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Modern Training of Fishing Artisans to Enhance Better Output and Food Production in Nigeria

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Abstract

In Nigeria, the burden of ensuring constant fish supply rests on the efforts of small-scale fishers, who often depend on traditional means of production and this results in low output (Ogunremi, 2016).However, the current scarcity of fish witnessed in Nigeria, it is imperative to improve productivity of the fishing sector. This paper therefore investigated modern training of fishing artisans with the aim to enhance better output and food production in Lagos state, Nigeria. A descriptive survey was carried out among fishermen located in Makoko fish market, in Yaba, Lagos using questionnaire. The sample size study was selected using snowballing in which 50 respondents were studied. The data collected for the study was descriptively analyzed using mean and standard deviation. A mean score of 2.5 and above was the benchmark that determines whether the items in the questionnaire should be accepted or rejected.The result of the study indicated that the fishermen in Nigeria are in need of different types of trainings which are either non-existence or extremely inadequate. The result also showed that the lack of training had led small scale fishermen to face diverse challenges such as lack of access to loan, inadequate loan facilities, and ignorance about loan, poor and crude fishing methods, among others. Finally, the study revealed that training will enhance productivity and output of fishery sector. Based on this result, conclusions were drawn and recommendations made.

Keywords: Modern training, fishing artisans, better output, and food production

1 Introduction

The Nigerian fishery sector is almost exclusively artisanal and grossly underdeveloped (Akintola&Fakoya, 2017). In agriculture, a sector of which fish is a subset, emphasis is laid on the use of technologies for higher productivity. The aim of achieving food sufficiency in a nation cannot be overemphasized without the use of modern technologies.Ogunremi (2016) opined that a lot of small scale fishermen, are ignorant of modern fishing technologies and technological opportunities that could be advantageous to them and their professions. There is a need for Nigeria like other developing counties to enhance their level of fish production through identifying and improving the potentials of small scale fishing in Nigeria. This requires governmental efforts in making available for use, appropriate technologies and adequate training to fishing artisans to improve their knowledge and enhance production level (Ogunremi, 2016).

The availability of fish in Nigeria is made possible through three major methods; importation, capture and artisanal fish farming. Where capture method entails either industrial or small scale fishers gathering naturally existing wild fish; artisanal fish farming entails production of fish either by a small group or an individual using time consuming physical labour. Artisanal fishers operate by using wooden unmotorized canoes. In Nigeria, the artisan fishing method dominates fish production in Nigeria (Anene, Ezeh&Opute, 2010). Agu-Aguiyi, Onyia, Umebali and Sotonye (2018) revealed Nigeria to be among the largest fish producers in Africa, with small scale fisheries accounting for above 82% of the domestic supply. Agu-Aguiyi et al (2018) further revealed a shortfall in the production of fish as what is produced yearly does not meet up with the requirements of about 2.1milion metric tonnes (mmt) of fish/year.The study therefore identified challenges to the shortfall in fish production such as high level of poverty, poor infrastructure, climatic change effect, environmental problems, and degradation of coastal areas.

Artisan fisheries is a source of employment to populations in coastal regions of developing countries and accounts as a major fish supplier. They

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are characterized by non-mechanical low level production capacity, despite being predominant in developing countries (Ogunremi, 2016).In Nigeria, the burden of ensuring constant fish supply rests on the efforts of small-scale fishers, who often depend on traditional means of production and this results in low output. To this end, it appears that in order to enhance the production output of these fishing artisans, it is necessary to bring them up to date with modern techniquesthrough training. According to Adeokun andAdereti (2005), training enables a person improve in his skills, and this is considered an effective means of making fish artisans aware of their limitations and learns skills that will make them more effective.Training plays a vital role in the improvement of human performance in a given situation and is a course of acquisition of new skills, attitude and information which prepares one for entry into a vocation or improves one's productivity. Effective training requires a clear depiction of how the trainees will need to use information after training to replace local practices they have adopted before. Training consists largely of well organised opportunities for participants to obtain required understanding and skill (Umunna et al., 2019).

2 Problem Statement

Ensuring higher productivity in agriculture requires the proper application of technologies which can only be achievable through the provision of adequate training. In the quest to enhance food security, nutrition will continue to encounter difficulty when efforts are constantly concentrated on increase in production without adequate efforts at training the producers. In Nigeria, the burden of ensuring constant fish supply rests on the efforts of small-scale fishers, who often depend on traditional means of production and this results in low output (Ogunremi, 2016). To make increased production and output a reality in artisan fishing, it is important to create awareness and provide training to small scale fishermen on modern fishing technologies. Therefore, this research seeks to investigate the extent to which modern training of fishing artisans will enhance better output and food production in Lagos state Nigeria.

3 Research objectives

1. Identify the training needs of small scale fishermen;
2. Examine the constraints experienced by the small scale fishermen.
3. The extent to whichmodern training of fishing artisanimpact on food production.

4 Research questions

1. What are the training needs of small scale fishermen?
2. What are the constraints experienced by the small scale fishermen?
3. To what extent will the modern training of fishing artisanimpact on food production?

5 Literature review

Artisanal fishery is fish harvesting from streams, rivers, ponds and lakes by fishermen who fish on a small scale using both traditional and modern fishing gears (Ogunremi, 2016). Artisanal fisheries according to Daniel and Monsi (2019) are small-scale fisheries for subsistence or local, small markets, generally making use of traditional fishing techniques and small boats. They are characterized by low productivity and income as they lack infrastructural backing and credit; they occur mainly in developing nations and are essential to livelihoods and food security; they rely mainly on human effort especially when it comes to setting out, landing, discharging catches, locating fish, and so on. The entire activities associated with it become basic making it burdensome and energy consuming for the operators. Nigerians are high consumers of fish and have the largest market in Africa for fish and fish products. Fishing artisans provide fish consumed by the population and depend on crude gears, small vessels and technology to capture multiple fish species (Adisa et al., 2021).

Training can be defined as the acquirement of skills, ideas or attitudes that result in improved performance within the job environment (Famuwagun, 2015). There are some visible pointers that have revealed that a major reason why fish farmers seem unable to harness the potential in the sector is as a result of inadequate use of initiatives that add value (Olorunfemi, et al., 2017).

Some of the problems encountered by artisan fishermen include:

- Inadequate infrastructure: most artisan fishermen do not have access to cold storage or ice for preservation, power supply, processing facilities, the right gear due to high cost of importation, lack of infrastructure such as good roads can cause delay in transportation and lead to spoilage, jetties and landing slips, etc.
- Marketing/trade: After harvesting, fish products need to reach the final processors and consumers while they are still in good conditions through the networks of fish distributors and marketers. They have no direct access to the markets hence they depend on middlemen (Sogbesan&Kwaji, 2018).
- Safety at sea: lack of training and safety equipment can lead to loss of life.
- Lack of modern fishing equipment: this has led to fishermen being unable to maximize their catch in the face of the declining fisheries resources, climatic change and economic recession. As a result, the fishers have adopted the use of chemicals and some unsustainable fishing methods (Sogbesan&Kwaji, 2018).

Trainings for fishing artisans include:

Training on sustainable fishery practices: Unsustainable fishing practices are used in developing countries including Nigeria. They include electro-fishing, dynamite fishing, fishing with poisons and use of gears with small mesh sizes and are the ways in which wild fish are caught that are not considered sustainable in the long term. This could be because they threaten the fish stock itself by overfishing, or because they threaten the environment needed by the fish to thrive.

Sustainable management of fisheries helps provide steady and long-term employment opportunities, as well as better standard employment. The contribution of fish and fish products to global nutrition is of great importance as fish catches contribute directly (directly through the supply of the food commodity itself) and indirectly to individual or nation food security; and indirectly (when income obtained by those involved in the fishing industry).

The safety at sea training will equip them and give them more knowledge on how to be better prepared if ever they find themselves in difficulties at sea. Some of the fishermen cannot swim and this training will help them protect themselves.

6 Empirical review

Famuwagun (2015) evaluated of the training needs of fish farmers at the Fish Farm Estate, Odogunyan, Ikorodu in Ikorodu LGA of Lagos State. Descriptive research was used in the study and eighty respondents were randomly selected. Data was collected using questionnaire and interview schedule and was analysed using descriptive statistic tools and inferential statistic tools. Findings showed that most of fish farmers require training on record keeping and that high cost of fish feed was the major production constraint; almost all the socio-economic characteristics had a significant relationship with the level of knowledge possessed by fish farmers; the training need had a significant and negative relationship with the knowledge level of the fish farmers.

Muddam et al., (2020) assessed the impact of training on knowledge level of fish farmers on composite fish culture in KrishiVigyan Kendra, Rudrur, Nizamabad district, Telangana, India. A random selection of 50 fish farmers from fishing communities with prevalence fish farming and artisanal fisheries were interviewed with a pre-test interview schedule. Findings revealed that there is a low knowledge level on scientific fish culture regarding composite fish culture and that training is an efficient tool to improving the knowledge and understanding of fish farmers.

7 Theoretical framework: Expectancy theory

Expectancy theory was founded by Edward C. Tolman and continued by Victor H. Vroom (Vroom, 1964) has three components which are Valance, Instrumentality and Expectation. The theory proposed that an individual perceives the possibility that an effort will lead to performance and that performance will consequently lead to the desired outcomes. The idea with this theory is that individuals are motivated to do something because they think their actions will lead to their desired outcomes. While expectancy is the certainty that an individual's effort will result in reaching desired outcome, instrumentality is the belief that if one meets performance expectations, there will be reward and the value the individual puts on the reward is the valance (Osadebamwen, 2015). This theory can be used to express the impact of training of fishing artisans on food production as the importance of training cannot be stressed enough in the process of increasing food productivity. The willingness of artisans to be trained in modern fishing techniques depends on how well the farmers perceive the benefits.

8 Methodology

The study adopted a descriptive survey research method in conducting this study. The population of the study consisted of fishermen located in Makoko fish market, located in Yaba, Lagos. Using a random sampling method, 50 fishermen were selected and questionnaires distributed to them. The questionnaire was structured on a fivelikert scale format, consisting of twenty items. The questionnaire was distributed with the aid of research assistants, given the fact that most of the fishermen are illiterates and would need assistance in understanding and filling out the questionnaires. The data collected for the study was descriptively analyzed using mean and standard deviation. Amean score of 2.5 and above was the benchmark that determines whether the items in the questionnaire is accepted or rejected.

9 Data Presentation, Analysis and Discussion

All 50 questionnaire distributed were collected and analyzed. Given that more than 70% of the fishing artisans were illiterates, the research took time in reading and interpreting the questionnaire for them and helping them tick against their choice options. The remaining 30% who could read and write were left to answer the questionnaire uninterrupted unless where they asked for clarifications. The result is as discussed below.

RQ1 What are the training needs of small scale fishermen?

Table 1: The training needs of small scale fishermen

RQ1	**What are the training needs of small scale fishermen?**	**Mean**	**SD**	**Decision** $\bar{x} \geq 2.5$ accept
1	Diversified income opportunities	4.57	0.73	**Accept**
2	Skills on fund raising and fund management	3.77	0.83	**Accept**
3	Boat building, maintenance and construction	3.73	1.17	**Accept**
4	Fish preservation and processing	4.43	1.09	**Accept**
5	Modern smoking kiln	3.56	0. 68	**Accept**
6	Marketing and income generation	4.83	0.55	**Accept**
	Average Mean and Standard Deviation	**4.15**	**0.84**	

Field survey (2021)

The first researcher question investigated the training needs of small scale fishermen in Lagos state, Nigeria. With a mean of above 2.5, the study supports that, the small scale fishermen in Lagos state need the following training: Diversified income opportunities training with a mean of 4.57 and standard deviation of 0.73. Other trainings include : Skills on fund raising and fund management ($\bar{x}$= 3.77; SD = 0.83); Boat building , maintenance and construction ($\bar{x}$=3.73; SD=1.17); Fish preservation and processing ($\bar{x}$= 4.43; SD=1.09); Modern smoking kiln ($\bar{x}$=3.56; SD=0. 68); and Marketing and income generation ($\bar{x}$=4.83; SD=0.55). The result of this study revealed that there are still so many trainings that small scale fishermen needs to be able to live above poverty. This is why Akintola and Fakoya (2017) described the Nigerian fishery sector as exclusively artisanal and grossly underdeveloped. This result is in consonance with Famuwagun (2015) whose study indicated that the fish farmers are in need of training. In same vein, the study supports Ogunremi (2016) who also found out that a lot of small scale fishermen, are ignorant of modern fishing technologies and technological opportunities that could be advantageous to them and their professions.

RQ2 What are the constraints experienced by the small scale fishermen?

Table 2: The constraints experienced by the small scale fishermen

RQ2	**What are the constraints experienced by the small scale fishermen?**	**Mean**	**SD**	**Decision** $\bar{x} \geq 2.5$ accept
1.	Ignorance of loan facility	3.56	0. 68	**Accept**
2.	Lack of fund	4.83	0.55	**Accept**
3.	Poor storage facility	3.73	1.17	**Accept**
4.	Poor distribution and market channel	4.43	1.09	**Accept**

5.	Unfavourable government policies	3.84	0.99	**Accept**
6.	Vulnerability due to exposed habitation	4.43	0.92	**Accept**
7.	Climate change and bad weather condition	4.57	0.73	**Accept**
8.	High cost of fishing tools materials	3.77	0.83	**Accept**
	Average Mean and Standard Deviation	**4.15**	**0.87**	

Field survey (2021)

The study also investigated the constraints experienced by the small scale fishermen. A list of eight (8) items wasprovided and the mean score of each of the items was above 2.5 which indicate that all the items were accepted . Based on this , the study revealed that small scale fishermen in Lagos are in need of loan facility ($\bar{x}$=3.56; SD=0. 68) which they are completely ignorance of ; they Lack of fund ($\bar{x}$=4.83; SD=0.55); endure poor storage facility ($\bar{x}$=3.73; SD=1.17); Poor distribution and market channel ($\bar{x}$= 4.43; SD=1.09); Unfavourable government policies ($\bar{x}$=3.84; SD= 0.99); Vulnerability due to exposed habitation ($\bar{x}$=4.43; SD=0.92); Climate change and bad weather condition ($\bar{x}$=4.57; SD=0.73); and High cost of fishing tools materials ($\bar{x}$=3.77; SD=0.83). This result revealed that the small scale fishermen are in needs of several things thus supporting the earlier study by Sogbesan and Kwaji (2018) and Adeokun and Adereti (2005) who revealed that small scale fishermen are been confronted with several needs and challenges.

RQ3 To what extent will the training of fishing artisan impact on food production?

Table 3: The extent to which the training of fishing artisan impact on food production

RQ3	**To what extent will the training of fishing artisan impact on food production?**	**Mean**	**SD**	**Decision** $\bar{x} \geq 2.5$ accept
i.	Improved quality of fishery products and market chains	3.50	0.47	**Accept**
ii.	Improved safety and reduced vulnerability for fishing communities	3.71	0.57	**Accept**
iii.	Mitigation of poverty effect	3.63	0.31	**Accept**
iv.	Provision of diverse sources of income and employment	4.43	1.09	**Accept**
v.	Increased demand of goods and services	3.64	0.63	**Accept**
vi.	Improved food security	3.50	0.55	**Accept**
	Average Mean and Standard Deviation	3.74	0.60	

Field survey (2021)

The final research question investigated the extent to which training of fishing artisan impact on food production. The result of the study indicated that training fishing artisan will : Improved quality of fishery products and market chains ($\bar{x}$=3.50; SD=0.47); Improved safety and reduced vulnerability for fishing communities ($\bar{x}$=3.71; SD=0.57); Mitigation of poverty effect ($\bar{x}$=3.63; SD=0.31); Provision of diverse sources of income and employment ($\bar{x}$=4.43;SD=1.09); Increased demand of goods and services ($\bar{x}$=3.64; SD=0.63) and Improved food security ($\bar{x}$=3.50; SD=0.55). Based on this result the study concludes that training has significant impact on fish farmers' productivity. The result of this study supports Adeokun and Adereti (2005) who revealed that training a person improve in his skills and this is considered an effective means of making fish artisans aware of their limitations and learns skills that will make them more effective. Training plays a vital role in the improvement of human performance in a given situation and is a course of acquisition of new skills, attitude and information which prepares one for entry into

a vocation or improves one's productivity. In similar vein, the result of this study supports that Umunna et al., (2019)who revealed that effective trainingyield productivity.

10 Conclusions and recommendations

It is without doubt that the fishery sector in Nigeria is majorly artisanal fishermen as a result remains underdeveloped (Akintola&Fakoya, 2017). The result of this study has clearly revealed that the fishermen in Nigeria are in need of different types of trainings which are either non-existence or extremely inadequate as presents in Table 1 above. For lack of training, small scale fishermen are faced with diverse problems such as lack of access to loan, inadequate loan facilities, and ignorance of loan, poor and crude fishing methodologies, among others. Consequently, there is need for a change to the current state of fishery sector to a more technological or mechanize fishing. For this reason, the study recommends that training be organized for artisanal fishermen to help improve their productivity. Again, given that inviting these fishermen for training in some official setting may not yield much result as the attendance rate might be extremely low, as a result, the government should mobilize trainers who will meet these fishermen in the sea area where they are fishing and train them while they are at it. This will improve attendance and acceptability. Finally, the training contents should be more practical rather than theory given their low rate of literacy.

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APPENDIX

MODERN TRAINING OF FISHING ARTISANS TO ENHANCE BETTER OUTPUT AND FOOD PRODUCTION

REQUEST FOR INFORMATION

Dear Respondent,

I am carrying out a study on "modern training of fishing artisans to enhance better output and food production", and you have been chosen to be part of the study. This questionnaire is only for academic purposes. Kindly select the response which applies to you and all information will be kept confidential

Instructions: Please tick **(√)** as appropriate where

SA = Strongly Agree (SA), A = Agree, D, UN=**Undecided (3)** = Disagree (D), SD = Strongly Disagree (SD)

Key: Strongly agree (5), Agree (4), Undecided (3), Disagree (2), and strongly disagree (1).

S/N	ITEMS	SA	A	UN	D	SD
RQ1	**What are the training needs of small scale fishermen?**					
1	Diversified income opportunities					
2	Skills on fund raising and fund management					
3	Boat building, maintenance and construction					
4	Fish preservation and processing					
5	Modern smoking kiln					
6	Marketing and income generation					
RQ2	**What are the constraints experienced by the small scale fishermen?**					
7	Ignorance of loan facility					
8	Lack of fund					
9	Poor storage facility					
10	Poor distribution and market channel					
11	Unfavourable government policies					
12	Vulnerability due to exposed habitation					
13	Climate change and bad weather condition					
14	High cost of fishing tools materials					
RQ3	**To what extent will the training of fishing artisan impact on food production?**					
15	Improved quality of fishery products and market chains					
16	Improved safety and reduced vulnerability for fishing communities					
17	Mitigation of poverty effect					
18	Provision of diverse sources of income and employment					
19	Increased demand of goods and services					
20	Improved food security					