

## Development of Entrepreneurship Skills Training Module on Fish Breeding and Hatching Occupation

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**Abstract:** The study sought to develop entrepreneurship skill training module for enhancing fish farmers in fish breeding and hatching occupation. The study was carried out in Bayelsa State. The design for the study was instrumentation. The sample of forty (40) respondents consisting of thirty (30) Agricultural Extension officers and ten (10) University Lecturers of the department of fisheries technology were selected through purposive sampling technique. The instrument for data collection was the researcher developed a structured questionnaire using four Point Likert rating scales. The research questions were answered using mean and standard deviation. The result revealed that forty-two (41) entrepreneurship skills were needed for the development of the training module for fish breeding and hatching. The study therefore recommended that Government should encourage more people to get involved in fish farming business, create an enabling financial environment to create opportunities for easy access to credits to increase investment in fish breeding and hatching and also establish fish breeding and hatching places to reduce incidence of shortage in supply of fingerlings and finally train extension officers for capacity building to be more efficient in educating fish farmers on modern technologies and subsequent adoption. Based on the findings, it was concluded that emphasis should be placed on the required skills to harness the potentials of fish farmers in fish breeding and hatching occupation.

**Key words:** Aquaculture, breeding, enterprises, hatching, marketing, planning

### INTRODUCTION

There is supply-demand gap for fish and fishery products in Nigeria (FAO, 2006). This has necessitated importation to meet the dietary requirements of the people. Moehl (2003) confirms that Nigeria is one of the largest importers of fish in the developing world, importing about 600,000 metric tons annually. The importation is a potential source of economic drain and a threat to the attainment of the desire for self-sufficiency and security in fish production. In view of the limited prospect for significant growth of capture fisheries production due to inability of the wild to naturally replenish itself as a consequence of environmental damage and over fishing, aquaculture becomes a viable option to help us actualize our dreams of self-sufficiency in fish production. The possibility of attaining self-sufficiency in fish production is made aloud in the statement of Dunham (1995) who states that domesticated strains of fish in aquaculture environment almost universally exhibit better growth performance than strain in the wild. This is presumably because of good feeding and other management practices.

Aquaculture as a business enterprise is also faced with numerous problems. Egwui (2001) and Adaka *et al.* (2007) identified scarcity of fingerling as a

major constraint to fish farming in the country. Brain and Amy (1980) reported that economically productive aquaculture is heavily depended on adequate supply of fish seeds or juvenile fish with which to stock ponds, enclosure and other aquaculture systems. This is because of few numbers of fish breeders. Ayinla (1991) opines that the production of fast growing fingerlings is very important for development of viable fish farming venture. Fish farming business has a huge potential for contributing to food security, lower-priced fish, employment generation and increase foreign exchange earning capacity as well as poverty reduction as it can generate much income to elevate fish farmers socio-economic status (Oguntade *et al.*, 2006).

In recent times, aquaculture has gained popularity and there is a widespread in fish farming activities. This is probably because large quantities of fish could be produced from a limited space by employing modern technologies such as high stocking density, adequate feeding and other improved management practices. To compete favourably in a dynamic market situation that is full of uncertainties, one needs entrepreneurial skills. Noting the benefits that will accrue from the use of improved technologies, fish stock with high growth rate and maturity in production, the fish farmer need to be adequately equipped with the necessary skills in breeding

and hatching to be able to exploit the advantages. One major advantage of having such skills in breeding and hatching is to reduce dependency on outside sources for supply of fingerlings, which often times is not timely and causes derail in business plans. An uncalculated leap in to business could be very costly as it can lead to colossal loss of scarce resources. In the current situation, there is no entrepreneurial skill-training module that has been adopted for use in training to develop entrepreneurial skills in fish breeding and hatching occupation. Hence it becomes necessary to develop one. The study is carried out to develop a training module in fish breeding and hatching to build capacities to take advantage of fish breeding and hatching as a business enterprise.

The general purpose of this study is the development of Entrepreneurship skill training modules for participation in fish breeding and hatching occupation, including planning, breeding and hatching, and marketing.

The following research questions were asked to guide the study:

- What skills are required for the development of entrepreneurship skill module for the planning of fish breeding and hatching?
- What skills are required for the development of entrepreneurship skills training module on breeding and hatching of fingerling?
- What skills are required for the development of entrepreneurship skills training modules on marketing of fish fingerling?

## **MATERIALS AND METHODS**

The study adopted instrumentation, which is a specific form of research and development design. This study was conducted 2009 in Bayelsa, Nigeria, which is situated between latitude 4.30°N the Equator and longitude 6.00°E of the Greenwich meridian (Dada *et al.*, 2009).

A sample of forty (40) respondents, consisting of thirty (30) Agricultural Extension officers and ten (10) university Lecturers in the department of fisheries technology were selected through purposive sampling technique. A structured questionnaire, which adapted a four-point Likert rating scale, was employed. The questionnaire consists of three (3) sections. Entrepreneurial skills for planning of fish breeding and hatching, skills for breeding and hatching of fingerlings and marketing of fingerlings and fryers. Skills for planning consists of Eleven (11) items, breeding and hatching skills consist of Twenty-two (22) items and skills for marketing of fingerlings and fry consists of seven (8) items.

The data collected was analyzed using mean and standard deviation. A norm of 2.5 was set as standard for

rejection or acceptance of an item to be included in the final module. Items whose mean ratings were above 2.5 were accepted as entrepreneurial skills required for the development of training module for fish breeding and hatching occupation, while other items which fall below the norm were discarded. .

## **RESULTS AND DISCUSSION**

The results presented in Table 1, revealed that 11 items on the skills required for the development of entrepreneurship skill training module of planning fish breeding and hatching occupation have their mean score above the bench mark of 2.50 which indicates that they are relevant skills required for the development of entrepreneurship training module. The standard deviation of all the items ranged from 0.48494 to 0.70724, implying that the respondents' responses were very close to one another. The result on planning skills agrees with Obi (2002) who described planning as a decision on what to be done and strategies to accomplish it. These may include goal setting, selection of suitable location, arranging for regular supplies, selection of appropriate production facilities, and identification of customers or market as some aspects of planning required for profitability.

The result presented in Table 2, revealed that 22 items were rated as skills required for the development of entrepreneurship skill training module on fish breeding and hatching of fingerlings, The items had a means scores above the bench mark of 2.50 which indicates that they are relevant skills required for the development of entrepreneurship skills training modules in fish breeding and hatching occupation. The standard deviation of all the items ranged from 0.5606 to 0.8807, which also implies that the respondents' responses were very close to one another. The result on breeding and hatching conforms to a study conducted by Okeke (1992) identified ability to fertilize eggs rearing of larva and 34 other skills. The study did not however delineate the skills in three clusters of entrepreneurial skills but purely as technical skills. The current study has 22 skills for breeding and hatching, which were considered relevant because of the fact that some of the previously identified skills could conveniently be merged, and new technologies have also emerged due to advances in technology, education, and economic development Kotler (2001) also outlined ability to identify market channel, advertise products to create awareness as skills required for effective marketing.

The results presented Table 3, revealed that 8 items had their mean score above the norm, which indicates that 6 they are relevant skills for the development of the development of entrepreneurship skill training modules for marketing of fingerlings in a fish breeding and hatching occupation. The standard deviation of all the

Table 1: Skills for planning fish breeding and hatching

S. No.	Required skills	X	SD	Remark
1.	Set goals for fish breeding	3.6000	0.60845	Accepted
2.	Identify major activities to be carried out to meet fish breeding objectives	3.6316	0.4849	Accepted
3.	Identify suitable location for building the enterprise	3.5789	0.6116	Accepted
4.	Identify culturable fish species and suss them for use	3.5684	0.5952	Accepted
5.	Determine hatching system to use	3.0421	0.6829	Accepted
6.	Decide how raise money	3.5158	0.6820	Accepted
7.	Select personnel for the enterprise	3.2842	0.6302	Accepted
8.	Identify customer for fingerlings to be produced	3.3263	0.7062	Accepted
9.	Identify appropriate equipment for production	3.2947	0.5812	Accepted
10.	Make provision for contingencies	2.9368	0.6654	Accepted
11.	Prepare budget	3.3789	0.6046	Accepted

Table 2: Skills in breeding and hatching of fingerlings

S. No.	Required skills	X	SD	Remark
1.	Starve fish 2 day prior to sexing to reduce stress	3.0316	0.8807	Accepted
2.	Separate fish into sexes	3.0316	0.8807	Accepted
3.	Select good and mature stock	3.4105	0.7922	Accepted
4.	Weigh the brooder	3.3260	0.7052	Accepted
5.	Extract pituitary gland	3.0211	0.8749	Accepted
6.	Prepare solution of the extracted pituitary gland	3.1053	0.7484	Accepted
7.	Inject the female spawner with the prepared pituitary hormone	3.2000	0.7663	Accepted
8.	Dry and store freshly collected pituitary hormone	3.0842	0.7809	Accepted
9.	Prepare spawner containers	3.2842	0.6944	Accepted
10.	Collect ovulated egg from female spawner (stripping)	3.3053	0.7999	Accepted
11.	Collect milt (spermatozoa) from male brood stock	3.2947	0.8105	Accepted
12.	Fertilize the stripped eggs artificially	3.0421	0.8495	Accepted
13.	Incubate fertilized eggs	3.2947	0.6337	Accepted
14.	Rear Larva	3.0421	0.8495	Accepted
15.	Transfer the fryer to self-cleaning tanks with a clean water supply	3.4632	0.6654	Accepted
16.	Maintain the required water temperature	3.4842	0.5810	Accepted
17.	Ability to wean fry at 3-4 weeks or 30 g	3.2211	0.6388	Accepted
18.	Maintain good stocking density of fingerlings	3.4526	0.5606	Accepted
19.	Adjust daily ration in accordance with the average weight of fish	3.2526	0.5643	Accepted
20.	Feed fingerlings appropriately (containing hormone)	3.1684	0.6787	Accepted
21.	Take weekly weight of fingerlings	2.9684	0.7916	Accepted
22.	Prepare various suitable medium for fertilization incubation hatching	2.9567	0.6928	Accepted

Table 3: Skills in marketing of fish fingerlings

S. No.	Required skills	X	SD	Remark
1.	Advertise products and identify customers to patronize, and maintain good customer relationship	3.4842	0.5900	Accepted
2.	Keep record of sales and revenue	3.3053	0.6201	Accepted
3.	Transport live fingerling in secured containers for delivery to buyers	3.4737	0.6498	Accepted
4.	Have awareness of threat to the business, innovativeness and risk management ability	3.3789	0.6046	Accepted
5.	Provide good leadership, networking and cooperation with other hatchery enterprises	3.6316	0.5270	Accepted
6.	Fixes moderate and competitive prices and ability to review prices periodically to suit current market situation	3.7321	0.3242	Accepted
7.	Recognition of business opportunities	3.2842	0.2890	Accepted
8.	Identify market channels	2.8477	0.3305	Accepted

items ranged from 0.2890 to 0.6498, implying that the respondent's responses were very close to one another. The findings on marketing skills agrees with the views of Ehiamentalor (1999) who opined that producers should fix moderate prices on their produce, embark on intensive sales promotion and maintain quality control mechanism to guarantee greater patronage. The above and other finding gives this study a business background and calls for sustainable participation of our youth in fish breeding and hatching occupation

## CONCLUSION AND RECOMMENDATION

The study found out that three clusters of skills are required for the development of entrepreneurship skill training module in fish breeding and hatching occupation. The clusters are planning breeding and hatching of fingerlings and marketing. Planning skills are the management skills, which consist of 11 requirements, breeding and hatching are technical or professional skills, they comprise 22 basic skills, while marketing has 8 skills

which fall within the realm of higher-order entrepreneurial skills such as opportunity skills, strategic skills, and networking/cooperating skills. These skills would only be exhibited efficiently in a situation where there are no missing markets, but missing markets are typical features of the economies of third world countries or developing economies. To stimulate a perfect market condition that will enhance these skills, the following recommendations are made:

- Government should encourage more people to get involved in fish farming business. This will open-up the business space for sustainable fish breeding and hatching.
- Government should create an enabling financial environment to create opportunities for easy access to credit to increase investment in fish breeding and hatching.
- Government should also establish fish breeding and hatching places to reduce incidence of shortage in supply of fingerlings.
- Extension officers should be trained for capacity building to be more efficient in educating fish farmers on modern technologies and subsequent adoption.

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