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Assessing trainees' experience from the skill development programmes on inland fisheries management and its impact on human capital

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Abstract As the world is moving towards 'knowledge economy', training and capacity building has become an integral part of all organizations. The trainers themselves need to undergo training programmes to increase their efficiency. The present study aims to investigate the impact of five trainers' training programmes in the inland fishery sector of India based on participants' perceptions and changes in human capital, i.e., knowledge, attitude, and skill. The training effectiveness index was devised for this purpose consisting of six parameters namely, expectation fulfillment, the overall grading of the programme, the extent of satisfaction, change in knowledge, attitude, and skill level of the participants. The statistically significant change in knowledge level in all programmes and in attitude level in two programmes was recorded. The effectiveness scores ranged from 71.76 to 80.66 percent. The motivation for participation, perceived challenges, suggestions for improvement, and future action plans were also noted. Based on the findings a three-stage training cycle has been recommended by the authors for improving the efficiency of training programmes. Some of the recommended measures are conducting Training Need Analysis (TNA), application of simulation method for skill-building, the inclusion of more practical and field-oriented sessions, carrying out microlab in the beginning of the training for building positive effect, post-training follow up with the mother

organizations and analyzing the impact of training on job performance. The findings are expected to aid in designing more efficient training programmes in the inland fishery sector in the future.

Key words Trainers' training; Training effectiveness index; Human capital; Training cycle

Introduction

The global civilization is experiencing an era where human potential assumes importance more than ever before. The world is moving progressively towards 'Knowledge Economy', therefore, skills and knowledge have become the most important driving forces for the economic and social development of the nations (Sony *et al.*, 2013). Human resource development and management are now vital essences of efficient organizations. Work-related tasks have become progressively more complex and knowledge-centric, requiring employees to adapt their behaviour to cope with changing job demands (Bell *et al.*, 2008) and new information and situations (Johnson *et al.*, 2011). Nowadays, skills deteriorate very fast due to rapid technological change and increasing globalization (Karabchuk *et al.*, 2014). Therefore, the importance of training has also increased manifold in recent years. Gaining a competitive advantage by investing in human resources has been established by several authors (Storberg-Walker, 2004). Training and capacity building is perhaps the greatest investment that organizations make in the way of human resource development. Training consists of formal on- and off-the-job structured activities focused on the development of knowledge,

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Table 1 Details of training programmes

Name of training programme	Date	Number of trainees	Venue
Ministry of Agriculture and Farmers' Welfare, Govt. of India sponsored Model Training Course (MTC) on "Enclosure culture"	August 23 to 29, 2017	26	CIFRI, Kolkata
Training of trainers on "Inland Ornamental Fisheries Management for Income Generation" Guwahati	December 17 to 21, 2018	21	CIFRI RRC,
Training of Trainers (ToT) on "Reservoir Fishery management for employment generation"	November 23 to 27, 2019	19	CIFRI, Kolkata
Training of Trainers (ToT) programme on "Fish Health Management of Inland Cultured Fishes for Doubling Farmer's Incomes"	December 02 to 06, 2019	20	CIFRI, Kolkata
CIFRI, Kolkata			
Sponsored Training of Trainers (ToT) on "Enclosure Culture (Cage and Pen) towards Livelihood and Nutritional Security"	January 14 to 18, 2020	21	CIFRI, Kolkata
Total		107	

skills, and abilities (KSAs) for current and future job roles (Kim *et al.*, 2014). Sugrue (2003) points out that on average, training interventions of organizations in the USA account for more than 2.2 percent of their expenditure on the payroll. In a rapidly changing and dynamic work environment, it is crucial for organizations as well as for employees to acquire new skills that are required for successful job performance (Kraiger, 2014). Training provides an opportunity to develop such skills (Salas *et al.*, 2012). The Food and Agriculture Organization of the United Nations (FAO) utilizes training as a major component of the support it provides to its member countries (Rosa *et al.*, 2016). Training helps to enhance organizational efficiency through changes in the capacity of its employees (Templeton, 2009). It can help to have a competitive edge over other organizations by reaping the benefit of the gained knowledge and skill of the employees (Tarik, 2018). Besides, it helps to uplift employees' productivity, career progression, and job satisfaction over a long time (Bowes, 2008). A study using moderated meta-analysis of the training and organizational performance relationship with 119 primary samples showed that training is positively and directly related to organizational performance (Garavan *et al.*, 2020). Through investment in structured training, organizations enhance employee and organizational human capital, which, in turn, contributes to better organizational performance (Jiang *et al.*, 2012). Training is now an integral part of all the sectors operating in an economy.

The present article attempts to assess the impact of the trainers' training programme in the area of inland fishery management in India. With diverse resources ranging from deep seas to lakes in the mountains and more than 10 percent of the global biodiversity in terms of fish and shellfish species, the country has shown continuous and sustained increments in fish production since independence. The total fish production during 2017-18 is estimated to be 12.60 million metric tonnes, of which nearly 65 percent is from the inland sector (NFDB, 2020). The sector employs around 14 million people and assumes special importance in the food and livelihood security of a large section of the population. Exploring allied sectors of agriculture like dairy and fishery is claimed to be economically rewarding for rural youth who can earn sufficient by livelihood diversification (Som *et al.*, 2018). Livelihood diversification opens up multiple avenues for income generation of rural poor and thus, increases their resilience towards natural and manmade hazards (Pal *et al.*, 2017). Considering the importance of this sector, the Government of India has launched the second Blue Revolution or the Neel Kranti Mission in the year 2016 with the aim of sustainable development of the fishery sector along with the livelihood security of the fishermen (Mohanty *et al.*, 2018). Nonetheless, building human capital in and around this sector is imperative. Five training programmes on four important areas of inland fishery management, namely, enclosure culture, reservoir fisheries, ornamental fisheries, and fish health

Table 2 Motivation for participation

Reason	MTC on Enclosure Culture	ToT on Inland Ornamenta Fisheries	ToT on Reservoir Fishery Management	ToT on Fish Health Management management	ToT on Enclosure Culture
Potential resources to be explored in state for the development of fisheries sector	I	III	I	I	I
Knowledge and skill enhancement for serving stakeholders better	II	II	V	VI	VI
Research project related activities	III	IX	VII	IX	X
Learning a new concept	IV	IV	I	III	III
Priority area of the department	IV	XI	X	XI	XI
Economic Development of fishermen	V	I	III	II	II
Training stakeholders	VI	V	IV	V	IV
Capacity building of colleagues	VII	VI	II	IV	V
Order of superior authority	X	VII	VI	VII	VII
Participation of other colleagues	VIII	VIII	VIII	VIII	VIII
Requirement for promotion	IX	X	IX	X	IX

management were organized at Central Inland Fisheries Research Institute (CIFRI) of the Indian Council of Agricultural Research (ICAR). The officers working in the inland fishery sector who eventually perform the role of trainers of farmers took part in these training programmes. According to Roger's "Trickle-down effect" (1962) technologies and innovations trickle down from one level of users to the next level. Therefore, to empower the people at the grassroots level it is the primary requirement to train the trainers first.

Lynton and Pareek (1978) suggested three phases of a training programme, namely, a pre-training assessment, training, and post-training impact assessment. The last stage, i.e., training evaluation is the most important and difficult, however, it is often ignored or poorly studied by the training organization making it difficult to comprehend its actual effect on the trainees (Meena *et al.*, 2010). If the efficacy of training in terms of practical outcomes is not established, staff may be inappropriately utilized and resources may be wasted (Smidt *et al.*, 2009). However, training evaluation is probably the weakest and most under-developed aspect of training (Topno, 2012). Stufflebeam (2001) defined evaluation as a study designed and conducted to assist some audience to assess an object's merit and worth. It is a systematic process of data collection and analysis to determine the

effectiveness of training programs and to make decisions about future programmes (Brown *et al.*, 2002). The evaluators should seek to conduct the most informative evaluation possible under the existing circumstances of demands and the constraints (Tamkin *et al.*, 2002). On this note, the authors attempted to investigate the effectiveness and impact of the five training programmes conducted by ICAR-CIFRI based on the reaction and experience of the trainees and the visible change in human capital, i.e. knowledge, attitude, and skill as a result of the training programmes. So far there is no study on the impact of trainers' training in the inland fisheries sector of India. The present study is therefore expected to fill the literature gap and advance knowledge in this area.

Materials and methods

In the present study, data were collected using a semi-structured interview schedule consisting of both closed-ended and open-ended interview schedules from a total of 107 participants distributed over five training programmes. It was intended to study the perception and reaction of the trainees regarding various aspects of the training programme. A similar kind of approach was followed in assessing pre-training and post-training feedback in a training programme on cage culture of sea

bass conducted by ICAR-Central Marine Fisheries Research Institute (Joseph, 2010).

Measurement of variables

Reason for participation: For prioritization of reasons for participation trainees were asked to respond in a three-point continuum scale based on the priority of the reason.

$$\text{The score for a reason} = \frac{n1*3+n2*2+n3*1}{N}$$

Where,

n1=Number of trainees who stated the reason as most important

n2=Number of trainees who stated the reason as somewhat important

n3=number of trainees who stated the reason as not at all important.

N=Highest possible score (Total number of trainees*3)

Knowledge test: A knowledge test was developed with the help of item collection and item analysis to assess the knowledge level of officials before and after the training programme. For item collection, important aspects regarding the respective training programmes were listed in consultation with experts working in the domain and review of the literature. Altogether 50 questions were selected. For Item analysis, difficulty indices and discrimination indices were calculated with respective sets of 30 respondents who were not part of the study. The difficulty index for an item was worked out as the percentage of respondents giving the right answer to an item. The items for which the percentage ranged from 30 to 80 were considered for the selection in the final knowledge test. The discrimination index was calculated using the $E^{1/3}$ method by Mehta (1958). To work out the discrimination index, for each question, the total score of the 30 respondents for 50 questions were ranked. The scores obtained were arranged in descending order of total scores and the respondents were divided into six equal groups – G1, G2, G3, G4, G5, and G6 with 5 respondents in each group. The following formula was used to calculate the discrimination index of each item.

$$E^{1/3} = \frac{(S1 + S2) - (S5 + S6)}{N/3}$$

Where, $E^{1/3}$ = Discrimination index, S1, S2, S5, and S6 are

the frequencies for correct answers in the group G1, G2, G5, and G6, respectively. N is the total number of respondents in the sample selected for item analysis. In the present study, the items with a DI value of more than 0.20 were considered for final selection for inclusion in the knowledge test. After discarding the items by difficulty index and discrimination index finally, 30 items were retained in each of the final knowledge tests. Data was collected in a structured format before the training and also after the training. The reliability coefficients of the tests were calculated using Spearman-Brown formula (Guilford and Fruchter, 1978).

$$r_{tt} = \frac{2r_{hh}}{1 + r_{hh}}$$

Where, r_{tt} = reliability coefficient of the test and r_{hh} = the correlation between two halves of the test. The tests were at last validated by the concerned experts in relevant fields.

Attitude test: The initial set of statements aiming to measure attitude towards respective themes of training programmes were presented to thirty experts who were asked to express the relevancy of the statement in a five-point continuum rating scale. T-test for item analysis (Edwards, 1957) was performed to work out the relevancy scores. For this purpose, all the thirty scores for a statement are recorded in descending order. The top 25 percent and bottom 25 percent of responses are grouped into “high group” and “low group”, respectively and then the t-score is calculated with the help of the following formula:

$$t = \frac{\bar{x}_H - \bar{x}_L}{\sqrt{\frac{\sum(x_H - \bar{x}_H)^2 + \sum(x_L - \bar{x}_L)^2}{n(n-1)}}$$

Where,

\bar{x}_H = Mean score on a given statement for the high group

\bar{x}_L = Mean score on the same statement for the low group

n = Number of subjects in the upper and low groups

x_H = Score of an individual in high group

x_L = Score of an individual in low group

The 12 indicators with t score of more than 1.75 were selected in the final scale. Data was collected in a structured format before the training and also after the training.

Training effectiveness score

Six parameters namely, the fulfillment of expectation, the extent of satisfaction with training methodology, overall grading, percentage change in knowledge scores, the percentage change in attitude scores, and skill acquirement were used to calculate the training effectiveness score. The scores of all the parameters for all the respondents under a particular training programme were worked out and divided by maximum score possible to obtain the effectiveness score for that particular programme. In another study by Roy *et al.* (2018) training effectiveness was measured by the Training Effectiveness Score (TES) which was the sum of score obtained by respondents divided by the maximum score possible. The formula developed by the authors for training effectiveness score is given below:

$$\frac{\sum_{j=1}^m \sum_{i=1}^n P_{ji}}{\sum_{j=1}^m P_j} * 100$$

Where,

$j=1 \dots m$, m = Number of parameters (6)

$i=1 \dots n$, n =Number of respondents

P_{ji} =Obtained score for j^{th} parameter of i^{th} individual

P_j = Maximum possible score for j^{th} parameter

Results

The details of five training programmes under study are presented in Table 1. The participants were Line Dept Officers of various State Governments, Assistant Professors, scientists, entrepreneurs, research scholars, technical officers, fishery inspectors, and managers of private companies.

Pre-training assessment

Attempt was made to unleash the underlying reasons for the trainees for participating in the training programme. Except for ToT on inland ornamental fisheries management, exploration of state resources for fishery development ranked first as the reason to participate (Table 2). For the trainees under ornamental fisheries management, the economic development of fishermen ranked first. Other noteworthy reasons were knowledge and skill enhancement and learning a new

concept. The result clearly shows that motivation for participation was largely dominated by intrinsic motives rather than extrinsic ones like a reward in terms of promotion or order from a supervisor.

Post-training assessment

Perceived satisfaction, the fulfillment of expectation, and overall grading of the training programme: Trainees' extent of satisfaction with the training facility and resources and training atmosphere and methodology were noted. Responses for facility and resources were taken in various aspects like lodging, classroom, transport, boarding, library, recreation, and food. The components under training atmosphere and methodology were atmosphere for free interaction, instruction medium, use of audio-visual aids, trainer competency, timeliness, ease of understanding, adequacy, relevancy, and sequencing of contents, and practical orientation. Based on their perceived satisfaction, trainees were divided into three categories, namely high, medium, and low following Mean \pm SD method. Different results were obtained for five training programmes. Most of the trainees under MTC on Enclosure Culture, ToT on Reservoir Fishery management and ToT on Fish Health Management fell into the highly satisfied category regarding most of the components under facility and resources. For the rest two programmes the majority fell in the moderately satisfied category in most of the components. More uniform results were obtained regarding the training atmosphere and methodology. The majority of the trainees of all five programmes were highly satisfied regarding most of the components under the training atmosphere and methodology.

Most of the trainees under MTC on Enclosure Culture (63.24%), ToT on Inland Ornamental Fisheries Management (71.43%), ToT on Reservoir Fishery management (89.47%), and ToT on Enclosure Culture (80.95%) stated that they had enough scope of discussion. However, for ToT on Fish Health Management 70% of the trainees expressed that they did not have enough scope for discussion in the training session. Majority of the trainees under all five programmes expressed that their expectations were fully satisfied from the respective training programmes (Figure 1). The majority of trainees under MTC on Enclosure Culture, ToT on ornamental fisheries

Table 3. Statistical significance of Change in knowledge and attitude

	Knowledge		Attitude	
	Z score	P value	Z score	P value
MTC on Enclosure culture	-2.942	0.003	-.641	.522
ToT on Inland Ornamental Fisheries Management (n=21)	-4.018	0.000	.522	0.000
ToT on Reservoir Fishery management (n=19)	-2.730	0.006	-.337	0.736
ToT on Fish Health Management (n=20)	-4.063	0.000	-1.756	0.079
ToT on Enclosure Culture (n=21)	-3.174	0.002	-3.140	0.002

Table 4. Skill acquirement as perceived by the trainees

	To a great extent	To satisfactory extent	To some extent	To little extent	Not at all
MTC on Enclosure culture (n=26)	0	23.08	46.15	26.92	3.85
ToT on Inland Ornamental Fisheries Management (n=21)	23.81	38.09	23.81	14.29	0
ToT on Reservoir Fishery management (n=19)	10.53	21.05	31.57	26.32	10.53
ToT on Fish Health Management (n=20)	10	30	45	15	0
ToT on Enclosure Culture (n=21)	19.05	33.33	28.57	19.05	0

Table 5. Perceived means of improvement

Means of	MTC on	ToT on Inland Ornamental Fisheries	ToT on Reservoir Fishery	ToT on Health Management	ToT on Enclosure Culture
More practical activities in the field	65.38%	47.61%	78.95%	95%	71.43%
Course material for prior reading	57.69%	38.09%	84.21%	70%	71.43%
Case studies or role play	53.85%	38.09%	84.21%	85%	66.67%
Participatory approach in training	50%	38.09%	84.21%	95%	76.19%
Reducing lecture element	46.15%	38.09%	73.68%	60%	47.62%
Demonstration/ discussion	42.31%	38.09%	84.21%	85%	61.90%
Computer-based learning	38.46%	19.04%	78.95%	75%	66.67%

management and ToT on Reservoir Fishery management graded the overall training programme as “Very Good” while the majority of participants of rest of the training programmes graded the respective programmes as “Good” (Figure 2).

Impact on human capital-KAS

The mean scores of knowledge and attitude test of the trainees after the training programmes were higher than those before the training programmes for all the five programmes (Figure 3 and 4). The change in knowledge level was found to be significant at 5% level of significance using the Wilcoxon Signed Rank Test for all the programmes (Table 3). However, in case of a change in attitude, a significant difference was noticed only in the case of ToT on inland ornamental fisheries management and ToT on enclosure culture. Around 38 percent and 33% of trainees under ToT on inland

ornamental fisheries management and enclosure culture, respectively stated that they had acquired skill to a satisfactory extent. Around 46%, 32%, and 4 % participants of MTC on Enclosure culture, ToT on Reservoir Fishery management, and ToT on fish health management, respectively expressed that they had acquired skill to some extent after completing the respective programmes (Table 4).

Training effectiveness score

After studying the individual parameter composite training effectiveness scores were calculated using the Training Effectiveness Index (TEI) developed by Roy *et al.* (2018) with some modification. As per the effectiveness score, ToT on Inland Ornamental Fisheries Management ranked highest (80.66%) followed by ToT on fish health management (75.44%), MTC on Enclosure

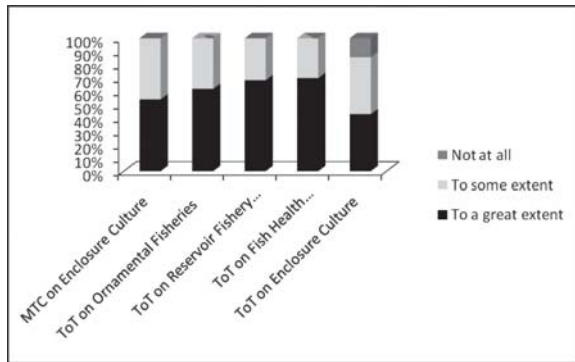


Fig. 1 Extent of Expectation fulfilment of the participants

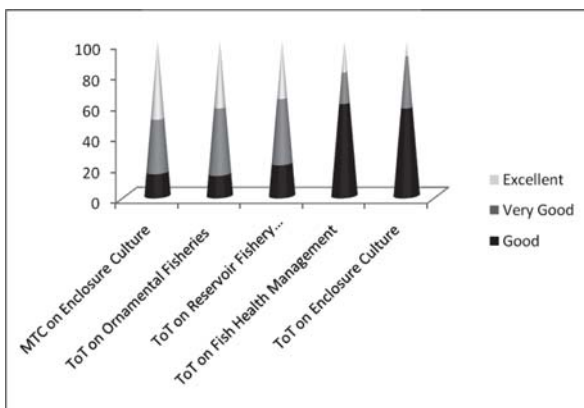


Fig. 2 Overall Grading of Training Programmes

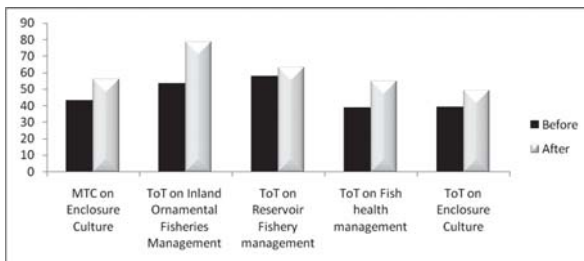


Fig. 3 Change in Average knowledge score

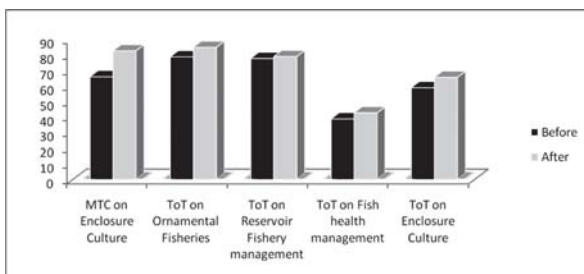


Fig. 4. Change in average attitude score

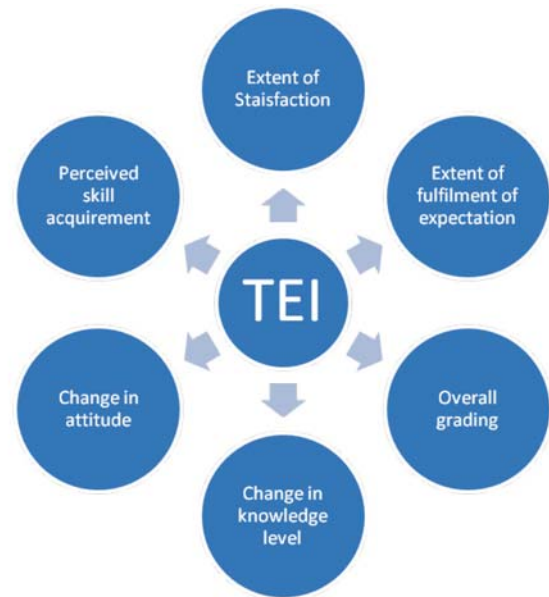


Fig. 5. Components of Training Effectiveness Index

culture (74.12%), ToT on Reservoir Fishery management(73.82%) and ToT on Enclosure Culture (71.76%).

Means of improvement, suggestions and action plans

In the next phase, the perceived challenges, means of improvement, suggestion for future programmes, and future action plans were elicited from the trainees. The challenges faced by the trainees while attending the training programme were also taken into account. The routine theoretic approach of the sessions ranked as the greatest hurdle as perceived by the trainees under MTC on Enclosure Culture, ToT on Inland Ornamental Fisheries Management, and ToT on Fish Health Management. Confusion regarding the content was the greatest challenge faced by the trainees of ToT on Reservoir Fishery management and ToT on Enclosure Culture. Most of the trainees under all five programmes opined that more practical activities in the field situation would help to raise the standard of training programmes (Table 5). Other important means as perceived by the trainees were the inclusion of the case study method, participatory approach, and more discussion or demonstrations in the teaching.

Future action plans were also derived using open-ended questions. The action plans ranged from conducting

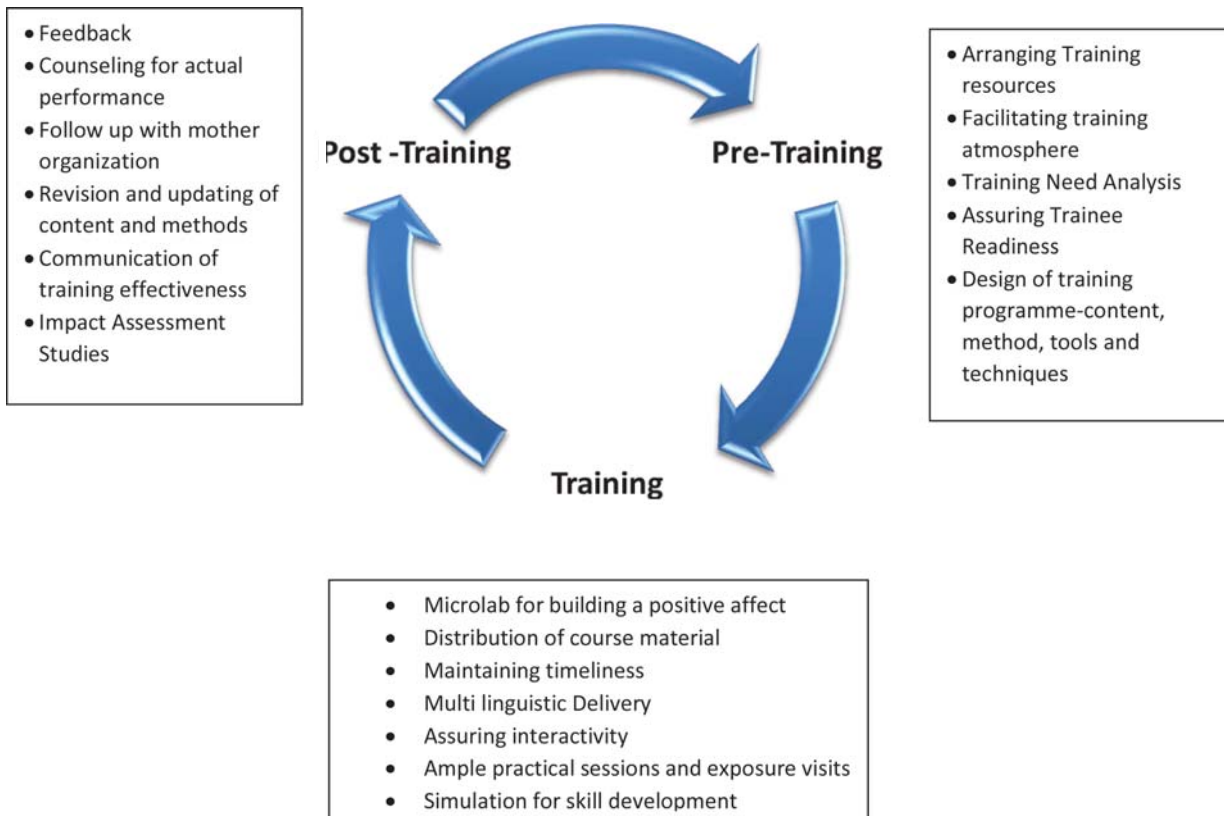


Fig. 6. Recommended three-stage Training Cycle (Modified Lynton and Pareek, 1978)

youth employment and entrepreneurship development programmes, awareness campaigns, demonstrations, exhibitions, and training programmes for farmers to the establishment of physical structures, such as cage and pen, hatchery unit, fish breeding unit, disease diagnostic lab, Recirculatory Aquaculture System (RAS).

Discussion

Most of the trainees under the study stated that their expectations were fully met and most of them ranked the training programmes as either “good” or “very good”. The findings also reveal significant gain in knowledge for trainees under all the programmes. However, how far this positive reflection on training programme and knowledge gain is translated into better job performance remains a question. Many researchers across the globe suggest that despite the high

investment, the ‘transfer problem’ remains to persist as trained skills are often not practiced in real job situations after training (Hughes *et al.*, 2018). Transfer of training can be defined as ‘the use of trained knowledge and skills back on the job’ (Burke *et al.*, 2007). It is majorly influenced by trainee characteristics, training design, and work environment (Baldwin and Ford, 1988). A broad body of research has demonstrated that the application of gained skills to the workplace is not guaranteed by high investment in training (Grossman *et al.*, 2011). Therefore, the training programmes should be designed in a way to maximize the transfer of learning of training to one’s workplace. Based on the findings of the study the authors propose a three-stage training cycle consisting of pre-training, during training, and post-training phases (Figure 6). The findings of the study and subsequent recommendations are presented in these three broad categories of training stages.

Pre-training

The pre-training phases consist of the arrangement of training resources and training atmosphere, Training Need Analysis (TNA), and designing the training programme including its content, method, tools, and techniques. Nankcrvis *et al.* (2002) claimed that most organizations do not implement TNA correctly and sufficiently or do not perform this process at all. A training need assessment is a strategic step to find out the right training program for the organization and employees (Hartoyo *et al.*, 2017). A study claims a positive correlation between training needs analysis and training transfer. TNA provides information about the current employee efficiency level, the skill areas most in need of development, and the ways in which this might best be achieved (Ludwikowska, 2018). In the present study “Training programmes were not based on training need” ranked as the second-highest challenge for the trainees under MTC on enclosure culture. Therefore, care has to be taken for proper TNA and designing the content accordingly. Confusion regarding the content ranked as the biggest hindrance faced by trainees of ToT on enclosure culture which needs to be addressed. The majority of the trainees also opined that prior distribution of course material would improve the quality of training. A significant number of trainees agreed that the inclusion of more case studies, participatory approach, discussions, and demonstrations would be beneficial for future training. The simulation method can be applied to build skills of the trainees in real field situations.

During training

The aspects which are to be remembered during the training programme are the prior distribution of course material, maintaining timeliness, taking care of the medium of instruction, assuring enough scope for interactivity, etc. Around 52 percent of the trainees under ToT on reservoir fishery was not satisfied with timeliness in the present study which needs attention. The majority of the respondents opined that more practical orientation is required in the training programmes. In fact, routine theoretic approach was one of the biggest challenges as seen in the case of all the training programmes. Trainees prefer greater levels of learner-teacher interaction (Gegenfurtner *et al.*, 2019). Therefore, more interactivity and inclusion of more practical sessions

and field studies is imperative for the betterment of the training programmes. A significant change in the attitude of the trainees was noticed only for two training programmes. Conducting micro labs, in the beginning, can be helpful in this regard to build positive affect among the participants. The positive effect would eventually help to learn and perform better during and post-training. Further, subject-matter knowledge and communication techniques are considered vital for trainers, along with content-specific instructional knowledge such as specific training methods. Additionally, trainers are expected to provide clarity and structure, build relationships with trainees, and create a constructive learning environment (Wisahak and Hochholdinger, 2018).

Post-training

The gravity of this phase is often diluted in most of the training programmes. Post-training feedback collection, counseling for the actual performance, follow up with mother organization, revision of content and methods, and conducting impact assessment studies are as important as conducting a successful training programme. Otherwise, the transfer of learning is not ensured. Social support and motivation to transfer are important components in conceptual models on the transfer of training. Peer support was the strongest predictor of motivation to transfer, and feedback was the strongest predictor of transfer of training in a study by Reinhold *et al.* (2018). The relationship between work environment and transfer can perhaps be explained most strongly by the support trainees receive at work in using newly learned knowledge and skills (Blume *et al.*, 2010). Supervisor support and peer support play a key role in creating an organizational climate conducive to transfer (Lau *et al.*, 2013). Therefore follow-up with the mother organization of trainees is very important to facilitate the transfer of training. The immediacy of transfer also counts. Wexley and Latham (2002) have reported that the percentage of training content transferred immediately after the programme is 40 which is reduced to 25 after six months, and goes further down to 15 percent within a year (Velada *et al.*, 2007). Hence the trainees must be counseled at the end of the programme to transfer their knowledge and skill gain to an actual work situation as early as possible. A study of South-western Nigeria stated that the feedback system

significantly correlates with training effectiveness and especially in the area of setting training objectives (Kester *et al.*, 2017). Therefore special attention must be given in collecting and analyzing feedbacks after training and modifying the contents and methods based on the feedback received.

Conclusion

The study attempted to measure the impact of five training of trainers in inland fishery sector of India in terms of training effectiveness and changes in human capital. The study captured participants' reactions and perceptions on various aspects of the training programmes to measure the impact. The training effectiveness index was devised for this purpose consisting of six parameters namely, expectation fulfillment, the overall grading of the programme, the extent of satisfaction, change in knowledge, attitude, and skill level of the participants. The majority of the respondents opined that their expectations were fully satisfied and most of them graded the training programme as either very good or good. The satisfaction level in various aspects of the training atmosphere and methods varied from one programme to the other. A significant change in knowledge level in all programmes and attitude levels in two programmes was recorded. The gain in skill was measured based on participants' perception and varied over the training programmes with most of the responses ranging from "to satisfactory extent" to "to some extent". Based on the findings, the challenges faced by the trainees, and their perceived means for improvement in the future, a three-stage training cycle was proposed by the authors. Some of the recommended measures are conduction of thorough TNA, application of simulation method for skill-building, the inclusion of more practical and field-oriented sessions, carrying out micro lab before the training, post-training follow up with mother organizations, and analyzing the impact of training on job performance. The study is expected to pave the way for research on the training of trainers in the inland fishery sector. The findings would also help the designers of training programmes towards the implementation of better training methods for efficient resource management and ensuring a return on investment.

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