Study of the Relative Effectiveness of Extension Methods in Educating Fisherwomen

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Three experimental groups from three different fishing villages were selected and administered with three extension treatments on two messages, namely, production of fish wafers and fish pickles. There was a significant knowledge gain in the subjects taught through different extension methods. It was observed that lecture aided with slides induced maximum knowledge followed by lecture aided with charts and lecture alone. Among all, the young and highly educated women gained maximum knowledge.

It is observed that most of the fisherwomen do not have any specific occupation except their household work. The idle time of these women can be properly utilized in the preparation of diversified fish products like fish wafers and fish pickles which have good demand in the market. Intensive programmes for training these women have been launched by various agencies in the production of diversified fish products. To make these efforts more effective, suitable clients of required age and qualification and suitable training methods have to be selected for training.

Bohlen (1956) reported that education has a close positive relationship with extension teaching methods. Mani (1976) reported that any one of the three combinations of extension methods namely, lecture aided with slides and discussion, lecture aided with flash cards and discussion and lecture with discussion was bound to increase the farmers' knowledge significantly in the topic taught. Study on the influence of age and education of fisherwomen and the impact of various extension methods do not seem to have been conducted in the transfer of fish processing technology. The objective of this investigation was to study the comparative effectiveness of extension methods and the influence of age and education of coastal women in the transfer of fish processing technology.

Materials and Methods

Three extension treatments namely, lecture, lecture aided with charts and lecture aided with slides were selected. Three experimental groups were selected from three different fishing villages namely, Katoor(32), Arthungal (31) and Saudi (26) in Kerala. The messages selected for the extension treatment were (1) preparation of fish wafers and (2) preparation of fish pickles. All the respondents in the three experimental groups were categorised into nine age and educational groups.

The data were collected from the respondents by using a well structured knowledge check list constructed for the two messages. The independent variables used in the study were age, educational status, size of the family, employment status of the family, annual income and contact with extension. The knowledge gain of the clients was calculated as follows:

Knowledge gain = Post exposure knowledge score—preexposure knowledge score

The statistical techniques used were paired 't' test, Kruskal Wallis One Way Analysis of Variance by Ranks analysis of variance, mean, standard deviation, correlation and multiple regression analysis.

Table 1. *Knowledge gained after immediate post exposure through the selected extension methods*

Extension methods	Experimental groups	Subject	Proportion of mean gain	t
Lecture alone	Katoor	Fish wafers	56.9927	11.2706**
		Fish pickles	52.0833	17.5368**
Lecture aided with slides	Arthungal	Fish wafers	91.2027	39.8412**
	Saudi	Fish pickles	72.1209	33.5894**
Lecture aided with charts	Arthungal	Fish pickles	66.6667	27.0589**
	Saudi	Fish wafers	73.0118	15.5396**

** Significant at 1 per cent level

Results and Discussion

The Kruskal Wallis One Way Analysis of Variance by Ranks was worked out to identify the homogenity of the three experimental groups and the H values for age and education were obtained as follows:

H = 6.2689 (for age)
H = 5.9612 (for education)

The calculated H values for age and education did not exceed the table values. This indicated that the three experimental groups were homogeneous in their age and education. So it could be perceived that these three groups represented the same population.

To find out whether there was any significant gain in knowledge at immediate post-exposure stage due to the treatment, the paired 't' test was adopted. From the 't' value in Table 1, it is clear that there is significant gain in knowledge at immediate post exposure stage for all the three extension methods in all three experimental groups in the two messages.

From the proportion of mean values, it could be seen that the knowledge gain is maximum for fish wafers in Arthungal area with the lecture aided with slides. Minimum knowledge gain was seen in the Katoor area for fish wafers and fish pickles. This low knowledge gain might be due to the reason that lecture alone was used.

To find out difference, if any, in the gain in knowledge among the fisherwomen at immediate post-exposure stage with respect to three combination of extension methods irrespective of age and education, the analysis of variance was worked out (Table 2). It shows that the extension methods significantly differed in their effectiveness when the three experimental groups were considered as a single population irrespective of their age and education.

Table 2. *Knowledge gain at immediate post exposure stage through different combinations of extension methods*

Source	df	ss	mss	F
Extension methods	2	173.40	86.7	5.58**
Error	173	2688.55	15.54	
Total	175	2861.96		

** Significant at 1 per cent level

Based on the mean values (Table 3) lecture aided with slides was most effective followed by lecture aided with chart and lecture alone.

Table 3. *Mean values of different extension methods*

Extension method	Mean value	Critical difference
Lecture aided with slides	12.84	
		1.44
Lecture aided with charts	10.98	
		1.41
Lecture	9.48	

The analysis of variance was worked out using the proportion of mean values to find out the effectiveness of different subject matters (Table 4).

Table 4. *Relative effectiveness of different subject matters in knowledge gain, immediately after the exposure*

Source	df	ss	mss	F
Subject matter	1	6042.79	6042.79	12.83**
Error	176	82893.4	470.98	
Total	177	88936.19		

** Significant at 1 per cent level

The highly significant F-value shows that the knowledge gained in the subject matters taken up, significantly differed. It could be observed from the proportion of mean values (Table 5) that knowledge gain was more in the case of fish wafers than fish pickles. This can partly be attributed to the fact that the ingredients involved in the preparation of fish wafers are less and the method of preparation is simple. This simplicity of the subject probably made the coastal women understand this topic more easily.

Table 5. *Mean values for different subject matters*

Subject matter	Mean value	Critical difference
Fish wafers	74.5662	6.3764
Fish pickles	62.9131	

The highly significant F-value (Table 6) shows that different age groups significantly differed in their knowledge gain. Among the three age groups, young women (Table 7) gained maximum knowledge followed by mid adult group and late adult group. This shows that the young women have more receptive mind than the old. The critical difference also showed that the young women were superior in knowledge gain to mid adult, who were superior in knowledge gain to late adult women.

Table 6. *Relative effectiveness of age variation in knowledge gain immediately after the exposure*

Source	df	ss	mss	F
Age groups	2	2252.40	1126.20	104.78**
Error	86	587.78	6.83	
Total	88	2846.18		

** Significant at 1 per cent level

Table 7. *Mean values of different age groups*

Age group	Mean value	Critical difference
Young women	23.00	1.18
Mid adult	21.27	1.87
Late adult	14.60	

Table 8 shows that the educational groups significantly differ in their knowledge gain. The women with high education got maximum knowledge gain those with medium education got medium knowledge gain and those with low education got minimum knowledge gain (Table 9).

Table 8. *Relative effectiveness of educational variation in knowledge gain immediately after the exposure*

Source	df	ss	mss	F
Education group	2	799.60	399.8	16.95**
Error	86	2040.58	23.73	
Total	88	2840.18		

** Significant at 1 per cent level

Table 9. *Mean values of different educational groups*

Educational groups	Mean values	Critical difference
High	24.38	2.9
Medium	19.24	2.38
Low	16.53	

From Table 10 it could be inferred that the different age and educational (combined) groups significantly differed in their knowledge gain. Table 11 shows that those who belonged to young age with high education mid adult women with high education. Those who belonged to late adulthood with low education showed the lowest score in their knowledge gain.

Table 10. *Relative effectiveness of different age and educational groups (combined) in knowledge gain after exposure*

Source	df	ss	mss	F
Age and educational group	8	1416.55	177.06	9.55**
Error	80	1423.63	17.19	
Total	88	2840.18		

** Significant at 1 per cent level

The critical differences reveal the following. The young women with high education and mid-adult with high education were almost equal in their knowledge gain. Similarly the mid-adult with medium education, young with medium education and young with low education were more or less the same in their knowledge gain. The mid-adult with low education and the late adult with high education were similar in their knowledge gain.

Table 11. *Mean values of different age and educational (combined) groups*

Age and educational groups	Mean value	Critical difference
Young with high education	25.17	
		2.81
Mid-adult with high education	25.09	
		3.77
Mid-adult with medium education	20.38	
		3.61
Young with medium education	19.40	
		5.2
Young with low education	19.33	
		1.97
Mid-adult with low education	17.30	
		6.4
Late adult with high education	17.00	
		3.2
Late adult with medium education	13.5	
		4.7
Late adult with low education	8.5	

Table 12. *Means and standard deviations of selected socio-economic variables*

Variables	Mean	Standard deviation
Age (X_1)	27.25	10.55
Education (X_2)	2.42	1.01
Size of the family (X_3)	7.19	2.52
Employment status of the family (X_4)	1.52	1.01
Annual income (X_5)	1350.67	878.36
Contact with extension agency (X_6)	0.48	1.24
Knowledge gain (Y)	21.55	5.45

Table 13. *Correlation among socio-economic variables including knowledge gain (N=89).*

	X_2	X_3	X_4	X_5	X_6	Y
X_1	–0.39**	0.10 NS	0.13 NS	0.12 NS	0.12 NS	–0.29**
X_2		0.06 NS	0.08 NS	0.29**	0.04 NS	0.48**
X_3			0.61**	0.22**	0.12 NS	0.05 NS
X_4				0.05 NS	0.03 NS	0.14 NS
X_5					0.03 NS	0.12 NS
X_6						0.17 NS

** Significant at 1 per cent level
* Significant at 5 per cent level
NS=not significant

The means and standard deviations of the socio-economic variables are shown in Table 12. From Table 12 it could be seen that the had maximum knowledge gain followed by average age of the fisherwomen was 27 years. The average education was upto middle school. The average size of the family was 7. In a family one or two persons were employed. The average annual income of the family was Rs. 1350/-

The correlation co-efficient of socio-economic variables with knowledge gain is presented in Table 13.

From the inter correlation of socio-economic variables it could be seen that age and education are negatively correlated. Education and annual income, size of the family and employment status of the family showed highest positive correlation. Age showed highly significant negative correlation and education showed highly significant positive correlation with knowledge gain. This means that knowledge gain increases when level of education increases and age decreases. The contact with extension agency showed non-significant relationship with knowledge gain. This was due to the fact that the fisherwomen did not have any previous extension contact.

The multiple regression equation of knoledge gain on the socio-economic variables $Y = 20.18 + 0.9x_1 + 0.20x_2 + 0.13x_3 + 0.58x_4 + 0.0002x_5 + 0.85x_6$. R^2 is 0.29 ($F = 4.73^{**}$ at 6,87) which is significant at 1 per cent level. Thus the six socio-economic variables studied contributed about 29 per cent of the variation in knowledge gain score.

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References

Bohlen, J. M. (1956) *Farm and Home Visit* Iowa State College Extn. Lesson No. 2, 1-6

Mani, K. (1976) *An Experimental Study on the Relative Effectiveness of Three Selected Combinations of Extension Methods in Educating Farmers, M.Sc., (Ag.) Thesis.* Tamil Nadu Agricultural University, Coimbatore