Development of e-Learning Module on Mud Crab Fattening

P. Mahalakshmi[1], D. Deboral Vimala[2] and M. Krishnan[3]

ABSTRACT

The e-Learning techniques have drastically changed the way of information dissemination especially in the field of agriculture and aquaculture. Today, e-Learning is fast becoming a reality through Information Communication Technology (ICT) projects like e-Choupal, I-Kisan, n-Longue, and Information Village Research Project of M.S. Swaminathan Research Foundation (MSSRF). Identifying information needs of Knowledge Centre users and aqua farmers at regular intervals followed by an appropriate e-learning module could be a viable strategy for the improvement of knowledge and skills. Based on the overall assessment of the Village Knowledge Centres (VKCs) in Pudhucherry, the asynchronous e-learning module in Tamil on mud crab (fattening) which has been identified as one of the species for diversification in brackishwater aquaculture was developed. The module addresses the needs of knowledge workers, knowledge centre users, aqua farmers, and extension educators for improving the knowledge and skills related to mud crab fattening.

The e-Learning techniques provided a fast and low-cost method to increase outreach to the vast community of users. The American Society for Trainers and Development (ASTD) defines e-learning as instructional content or learning experiences delivered or enabled by electronic technology. Electronic technology encompasses everything from Computer-Based Training (CBT), to compact disks (CDs), to Web-based applications (Werner, 2001). As with any other forms of learning, e-Learning depends on its delivery method and content to ensure its success. For this reason, e-Learning modules have to be interesting, interactive and informative in order to be effective. e-Learning can be done using an internet connection, a network, an intranet, or a storage disk (Mason, 1998).

Moreover, e-Learning can be done anywhere and anytime as long as the user has the proper hardware. Today, e-Learning is fast becoming a reality through ICTs projects like e-Choupal, I-Kisan, n-Longue and Information Village Research Project of M.S. Swaminathan Research Foundation (MSSRF) and others.

In e-Choupal and Information Village Research Project of M.S. Swaminathan Research Foundation

(MSSRF), e-learning is enabled via synchronous (online) and asynchronous (offline) delivery system in respect of information on coastal aquaculture. In both ICT projects, synchronous e-learning takes place via web based videoconferencing, net meeting, audio conferencing with presentation material, and on-line chat. In e-Choupal Project users elicit the aquaculture information through internet based, network based on storage disk based, asynchronous e-learning modules.

MSSRF Information Village Knowledge Centre is in possession of asynchronous e-learning modules in the form of CDs in agriculture, horticulture, animal husbandry and value added products. To date, however, there is no asynchronous based e-learning module for aquaculture.

Information needs to be tailored to suit the needs of the Village Knowledge Centre (VKC) users in aquaculture. Based on the overall assessment of the Village Knowledge Centres in Pudhucherry, the asynchronous e-learning module on Mud Crab Fattening in Tamil was developed. The module addresses the needs of knowledge workers, knowledge Centre users, aqua farmers, and extension educators for improving the

[1]Scientist (SS); [2] Senior Scientist; [3] Principal Scientist
Central Institute of Brackishwater Aquaculture (I.C.A.R.), 75, Santhome High Road, R.A. Puram, Chennai 600 028.

knowledge and skills related to one of the species for diversified aquaculture species i.e. fattening of mud crabs.

METHODOLOGY

The frame work for development of an e-learning module on mud crab fattening is depicted in Figure 1.

Needs Assessment

A field trip was undertaken to Pudhucherry during November 2006 and January 2007 to assess the information needs of users of Village Knowledge Centres. The investigation was carried out in four VKCs namely Veerampattnam, Pannithitu, Periyakalapet, and Ganapathychettikulam, which are located in coastal areas. At each Centre needs were assessed through structured questionnaire.

In order to identify the information needs, the entire information needed on aquaculture had been divided into five categories viz., culture aspects, e-Aquaculture, extension activities, fisheries allied information, and base information. This includes awareness programmes, e-Learning module on different species, extension materials, marketing information, training on culture practices and value added products, information on coastal zone laws, acts and policies, information on fisheries related educational institutions and their course details, subsidies and other facilities given by government to the aqua farmers etc. This need assessment questionnaire was used for recording the responses of 103 sample VKCs users. The respondents were asked to give their responses on a three-point continuum, viz. mostly needed, some what needed and not at all needed (Sailaja and Reddy, 1999). After recording the responses from all users, the total rank score of each item was obtained by multiplying the frequencies with the respective weights and summing up. On the basis of rank score of each item, ranks were assigned to all the items to ascertain their importance.

During discussions, it was noted that the selection of communication channels, includes media and language, would depend on their availability to the different target groups and the preferences of the users of the knowledge centres.

Design and Development

The module structure was designed as simple as possible to deliver the required information to the end users, including the extension educators, about the

significance of the mud crabs, their benefits and culture systems. For optimization of communication, very careful consideration was taken by the experts and designers to the messages to be conveyed to the target groups. Experts in mud crab fattening reviewed the materials prior to creation of an information base for this module. The information base in mud crab fattening was converted to asynchronous e-learning module via electronic format using variety of media like audio, text, images and animation. The module was designed to consider the limitations of the rural market, such as computer hardware and software. A simple module layout and limited animation and images allow for faster loading and access.

RESULTS AND DISCUSSION

Need assessment

Identifying information needs of users of knowledge centre and aqua farmers at regular intervals followed by an appropriate e-learning module could be a viable strategy for the improvement of knowledge and skills. The information needs of users of knowledge centre and aqua farmers in the order of ranking are presented in Table 1. On the basis of data presented in Table 1, it could be inferred that the mud crab fattening e-Learning module with a total rank score of 135 ranked first, followed by seabass e-Learning module (107), and shrimp e-learning module (103).

The users showed keen interest to know the different types of culture systems in brackishwater area, economics, contact addresses for training centres, hatcheries, exporters details, and banks, which are providing the loan facilities for mud crab fattening. The respondents suggested that Tamil was the preferred language for all users of centres. The knowledge workers expressed that the text attached with audio is suitable for illiterates. Media suggested for users of centres are asynchronous e-Learning module with auto-run facilities.

e-Learning module

The module was named Mud Crab Fattening (*Scylla Tranquebarica*). This module offers the following main topics on mud crab fattening to users, viz. Introduction, culture systems and Contact addresses. In order to narrow the topics, these topics are subdivided into additional topics (Fig. 2).

The introduction topic provides information about salient features, basic details of mud crabs and its
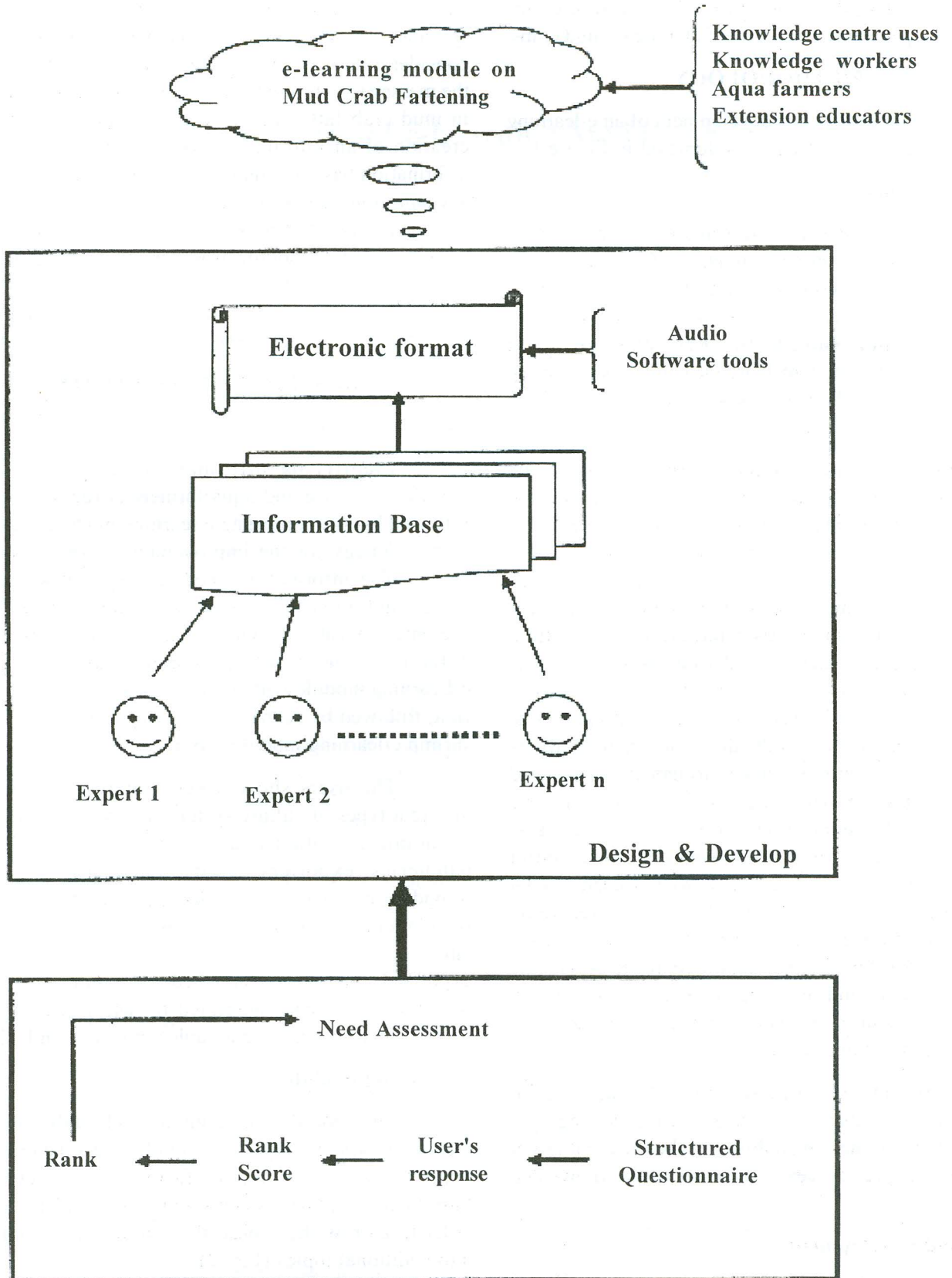
Figure 1. Frame work for development of an e-learning module on Mud Crab Fattening (*Scylia Tranquebarica*)
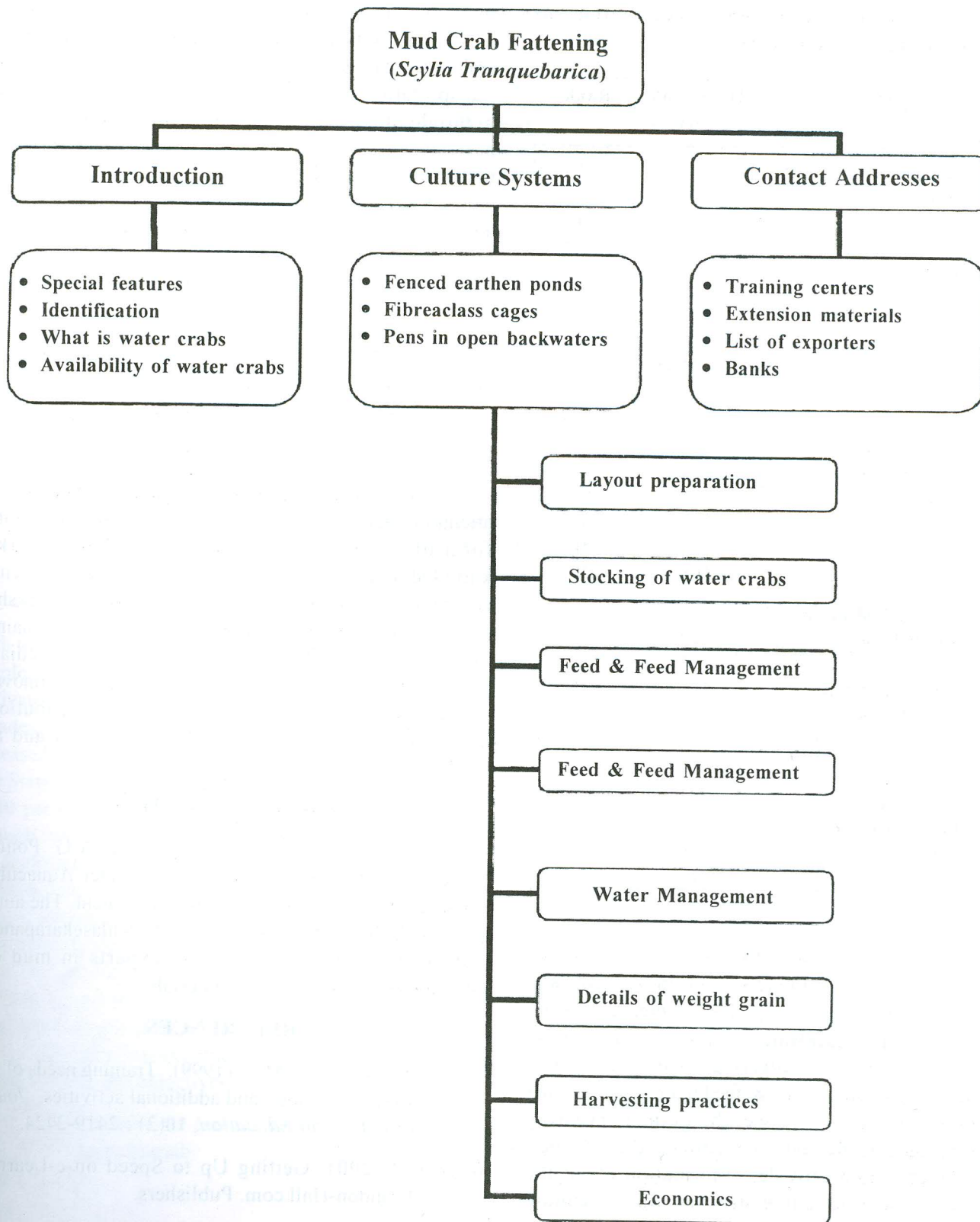
Mud Crab Fattening
(*Scylia Tranquebarica*)

Introduction

- Special features
- Identification
- What is water crabs
- Availability of water crabs

Culture Systems

- Fenced earthen ponds
- Fibreaclass cages
- Pens in open backwaters

Contact Addresses

- Training centers
- Extension materials
- List of exporters
- Banks

Layout preparation

Stocking of water crabs

Feed & Feed Management

Feed & Feed Management

Water Management

Details of weight grain

Harvesting practices

Economics

Figure 2. Structure of Mud Crab Fatting (*Scylia Tranquebarica*) e-Learning module

Table 1. Information needs assessment of aquaculture in the study area

Partiuclar	Total rank score	Rank
A. Awareness programme in culture aspects		
Shrimp	103	III
Seabass	109	II
Mud crab fattening	138	I
B. e-Learning module in aquaculture		
Shrimp	103	III
Seabass	107	II
Mud crab fattening	135	I
C. Extension activities		
Publications	119	II
Fact sheet	103	V
Training (Value)	135	I
Training (Mud)	110	III
Posters	108	IV
D. Fisheries allied information		
Ornamental fishing	120	V
Mangroves	131	IV
Dry fish preparation	137	III
Market information	200	I
Coastal zone laws, acts	173	II
E. Base information		
Address-education	223	III
Address-offices	256	I
Subsidies	226	II

availability. Users can look for information regarding three different types of culture systems in brackishwater area, such as "fenced earthen ponds", "fibreglass cages", and "pens in open backwaters". Each culture system is subdivided into areas covering layout preparation, stocking of water crabs, feed & feed management, water management, details of weight gain, harvesting practices, packing methods, marketing and economics. Layout preparation provides information about the requirements and designing structure for the culture systems. Feed & feed management highlights the types of feed, feed rate and timings. Harvesting methods provides information about gears used for harvest, harvesting by hand picking, and methods of handling of crabs. Containers used for packing the fattened crabs for transportation across the country and for exports were highlighted in the packaging methods topic. Detailed economics were given for each culture system. In addition to this, the module highlights water management and weight gain information. The page on contact addresses, lists the addresses, like training centres, the location of availability of extension materials, hatcheries, list of exporters, and banks. This is used as a ready reference volume for users.

In this module, messages are simple, clear and free of non-essential detail that may confuse target groups they provide only the needed information to the users of the centres, knowledge workers and extension educators.

CONCLUSION

The e-Learning module on mud crab fattening is an attempt to deliver accurate, high quality information in the form of simplified version to knowledge workers, knowledge centre users, aqua farmers, and extension educators. Although face to face meetings, workshops, group discussions and demonstrations remain the mainstay of extension, new technology and electronic media can provide opportunities to extension educators for innovative and cost-effective ways of information distribution to knowledge workers, knowledge centre users and aqua farmers.

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