Evaluation of a Summer Institute on Fish Processing Technology

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The utility of Summer Institute Efficiency Index (SIEI) is demonstrated using data from evaluation of a summer institute in fish processing. The SIEI worked to 76.16 showing high efficiency rating. The acquisition of skills appears to be independent of coverage and utility perception. The three dimensions of evaluation correlate highly with SIEI.

A lot of expenditure of time, money and energy goes into the organisation of Summer Institutes organised by the Indian Council of Agricultural Research for various personnels like, scientists, teachers and technicians. A technique for the evaluation of these Institutes was developed by Ambastha & Singh (1975). A modification of this technique in the shape of Summer Institute Efficiency Index (SIEI) has been suggested by Desai & Kaul (1982). The present paper reports the results obtained by the use of the SIEI on the evaluation of a Summer Institute in fish processing held at one of the ICAR institutes during 1978.

Materials and Methods

Nineteen participants attending the Summer Institute drawn from different states of the country formed the sample for the study. The training was imparted in the following broad areas like biochemistry, microbiology, handling, preservation, transportation, freezing, dehydration and curing, quality control relating to fish and fishery products apart from application of engineering, statistics and management techniques for fish processing.

Skills were imparted in the estimation of proximate composition of fish, spoilage indices, bacterial staining, tunnel drying of fish, filletting and freezing of fish, canning of crab and mussel meat and tuna, preparation of chitosan, shark fin rays and fish soup powder and quality testing of frozen and canned prawns.

A three dimensional rating scale suggested by Desai & Kaul (1982) was used to evaluate the Summer Institute. A total of fourteen items were rated by the participants for two dimensions such as coverage and utility, apart from the 13 skills rated on the dimension skill acquisition. The rating scale was developed on a three point continuum for each of the dimensions such as coverage (good, fair, poor); utility (very useful, useful, not useful); skill acquisition (learnt a new skill, a known skill was sharpened, nothing new), with a scoring procedue of 2, 1, 0 respectively for each of the items. The maximum possible score to be obtained by a participant was 28 each for coverage and utility and 26 for skill acquisition. The SIEI was computed as per Desai (1981) and Desai & Kaul (1982).

The data was collected on an ex-post-facto design on the concluding day of the Summer Institute using a structured schedule. The participants were asked to provide general information such as age, highest educational qualification, experience in fish processing or related areas, apart from the rating of the summer institute.

Results and Discussion

1. *Participants' profile*

A perusal of Table 1 brings to focus the profile of the participants in the Summer Institute. It could be observed from the table that in relation to age, majority of the participants were in the medium age group.

Table 1. *Participants profile*

Sl. No.	Variable	Categories	Frequency	Mean	SD	Range
1	Age	upto 25	6	30.33	6.02	23–43
		26–35	7			
		36–45	6			
2	Experience in fish processing	upto 60 months	12	62.17	66	7–186
		61–120 months	2			
		More than 120 months	5			
3	Education	Diploma holders	2			
		Graduates	6			
		Post-graduates	11			

Table 2. *Summer Institute efficiency perception*

Sl. No.	Dimensions	Total score	Mean score	SD	Range	CV
1	Coverage	28	19.94	4.62	12–28	23.16
2	Utility	28	22.67	4.19	15–28	18.48
3	Skill acquisition	26	19.83	5.11	9–26	25.76
4	SIEI	100	76.16	11.16	59.52–100	0.15

A majority of the participants had less than five years experience. However, looking to the range of experience, it could be viewed that the programme also attracted participants with more than ten years. Concerning education, most of them were post-graduates apart from a few graduate and diploma holders.

The overall distribution of the participants indicated that in general the Summer Institute provided an opportunity for participation to all those interested, irrespective of their background characteristics.

2. *Summer Institute efficiency perception*

The information in Table 2, provides details relating to the cumulative ratings expressed by the participants on the various indices computed for the evaluation of the Summer Institute. The SIEI works out to 76.16 which may be interpreted as about 76% efficiency which is quite high as compared to similar other institutes (Desai & Kaul, 1981).

Considering the dimensions of the Summer Institute, the participants expressed the view as indicated by the mean scores, that the utility of the items selected was quite high followed by coverage and skill acquisition. This inference was also conclusive, looking to the values of range, standard deviation and the coefficient of variation, which indicated similar pattern. Overall, the Summer Institute was found to be efficiently conducted as per the requirements of the participants.

3. *Inter-correlation among Summer Institute dimensions and SIEI*

Table 3 presents the inter correlations among the Summer Institute dimensions and SIEI. All the dimensions of the Summer Institute studied indicated a positive and significant association with the SIEI value. Apart from this, the dimension coverage indicated a significant positive association with utility, whereas skill acquisition had a non-significant association with both coverage and utility. This leads to the

Table 3. *Relationship between summer institute dimensions and SIEI*

Sl. no.		Coverage	Utility	Skill acquisition
1	SIEI	86*	0.54*	0.57*
2	Coverage	—	0.53*	0.22
3	Utility	—		–0.28

Table 4. *Relationship between characteristics of the participants and efficiency perception*

Characteristics	Coverage	Utility	Skill acquisition	SIEI
Age	–0.07	0.30	–0.06	–0.33
Experience in fish processing	–0.09	–0.17	–0.34	–.0.29

Table 5. *Educational level of the participants and summer institute efficiency perception*

		Diploma holders and graduates		Post-graduates		
Sl. No.	Dimensions	Mean	SD	Mean	SD	value
1	Coverage	21.43	4.76	19.00	4.49	1.09
2	Utility	23.71	4.96	22.00	3.71	0.84
3	Skill acquisition	19.57	5.53	20.00	5.10	–0.17
4	SIEI	78.83	12.18	74.45	10.70	0.78

fact that skill acquisition needs to be studied separately, though SIEI includes this. It was suggested earlier that SIEI tends to measure in a composite way the various dimensions (Desai & Kaul, 1982) and the present study bears this out.

This exhibited relationship, points out the fact that skill acquisition is independent of the action of other dimensions and hence an independent identity. Just by manipulating the coverage or utility the skills acquisition cannot be controlled, but special emphasis has to be placed to impart skills.

4. *Contribution of Summer Institute dimensions to SIEI*

Another attempt was made to test the contribution of individual dimensions to the overall SIEI by using the multiple regression analysis, considering the results in item 3. The analysis with SIEI value as a dependant variable and the three dimensions as independant variables yielded a R^2 of 0.99. Though the R^2 seems to be encouraging indicating that most of the variation is accounted for by the dimension studied, in view of the small n, it is necessary to interpret the data with a little caution. For this, further replications need to be conducted before concluding the findings.

5. *Relationship between participants characteristics and Summer Institute efficiency perception*

The relationship, between the age and experience of the participants and their efficiency perception has been depicted in Table 4.

According to the data, neither the age nor the experience in fish processing technology was significantly related to efficiency perception, on all the dimensions of the summer institute. This clearly points out the fact that the efficiency perception of the summer institute was not influenced by the age or experience of the participants, posibly because the training content was fairly new to all of them.

6. *Educational level of the participants and the Summer Institute efficiency perception*

An enquiry into Table 5, brings out therelationship between two educational category

of the programme participants in relation to their efficiency perception as indicated by 't' test. The result indicate that irrespective of their level of education the participants tended to exhibit similar mean values on all dimensions apart from SIEI, which were not significant. This situation reinforces that formal education has not affected the efficiency perception, mainly due to the fact that the technologies tailored were new, useful and applicable to all of them in their setting. This also points out that the participants selected were more homophilic in their background needs and understanding than in other institutes (Desai & Kaul, 1981).

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