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Perceived Effectiveness of Group Teaching Methods for Community Development among Fish Farmers in Edo State, Nigeria

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Abstract. Research and extension in agriculture have a central role of facilitating the transfer of new technologies to farmers and a search through the literature reveal a low level of agricultural productivity among farmers. This study assessed the perceived effectiveness of group teaching methods among fish farmers in Edo State, Nigeria. Specifically, the study examined the socio-economic characteristics of fish farmers; identified the extension group teaching methods available to the respondents; proven technologies and practices disseminated to and adopted by respondents through group teaching methods; determine effectiveness of group teaching method; their perceived factors that mutilate against the effectiveness of group teaching methods application in the study area. A multistage sampling procedure was used in selecting 86 fish farmers for the study, and data collected with the use of questionnaire and analyzed with frequency counts, percentage mean standard deviation, while Pearson Product Moment Correlation was used for hypothesis testing. Results showed that majority (72.09%) and (63.95%) were mates, married and were between 30 and 50 years. Also majority (60.47%) and (56.98%) has secondary education and fish farming experience of between 6 and 10 years. Most (95.35%) confirm demonstration farms offers opportunity for close physical observation and understanding, while the most preferred extension group teaching method was extension speech/talk (m=2.77), and perceived field trip (m=2.77) as most effective extension group teaching method, most serious constraint faced by fish farmer in the effectiveness of group teaching methods was inadequate interest, whereas respondents had highest participation in fertilizer application technology (m=2.55). age (r=-0.55, P<0.05), household size (r=0.13, P<0.05), fish farming experience (r=0.49, P<0.05), number of fish/pond (r=0.71 P<0.05) and income from fish farming (r=0.53, P<0.05) all have significant relationship with perceive effectiveness of group teaching methods. It was recommended that government and stakeholders in fisheries sub-sector should promote effectiveness of group teaching methods through training as this will increase the preference farmers have for group teaching methods.

Keywords: Effectiveness, group teaching methods, fish farmers, community development

1. Introduction

1.1 Background Information

Fish farming is today considered an important source of production for meeting world's increasing demand for protein, fish is an important source of good quality protein required in human diet, it has the highest level of easily metabolisable high quality protein, fats, vitamins, calcium, iron and essential amino acids when compared with other sources of animal protein such as poultry and beef (Ayoola, 2010).

Fish consumption is highly relished among people of all classes and ages in that the fish is less tough and more digestible when compared to beef, mutton chicken and bush meat This is due to the greater ratio of muscle protein to connective tissue protein in relation to other animals. Fish is very important to the developing world population as it is the major source of cheap high quality animal proteins which are very vital for healthy development. Fish production is relatively inexpensive when compared with other source of animal protein such as cattle, pig and poultry

In view of the facts that most of the health-related problems in developing world such as abnormal development, reduction in human productivity, high incidence of infant mortality, malnutrition and diseases have been attributed to low intake of good quality animal protein, this has made production of fish very imperative to the good health of the nations in the developing world (Ayoola, 2010). Throughout the centuries fish has been an important component of the population's diet in many parts of the world Fish catches increased rapidly over the past hundred years due to improved technology, which provided more powerful engines and sonar equipment, this led to over fishing and can a worldwide decrease in wild stocks, as a result, the growth in fish catches stopped some twenty years ago.

The need to increase fish production by farming became therefore an urgent matter (Agromisa Foundation and CTA 2008) Fish farming can be combined with agriculture, animal husbandry and irrigation practices, which can lead to better utilization of local resources and ultimately to higher production and net profits The most important advantages of fish farming are summarized below (Agromisa Foundation and CTA, 2008).

Fish and fish farming is beneficial in the following: Fish provides high quality animal protein for human consumption; a farmer can often integrate fish farming into the existing farm to create additional income and improve its water management; fish growth in ponds can be controlled the farmers themselves select the fish species they wish to raise; the fish produced in a pond are the owner's property, they are secure and can be harvested at will. Fish in wild waters are free for all and make an individual share in the common catch uncertain; fish in a pond are usually close at hand; effective land use: effective use of marginal land like land that is too poor, or too costly to drain for' agriculture can be profitable devoted to fish farming provided that it is suitably prepared.

Sustainable growth of agricultural sector is an integral part of economic development. All countries that have experienced significant development in agriculture have also achieved a more rapidly growing economy with few exceptions. Therefore, the agricultural sector is not just an end in itself; it also has a direct and beneficial effect on overall economic development. The government, the private sector and farmers have key roles in bringing about agricultural development (Benor et al. 1984). Research and extension in agriculture have a central role of facilitating the transfer of new technologies to farmers. Johnson (2003) posited that they are essential components for agricultural development.

Meaningful agricultural development in any society largely hinges on the extension system in place (Madukwe and Anyanwu, 2002). Agricultural extension service, simply put, is the transmission of agriculture awareness/information in terms of modern practices, techniques, innovations and technology to end users. It is an out-of door agricultural education that entails the social and cultural development of modern agriculture among rural people outside the regularly organized schools or classes (Albert and Isife, 2009). Hence without guidance farmers are unable to fully exploit the opportunities available to them.

Extension teaching methods are tools and techniques used to create situations which communication can take place between the rural people and the extension workers (Jasani, 2009). These teaching methods can be classified according to form e.g. written form like bulletins, leaflets, folders and personal letters; in spoken form as in official calls, general and special meeting and radio; audiovisuals as in result demonstration posters, charts, slides and film strips. (Agricultural Extension Education, 2010)

Extension teaching methods are classified according to the target audience Adams, 1984) or according to their use and nature of contact as follows: the individual contact method (dialogue) which is aimed at individual farmers e.g. farm visit, home visit, office calls and others; the group contact teaching method e.g. demonstrations, seminars, workshops, discussions, etc. which aims at a particular reference group such farmer groups; mass contact teaching methods which aims at a great number of people e.g. radio, television, bulletins, leaflets, pamphlets and so on. This classification is based on certain factors such as the audience's level of literacy/education, interests, needs, technological problems, and others.

The extension group teaching method involves a face-to-face contact with extension agent and farmers sharing a common interest in groups referred to as farmer groups. Madukwe (2006) described farmer groups as ideal if the group size is between 20 and 30, and opined that a major benefit of the group is that farmers support each other to learn and adopt. Types of group teaching methods commonly used include: method demonstration which involves "teaching a skill"; result demonstration which involves introducing recommended practices to farmers with convincing practical results; and meetings which enables a large number of people to acquire subject

matter information. It can take the form of lectures, discussions, symposia, field/farm meetings, tours, programme planning meetings etc (Laogun, 2005).

Baxter (1984) observed that "farmer groups are often an effective means for identifying local production constraints and development priorities".

The activities of extension services with farmers as it relates to their acquisition and consequent adoption of technologies and improved farming practices is of great importance in the development of agricultural sector and the overall economy of Nigeria. In view of this, "the government runs agricultural extension services promoted to augment small holder productivity by promoting adoption of new scientific farming practices through educational procedures" (Poole, 1994) as sited in Aphunu and Otoikhian (2008). ADP is one of these government-run programmes. According to the findings of Oladosu (2006), the group extension teaching methods are the most widely used methods adopted in training farmers.

Group teaching methods seem a better option in efficient extension service delivery because "it has an advantage of reaching farmers with similar or close socio-economic characteristics at the same time, influences changes with practices in many people, promotes personal acquaintance between demonstrator and farmers and builds confidence in extension worker if demonstration is skillfully performed" (Laogun, 2008).

A search through the literature revealed a low level of agricultural productivity among farmers in the area despite the use of extension group teaching methods by ADP extension workers. However, Vengara and Mc Ducken (1990) speculated that productivity depends on adoption of technically efficient improved technologies which consequently depends solely on the effectiveness of demonstration. Salami (2008) also observed that in group teaching methods, it is frequently difficult that all members of the group may clearly see; and demonstration requires a certain amount of showmanship not possessed by all extension workers. A lot of information has been passed over the existence of group teaching methods but its effectiveness on farmers' productivity for community development is the focus of the study. It is for these reasons that this study seeks to address the following research questions:
Hence the overall objective of the study was to evaluate the effectiveness of group teaching methods among fish farmers in Edo State. Specifically, the objectives were to:

- describe the socioeconomic characteristics of fish farmers in the study areas;
- identify the extension group teaching methods available to the farmers;
- identify proven technologies and practices disseminated to and adopted by respondents through the group teaching methods;
- determine respondents' most preferred group teaching method;
- determine respondents' perceived effectiveness of the group teaching methods; and
- identify factors that militate against the effectiveness of group teaching methods in the study area.

2. Research Methodology

The study will be conducted in Edo State. Edo State is located in the south-south geopolitical zone of the country. The state has 18 local government areas within the capital in Benin City. The state has a population of about 4 million people (Edo State Government, 2007).

A multistage sampling procedure was used to select respondents for the study in Edo State. The first stage was to select one local government each from Edo North, Edo Central and Edo South agricultural extension service zone in Edo State, making a total of three local government areas in Edo State namely Esan Central, in Edo Central, Owan West, in Edo North and Ikpoba-Okha in Edo South agricultural zone. The second stage was to select 3 communities from each of the local government areas (LGAs) where fish farming (catfish farmers in ponds) is prominent making a total of 9 communities in Edo State. The third stage was to purposefully select 10 fish farmers by snowballing per community in Edo State making a total of 90 fish farmers for the study. Purposive sampling technique was due to the fact that a targeted population was in mind which 90 fish farmers in Edo State, however, 86 out of the 90 data collection instrument, the questionnaire, were found useful for analysis that is, 95.5% accuracy. Perceived effectiveness was measured using a 4-point rating scale. A list of extension group teaching methods such as demonstration (method and result), extension talks, filed trips and others will be presented for responses. Respondents were asked to rate the effectiveness of extension group teaching methods accordingly; very effective coded as 4, effective coded as 3, low effective coded as 2 and not effective coded as 1. A weighted mean score (1+2+3+4=10/4) of 2.50 and above was taken to mean that the particular extension group teaching method was effective, while

constraints was measured in a 5- point rating scale of very serious coded 5, serious coded 4, not serious coded 3, undecided coded 2 and not a problem coded 1. A weighted mean (1+2+3+4+5=15/5) of 3.0 and above was taken that a constraint is serious. Null hypotheses formulated for the study are: no significant difference between the socio-economic characteristics of respondents' and their perceived effectiveness of group teaching methods; there is no significant difference between respondents' socio-economic characteristics and their perceived constraints to the effectiveness of group teaching methods.

Data were analyzed using descriptive statistics such as frequency counts, percentages, mean and standard deviation. Inferential statistics such as Pearson production moment correlation (PPMC) was used in drawing inferences for this study.

$$R=\frac{\sum X_i\bar{Y}_i - n.X.\bar{Y}.}{\sqrt{(\sum x1^2 nX^2)-(\sum Y^2 - nY^2)}}$$

Where R Pearson correlation:
X_i ith value of X - variable
Y_i ith value of Y - variable
$\bar{X}$ mean of X-values
$\bar{Y}$ mean of Y-values
X= set of independent variables such as socio-economic characteristics of the respondents
Y= set of independent variables such as information needs of fish farmers' source; Damoda (2003).

The null hypothesis stated:
(1) that there is no significant difference between the socio-economic characteristics of respondents' and their perceived effectiveness of group teaching methods;
(2) There is no significant difference between respondents' socio-economic characteristics and their perceived constraints to the effectiveness of group teaching methods.

3. Results and Discussion

3.1 Socio-economic characteristics

Results show that majority (72.09%) of the respondents were male the implication is that most of the decisions concerning fish farming would be made majority (63.95%) were categorized within the age range of 30 -50 years. The mean age was approximately 41 years with a standard deviation of 12 years. The low standard deviation is an indication that the data were evenly distributed majority (72.09%) were married. The implication of this is that respondents may be highly responsible as marital status has been indicated that influence being responsible in social research. Majority (60.47%) had secondary education, on average, respondents sampled for this study had approximately 6 persons as the household size majority (56.98%) of the respondents had less than 5 years in fish farming while only 3.49% had 20 years and above as their number of years of experience in fish farming. The mean years of experience was approximately 11 years. The findings show that most of the respondents had adequate number of years of experience in fish farming. While 45.35% stocked between 501 and 1000 fish in one pond. The average number of fish stocked was obtained as about 800.41 fish while 56.98% of the fish farmers sampled for this study used family and hired labour results show that 89.53% belonged to associations an indication that they solicit support for fish farming. It was revealed from the results in Table 1 that only 39.53% of the respondent shad contact with agricultural extension agents and for the frequency of contact, only 2.33% had weekly contact, 24.42% had monthly contacts and 12.79% has yearly contact. This is an indication that they involved in community development. On the types of fish raised, it was observed based on this finding that 90.70% of the respondents raised catfish and only 9.30% indicated that they raised other types of fishes. This means that catfish is the major type of fish raised in the study area.

On the estimated income from fish, results show that, on average, respondents earned about NGN470618.44 and specifically, 18.60% earned less than NGN100,000, 36.05% earned between NGN100,001 and NGN200,000, 25.58% earned between NGN200,001 and NGN300,000 while above 2.33% earned NGNNGN500,000 and above as the income per production cycle of fish. The mean income per cycle was approximately NGN470,618.44.

Table 1: Socio-economic characteristics

Sex of respondents	Freq. n= 86	%	Mean	Std. Dev.
Male	62	72.09		
Female	24	27.91		
Age in years				
<30 years	13	15.12		
30- 50 years	55	63.95	41.44	11.55
51 years and above	18	20.93		
Marital status				
Single	21	24.42		
Married	62	72.09		
Divorced				
Separated				
Widow	3	3.49		
Religion				
Christian	72	83.72		
Muslim	14	16.28		
African traditional religion				
Level of education				
No formal education	6	6.98		
Primary education	12	13.95		
Secondary education	52	60.47		
Tertiary institution	16	18.60		
Household size				
Less than 4	23	26.74		
5-7	42	48.84	5.88	1.39
8-20	21	24.42		
Above 10				
Fish farming experience in year				
Less than 5	49	56.98		
6-10	17	19.77		
11-15	10	11.63	10.51	2.78
16-20	7	8.14		
Above 20	3	3.49		
Farm size, number of fish per pond				
1-200	7	8.14		
201-500	16	18.60		
501-1000	39	45.35	800.41	120.61
1000 above	24	27.91		
Source of labour				
Family	19	22.09		

Hired	49	56.98		
Self	18	20.93		
Membership of any association	77	89.53		
Social group do you belong				
Fish farmers association	29	33.72		
Cooperative society	31	36.05		
Weekly contribution	11	12.79		
Monthly contribution	6	6.98		
None				
Contact with extension agents	34	39.53		
Frequency of contact				
Weekly	2	2.33		
Monthly	21	24.42		
Yearly	11	12.79		
Leadership experience				
No form of leadership experience	22	25.58		
Have led a group	36	41.86		
Member	12	13.95		
Other position	16	18.60		
Record keeping method				
Book keeping	49	56.98		
Computerized	14	16.28		
Memory	23	26.74		
Type of fish kept				
Catfish	78	90.70		
Others	8	9.30		
Estimated income from fish				
NGN100,000 and Less	16	18.60		
NGN100,001-NGN200,000	31	36.05		
NGN200,001-NGN300,000	22	25.58		
NGN300,001-NGN400,000	10	11.63	470,618.44	89,451.66
NGN400,000-NGN500,000	5	5.81		
NGN500,000 and Above	2	2.33		

Source: *Field Survey, 2025*

3.2 Extension Group Methods

Results in Table 2 show that among the group teaching methods used, it was observed that, farmers' field day (84.88%), demonstration farms (77.91%), group discussion farm problems (68.60%), seminars (59.30%), and workshop (55.81%) were the major group methods used among fish farmers in the study area. This means that farmers' field day was the major group teaching method used. Among the group teaching methods, demonstration farms (95.35%), group discussions of farm problems (76.74%), and farmers' field day (65.12%) and field trips (45.35%) were the contacts that offer opportunity for close physical observation and understanding. Furthermore, results show that extension talks (97.67%), seminars (84.88%), group discussion (68.60%), demonstration farms (77.91%),

workshop (55.81%) and seminars (59.30%) were the group methods that provided only information on fish farming procedures and activities. It was equally observed that fortnightly (77.91%) was the most frequent contact they had with extension agents.

Table 2: Extension Group Methods

Group methods**	Freq. n= 86	%
Extension speech/talk	26	30.23
Demonstrations on farms	67	77.91
Group discussions of farm problems	59	68.60
Symposium	35	40.70
Seminars	51	59.30
Workshop	48	55.81
Farmers' field day	73	84.88
Field trip	22	25.58
Contact that offers opportunity for close physical observation and understanding		
Extension speech/talk	12	13.95
Demonstrations farms	82	95.35
Group discussions of farm problems	66	76.74
Symposium	13	15.12
Seminars	25	29.07
Workshop	37	43.02
Farmers' field day	56	65.12
Field trip	39	45.35
Which provides only information		
Extension speech/talk	84	97.67
Demonstrations on farms	57	66.28
Group discussions of farm problems	61	70.93
Symposium	44	51.16
Seminars	73	84.88
Workshop	47	54.65
Farmers' field day	51	59.30
Field trip	29	33.72
How often are these contacts with the extension agents?		
Fortnightly	67	77.91
Monthly	13	15.12
Bimonthly	7	8.14

Source: *Field Survey, 2025* **Multiple responses given.

3.3 Preferences

On the preference for group teaching methods (Table 3), results show that among the group methods preferred by the fish farmers, extension talks (Mean = 2.77), demonstration farms (Mean = 2.61), workshops (Mean = 2.65), farmers, field day (Mean = 2.91), field trip (Mean = 2.55), meetings (Mean = 2.96) and community meetings (Mean = 2.52) were the group teaching methods preferred by the fish farmers in the study area. The findings show that fish farmers

in the study area indicated that they prefer extension speech/talk, demonstration on farms, workshops, farmers field days, field trips, meetings, and community meeting as the group extension strategies used for teaching farmers.

Table 3: Preferences for group discussion

	Preference	
Extension group teaching methods	**Mean**	**Std. Dev.**
Extension speech/talk	2.77	0.09
Demonstration on farms	2.61	0.15
Symposium	1.89	0.29
Seminar	1.15	0.41
Workshop	2.65	0.27
Farmers field day	2.91	0.29
Field trip	2.55	0.17
Meetings (training, planning etc)	2.96	0.31
Community meeting	2.52	0.27
Discussion	1.17	0.23
Agricultural show	1.83	0.16

Source: *Field Survey, 2025* *Mean> 2.5 = Preferred

3.4 Effectiveness and availability of group teaching methods

On the effectiveness and availability of group teaching methods (Table 4), it was observed that demonstration (Mean = 2.51), seminar (Mean = 2.74), farmers field days (Mean = 3.11), field trip (Mean = 2.77), community meetings (Mean = 2.65) were rated to be effective among the group teaching methods investigated while 76.74% and 68.60% indicated that extension talks and demonstration farms were available, respectively while 77.91% and 63.95% showed that seminars and workshops were the most available group teaching methods. Also, 70.73%, 95.35%, 96.51% and 89.53% showed that farmers; field day, field trips, meetings and discussions were highly available as extension group teaching methods among the fish farmers in the study area.

Table 4: Effectiveness and availability of extension group teaching methods

	Effectiveness		Available**	
Variables	**Mean**	**Std. Dev**	**Freq.**	**%**
Extension speech/talk	1.19	0.16	66	76.74
Demonstration on farms	2.51*	0.19	59	68.60
Symposium	1.88	0.35	35	40.70
Seminar	2.74*	0.64	67	77.91
Workshop	1.62	0.41	55	63.95
Farmers field day	3.11*	0.09	61	70.93
Field trip	2.77*	0.46	82	95.35
Meetings (training, planning etc)	1.73	0.11	83	96.51
Community meeting	2.65*	0.17	47	54.65
Discussion	1.94	0.32	77	89.53
Agricultural show	1.64	0.62	36	41.86

Source: *Field Survey, 2025* **Multiple responses given. *Mean>2.5 = Effective

3.5 Constraints

Constraints (Table 5) to the effective use of extension group teaching methods were identified among the significant ones, it was revealed that inadequate interest (mean = 3.53), lack of information (Mean = 2.65), understanding

demonstration methods (Mean = 2.15), complexity of demonstration techniques (Mean = 2.19), non-involvement in the planning of extension programmes (Mean = 3.16), inadequate opportunity to participate in extension activities (Mean =3.53) and inadequate managerial and leadership skills (Mean = 2.74) among farmers were identified as the most significant constraints militating against the effectiveness of group extension teaching methods among the respondents .

Table 5: Constraints to group teaching methods

Constraints	Mean	Std. Dev
Inadequate of interest	3.53*	0.28
Lack of information	2.65*	0.44
Distance to meeting/demonstration venue	1.79	0.15
Inadequate of skill in demonstrating	1.51	0.43
Understanding demonstrated techniques	2.15*	0.35
Complexity of demonstrated techniques	2.19*	0.41
Lack of confidence in extension agent	1.66	0.39
Inappropriate venue for demonstration for meeting	1.39	0.52
Non-involvement in planning extension programmes	3.16*	0.09
Inadequate opportunity participation in extension activities	3.53*	0.42
Inadequate managerial and leadership skills among farmers	2.74*	0.19

Source: *Field Survey, 2025* *Mean≥ 3.0 = Effective

3.6 Awareness, access and participation in fish farming technologies

Results in Table 6 show the various fish technologies and respondents were asked to indicate their level of awareness, access and participation. Results based on data analysis show that fish farmers had high level of awareness in almost all the fish farming technologies except cropping and harvesting techniques where just 32.56% indicated that they were aware, and fish processing techniques where only 47.67% indicated their level of awareness. This is an indication that fish farmers in the study area were aware of most the technologies except processing and harvesting. The low awareness of these two technologies in fish farming may be due to the fact that fish farmers perform less of these tasks. Furthermore, it was revealed from the findings that fish farmers had access to pond preparation (Mean = 3.17), and pond management (Mean = 3.10) only while they indicated that they had high participation in fertilizer application (Mean = 2.55), pond preparation (Mean = 2.16), pest and disease control (Mean = 2.09), cropping/harvesting (Mean = 2.54), pond management (Mean = 2.98) and fish processing (Mean = 2.64).

Table 6: Awareness, access and participation in fish technologies

	Awareness		Access		Participation	
Technologies	**Freq.**	**%**	**Mean**	**Std. Dev.**	**Mean**	**Std. Dev.**
Fertilizer application	81	94.19	2.22	0.19	2.55	0.77
Pond preparation	69	80.23	3.17	0.26	2.16	0.42
Pest and disease control	71	82.56	2.15	0.33	2.09	0.61
Fish feed preparation with planting ingredient	61	70.93	1.63	0.42	1.43	0.16
Fish feed preparation with animal ingredient	54	62.79	2.77	0.57	1.62	0.24
Postharvest handling/preservation	81	94.19	2.16	0.12	1.88	0.42
Cropping/harvesting	28	32.56	1.31	0.83	2.54	0.73
Pond management	45	52.33	3.01	0.19	2.98	0.13
Improved fingerlings/spawning	61	70.93	2.65	0.33	1.54	0.52
Market information	61	70.93	1.66	0.41	1.66	0.25
Fish breeding	83	96.51	2.59	0.29	1.73	0.51

Fish nutrition	80	93.02	1.32	0.75	1.88	0.08
Fish processing	41	47.67	1.88	0.38	2.64	0.15
Fish storage	85	98.84	1.11	0.73	1.82	0.35

Source: *Field Survey, 2025* *Mean>3.0 = Access, 2.0 = participated.

3.7 Hypothesis testing

There is no significant relationship between the socio-economic characteristics of respondents' and their perceived effectiveness of group teaching methods. Results of Pearson's Product Moment Correlation (PPMC) show that age (r = 0.55), household size (- 0.46), fish farming experience (r = 0.61), farm size (number of fish stocked) (r = 0.59) and estimated income (r = 0.66) were the variables that were significant to the effectiveness of extension group teaching methods in the study area among the fish farmers at 0.01 and 0.05 level of significance as presented in Table 7 below.

Table 7: Correlates of effectiveness of group teaching methods

Variables	**Correlation Coeff.**	**Sig.**
Age in years	0.55*	0.04
Household size	-0.46*	0.15
Fish farming experience in year	0.61*	0.05
Farm size, number of fish per pond	0.59*	0.04
Estimated income from fish	0.66*	0.05

Source: *Computed from Field Survey, 2025*
*Significant at 0.05 level of significance

Testing the variables that correlated with the fish farmers' preference for group extension teaching methods, results in Table 8 show that experience in fish farming (r = 0.49), farm size (r = 0.71) and estimated income (r = 0.53) from fishing activities correlated with the preference of group teaching methods.

Table 8: Correlates of level of constraints for group teaching methods constraints

Variables	Correlation Coeff	Sig.
Age in years	-0.05	0.290
Household size	0.13	0.520
Fish farming experience in year	0.49*	0.050
Farm size, number of fish per pond	0.71**	0.000
Estimated income from fish	0.53*	0.050

Source: *Computed from Field Survey, 2025* ****Significant at 0.05 level of significance***

4. Implication for Community Development

Analysis of group teaching methods, farmers'' Field School (84.58%) and demonstrations on farms (77.91%) were the most frequently used group methods in teaching fish farmers by implication, this is an indication of high social capital as it boarder on daily lives of the people as a means of social intercourse from good will, fellowship, sympathy as noted by Tyokever (2007). However, only 39.53%) of the fish farmers had contact with extension agents and a higher proportion (24.42%) had monthly contact with extension agents. Hence to achieve desired community development through fish farming, that will keep a pace with human population growth in the country an effective extension delivery through group teaching methods. This calls for the strengthening of the research-extension-farmer-input linkage system (REFILS), which is necessary for fish farmers have the required awareness, understanding, training and knowledge in current management practices for community development. According to National Open University of Nigeria (2008), this approach is a sectorial development model in which the model is almost synonymous with agricultural development model. The implicit assumption here is that this model will result in releas4 of surplus labour and fund needed for industrial growth and community development

5. Conclusion and Recommendations

Based on the findings of this study, it was observed that fish farmers in the study area were of their middle and productive age of less than 50 years and they were mostly married with male dominated. The had an income that is greater than the national minimum wage and this is an indication that the enterprise is a profitable one. Farmers' field day, demonstration farms, group discussion farm problems, seminars and workshop were the common group extension teaching methods used. They had high preference for extension talks, demonstration farms, workshops, farmers, field day, field trip, meetings and community meetings but demonstration, seminar, farmers field days, field trip as well as the community meetings were very effective group extension teaching methods. Inadequate interest, lack of information, understanding demonstration methods, complexity of demonstration techniques, non-involvement in the planning of extension programmes, inadequate opportunity to participate in extension activities and inadequate managerial and leadership skills were the serious constraints facing the perceived effectiveness of group extension teaching methods. Age, household size, fish farming experience, farm size (number of fish stocked) and estimated income significantly correlated with effectiveness of group extension teaching methods while experience in fish farming, farm size and estimated income had relationship with their participation in group extension teaching methods. It was concluded that only few of the identified group extension teaching methods were effective and fish farmers had low level of awareness of most of the technologies in fish production in the study area.

Based on findings, the following recommendations are put forward:

- Agricultural extension agents in the state should increase intensity on the campaign for the group extension agents in order to complement the low number of extension personnel in the state.
- Government and stakeholders in fishery sub-sector should promote the effectiveness of group teaching method through trainings as this may increase the preference farmers have for group extension teaching methods; and
- Access to extension should be created through the use of mass media and Information Communication Technological tools in order to maintain regular contact with their clientele mills.

References

Agricultural Extension Education (2010). Standardization of Doctoral Study in Agricultural and Extension Education. Science gov.

Agromisa Foundation and CTA (2008). Small Scale Fresh Water Fish Farming in Wageningen. Eiracarballo (ed). Agrodok 15 CTA

Albert, C. O. and Isife B. leads (2009) Issues in Developing a National Policy on Agricultural Extension Service in Nigeria: The proceeding of extensional professionals. Vol. 4 pp 22-26

Ayoola S. (2010). Sustainable fish production in Africa. Department of Marine Sciences, University of Lagos, Lagos State, Nigeria. *African Journal of Food Agriculture Nutrition and Development* 10:(5)2-9.

Baxter (1984). An investigation of compliance gaining as politeness. Human Communication research 10(3):427-456

Benov, D Harrison, J.O. and Baxter (1984) Agricultural Extension. The training and you system. The world Banks Washington D.C

Jasani (2009). Analysis of effects of extension teaching methods on farmers level of cassava and maize production in Ogun State Nigeria. *Ghana Journal of Agricultural Science*

Johnson, R.1. (2003). Rebuild the agricultural research and extension system in Nigeria. Retrieved 6/4/2010 from www.nigerdeltacongress.com.

Madukwe (2006) Reshaping tertiary education in agriculture http://knowledge.cta./int/en/content/view/6402

Madukwe and Anwanwu (2002). The challenges of Nigerian agricultural extension in the 21 Century. Department of Agricultural Extension, University of Nigeria, Nsukka, Nigeria

Madukwe, M.C. (2006). Delivery of Agricultural Extension Services to Farmers in Developing Countries, University of Nigeria, Nsukka, Nigeria. Retrieved 6/29/2010 from www.knowledge.cta.int.

National Open University of Nigeria (2008). AEM638: Rural Development and Leadership *Course Material.* P. 12

Oladosu (2006). Perception of village extension agent in disseminating agricultural information in Oyo Agricultural Zone of Oyo-State. *Journal of Sciences* 12(3):187-191.

Oladosu, 1. O. (2006). Implications of farmers' attitude towards extension agents on future Extension Programme Planning in Ovo State of Nigeria.

In: *Journal of Social Sciences,* 12(2):115-118.

Poole (1994) Monetary Aggregates targeting in a low Inflation Economy In: Further J.C., Ed., Goals, Guidelines and constraints facing monetary policymakers, federal reserve Bank of Boston, 87-121.

Tyokever, M. E. (2007). Community leaders: A New Perspective in Loan Guarantee. Service for small scale farmers in Nigeria. Edison Computers / Publishers, Katsina- Ala Benue Stata, 96 pp

Voladoja, M.A. (2008). Extension Concepts, Principles and Philosophy. In: Akinyemiju, O.A. and Tomiro, D.O. Eds. (2008): Agricultural Extension - A Comprehensive Treatise, Ikeja, Lagos. ABC Agric Systems Ltd.,