

Socio-Psychological Characteristics and Strategies for Promoting of ICTs Application in Marine Capture Fisheries of Andhra Pradesh

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Abstract The study was conducted to determine socio-psychological characteristics of fisherfolk and strategies for promoting application of Information and Communication Technologies (ICTs) in marine capture fisheries. Data were collected through interview from 120 respondents, who were involved in marine fishing. Results indicated that majority of them exhibited medium level of innovativeness, economic motivation and scientific orientation. With respect to the respondents perception about ICT tools, a majority perceived the ICT tools to be reliable, complex to use, costly, useful, very much needed by them and more willing to use the ICT tools in fisheries. A major-

ity of the respondents had medium level of positive perception about the application of ICT tools by fishermen. Among the various ICT tools owned/operated by the respondents, mobile, TV, VHF, Echo sounder and GPS were the popular ones and a majority of the respondents exhibited medium level of usage of ICT tools. The important strategies for improving the application of ICT tools in fisheries include organizing periodical hands-on training program for the fisherfolk to improve the knowledge and competence to operate the ICT tools and to make inference on the information provide by such tools. Promoting the use of ICT tools among the fisherfolk has relevance to some of ICT tools. Incentives in the form of subsidies and loans on soft terms may be provided for buying these gadgets.

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Introduction

Technology from its pristine form to its highest and sophisticated materials is the guiding light of human civilization. Human ingenuity has no limits and so the innovation in technology will continue its dynamic march till the extinction of civilization. From the very early beginnings of mankind, man has experimented with technology in its crude form. In fisheries, ICTs are used to serve several purposes like resource as-

assessment, capture or culture to processing and commercialization. Some are specialist applications like sonar for finding the vicinity of fish, GPS for navigation and finding location, mobiles phones for trading and exchanging information quickly and radio programs for dissemination among the fishing communities (FAO 2007). ICTs application in marine fisheries sector not only help fisherfolk to enhance their livelihood activities, which is purely economic oriented and they also reduce people's vulnerability, paving the way for social equality and ultimately bringing the fisherfolk into the mainstream society for overall development.

ICTs can play important role to realize the concept of knowledge society. They help an extension worker to gather, store, retrieve and disseminate a broad range of information needs and also they will improve the linkages between the research and client systems. ICT tools are able to save the cost, time and energy of the fishermen and mobile phone and internet, for example, will provide opportunities for fishermen to get the best price for their catches from the merchants even before the catches are brought to the land (Abraham 2007, Barba-Sanchez 2007, Bahaman et al. 2009, 2011, Raidah et al. 2012). ICT has advanced geometrically and it is used in a wide range of application in fishing industries. Boat crew can cut deals on mobile phones for the day's catch while still at sea. Boat skippers know their location using GPS; Echo sounder helps in finding depth of fishing and fishing shoal and sonar helps to find the big school of fish, leading to more productive catches. Radar helps in locating surface obstacles in poor weather conditions. VHF, wireless set/mobile phone can be used to seek help from appropriate agencies at times of distress when they are on the sea. Thus, ICT is playing significant roles in marine capture fisheries and it will play much prominent roles in future. In this given situation, it is very important to promote the application of ICT in fisheries.

Materials and Methods

The study was conducted in East Godavari and Visakhapatnam districts of Andhra Pradesh. The taluks covered under this study were Kakinada Rural

and Kakinada Urban in East Godavari district and Visakhapatnam and Bheemunipatnam in Visakhapatnam district. A total of 12 fishing villages were covered in the study area for the study. A random sample of 120 respondents drawn randomly from 12 fishing villages in the study area constituted the sample for the study. A total of 26 independent variables viz. age, educational status, experience in fishing, print media and portal usage, information source exposure, extension linkage system, mass media exposure, social participation, participation in training program, knowledge level of the fisherfolk on ICT, occupational status, average duration of fishing on each fishing day, fishing season, daily average fish catch, fish holding capacity, fishing distance, fishing depth, annual income, annual expenditure, annual saving, type of craft, type of gear, innovativeness, economic motivation, scientific orientation, perception about application of ICT tools in fisheries were studied in this work. The dependent variable of the study is application of ICT tools by fishermen. The variables were measured as per the standard procedure. A well structured, pretested interview schedule was used for the purpose of data collection. The data collection work was carried out during the month of January to March 2016. Percentage analysis, mean and standard deviation, correlation coefficient and multiple linear regression were the statistical tools used with help of i.e. Statistical Package for Social Science (SPSS 16.0) for the purpose of analysis and interpretation of the data.

Results and Discussion

Innovativeness, economic motivation and scientific orientation

From the results presented in Table 1, it could be inferred that most (84.17%) of the respondents had medium level of innovativeness followed by high (11.67%) and low (4.16%) levels. From the findings, it could be concluded that the most of the respondents exhibited medium level of innovativeness. The results corroborated with the findings of Jeeva et al. (2011). Data reveal that a majority of the respondents (71.67%) had medium level of economic motivation followed by low (22.50%) and high (5.83%) levels. This implies

Table 1. Distribution of the respondents according to the socio-psychological.

Parameters	Category	Number	Percentage	Mean	SD
Innovativeness	Low	–	4.16	21.63	1.67
	Medium	–	84.17		
	High	–	11.67		
Economic motivation	Low	–	22.50	22.21	0.93
	Medium	–	71.67		
	High	–	5.83		
Scientific orientation	Low	–	17.50	19.35	1.12
	Medium	–	70.00		
	High	–	12.50		
Perception of the respondents on reliability of ICT tools (n = 120)	Highly reliable	63	52.50	–	–
	Ioderately reliable	26	21.67		
	Not reliable	10	8.33		
	Not able to say	21	17.50		
Perception of the respondents on cost of ICT tools (n=120)	Very high	55	45.83	–	–
	Moderately high	36	30.00		
	Affordable	20	16.67		
	Not able to say	9	7.50		
Perception of the usefulness of ICT tools in fishing (n=120)	Highly useful	92	76.67	–	–
	Moderately useful	17	14.17		
	Not useful	4	3.33		
	Not able to say	7	5.83		
Willingness of the respondents to use ICT tools (n=120)	Willing	78	65.00	–	–
	Somewhat willing	20	16.67		
	Not willing	17	14.16		
	Not able to say	5	4.17		
ICT tools ownership (n=120)	Radio	11	9.16	–	–
	GPS	71	59.16		
	Mobile	119	99.16		
	Television	117	97.50		
	VHF	71	59.16		
	Echo sounder	71	59.16		

that majority of fishermen had medium level of economic motivation. This finding derives support from the works of Senthil Kumar (2008). It could be seen that a majority (70.00%) of the respondents had medium level of scientific orientation followed by low (17.50%) and high (12.50%) levels. From this finding, it could be concluded that majority of the respondents had medium level of scientific orientation.

Perception about application of ICT tools in fisheries

Perception about the application of ICT tools in fisheries was measured in terms of their reliability, cost, complexity in operation, usefulness, need and willingness. The findings are presented as follows.

Perception of the respondents on reliability of ICT tools

It could be seen from the Table 1 and Figure 1 that a majority (52.50%) of the respondents perceived the ICT tools to be highly reliable. From the findings, it could be concluded that ICT tools were perceived to be reliable by a majority of the respondents.

Perception of the respondents on cost of ICT tools

It could be seen from Table 1, that more than three-fourths of the respondents (75.83%) perceived the ICT tools to be costly of which 45.83% of the respondents perceived the cost of ICT tools as very high and 30.00% of the respondents perceiving the cost

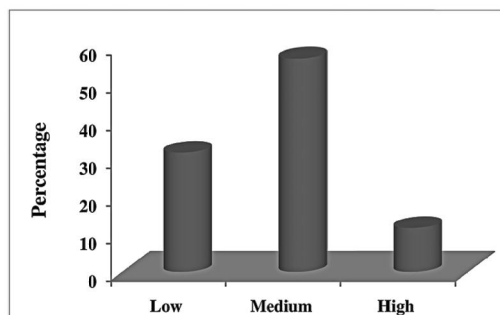


Fig. 1. Perception about application of ICTs in fisheries.

as moderately high. Only one-sixth (16.67%) of the respondents perceived the cost to be affordable. From the findings, it could be concluded that a majority of the respondents perceived the cost of ICT tools to be high.

Perception of the usefulness of ICT tools in fishing

Most of the respondents in the study area (90.84%) perceived the ICT tools to be useful in fishing, of which 76.67% perceived it to be highly useful (Table 1). Only a meager proportion of the respondents (3.33%) perceived the ICT tools to be not useful in fishing. From these findings, it could be concluded that most of the respondents perceived that the ICT tools were useful for fishing.

Perceived need for applying ICT tools of the respondents

As per the findings of the study perceived in Table 1, most of the respondents (89.17%) perceived that ICT tools were needed for modern day fishing and only a meager proportion (3.33%) perceived it to be not needed. From the findings, it could be concluded that most of the respondents perceived that ICT tools were needed for fishing.

Willingness of the respondents to use ICT tools

Most of the respondents (81.67%) expressed their

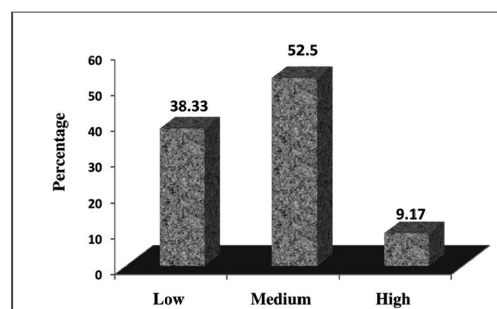


Fig. 2. ICT tools usage by fishermen.

willingness to use ICT tools in fishing (Table 1). However, 14.17% of the respondents were not willing. From the findings, it could be concluded that most of the respondents were willing to use ICT tools in fishing.

Application of ICT tools

Data for this variable were collected in two dimension viz. ICT tools owned / possessed and the degree of usage based on frequency. The findings on these are presented below.

ICT tools ownership

It is evident from the findings presented in Table 1, that mobile (99.16%), television (97.50%), VHF (59.16%), Echo sounder (59.16%), GPS (59.16%) and radio (9.16%) were the common ICT tools possessed by the respondents. Among these various tools mobile phone, television and radio were used for personal use rather than ICT tools for fishing. However, a majority of the respondents (59.16%) possessed GPS, VHF and Echo sounder which were used in fishing. From the findings, it could be concluded that ICT tools like TV, mobile, GPS, VHF and Echo sounder were used by the majority of the respondents.

Data presented in Figure 2 indicate that a majority of the respondents (52.50%) had medium level of ICT tools usage followed by low level (38.33%) and high levels (9.17%). From the findings, it could be concluded that majority of the respondents exhibited medium level of usage of ICT tools.

Strategies for promoting ICT application in marine capture fisheries

Based on the findings of the study and the discussions held with the fisherfolk and extension functionaries, the following strategies are suggested to improve the application of ICT tools in fisheries.

Organizing periodical training programs

Organizing training programs periodically on ICT application will enhance the knowledge on their prospective application and skills to operate the tools and that will further improve the effective usage of these tools by fisherfolk. The training programs need to be organized in the villages with consultation local fishermen association in which most of the fishermen were members. The training should be conducted with experts from CIFNET / other relevant organizations. In the training programs more thrust should be given for hands-on training on application of the ICT tools and should be conducted on board the vessel, such training will dispel the misconception that ICT tools are complex to operate and will convince the fisherfolk on the advantages of using ICT tools in fisheries. These training programs should be conducted during the period of fishing ban to enable the participation of maximum number of fisherfolk. Since the number of fisherfolk to be trained on ICT application is quite high, it is necessary to get the master trainers of the state Dept. of fisheries, NGOs, local leaders trained by the experts of CIFNET so as that a large number of people can be trained within a short span of time. Further development on this should be informed to the fisherfolk periodically through local organizations, local leaders and NGOs to update the knowledge of the fisherfolk. Since a considerable proportion of the fisherfolk had poor levels of education, the instructional materials may be prepared in the form of operational manual with more visuals/pictures, audio visual aids like CDs or expert systems.

Providing need-based information through ICT tools periodically

The ICT tools in fisheries includes tools providing information, tools that actually guide in fishing and tools that help to save the lives of fishermen at time

of distress. In order to strengthen the utility of ICT tools in disseminating information, co-ordinated approaches among the development organizations may be required to provide information to the fisherfolk on navigational symbols and safety measures, PFZ, price trends, market intelligence, meteorological information relevant to fishing. Some voluntary organizations and NGOs have taken an initiative in these directions. But, these activities need to be strengthened with co-ordinated efforts to bring about drastic changes on the views of fisherfolk on ICT tools like radio, TV and mobile as tools meant for entertainment and simple day-to-day communication rather the tools that provide vital information on their occupations, livelihood and safety. Proper awareness on dissemination of vital information through ICTs should be created among the fisherfolk through local organizations/associations, local leaders, line departments and NGOs. Periodical extension programs like exhibitions, meetings, group discussion may be conducted to get the feedback on the information provided through ICT tools. This will further make, information we provide through ICT tools like radio, TV and mobile more relevant to the information needs of the fisherfolk and ensure more fisherfolk using these tools for making improvements in their occupation. Though radio is an important tool of information, its usage in the present study by the respondents was found to be very poor. Hence, establishment of additional FM radio stations in the state especially in the coastal regions which will help to improve ICT applications FM radio can provide both extension and education for improving the livelihood activities.

Promoting the use of ICT tools among the fisherfolk

This has relevance to some of ICT tools like GPS, Echo sounder, sonar and VHF which actually help the fisherfolk during fishing. Incentives in the form of subsidies and loans on soft terms may be provided for buying these gadgets. Even though, subsidies are available for some of the gadgets, awareness on this should be created among the fisherfolk. These steps will create interest among the fisherfolk to go for these ICT tools.

Conclusion

Regarding the socio-psychological variables, majority of them exhibited medium level of innovativeness, economic motivation and scientific orientation. With respect to the respondents perception about ICT tools, a majority perceived the ICT tools to be reliable, complex to use, costly, useful, very much needed by them and more willing to use the ICT tools in fisheries. A majority of the respondents had medium level of positive perception about the application of ICT tools by fishermen. Among the various ICT tools owned / operated by the respondents, mobile, TV, VHF, Echo sounder and GPS were the popular ones and a majority of the respondents exhibited medium level of usage of ICT tools. The important strategies for improving the application of ICT tools in fisheries include organizing periodical hands-on training program for the fisherfolk to improve the knowledge and competence to operate the ICT tools and to make inference on the information provide by such tools. There is need to train the master trainers from the development departments, SAUs and NGOs by experts, so that large number of fisherfolk will be properly trained early. In order to motivate the usage of ICT tools like radio, TV and mobile for improving the fishing activities, need-based information related to effective harvesting and post harvest technologies, market intelligence and conservation of resources should be disseminated to the fisherfolk through this tools. Providing soft loans, subsidies for the purchase of ICT tools and creating awareness among the fisherfolk on the availability of this incentive will promote the application of ICT tools in fisheries by the fisherfolk.

These studies suggest that the extension agencies should play a proactive role to promote the use of ICT tools by providing timely, relevant information pertaining to fishing and post harvest operations so that the other important purposes the tools can serve to improve fishing will be realized by the fisherfolk.

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