

# Accuracy, Congruency and Agreement between Extension Professionals' and Farmers' Perceptions of Privatization and Commercialization of Agricultural Extension Services

Patrick Chuks AJIEH <sup>1</sup>(✉), Agwu Ekwe AGWU <sup>2</sup>, Alphonsus Chijioke ANYANWU <sup>2</sup>

## Summary

This study examined the accuracy, congruency and agreement between the perceptions of extension professionals and farmers regarding the proposed privatization and commercialization (P and C) of agricultural extension services in Nigeria. The study was carried out in Delta State, Nigeria. A sample size of 224 respondents comprising of 134 extension professionals and 90 farmers was used in the study. Data was collected through the use of a set of validated questionnaire and structured interview schedule. The questionnaire was used for extension professionals, while the interview schedule was used for the farmers. Data was collected between March and September, 2007. Trained field assistants selected in each location, in addition to the researchers collected the data. Data was analyzed using mean perception scores, t-test and spear man's rank order correlation coefficient. Results show that extension professionals estimated farmers' perception with a high degree of accuracy ( $\rho = 0.80$ ), while farmers estimated extension professionals' perception with low accuracy ( $\rho = 0.22$ ). The congruency between extension professionals' perception and their estimate of farmers' perception was also high ( $\rho = 0.92$ ), while the congruency of farmers' perception and their estimate of extension professionals' perception was low ( $\rho = 0.08$ ). There was no difference between the perceptions held by extension professionals and farmers. The inability of farmers to accurately estimate extension professionals' perception could be due to differences in their educational background and knowledge of issues underlying P and C of agricultural extension services. The study therefore recommends that farmers should further be sensitized through additional education on issues relating to P and C. Also, an interactive involvement of extension professionals and farmers should be employed in the design and implementation of any P and C programme in agricultural extension as this will not only promote co-orientation between them, but also enhance information delivery from extension professionals to farmers.

## Key words

accuracy, congruency, agreement, privatization, commercialization, extension services

<sup>1</sup> Department of Agricultural Economics and Extension, Delta State University, Asaba Campus, Asaba, Delta State, Nigeria

✉ e-mail: [ajieh2002@yahoo.com](mailto:ajieh2002@yahoo.com)

<sup>2</sup> Department of Agricultural Extension, University of Nigeria, Nsukka, Enugu State, Nigeria

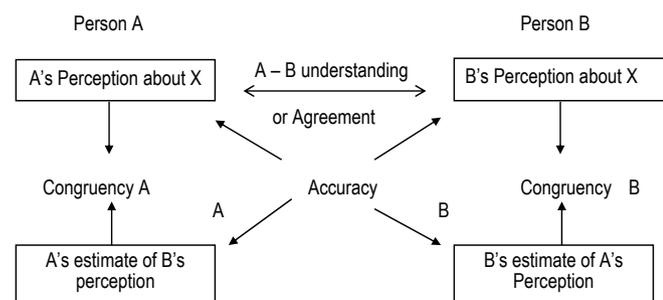
Received: August 29, 2008 | Accepted: January 27, 2009

## Introduction

Accuracy, congruency and agreement are measures which contribute to a consensus of views. They indicate the degree of coorientation in the views or perceptions held by participants in a communication process. Accuracy refers to the similarity between one person's estimate of another's perception and that person's actual perception. In other words, accuracy measures what one group thinks the other's perception will be compared to the other's actual perception (Walton, 2000). Congruency compares a person's perception with his or her estimate of another's perception, while agreement is the similarity of two person's perceptions (McLeod and Chaffee, 1973). These co-orientational relationships are presented in Figure 1. According to the figure, agreement relationship is determined by comparing the similarity in the perceptions of an object or issue by persons A and B. Accuracy relationship can be established between person A and B by comparing their estimates of one another's perception with their own individual perceptions. Understanding of the reasoning or motives underlying the other's perception can accompany accuracy. Congruency relationship is established by comparing each person's perception with his/her estimate of the others' perception. High congruency implies that person A believes that person B has similar perception with him/her and vice-versa. Low congruency implies a lack of common grounds-neither feels the other has any similar perception.

Co-orientational studies have been reported among researchers, extension workers and farmers regarding attributes of plant cultivars (Dolly, 1997; Groot, 1970). Also, consensus in the views of community leaders and local residents regarding the Hudson River ecosystem restoration in New York state have been investigated (Connelly and Knuth, 2002).

Dolly (1997) examined the accuracy, congruency and agreement among researchers, extension workers and pigeon pea farmers regarding the attributes of pigeon pea cultivars grown in Trinidad and Tobago. Ten cultivar attributes were selected for rating by the respondents in the study. Extension workers, researchers and farmers were asked to rate the attributes. Extension workers and researchers were also asked to estimate farmers' ratings. Results of the study showed that extension workers were more accurate than researchers in



**Figure 1.** The coorientation model. Source: McLeod J.M. and Chaffee (1973)

predicting farmers rating of the cultivars. Extension workers were also more in congruency with the farmers than researchers were with the farmers.

Groot (1970) studied the accuracy, congruency and agreement among extension agents, plant breeders and rice farmers regarding the attributes of rice cultivars grown in Philippines. He concluded that the interaction between people is, in part, determined by "the perception and evaluation" people have of each other. Connelly and Knuth (2002) examined the degree of agreement, accuracy and congruency between community leaders' views and local residents' views regarding the ecosystem restoration of the Hudson River Valley. Findings of the study revealed that community leaders were not in complete "agreement" with residents. In general, community leaders could not predict accurately the views of local residents. Congruency was also found to be low between community leaders' views and their perception of residents' views.

This study examined the accuracy, congruency and agreement between extension professionals and farmers perceptions of the proposed privatization and commercialization of agricultural extension services in Nigeria. As a result of the relatively poor performance record of the public sector extension in Nigeria, the government is proposing the privatization and commercialization of agricultural extension services in the country. In order to ensure that the proposed privatization and commercialization programme succeeds, there is the need to ascertain the co-orientation in the views of major stakeholders in agricultural extension services delivery. This is because the knowledge of the degree of co-orientation in their views will greatly assist policy-makers and the government in deciding the nature of privatization and commercialization to be under taken.

## Research methodology

This study was carried out in Delta State, Nigeria. Extension Professionals of the Delta State Agricultural Development Programme (DTADP) and farmers in the State formed the population from which sample was drawn. Extension professionals of the DTADP were composed of 150 extension agents (EAs), 25 block extension agents (BEAs), 25 block extension supervisors (BESs) 12 subject matter specialists (SMSs), three zonal extension officers (ZEOs); 3 zonal managers (ZMs); 10 directors of sub-programmes; 29 heads of component programmes and one programme manager (PM). For the purpose of the study, the PM, ZEOs and ZMs were involved in the study because they were few in number. For the others, 50% proportionate random sample was drawn. This sampling procedure gave a total of 134 extension professionals as shown in Table 1.

For the farmers, a multistage sampling technique was used in selecting respondents. In the first stage, three extension blocks were randomly selected from each of the three agricultural zones in the state, giving a total of nine extension blocks. In the second stage, two extension cells were randomly selected from each of the nine extension blocks, giving a

**Table 1.** Population and sample composition for extension professionals

Category of extension Professionals	Total No.	No. sampled
Programme manager (PM)	1	1
Extension agents (EAs)	150	75
Block extension agents (BEAs)	25	13
Block extension supervisors (BESs)	25	13
Subject matter specialists (SMSs)	12	6
Zonal extension officers (ZEOs)	3	3
Zonal managers (ZMs)	3	3
Directors of sub-programmes	10	5
Heads of component programmes	29	15
Total	258	134

total of 18 extension cells. In the third stage, five farmers in contact with extension were randomly selected from the list provided by the extension agents in each of the selected extension cells. This gave a total of 90 farmers. In all, a total of 224 respondents comprising of 134 extension professionals and 90 farmers were involved in the study.

A set of questionnaire and structured interview schedule were used for data collection. The questionnaire was used for the extension professionals, while the structured interview schedule was used for the farmers because of their low educational status. A focus group discussion was conducted for farmers and extension professionals to help in the development of the instruments. Content validation of the research instruments was done by a team of experts in agricultural extension system. The instruments were pilot tested before administration to test for reliability. Data was collected between March and September 2007. Trained assistants in addition to the researchers collected the data.

To determine the accuracy, congruency and agreement in perception of extension professionals and farmers, 17 positive and negative statements regarding the features of P and C of agricultural extension services were framed through a review of literature and interviews with experts. Extension professionals and farmers were asked to indicate their levels of agreement with the statements. Extension professionals and farmers were also asked to estimate one another's perception. A 4-point, Likert-type scale with values of strongly agree = 4; agree = 3; disagree = 2; and strongly disagree = 1, was used to determine respondents' level of agreement or disagreement to the statements. Means of their responses were then used for analysis. Spearman's rank order correlation coefficient was computed for: (i) Accuracy of extension professionals estimate of farmers' perception compared with farmers own perception; (ii) Accuracy of farmers estimate of extension professionals perception compared with extension professionals own perception; (iii) Congruency of extension professionals' perception and extension professionals estimate of farmers' perception; (iv) Congruency of farmers' perception and farmers' estimate of extension professionals' perception.

Agreement was determined by comparing the mean perceptions of extension professionals and farmers using the

t-test. The alpha level for a significant difference in agreement scores was established a priori at 0.5.

## Results and discussion

### Accuracy of extension professionals' estimate of farmers' perception and farmers' perception of P and C of agricultural extension services

Data in Table 2 show the accuracy of extension professionals' estimate of farmers' perception compared with farmers' perception. Results of the analysis show that extension professionals estimated farmers' perception with a high level of accuracy. Spearman's rank correlation coefficient for the 17 statements was 0.80. This suggests that there was a similarity between what extension professionals think farmers perceive about P and C agricultural extension services and the actual perception of the farmers. In other words, extension professionals accurately estimated farmers' perception regarding the P and C of agricultural extension services.

A closer look at the information in Table 2 further reveals that there were significant variations between the rank values of extension professionals' estimate and farmers' perception in only seven statements. This, therefore, implies that extension professionals accurately estimated farmers' perception in the remaining 10 statements, which include the following: P and C will make agricultural information delivery to become more effective; P and C will make extension services to be directed at specific needs of the people; P and C will break the monopoly of public extension services; P and C will create job opportunities; P and C will lead to job insecurity among public extension workers; P and C will encourage exploitation of farmers and P and C will encourage foreign domination in the provision of extension services.

The issues involved in the 10 statements that extension professionals accurately estimated for farmers are crucial to the success of any P and C programme. For instance, it is expected that P and C of agricultural extension services will make service delivery to become more efficient through an effective competition among service providers. Similarly, an effective P and C programme will create job opportunities and render services based on the needs of the people. The issue of farmers' exploitation and foreign domination are serious issues that could hamper the success of any P and C programme. There is therefore the need for the government and policy makers to take these issues into consideration before embarking on any P and C programme in agricultural extension sub sector.

### Accuracy of farmers' estimate of extension professionals' perception and extension professionals' perception of P and C of agricultural extension services

Entries in Table 3 show the accuracy of farmers' estimate of extension professionals' perception compared with the actual perception of extension professionals. Results of the analysis reveal that farmers estimated extension professionals percep-

**Table 2.** Spearman's rank correlation showing the accuracy of extension professionals' estimate of farmers' perception and farmers' perception of P and C of agricultural extension services

SN	Statements	Extension profs' estimate of farmers' perception	Rank	Farmers' perception	Rank
Privatization and commercialization will					
1.	make it possible for more farmers to be reached	3.16	1.5	3.04	9
2.	provide opportunity for neglected areas of agric production to be attended to	3.16	1.5	3.14	5.5
3.	make agricultural information delivery to become more effective	3.15	3	3.33	2
4.	encourage competition among extension service providers	3.14	4.5	3.44	1
5.	improve linkages between research and extension	3.14	4.5	3.01	10
6.	make extension services to be directed at specific needs of the people	3.13	6	3.19	4
7.	increase priority areas of extension coverage	3.07	7	3.28	3
8.	break the monopoly of public extension service	3.01	8	3.12	7.5
9.	help to reduce govt. financial burden on agriculture	2.99	9	3.14	5.5
10.	make agricultural extension services unaffordable by farmers	2.96	10	3.12	7.5
11.	create job opportunities	2.72	11	2.76	12
12.	lead to job insecurity among public extension workers	2.65	12	2.92	11
13.	encourage exploitation of farmers	2.60	13	2.72	13
14.	encourage income inequality	2.56	14	1.98	16
15.	encourage foreign domination in the provision of extension services	2.46	15	2.06	15
16.	lead to poor capacity building	2.35	16	1.77	17
17.	promote corruption and nepotism	2.22	17	2.21	14

Spearman's Rank Correlation Coefficient, corrected for ties = 0.80

**Table 3.** Spearman's rank correlation showing the accuracy of farmers' estimate of extension professionals' perception and extension professionals' perception of P and C of agricultural extension services

SN	Statements	Farmers' estimate of extension profs' perception	Rank	Extension profs perception	Rank
Privatization and commercialization will					
1.	improve linkages between research and extension	3.62	1	3.28	4
2.	make agricultural extension services unaffordable by farmers	3.52	2	2.58	12
3.	lead to poor capacity building	3.46	3	2.31	14
4.	provide opportunity for neglected areas of agric production to be attended to	3.45	4	3.25	5
5.	encourage competition among extension service providers	3.43	5	3.50	1
6.	encourage foreign domination in the provision of extension services	3.41	6	2.04	16
7.	break the monopoly of public extension service	3.38	7	3.21	6
8.	make agricultural information delivery to become more effective	3.36	8	3.43	2
9.	create job opportunities	3.32	9	2.94	10
10.	encourage income inequality	3.22	10	1.93	17
11.	increase priority areas of extension coverage	3.11	11	3.16	8
12.	make extension services to be directed at specific needs of the people	3.10	12	3.18	7
13.	make it possible for more farmers to be reached	3.04	13.5	3.30	3
14.	help reduce govt. financial burden on agriculture	3.04	13.5	3.13	9
15.	encourage exploitation of farmers	3.03	15	2.47	13
16.	promote corruption and nepotism	2.84	16	2.10	15
17.	lead to job insecurity among public extension workers	2.77	17	2.74	11

Spearman's Rank Correlation Coefficient, corrected for ties = 0.22

tion with a low level of accuracy. Spearman's rank correlation coefficient for the 17 statements was 0.22. A careful study of the information in Table 3 shows that there were significant variation between the rank values of farmers' estimate and extension professionals' actual perception in 12 statements. In other words, farmers accurately estimated extension professionals' perception in only five statements. These are: P and C will provide opportunity for neglected areas of agricultural production to be attended to; P and C will break the monopoly of public extension service; P and C will create job opportunities; P and C will encourage exploitation of farmers and P and C will promote corruption and nepotism.

This finding shows that there were differences in number of statements in which each category of respondents estimated accurately for one another. Extension professionals estimated 10 statements accurately for the farmers, while the farmers estimated five statements accurately for the extension professionals. The difference in accuracy of estimate between the farmers and extension professionals is an indication of differences in level of co-orientation.

The difference in co-orientation revealed by this study could be a result of differences in educational background and knowledge of issues underlying the P and C of agricultural extension services between the farmers and extension

**Table 4.** Spearman's rank correlation showing the congruency of extension professionals' perception and extension professionals' estimate of farmers' perception of P and C of agricultural extension services

SN	Statements	Extension profs' perception	Rank	Extension profs' estimate of farmers' perception	Rank
Privatization and commercialization will					
1.	encourage competition among extension service provider	3.50	1	3.14	4.5
2.	make agricultural information delivery to become more effective	3.43	2	3.15	3
3.	make it possible for more farmers to be reached	3.30	3	3.16	1.5
4.	improve linkages between research and extension	3.28	4	3.14	4.5
5.	provide opportunity for neglected areas of agric production to be attended to	3.25	5	3.16	1.5
6.	break the monopoly of public extension service	3.21	6	3.01	8
7.	make extension services to be directed at specific needs of the people	3.18	7	3.13	6
8.	increase priority areas of extension coverage	3.61	8	3.07	7
9.	help reduce govt. financial burden on agriculture	3.13	9	2.99	9
10.	create job opportunities	2.94	10	2.72	11
11.	lead to job insecurity among public extension workers	2.74	11	2.65	12
12.	make agricultural extension services unaffordable by farmers	2.58	12	2.96	10
13.	encourage exploitation of farmers	2.47	13	2.60	13
14.	lead to poor capacity building	2.31	14	2.35	16
15.	promote corruption and nepotism	2.10	15	2.22	17
16.	encourage foreign domination in the provision of extension services	2.04	16	2.46	15
17.	encourage income inequality	1.93	17	2.56	14

Spearman's Rank Correlation Coefficient, corrected for ties = 0.92

professionals. Ajieh (2008) in a study found that extension professionals had high knowledge, while farmers had low knowledge of issues underlying the P and C of agricultural extension services. The implication of this difference is that farmers and extension professionals are likely to hold different views on issues relating to privatization and commercialization of agriculture.

**Congruency of extension professionals' perception and extension professionals' estimate of farmers' perception of P and C of agricultural extension services**

Data in Table 4 show the congruency of extension professionals' perception and their estimate of farmers' perception. Results of the analysis indicate a high level of congruency between extension professionals' perception and their estimate of farmers' perception. Spearman's rank correlation coefficient for the 17 statements was 0.92. Information in Table 4 further reveals that there were significant variation between extension professionals' perception and their estimate of farmers' perception in only three statements, while there were no significant variation in the remaining 14 statements. This shows that there was similarity between extension professionals' perception and what they think farmers' perception is with respect to the 14 statements.

The statements include: P and C will make agricultural information delivery to become more effective; P and C will make it possible for more farmers to be reached; P and C will improve linkages between research and extension; P and C will break the monopoly of public extension services; P and C will make extension services to be directed at specific needs of the people; P and C will increase priority areas of extension coverage; P and C will reduce government financial burden on agriculture; P and C will create job opportunities; P and

C will encourage exploitation of the farmers and P and C will promote corruption and nepotism amongst others.

The high level of congruency between extension professionals' perception and their estimate of farmers' perception indicates that extension professionals have high knowledge of issues involved in P and C of agricultural extension services. The implication of this is that extension professionals can be effectively used in mobilizing and educating farmers on issues relating to P and C of agricultural extension services.

**Congruency of farmers' perception and farmers' estimate of extension professionals' perception of P and C of agricultural extension services**

Data in Table 5 show the congruency of farmers' perception and their estimate of extension professionals' perception. Results of the analysis indicate a low level of congruency between farmers' perception and their estimate of extension professionals' perception. Spearman's rank correlation coefficient for the 17 statements was 0.08. Information in Table 5 further shows that there was no significant variation between farmers' perception and their estimate of extension professionals' perception in only four statements, while there was significant variation in the remaining 13 statements. In order words, there was no similarity between farmers' perception and their estimate of extension professionals' perception.

This low level of congruency between farmers' perception and their estimate of extension professionals' perception further explains farmers' low knowledge of issues underlying P and C of agricultural extension services. This situation is likely to enhance interaction between the farmers and extension professionals, since the farmers are more likely willing to learn more about P and C issues from the extension professionals. This interaction may further strengthen the faith of the farmers in the P and C programme.

**Table 5.** Spearman's rank correlation showing the congruency of farmers' perception and farmers' estimate of extension professionals' perception of P and C of agricultural extension services

SN	Statements	Farmer's perception	Rank	Farmers' estimate of extension pros' perception	Rank
Privatization and commercialization will					
1.	encourage competition among extension service providers	3.44	1	3.43	5
2.	make agricultural information delivery to become more effective	3.33	2	3.36	8
3.	increase priority areas of extension coverage	3.28	3	3.11	11
4.	make extension services to be directed at specific needs of the people	3.19	4	3.10	12
5.	provide opportunity for neglected areas of agric production to be attended to	3.14	5.5	3.45	4
6.	help reduce govt. financial burden on agriculture	3.14	5.5	3.04	13.5
7.	break the monopoly of public extension service	3.12	7.5	3.38	7
8.	make agricultural extension services unaffordable by farmers	3.12	7.5	3.52	2
9.	make it possible for more farmers to be reached	3.04	9	3.04	13.5
10.	improve linkages between research and extension	3.01	10	3.62	1
11.	lead to job insecurity among public extension workers	2.92	11	2.77	17
12.	create job opportunities	2.76	12	3.32	9
13.	encourage exploitation of farmers	2.72	13	3.03	15
14.	promote corruption and nepotism	2.21	14	2.84	16
15.	encourage foreign domination in the provision of extension services	2.06	15	3.41	6
16.	encourage income inequality	1.98	16	3.22	10
17.	lead to poor capacity building	1.77	17	3.46	3

Spearman's Rank Correlation Coefficient, corrected for ties = 0.08

**Table 6.** Test of difference in perception of P and C of agricultural extension services between extension professionals and farmers

SN	Statements	Extension pros' mean score	SD	Farmers' mean score	SD	T-value	Remarks
Privatization and commercialization will							
1.	make agricultural information delivery to become more effective	3.43	0.75	3.33	0.76	-0.98	NS
2.	encourage competition among extension service providers	3.50	0.55	3.44	0.86	-0.58	NS
3.	make it possible for more farmers to be reached	3.30	0.76	3.04	0.84	-2.33	S
4.	break the monopoly of public extension service	3.21	0.73	3.12	1.00	0.74	NS
5.	help reduce govt. financial burden on agriculture	3.13	0.71	3.14	0.89	0.16	NS
6.	lead to job insecurity among public extension workers	2.74	0.98	2.92	0.97	1.37	NS
7.	make agricultural extension services unaffordable by farmers	2.58	0.91	3.12	0.99	4.19	S
8.	create job opportunities	2.94	0.77	2.76	0.87	-1.65	NS
9.	promote corruption and nepotism	2.10	0.86	2.21	0.90	0.94	NS
10.	encourage exploitation of farmers	2.47	0.89	2.72	0.82	2.14	S
11.	encourage income inequality	1.93	0.92	1.98	1.19	0.31	NS
12.	lead to poor capacity building	2.31	0.87	1.77	1.19	-3.95	S
13.	increase priority areas of extension coverage	3.16	0.77	3.28	0.82	1.04	NS
14.	encourage foreign domination in the provision of extension services	2.04	1.04	2.06	1.21	0.07	NS
15.	make extension services to be directed at specific needs of the people	3.18	0.71	3.19	0.79	0.09	NS
16.	provide opportunity for neglected areas of agric production to be attended to	3.25	0.72	3.14	0.89	-1.00	NS
17.	improve linkages between research and extension	3.28	0.71	3.01	0.85	-2.50	S
Overall mean		2.90		2.82		-0.08	NS

Source; Field Data, 2007; Key: SD = standard deviations; S = significant; NS = not significant ( $P \leq 0.05$ )

### Differences in perception of P and C of agricultural extension services between extension professionals and farmers

Entries in Table 6 show the differences in perception of P and C of agricultural extension services between extension professionals and farmers. Results show that there were significant differences in the mean scores of the two categories of respondents in only five statements, namely: privatization and commercialization will make it possible for more farmers to be reached ( $t=2.33$ ); privatization and commercialization will make agricultural extension services unaffordable by farmers ( $t=4.19$ ); privatization and commercialization will

encourage exploitation of farmers ( $t=2.14$ ); privatization and commercialization will lead to poor capacity building ( $t=3.95$ ) and privatization and commercialization will improve linkages between research and extension ( $t=2.50$ ).

Results further show that there were no significant differences between the perceptions of the two categories of respondents in the remaining 12 statements. This suggests a high level of agreement in their general perceptions. This was further confirmed by an overall t-value of -0.08 which showed that there was no significant difference in their general perceptions of P and C of agricultural extension services. In other words extension professionals and farmers perceptions regarding

the proposed P and C of agricultural extension services in Nigeria are similar. In a study by Ozor, Agwu, Chukwuone, Madukwe and Garforth (2007) extension professionals and farmers were found to have favourable perceptions towards the proposed cost-sharing of agricultural technology transfer in Nigeria which suggests that they are likely to accept its introduction by the government.

### Conclusion

This study examined the accuracy, congruency and agreement between extension professionals' and farmers' perceptions of P and C of agricultural extension services. Results show that extension professionals estimated farmers' perception with a high degree of accuracy ( $\rho = 0.80$ ), while farmers estimated extension professionals' perception with low accuracy ( $\rho = 0.22$ ). The congruency between extension professionals' perception and their estimate of farmers' perception was also high ( $\rho = 0.92$ ), while the congruency of farmers' perception and their estimate of extension professionals' perception was low ( $\rho = 0.08$ ). There was no difference between the perceptions held by extension professionals and farmers. The inability of farmers to accurately estimate extension professionals' perception could be due to differences in their educational background and knowledge of issues underlying P and C of agricultural extension services. The study therefore recommends that farmers should further be sensitized through additional education on issues relating to P and C. Also, an interactive involvement of extension professionals and farmers should be employed in the design and

implementation of any P and C programme in agricultural extension as this will not only promote co-orientation between them, but also enhance agricultural information delivery from extension professionals to farmers.

### References

- Ajeh, P.C. (2008). A co-orientation Analysis of Extension Professionals' and Farmers' Perception of Privatization and Commercialization of Agricultural Extension Services in Delta State, Nigeria. Ph.D Thesis: Nsukka, University of Nigeria.
- Connelly, N.A. and Knuth, B.A. (2002) Using the co-orientation Model to Compare Community Leaders' and Local Residents' Views about Hudson River Ecosystem Restoration. *Society and Natural Resources*. vol. 15 (10): 933 - 948
- Dolly, D. (1997). Accuracy, Congruency and Agreement among Researchers, Extension Workers and Pigeon pea Farmers in Trinidad and Tobago. *Journal of International Agricultural and Extension Education*, vol. 4, (1): 21 - 30
- Groot, H.C. (1970). Co-orientation and Technological Change: Communication Variables in Perceptions of "Miracle Rice" in the Philippines. Unpublished Doctoral Dissertation, University of Wisconsin, Madison.
- Mcleod, J.M and Chaffee, S.H. (1973). Applying the Interpersonal Perception Model to the real world. *American Behavioural scientist* 16 (4): 465 - 497.
- Ozor, N; Agwu, A.E; Chukwuone, N.A; Madukwe, M.C; and Garforth, C.J. (2007). Cost-sharing of Agricultural Technology Transfer in Nigeria: Perceptions of Farmers and Extension Professionals. *Journal of Agricultural Education and Extension* 13 (1):23-27.
- Walton, C.C. (2000). Perceived Purpose of Non-commercial College Radio by Kansas State University Students and KDSE Staff Members: A Co-orientation Analysis. M.Sc Thesis: Manhattan, Kansas State University.