Training Needs of Traditional Marine Fishermen in Kerala

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Training needs of 80 fishermen in 25 subject areas revealed a mean training need score of 23.01; 95% wanted to get trained. The training needs were fairly strong in all subject areas, with the highest demand being for fishery engineering. Training need was also high for areas related to fishery technology. Most of the fishermen preferred to have the training at their own village, and in the months of June or July for an average period of 20.85 days. Education and income were positively related to intensity of training needs whereas age, number of family members, number of employed family members and experience in fishing were negatively correlated with it. These six variables explained 27% of the variance in training need intensity.

The traditional marine fishermen in the developing countries have a substantial fund of knowledge in fisheries technology, gained by centuries of cultural tradition sharpened by personal experience (Firth, 1946; Mathur, 1978). There is much to be gained by the scientist in this field from the fishing experience and methods of these fishermen as has been shown by the studies of George (1981). On the other hand, there are areas in which modern science and technology can contribute to the development of sharper skills and scientific attitudes in these fishermen. It is to find these latter areas that this study is addressed. There have been very few attempts to organize training programmes for this class of fishermen in a systematic way, although fishery schools have made a beginning in that direction. However, for modern research institutes and universities to have greater direct benefit to this class of fishermen, it is important to study the training needs of these fishermen so that organized efforts to develop specific programmes for their training could be made. Such studies can also point out the directions which future research in these areas should take, so that the needs of this section could be taken care of in as much as this section contributes more than 50% of the total marine landings in India.

Materials and Methods

The study was undertaken on a simple random sample of fishermen from Palluruthy and Vypeen Blocks of Ernakulam District. The sample size was 80. A structured interview schedule was developed for the purpose, pretested and then finalized. The data were collected by personal interviews using Malayalam translation of the schedule. The training needs were studied by using a three-point rating scale for 25 subject-matter areas. The fishermen were requested to assign each area into one of three categories depending upon the intensity of need for training felt by them in that area. Most needed, needed, and not needed were assigned scores of 2, 1 and 0 respectively. The training need quotient (TNQ) for each area was determined as follows:

$$TNQ = \frac{\text{Sum of products of score and frequency in each cell} \times 100}{\text{Maximum possible score for each subject area}}$$

In addition to TNQ, the training need score for each fisherman was computed by the method of summated ratings over all the subject areas. Thus the maximum possible training need score was 50.

Results and Discussion

The average training need score for the 80 fishermen was 23.01 with a standard deviation of 13.18. 4 fishermen (5%) felt that there was no need of any training for them. The frequencies observed in each cell for the 25 subject areas are given in Table 1. The last column in Table 1 shows the TNQ for each subject area. At a glance, it is found that training need is fairly strong

Table 1. *Frequencies of response to different categories of the question: "How much training do you need in the following subject areas!" and the TNQ*

Subject areas and subjects	Training			
	Most needed	Needed	Not needed	TNQ
I. *Fishing crafts*				
Characteristics of wood materials and their selection for country crafts	16	34	30	41.25
Causes for deterioration of wooden craft	17	38	25	45.00
Improved wood preservatives treatment	17	46	17	50.00
Fishing craft maintenance	22	37	21	50.63
Navigation and seamanship	19	18	43	35.00
II. *Fishing gear*				
Synthetic fishing materials available such as nylon multifilament twines, nylon monofilament twines	13	34	33	37.50
HDPE twines, polyethylene monofilament and flat tape twines	13	34	33	37.50
Selection and use of synthetic material considering advantages, disadvantages and cost of each net material	11	52	17	46.25
The estimation of net materials required for fabrication of different types of gear	18	28	34	40.00
Improved traditional fishing gear designs such as gill nets	22	37	21	50.63
Knotless webbing fishing nets replacing knotted webbing nets	18	36	26	45.00
Details of fabrication and operation of mini purse-seines from traditional crafts	18	43	19	49.38
Details of fabrication of trawl nets	20	38	22	48.75
III. *Fish processing*				
The use of ice and improved containers for transportation	11	34	35	35.00
Preparation of fish pickles	9	47	24	40.63
Preparation of fish wafers	7	51	22	40.63
Preparation of fish soup powder	13	45	22	44.38
Preparation of poultry feed from prawn shell waste and fish meal	11	40	29	38.75
Improved fish drying methods	19	36	25	46.25
IV. *Fishery engineering*				
Selection and fitting of outboard engines in country crafts	24	33	23	50.63
Repair and maintenance of engines	40	31	9	69.38
V. *Related areas of fishery technology*				
Prawn culture	19	46	15	52.50
Fish culture	18	45	17	50.63
Areas of potential fishing resources	18	22	40	36.25
Functioning of successful fishery co-operatives	20	38	22	48.75
Functioning of other fishery financing agencies like banks, KFWC, ARDC, etc.	19	19	42	35.63

in each subject area. In fishing craft, the major need is for fishing craft maintenance. In fishing gear it is for improved traditional fishing gear designs. In fish processing, it is for improved fish drying methods. In fishery engineering, it is for repair and maintenance of engines. In related areas, the major need is for prawn culture. Although provison was made for mentioning any subject areas other than the ones specified, it is noteworthy that in no major subject matter area was the choice made by the respondents.

Table 2. *Chi-square values and TNQ of major subject areas, within them and between them*

Major subject area	No. of subject areas	Chi-square	Average TNQ
Fishing craft	5	28.37**	44.38
Fishing gear	7	25.08*	45.36
Fish processing	6	17.35	40.94
Fishery engineering	2	10.19**	60.01
Related areas of fishery technology	5	43.63**	44.75
The above five major subject areas compared	5	52.81**	

*significant at 5% level
**significant at 1% level

The analysis of variance of the TNQ in the five major subject areas showed an F of 3.29 which is significant at 5% level. It may be concluded that there was significant difference between the mean TNQ of the five major subject areas. To study this matter further, the frequencies in each major subject area given in Table 1 were subjected to Chi-square test. The Chi-square values, obtained are given in Table 2. It shows that the various items under fish processing do not differ significantly among themselves in relative importance, whereas there is significant difference among the various items in each of the other major subject areas. The five major subject areas also differ significantly from one another with respect to the importance attached to them. The last column of Table 2 shows the average TNQ values in each of the major subject areas, with fishery engineering having the maximum TNQ and fish processing the minimum. A large percentage of the sample (87.5%) owned engines for the traditional craft acquired recently and many of them are not concerned with fish processing but only with fishing. This seems to explain the high TNQ for fishery engineering and a low one for fish processing. Table 3 shows the means and standard deviations

Table 3. *Means and standard deviations of training need score of fishermen classified according to various criteria*

Criterion	Training need score N	Mean	SD
Owning or not owning engine			
a. Own engine	70	23.30	13.18
b. Do not own engine	10	21.00	13.66
Self-rated fishing skill			
a. Average	4	20.00	9.49
b. Good	76	23.17	13.37
How engaged in fishing			
a. Fishing labourer	66	21.61	12.52
b. Shareholder	4	31.75	27.00
c. Owner of craft	10	27.00	13.70

Table 4. *Months of training convenient to the fishermen*

Month	N	%
January	16	20.00
February	16	20.00
March	22	27.50
April	24	30.00
May	35	43.75
June	64	80.00
July	58	72.50
August	39	48.75
September	16	20.00
October	17	21.25
November	15	18.75
December	13	16.25

Note: The percentage are out of N = 80

Table 5. *Means and standard deviations of selected variables and their correlations with training need score*

Variable	Mean	S.D.	r[a]
Age (years)	39.19	9.96	-.34**
No. of years of schooling	5.08	2.54	.41**
No. of family members	7.38	2.41	-.34**
No. of family members employed	1.83	1.03	-.39**
No. of years engaged in fishing	21.43	9.52	-.33**
No. of fishing days per year	259.19	46.79	0.04
Annual income (Rs.)	2541.88	1919.40	.23*
Maximum training duration desired (days)	20.85	18.43	0.20

[a] – This is the correlation with training need score
* – significant at 5% level
**– significant at 1% level

of the training need score of the fishermen classified according to various criteria. There is no significant difference in training need score between those who own engines and those who do not ($t = 0.51$). The fishermen were requested to rate their own fishing skills; there was no significant difference in the training need score of those who rated their skills as 'average' and those who rated it as 'good' ($t = 0.47$). Similarly, there was no significant difference between training need score of fishing labourers, shareholders and owners of fishing craft ($F=1.81$).

Regarding the preferred place of training, 93.75% ($n = 75$) preferred to have it at their own village, and 37.5% ($n = 30$) preferred to have it at the institute, whereas no one preferred it at the block headquarters. (The percentages do not add up to 100 because of dual response in some cases; the same is the case with Table 4 where multiple responses also occur). Table 4 shows that a majority of the fishermen would like to have training in the months of June or July; this is the period during which fishing is somewhat slack (Balasubramaniam, 1981).

The means and standard deviations of various other variables studied are shown in Table 5, the last column of which shows the coefficient of correlation of each with the training need score. As the number of years of schooling and the annual income increase, the training need score also increases. With young age, less number of family members, less number of them employed, and less number of years engaged in fishing, the training need score is more. It may be stated that the fisherman desiring more training in fisheries technology is younger, more educated, with more income, with a smaller family size, more number of family members unemployed, and with lesser experience in fishing (which is correlated with age; $r = 0.93$). The higher proportion of family members unemployed may mobilize additional manpower for fishing which may explain this observation.

Table 6 shows the intercorrelations of the six variables found to be significantly correlated with training need score.

Table 6. *Intercorrelations among six selected variables*[a]

	X_2	X_3	X_4	X_5	X_6
X_1	-.49**	-.41**	.35**	.93**	-.14
X_2		-.35**	-.35**	-.49**	.20
X_3			.60**	.35**	.28*
X_4				.34**	-.18
X_5					-.21

[a] = Explantation of the symbols is given in the text
* = significant at 5% level
** = significant at 1% level

The multiple regression equation was

$$Y = 28.27 - 0.14\ X_1 + 1.22\ X_2 - 0.55\ X_3 - 2.51\ X_4 + 0.02\ X_5 + 0.009\ X_6$$

where:

X_1 = age
X_2 = no. of years of schooling
X_3 = no. of family members
X_4 = no. of family members employed
X_5 = no. of years engaged in fishing
X_6 = annual income
Y = training need score

It may be observed that the partial regression coefficient of X_5 (no. of years engaged in fishing) is positive. This may be because of its high correlation with age (X_1) and other variables r^2 is equal to 0.27 ($F = 4.53$ at 6.73 df) which shows that these six variables account for 27% of the variance in training need score.

References

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