Non Governmental Organizations and research institutes. For the purpose of this study, respondents from the ADPs and NGOs were categorized as Extensionists while respondents from Universities, Research institutes and Colleges of Agriculture/Technology were categorized as Researchers. Seventy four respondents were identified in Imo State, with the help of Extension agents and key informants who were familiar with the study area. Out of the 74 identified respondents, 59 female Researchers and 15 female Extensionists participated in the study. The specific organizations that were selected from Imo State are Federal University of Technology, Imo State University, Michael Okpara College of Agriculture and Technology, Nigeria Institute of Horticulture, the State Agricultural Development Programmes (ADP) and two Non-Governmental Organizations (NGOs).

However, 65 respondents (47 female researchers and 18 female Extensionists) participated in the study in Abia State. The organizations used include Michael Okpara University of Agriculture, Abia State University, Forestry Research Institute, National Root Crops Research Institute), the State Agricultural Development Programme (ADP) and Non Government Organization). In all, 139 respondents were identified and used for the study, but data was available for 133 respondents made up of 106 female Researchers and 27 female Extensionists.

The major instrument used for this study was a questionnaire which consisted of open and close-ended questions. The study lasted for 5 months from May to September. The Statistical Package for the Social Sciences (SPSS version 11) was the computer software used for data analysis. The statistical tools used for the study include; frequencies,%ages, means and Z-test.

RESULTS AND DISCUSSION

Personal characteristics of Researchers (n = 106)and Extensionists (n = 27)

Table 1 is the distribution of personal characteristics of respondents involved in the study. The results as shown in the table shows that 73.6% of the female Researchers are married while 70.4% of the female Extensions are married. This agreed with the findings of Adesope[5]. The findings showed that 58.5% of the female Researchers are between 35 and 40 years old, with mean age of 38 years while 100% of the female Extensionists are between 29 and 34 years old, with mean age of 31 years old. It is obvious that female Researchers were relatively older than female Extensionists. The two categories of Respondents are in

Table 1: Personal characteristics of respondents

Variables	Female researches	Female extensionists
Marital status	(n = 106)	(n = 27)
Single	28(26.4)	8(29.6)
Married	78 (73.6)	19(70.4)
Age		
29-34	15(14.2)	27(100.0)
35-40	62 (58.5)	-
41-47	29(27.4)	-
Working experience		
3-8	94(88.7)	27(100.00)
9-13	12(11.3)	-
Academic qualification		
HND/BSC	-	11(40.7)
MSc	95(89.6)	16(57.3)
PhD	11(10.4)S	-
Category		
Educational	54(50.9)	10(37.0)
ADP	2.3(21.7)	11(41.0)
Research institution	21(19.8)	3(11.0)
Non governmental organization	8(7.5)	3(11.0)
Hours spent on IT (weekly)		
0- 4	59 (55.7)	8 (29.6)
5- 8	47 (44.3)	19 (70.3)
Information technology skill rating		
0-1	66(62.3)	-
2-3	40(37.7)	27(100.0)
Length of exposure to IT (years)		
2-5	73(68.9)	19(70.4)
6-9	16(15.1)	8(29.6)
9-11	17(16.0)	-
Distance of IT facility from office (km)		
0-11.5	20 (18.9)	11 (41.0)
12- 23	86 (81.1)	16 (59.0)

Source: Field Survey data, 2005

their active stage of life because they are young therefore fall under the active labour force.

The study also reveals that 88.7% of the female Researchers reported that they have work experience of between 3 and 8 years, with average working experience of 6 years, while 100% of the female Extensions reported work experience of between 3 and 8 years, with mean work experience of 4 years. The finding showed that female researchers had relatively higher working experience than female extensionists. The Table shows that 89.6% of the female Researchers had MSc as highest academic qualification, while 57.3% of the female Extensionists reported having MSc. The findings revealed that, of the four categories of organization that were involved in the study, 50.9% of female Researchers belong to educational institutions such as universities, colleges of Agriculture/Technology and Research Institutes. However, 41% of the female Extensionists belong to the Agricultural Development Programmes (ADP). The ADP is the major organ of agricultural extension in Nigeria, while some rural development NGOs also carry out extension work.

Among the female researchers, 62.3% had an information Technology self-rating of between 0 and 1, with mean rating of 1.49, while 100% of the female extensionists had an IT rating of between 2 and 3, with mean rating of 2.29. The implication of this finding is that female extensionists had higher mean IT skill rating than female Researchers. Female Extensionists have been more receptive to Information and Communication Technology (ICT) suggesting a moderate level of IT skills. Gregg and Irani reported average self-rating of IT skills among Extension agents. This present study reveals that 68.9% and 70.4% of female Researchers and female Extensionists respectively have been exposed to IT for between 2 and 5 years with mean years of exposure of 4.5 years. It is pertinent to note that IT made significant entry into Nigeria about five years ago. This obviously could have accounted to the few years of exposure. The findings of the study showed that 81% of female Researchers and 59% of female Extensionists travel for between 12 and 23 km to use ICT facility far away from their respective offices because their office computers are not connected to the Internet. This shows that female Researchers and female Extensionists obtain ICT services from Public cyber cafés which Omotayo[2] had noted to offer value-added services and are key instruments in telecommunication policy.

Attitude of respondents towards Information and Communication Technology (ICT): Table 2 reveals that female Researchers and female Extensionists have favourable attitude towards information and communication technology. This is evident as they agreed with most of the items in the instrument that measured their attitude towards ICT in relation to agriculture. The importance of ICT to agricultural development can better be felt in its efficiency of information sorting, analysing and dissemination. The role of female Extensionists in the discharge of this function cannot be over-emphasized. According to Truitt[6] female characteristics are unique perspectives to a project. Project directors expressed a distinct preference for working with female agents. It was also noted that there was marked difference between the quality of work done by female compared to that done by male agents. It was further reported that although both fulfil their job requirements, the women have better organized groups with more visible results in the field.

The generally favourable attitude of female extensionists and female researchers is a clear indication that female scientists are important to the agricultural development process. Truitt[6] had opined that female agricultural extension agents bring particular characteristics and unique perspectives to a project.

Hypotheses testing: There is no significant difference in the attitude of female Researchers and that of female Extensionists towards Information and Communication Technology (ICT).

Table 2: Attitude of respondents towards Information and Communication Technology

Statements	Female researchers	Female extensionists
Information Technology (IT) has made communication of agric information an easy and exciting experience	4.72 (0.45)	4.56 (0.49)
Information Technology is applicable to my work situation	4.68 (0.51)	4.66 (0.48)
Information Technology cannot solve agricultural development problems	2.04 (1.40)	1.88 (0.84)
Information Technology does not fit into our environment	1.16 (0.37)	1.00 (0.03)
The use of IT is difficult because of the harsh conditions in the country and even in my organization	2.26 (1.34)	3.07 (1.79)
It is easy to manipulate IT facilities	3.11 (1.17)	2.48 (1.31)
My knowledge of IT is limited to simple computer operations so I cannot apply complex Its like email, chatroom, etc	2.31 (1.31)	1.29 (0.46)
IT is useful in agricultural policy formulation	4.00 (0.93)	4.11 (1.39)
IT facilities are too complex for me to use	2.00 (0.99)	3.11 (1.39)
IT usage has helped me reduce expenditure on stationery usage	3.60 (0.87)	4.12 (1.38)
IT applications are useful to my work because networking with other scientists is enhanced	4.53 (0.78)	4.83 (0.44)
I cannot use the internet very well but I appreciate what it stands for especially in agriculture	3.14 (1.92)	1.29 (0.46)
IT does not guarantee efficiency in my work situation	1.48 (1.11)	1.01 (0.04)
IT gives me the opportunity to apply my computer skills	4.19 (0.49)	4.13 (0.85)
I have benefited immensely from the use of IT because I have sent and obtained information that have enhanced my status	4.21 (0.73)	4.70 (0.46)
I am privilege to be part of the IT world	4.39 (0.49)	4.71 (0.45)
My workload is so much that I don't have time for using IT	2.22 (1.32)	1.29 (0.46)
I have access to computer but I am not interested in IT	1.27 (0.45)	1.28 (0.47)
My organization doesn't have the necessary capabilities for Information Technology	2.30 (1.16)	1.27 (0.48)
I cannot see the need for IT for my work	1.24 (0.43)	1.22 (0.42)
IT related to agriculture is a major challenge to me as a change agent	3.61 (1.28)	3.07 (1.79)
I am just not interested in IT	1.10 (0.31)	1.29 (0.45)
IT is not meant for me at all	1.23 (0.64)	1.02 (0.03)
For a revolutionary change in the agricultural scene IT is inevitable	4.12 (1.51)	4.89 (0.46)
There should be an aggressive awareness campaign on need for IT in agricultural development	4.00 (1.47)	4.78 (0.02)
IT provides no future agricultural development	1.00 (0.01)	1.62 (1.35)
Using IT will definitely increase my workload	2.10 (1.43)	1.29 (0.45)

Source: Field survey data, 2005, Figures in parentheses are Standard deviation values, NB: Strongly Agree = 5, Agree = 4, Undecided = 3, Disagree = 2, Strongly disagree = 1, Any mean score ≤ 3.00 suggests disagreement with the item statement, Any mean score >3.00 suggests agreement with the item statement

Table 3: Z test analysis showing attitudinal differences between female researchers and female extensionists

Category	N	Mean	SD	df	Z-value
Researchers	106	76.04	7.18	131	0.095 NS
Extensionists	27	75.96	1.89		

Source: Computed Survey data, 2005, NS: Not significant

Table 3 shows the Z-test analysis determining whether significant difference exist between attitude or female researchers and female Extensionists. The mean attitudinal score obtained for female Researchers was 76.04 (SD = 7.18), while the mean score obtained for female Extensionists was 15.96 (SD = 1.89), with a degree of freedom of 131, the Z-test value of 0.095 was not significant at 0.05 level. The implication of this finding is that the attitudes of female Researchers and female Extensionists towards information and communication technologies were not different. This means that both female Researchers and female Extensionists appreciate the importance of ICT for agricultural development.

A perusal of the mean attitudinal scores of the two categories of respondents showed that female Researchers' scores were relatively higher that female Extensionists scores. Oladele and Adesope (In Press) found in their study that significant difference exists in the perceived effect of the ICTs between researchers and extension agents. The perceived difference was translated to mean that a gap exists and will continue to exist in the use of ICTs. The present study has shown that the gap is closing and that female researchers and female Extensionists reliably understand the use and application of ICTs. It is even more interesting to note that females who are at the centre of agricultural development have once again proved that they will continue to be key players in the agricultural development process.

CONCLUSION

Female Researchers and female Extensionists indicated favourable attitude towards ICT with a relatively higher mean attitudinal score recorded for female Researchers than female Extensionists. However, there was no significant difference in the attitude of female Researchers and female Extensionists towards ICT. Based on the findings of the study it is recommended that female Researchers and female Extensionists should be involved in regular training in the form of workshops and to update their knowledge and skills on Information and Communication Technologies (ICTs). The need to provide computer facilities to female researchers and female extensionists cannot be overstated especially now that the world over, ICT is a basic tool for globalization.

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REFERENCES

1. Aina, L., 1995. Agricultural Information in Africa. Ibadan: Third world publishers.
2. Omotayo, O.M., 2005. ICT and agricultural extension. Emerging issues in transferring agricultural technology in developing countries. In: Adedoyin, S.F (Ed) Agricultural Extension in Nigeria. Ilorin: Agricultural Extension Society of Nigeria.
3. Jiggins, J., R.K. Samantha and J.E. Olawoye, 1997. improving women farmers access to extension services. In: Swanson, B.E. *et al*., (Eds) Improving Agricultural Extension. A reference manual. Rome: Food and Agriculture Organization of the United Nations.
4. Atala, T.K., J.P. Voh, Y.A. Abdullahi and J.A. Shebayan, 1993. Professional competencies needed by Extension agents in three Northern states of Nigeria. Nigerian J. Rural Extension and Development, 1 (2 and 3), pp: 95-105.
5. Adesope, O.M., 2004. Information technology needs of agricultural extension managers and supervisors in the Niger delta area of Nigeria. Unpublished PhD Thesis. Federal University of Technology, Owerri, Nigeria.
6. Truitt, G.A., 1998. Female agricultural extension agents in El Salvador and Honduras: Do they have an impact? Training for agricultural and rural development 1997-98. FAO, Rome.