Fishery Technology
1994, Vol. 31(2) pp : 171-175

Impact of Training Programme on the Adoption of Hygienic Practices in Peeling Sheds

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Impact of the training programmes organised by Marine Products Export Development Authority, Cochin on hygienic measures to be followed in peeling sheds had been studied. The analysis showed that the training programme was effective in increasing the knowledge and the perception of peeling shed workers about the quality aspects. Among the trained peeling shed workers, the variables, viz., type of home and type of family had significant influence over the extent of knowledge possessed. Among the untrained workers education and extension orientation had significant influence on knowledge. Further, the selected 12 independent variables had shown significant R^2 values (0.4701 and 0.4182) towards the level of knowledge among the trained and untrained categories, respectively.

Considering the importance of quality control measures at the pre-processing centres, the Marine Products Export Development Authority, Cochin (MPEDA) had organised training programmes for the prawn peeling shed workers, in order to develop the awareness about the hygienic measures to be adopted in the peeling sheds to improve the quality of the products. The objectives of this study were : (i) to find out the level of knowledge of trained peeling shed workers about the hygienic measures in comparison with those who had not attended the training programme; (ii) to study the perception of the trained peeling shed workers about the quality aspects of peeled shrimps in comparison with the untrained workers and iii) to determine the association of the socio-psychological and economic factors of trained and untrained peeling shed workers with their level of knowledge and their perception on the quality aspects of peeled shrimps.

Materials and Methods

The study was conducted in Quilon district of Kerala. From among the respondents who underwent the MPEDA training programmes, 60 were randomly selected and data were collected immediately after the training. An equal number of untrained peeling shed workers were also selected. Age, education, total work experience, occupation, annual income, marital status, type of home, type of family, mass media exposure, extension orientation, indebtedness and level of aspiration were the twelve independent variables selected for the study. The dependent variable - knowledge about the hygienic measures - was measured using the method developed by Popat *et al.* (1985). Based on mean knowledge index and the standard deviation obtained, the respondents were classified into three categories as low, medium and high.

For measuring the perception about the quality aspects of the peeled shrimps, the six aspects namely, quality of the raw

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material, storage conditions, methods of handling, quality of water used in the plant, personal hygiene of workers and general cleanliness in and around the peeling sheds were identified and statements reflecting the influence of these aspects on the final quality of the product were prepared. The statements were rated by respondents for their degree of importance on a three point continuum as most important, important and not important with weights of 3, 2 and 1, respectively. The score obtained for each item was added together to get the total perception score of a respondent. To find out whether the pattern of thinking was same for both the trained and untrained group, the Spearman's rank correlation coefficient was computed. Correlation and multiple regression techniques were used to analyse the data.

Results and Discussion

The mean knowledge score of the trained peeling shed workers was 81.55 and that of untrained workers was 20.42. The *t* value (33.16) revealed a significant difference at one percent level, which means that the knowledge of the trained and untrained peeling shed workers differed significantly. The correlation coefficients and regression coefficients worked out between the knowledge of peeling shed workers about the hygienic measures and 12 independent variables are given in Table 1.

It can be seen from the correlation analyses in Table 1 that age, occupation and type of family of the trained peeling shed workers had significant negative correlation with their level of knowledge and education had significant positive correlation.

Table 1. *Correlation and multiple regression analyses between the level of knowledge of the peeling shed workers and the independent variables*

Independent variables	Trained peeling shed workers (n=60)			Untrained peeling shed workers (n=60)		
	Correlation coefficient, r	Regression coefficient, b	SE of 'b'	Correlation coefficient, r	Regression coefficient, b	SE of 'b'
X_1 Age	-0.305*	-0.224	0.147	0.053	-0.983	0.121
X_2 Education	0.400**	1.400	1.170	0.040	1.734*	0.784
X_3 Total experience	-0.088	0.023	0.281	0.013	-0.169	0.188
X_4 Occupation	-0.266*	-2.595	4.169	0.063	2.696	2.264
X_5 Annual income	-0.126	-1.244	1.267	0.183	0.979	1.327
X_6 Marital status	0.233	0.104	4.107	-0.018	0.475	3.741
X_7 Type of home	0.234	1.893**	0.571	0.017	0.528	0.551
X_8 Type of family	-0.380**	-5.752**	1.499	-0.028	0.110	1.345
X_9 Mass media exposure	0.114	-0.392	0.288	-0.073	-0.390	0.290
X_{10} Extension orientation	-0.056	-0.085	0.145	0.514**	1.787**	0.376
X_{11} Indebtedness	-0.026	0.152	0.688	0.100	-0.197	0.721
X_{12} Level of aspiration	0.010	-0.197	1.351	0.082	2.279	1.232
	$R^2 = 0.4701$; $F = 3.474$**			$R^2 = 0.4182$; $F = 2.816$**		

*, ** Significant at 0.05 and 0.01 levels respectively

The significant negative association of the variable age with the level of knowledge of the trained peeling shed workers indicated that the younger workers might have acquired more knowledge during training than old workers. The significant positive relationship between education and level of knowledge about the hygienic measures indicated that training could enhance the knowledge level of educated workers more than that of uneducated workers. These findings are in agreement with the findings of Uma (1982), Vijayakumar (1983) and Joshy & Thorat (1984).

The negative and significant association between occupation and level of knowledge of trained peeling shed workers might be possible because the peeling shed workers who adhered to only peeling as their occupation had better knowledge than others who were also doing other related works in fisheries. Out of the 12 independent variables, extension orientation was the only variable which had shown significant positive correlation with the knowledge of untrained peeling shed workers. It is observed that extension orientation was instrumental in getting information from the development agencies.

The multiple regression analysis revealed that 47.01% of the variation in the knowledge of the trained peeling shed workers had been explained by the selected 12 variables and the *F* value (3.474) was significant. The regression equation is as follows:

$$Y_i = 104.899 - 0.224\,X_1 + 1.400X_2 + 0.023X_3 - 2.595X_4 - 1.244X_5 + 0.104X_6 + 1.893X_7^{**} - 5.752X_8^{**} - 0.392X_9 - 0.085X_{10} + 0.152X_{11} - 0.197X_{12}$$

In the case of untrained peeling shed workers, 12 variables taken together had jointly explained 41.82% of the variation in the knowledge level. The R^2 was found to be significant as explained by the *F* value (2.816). The regression equation is given below:

$$Y_{ii} = 2.477 - 0.083X_1 + 1.734X_2^{*} - 0.169X_3 + 2.696X_4 + 0.979X_5 + 0.475X_6 + 0.528X_7 + 0.110X_8 - 0.390X_9 + 1.787X_{10}^{**} - 0.197X_{11} + 2.279X_{12}$$

Regarding the perception on the various quality aspects of peeled shrimps, majority of the untrained peeling shed workers (91.67%) had low perception while only 33.33% of the trained workers belonged to this group. Out of the total trained workers, 66.67% came under the category of high perception group while only a small percent (8.33%) of untrained workers came under the above category. The *t* value (8.819) indicated significant difference between the overall perception of the trained and untrained groups.

The results of the rank correlation analysis are given in Table 2. The Spearman's rank correlation coefficient was significant (r_s=0.999) and showed that the pattern of thinking were same for both trained and untrained peeling shed workers. The same pattern of thinking by trained and untrained peeling shed workers point out that both categories of respondents attached the same degree of importance to various factors that influence the final quality of the product.

Table 2. *Rank correlation showing the pattern of thinking of trained and untrained peeling shed workers*

Categories	Statement numbers* and ranks						
	1	2	3	4	5	6	
Trained peeling shed workers (n=60)	1	2	2.5	2.5	5	6	
							r_s = 0.999**
Untrained peeling shed workers (n=60)	1	2	3	4.5	4.5	6	

** Significant at 0.01 level

* Statement numbers 1. Quality of raw material; 2. Storage conditions; 3. Methods of handling; 4. Quality of water; 5. Personal hygiene and 6. General cleanliness

Table 3. *Correlation and multiple regression analyses between the perception of peeling shed workers about the quality aspects and the independent variables*

Independent variables	Trained peeling shed workers (n=60)			Untrained peeling shed workers (n=60)		
	Correlation coefficient, r	Regression coefficient, b	SE of 'b'	Correlation coefficient, r	Regression coefficient, b	SE of 'b'
X_1 Age	-0.267*	-0.018	0.019	-0.383**	-0.153**	0.038
X_2 Education	0.439**	0.158	0.154	0.033	0.004	0.243
X_3 Total experience	-0.151	-0.055	0.037	-0.040	0.079	0.058
X_4 Occupation	-0.395**	-1.382*	0.549	-0.038	-0.212	0.701
X_5 Annual income	-0.067	-0.004	0.167	-0.040	-0.275	0.411
X_6 Marital status	0.219	-0.609	0.541	-1.071	-2.071	1.159
X_7 Type of home	0.206	0.175*	0.075	0.068	0.177*	0.171
X_8 Type of family	-0.162	-0.354	0.197	0.039	0.365	0.416
X_9 Mass media exposure	0.142	-0.048	0.038	-0.051	-0.019	0.090
X_{10} Extension orientation	-0.182	-0.032	0.019	0.211	0.285*	0.116
X_{11} Indebtedness	0.002	0.009	0.091	0.009	-0.023	0.223
X_{12} Level of aspiration	-0.039	-0.192	0.178	0.148	-0.555	0.381
	$R^2 = 0.4059$; $F = 2.676$**			$R^2 = 0.3582$; $F = 2.186$*		

*, ** Significant 0.05 and 0.01 levels respectively

The correlation coefficients and multiple regression coefficients worked out between the perception of peeling shed workers and 12 independent variables are presented in Table 3. It can be seen from the correlation analysis that among the trained workers, age and occupation had negative correlation with their perception on the various quality aspects of peeled shrimps while education had positive correlation. In the case of untrained peeling shed workers, age was the only variable which indicated significant negative relationship.

The multiple regression analysis for the trained category revealed that 40.59% of the variation in the dependent variable was explained by the 12 independent variables taken together. The R^2 value was (0.4059) significant at one percent level. The multiple regression equation obtained was as follows:

$$Y_1 = 23.292 - 00.018X_1 + 0.158X_2 - 0.055X_3 - 1.382X_4{}^* - 0.004X_5 - 0.609X_6 + 0.175X_7{}^* - 0.354X_8 - 0.048X_9 - 0.032X_{10} + 0.009X_{11} - 0.192X_{12}$$

In the case of untrained peeling shed workers, 12 variables had explained 35.82% of the variation in the perception, which was found to be significant as seen from the *F* value. The multiple regression equation is given below:

$$Y_2 = 17.336 - 0.153X_1{}^{**} + 0.004X_2 + 0.079X_3 - 0.212X_4 - 0.275X_5 - 2.071X_6 + 0.177X_7{}^* + 0.365X_8 - 0.019X_9 + 0.285X_{10}{}^* - 0.023X_{11} - 0.555X_{12}$$

These results revealed that the socio-personal factors such as the occupation, type of home, age and extension orientation were the important variables that had influenced the perception about the quality factors and the trained and untrained workers had attached the same degree of importance about the various quality factors.

The authors express their gratitude to the authorities of MPEDA for providing necessary facilities to conduct the study.

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