Differential Characteristics of Fisheries Extension Personnel in Relation to Their Evaluation of Technology Transfer

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This paper deals with the characteristics of fisheries personnel engaged in technology transfer work. Fourteen characteristics of Fisheries extension personnel in the Fish Farmers Development Agencies and Non-FFDAOrganisations were studied. The seven characteristics namely, mode of recruitment, rural-urban background, size of family, family placement, education, inservice training undergone and introversion-extraversion personality were found to be important in differentiating the various evaluation categories of the Fisheries extension personnel.

In agriculture, several extension studies (Bhatia & Sandhu, 1975; Perumal & Rai, 1976; Dhillon & Sandhu, 1977; Shete, 1978; Laharia & Talukdar, 1987) have been conducted to analyse the influence of various characteristics of extension personnel towards their job performance activities. Similarly, it may be helpful to know the personality characteristics of fisheries extension personnel which would influence their job performance and other job related activities. In this context, an attempt has been made to study the characteristics of fisheries extension personnel engaged in technolgy transfer work and their differential characteristics in relation to their evaluation of technology transfer effectiveness in inland fish farming.

Materials and Methods

The study was conducted among the fisheries extension personnel of Tamilnadu State Department of Fisheries. To study the characteristics of fisheries extension personnel, 14 independent variables namely, age, educational status, nature of recruitment, experience in fisheries department, experience in inland fisheries, inservice training undergone, annual income, rural-urban background,

size of family, family placement, use of communication channels, job satisfaction, job stress and introversion-extraversion personality were selected and their measurement procedures were determined.

In order to evaluate the technology transfer effectiveness, a technology transfer effectiveness inventory was constructed which consisted of 20 components and 67 determinants influencing the technology transfer effectiveness in relation to Inland fish farming (Balasubramaniam, 1989). This inventory was used for the development of Technology Transfer Appraisal Index (TTAI) and Technology Transfer Effectiveness Index (TTEI).

TTAI has been operationally defined as the extent of presence of various determinants of technology transfer effectiveness in inland fish farming in terms of their adequacy in the present functioning as perceived by the fisheries extension personnel. For this purpose, the inventory developed was used with a three point rating scale. From the ratio of actual score obtained to the maximum possible score, the TTAI score of a respondent was calculated in terms of percentage.

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TTEI has been operationally defined as the extent of effectiveness of various determinants of technology transfer effectiveness in inland fish farming as perceived by the fisheries extension personnel. A three point rating scale has been used to evaluate the effectiveness of various determinants. Based on the ratio of actual score obtained to the maximum possible score, the TTEL score of a respondent was calculated in terms of percentage.

Data were collected from a sample of 100 fisheries extension personnel of the State Fisheries Department, Tamilnadu through personally distributed questionnaires and analysed.

Results and Discussion

The frequency distributions of the fisheries extension personnel based on their characteristics are given in Table 1. In order to find out the differential characteristics of extension personnel in the Fish Farmers Development Agencies (FFDA) and Non - FFDA Organisations, the chi-square tests of significance were computed and given in Table 1. The chisquare values of all the characteristics except the two namely, use of com-

Table 1. *Characteristics of Fisheries Extension personnel*

Categories	FFDA (n=46)		Non-FFDA (n=54)		Total (n=100)		χ^2 test of significance
	No.	%	No.	%	No.	%	
Age							
a) Below 37 years	9	19.57	11	20.37	20	20.00	1.7118
b) 38 - 50 years	31	67.39	40	74.08	71	71.00	
c) Above 50 years	6	13.04	3	5.55	9	9.00	
Education							
a) Diploma in L. F. T. & N	21	45.65	21	38.89	42	42.00	
b) Graduate	14	30.44	20	37.04	34	34.00	0.5892
c) Post - graduate	11	23.91	13	24.07	24	24.00	
Mode of recruitment							
a) Direct recruitment	18	39.13	15	27.78	33	33.00	
b) On promotion	28	60.87	39	72.22	67	67.00	0.9800
Experience in Fisheries Department							
a) Below 10 years	6	13.04	6	11.11	12	12.00	
b) 11 - 20 years	19	41.31	16	29.63	35	35.00	1.9124
c) Above 20 years	21	45.65	32	59.26	53	53.00	
Experience in Inland Fisheries							
a) Below 10 years	23	50.00	21	38.89	44	44.00	
b) 11 - 20 years	20	43.48	29	53.70	49	49.00	1.2548
c) Above 20 years	3	6.52	4	7.41	7	7.00	
Inservice training							
a) Attended 1-2	35	76.09	31	57.41	66	66.00	
b) Attended 3-4	9	19.56	20	37.04	29	29.00	4.0004
c) Attended 5-6	2	4.35	3	5.55	5	5.00	

Table contd.

Table 1. contd.

Annual income							
a) Rs. 15,500 - 22,000	26	56.52	26	48.15	52	52.00	
b) Rs. 22,001 - 28,500	15	32.61	19	35.18	34	34.00	0.9797
c) Rs. 28,501 - 35,000	5	10.87	9	16.67	14	14.00	
Rural-urban background							
a) Rural	19	41.30	19	35.19	38	38.00	
b) Urban	27	58.70	35	64.81	62	62.00	0.1778
Size of family							
a) Below 3 members	12	26.09	14	25.93	26	26.00	
b) 4 - 6 members	27	58.70	33	61.11	60	60.00	0.1145
c) Above 6 members	7	15.21	7	12.96	14	14.00	
Family placement							
a) At the place of posting	32	69.57	45	83.33	77	77.00	
b) Somewhere else	14	30.43	9	16.67	23	23.00	3.4930
Use of communication channels							
a) Rarely	1	2.17	13	24.07	14	14.00	
b) Occasionally	37	80.44	32	59.26	69	69.00	10.1317 **
c) Often	8	17.39	9	16.67	17	17.00	
Job satisfaction							
a) Not at all satisfied	1	2.17	3	5.56	4	4.00	
b) Somewhat satisfied	19	41.31	19	35.18	38	38.00	0.9870
c) Satisfied	26	56.52	32	59.26	58	58.00	
Job stress							
a) Not at all	8	17.39	22	40.74	30	30.00	
b) Rarely	28	60.87	23	42.59	51	51.00	6.4776 *
c) Sometimes	10	21.74	9	16.67	19	19.00	
Introversion - Extraversion							
a) Introverts	25	54.35	36	66.67	61	61.00	
b) Extraverts	21	45.65	18	33.33	39	39.00	2.1446

** Significant at 0.01 level of probability;   * significant at 0.05 level of probability

munication channels and job stress were found to be non-significant. It is evident that the fisheries extension personnel belonging to the FFDA and Non-FFDA Organisations did not differ significantly with reference to these twelve characteristics.

Regarding the two significant differential characteristics, it could be seen that the FFDA personnel had used the communication channels more than the Non-FFDA personnel and the FFDA personnel had more job stress than the Non - FFDA personnel. These differences might be due to the changes in the functioning of FFDA set-up and the roles of FFDA personnel in the technology transfer efforts from the fish seed stocking to fish marketing.

The results also indicated that even-though, the majority of the extension personnel were middle aged, qualified and well experienced with relatively less job stress, 42% were not fully satisfied with their jobs and their communication efforts with the client system were found to be weak. In this context, as only one-third of the extension personnel had undergone more than two inservice training programmes, the results suggested that more number of short duration refresher training programmes with extension orientation would have to be organised to provide the suitable job reorientation.

The discriminant function coefficients and D^2 value were computed to find out the differential characteristics of high and low TTAI categories of fisheries extension personnel, when all the 14 characteristics were considered together. The results are given in Table 2. The significant D^2 value indicated that the 14 characteristics had significantly discriminated between the high and low TTAI categories of fisheries extension personnel. It is evident from Table 2 that out of the 14 characteristics studied, six characteristics had positive discriminant function coefficients and the other eight characteristics had negative discriminant function coefficients.

It could be seen that the three key characteristics namely, mode of recruitment (0.0126), size of family (0.005) and education (0.0039) had shown significant positive influence in differentiating the high from the low TTAI categories of personnel. The analysis also revealed that the three other characteristics namely rural - urban background (-.0122), family placement (-.0086) and inservice training attended (-.0069) had shown significant negative influence in differentiating the high from the low TTAI categories. Therefore, these six variables required more attention of the supervisors while managing the fisheries extension personnel in technology transfer programmes.

Table 2. *Discriminant function analysis in relation to the characteristics between the high and low TTAI categories of fisheries extension personnel*

Var. No.	Characteristics	Discriminant function coefficients
X_1	Age	.0015
X_2	Education	.0039
X_3	Mode of recruitment	.0126
X_4	Experience in Fisheries Department	-.0026
X_5	Experience in Inland Fisheries	.0016
X_6	Inservice training undergone	-.0069
X_7	Annual income	-.000001
X_8	Rural-urban background	-.0122
X_9	Size of family	.0050
X_{10}	Family placement	-.0086
X_{11}	Use of communication channels	-.0011
X_{12}	Job satisfaction	-.0017
X_{13}	Job stress	-.0028
X_{14}	Introversion - Extraversion personality	.0014

$D^2 = 0.0050;$ $F = 19.6738**$

High group (n_1) = 54; Low group (n_2) = 46
** significant at 0.01 level of probability

As could be seen from Table 3, the D^2 value was found to be highly significant at 0.01 level of probability. Therefore, it is evident that the 14 characteristics studied had significantly differentiated between the high and low TTEI categories of fisheries extension personnel. The analysis of the results revealed that out of the 14 characteristics studied, six characteristics had positive discriminant function coefficients and the remaining eight characteristics had negative discriminant fumction coefficients. It could be seen that only two key variables namely, inservice training undergone (.0043) and introversion - extraversion personality (.0018) had shown significant positive influence in differentiating the high from the low TTEI categories of personnel. It is also evident that the two other characteristics namely, size of family (-.0049) and family placement (-.0036) had shown significant negative influence in differentiating the high from the low TTEI categories of personnel. The findings suggested that these key characteristics would have to be taken into consideration for the effective management of fisheries extension personnel in technology transfer programmes.

The study revealed that the fisheries extension personnel in FFDA and Non-FFDA organisational positions did not vary much in the characteristics studied. However, due to the differential roles, the FFDA personnel were found to have used the communication channels more than the Non-FFDA personnel. In order to develop the communication roles of Non-FFDA personnel, the creation of fisheries extension service may be attempted so as to provide the required organisational structure and reorientation from the bureaucratic values. The results also suggest that more number of short duration, integrated and need oriented training programs with extension courses shall have to be organised to strengthen the fisheries extension service.

Table 3. *Discriminant function analysis in relation to the characteristics between the high and low TTEI categoties of fisheries extension personnel*

Var. No.	Characteristics	Discriminant function coefficients
X_1	Age	-.0010
X_2	Education	-.0006
X_3	Mode of recruitment	-.00005
X_4	Experience in Fisheries Department	.0006
X_5	Experience in Inland Fisheries	.0009
X_6	Inservice training undergone	.0043
X_7	Annual income	.0000002
X_8	Rural-urban background	.0009
X_9	Size of family	-.0049
X_{10}	Family placement	-.0036
X_{11}	Use of communication channels	-.0003
X_{12}	Job satisfaction	-.0026
X_{13}	Job stress	-.0009
X_{14}	Introversion - Extraversion personality	.0018

$D^2 = 0.0048$;   F= 12.67**

High group (n_1) = 55; Low group (n_2) = 45
** significant at 0.01 level of probability

Generally, the five characteristics namely, mode of recruitment, size of family, education, inservice training undergone and introversion-extraversion personality were found to be important variables in differentiating the high from the low TTAI and TTEI categories of personnel. Therefore, the recruitment, training, placement and supervision of fisheries extension personnel shall have to be effectively managed by using the appropriate personnel management policies to facilitate the quicker technology transfer in fisheries.

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