

A Comparative Study of Learning at Training and its Implementation Stage at Workplace in the Context of a Training Programme

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Abstract: Training is inevitable as it develops the skills and knowledge of the employees and enables them to cope up with the challenges at the workplace. Training builds up self - confidence among the trainees and employees concerned. Each trained person has the responsibility to justify the learnings from the training programme by way of implementing the learnings at the workplace and thus contributing to the organization's productivity and profits. Evaluation of training is never so easy. It appears to make look relatively simple by deploying the traditional feedback sheet issued at the end of the training courses to assess factors like what learners thought of the trainer and other attributes of the training. However, this does not ensure or evaluate whether the learners are going to do their jobs in a better and more effective manner. The real evaluation of the training's impact is reflected in the learners' performance and their departments and the organization as a whole. The present study focuses on the training aspect of the apex body of its kind in the country, Council of Scientific and Industrial Research particularly its Human Resource Development Centre (HRDC). It conducts various types of training programmes for its personnel. Among all the training programmes offered by CSIR - HRDC, Leadership Development Programme (LDP) is the leading one and it is considered as the flagship training programme of the CSIR - HRDC. In the present study, an attempt has been made to present a comparative analysis of LDP at the offering stage and implementation of the learning outcomes stage. An Extensive Review of Literature leading to a broad understanding of the subject matter and the trends in this area is followed by the formulation of objectives and related hypotheses of the study. For the purpose of analysis of hypotheses, questionnaires were administered to the respondents and their responses were collected. Two different questionnaires corresponding to the two different stages of LDP training were administered to the respondents who underwent the training. To evaluate the training programme, the LDP of CSIR - HRDC is selected for the study with a sample size of 135 participants drawn from 7 LDPs held during 2017 - 2020 at the first stage of the study which is related to the evaluation of LDP at the offering stage. Out of 135 participants, 132 responded to the first questionnaire. At the second stage, an online survey was conducted to analyze the LDP learning outcome at the implementation stage by the 132 respondents of the first stage. Only 62 out of 132 first stage respondents responded to this online survey. As a major outcome of the study, it was found that the scores at the first stage were more in comparison to those at the second stage as we can rarely expect a hundred per cent implementation of learning at training at the final workplace. Moreover, more learning at the training stage was coupled with more implementation of it at the workplace too and similarly, low learning at the training stage was coupled with the lesser implementation of it at the workplace. The main limitation of the study is that it covers primarily Leadership Development Programme only. The study concludes with the testing of hypotheses and related deliberations.

Keywords: Council of Scientific and Industrial Research (CSIR), CSIR - HRDC (Human Resource Development Centre), Leadership Development Programme (LDP), Training, Training Evaluation, Training Need Analysis (TNA)

1. Introduction

It will not be unfair to say that there is intense competition in all walks of life which is not hard to imagine and feel. It becomes even more contextual and pronounced in the case of business organisations and organisations operating in the areas of Research and Development (R&D). It is because of all these developments coupled with cut - throat competition among all forms of organisations including those working in the field of science, engineering, technology, and related R&D domains that the aspect of proper training for the personnel concerned assumes utmost importance and significance. The present study by the researchers is related to the training aspect of the leading organisation of its kind in the country namely the Council of Scientific and Industrial Research (CSIR). It is a flagship public sector organisation of its kind in the country. The aspect of training that too in an organisation of such strategic relevance for a country like India, which portrays its unique socio -

economic fabrics in terms of its complexities and diversities, assumes even bigger significance. The general outlook towards training is fast - changing across the globe and rather than being just considered a useless expense with no immediate benefits to the organisation, it is now being positively viewed as a wise investment meant to direct the organisation towards a healthy future and sustainable growth. This has further led to the issue of proper evaluation of an investment in training popularly termed Return on Training Investment (ROTI).

2. Review of Literature

Morris M (1984) in his study talked about the evaluation of training. It is pointed out in the study that the evaluation of training must be viewed as an integrated process. It is revealed in the study that most of the available evaluation methods in the real world are more or less imperfect. In such a scenario, it will be more justified to have worthy attempts

Volume 12 Issue 2, February 2023

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at training evaluation rather than having no such attempt at all. Rowe C (1996) in his study talked about the evaluation of management training and development by revisiting the basic issues. It is pointed out in the study that it is an evaluation that is focused on the study and the measurement of mentoring. The study further points out that though single loop monitoring is considered crucial in evaluating training programmes, however, in a sense it is insufficient in itself. Carol Y and Lin Y (1996) in their study emphasized the fact that the role of human resources is immense in an ever - competitive technological and global environment. The study further emphasises that training and development are the keys to building an effective workforce. Kumpikaite V (2007) in his study talked about the conceptual framework of human resource training evaluation. According to this study, human resource evaluation provides information that can be utilized to make training more effective. Moreover, techniques like Cost - benefit analysis and cost - effective analysis can be used to make training more worthwhile. Arun W (2007) in his study focused on the significance of soft skill training in the context of an environment where the work nature of an employee of the company is such that they have to interact with a group of the clients which represents a different culture. Understandably in such circumstances, one needs to be well versed with communication skills as well as the basic etiquette of the culture of the client concerned. Subramanian M (2010) in his study considered the evaluation of training programmes in India. In this study total of 533 trainees attending the training programmes are covered. It was found in the study that means ranks towards the purpose of training programmes as far as trainees are concerned are significantly different. It means that considerable difference of opinion is there among the respondents regarding the purpose of the training programme. Ronizi Z. G, Ronizi N. G, and Bahmani F (2014) in their study focused on training course efficiency in Tehran Municipality. The study is based on the Kirkpatrick model. The study attempts to investigate the effects of training programmes offered to municipality employees in improving their skills. Manna A and Biswas D (2018) in their study focused on influencing factors in training effectiveness. According to the study, the effectiveness of training will be more justified when there is a significant difference between the pre and post - training stages. According to this study, training effectiveness increases with the duration of time. At the same time study says that training effectiveness decreases if intervening obstacles are more. S. Richa (2018) in her study focused on the Training Need Analysis aspects. It was found in the study that there is a significant need for training among employees in both technical as well non - technical areas. The other finding of the study reveals that the age and experience of current employees is a vital factor related to Training Need Analysis.

Ahmad I. A. S and Yunus M. M (2018) in their study proposed a conceptual framework to evaluate in - service teacher training programmes. The authors have considered in - service language training programmes in their study. Sulaiti K. A (2019) in his study focused on the role of training and development programmes in developing the innovative capability of administrative leadership. The study further revealed that these young administrative leaders are of the view that developments programme play an important

role in developing their innovative capabilities. The notable aspects are that most of these administrators attended such training programmes based on their requests along with nominations by their supervisors. As per the study, administrative leaders appreciated that such training programmes lead to imparting of leadership skills among them which in turn helps in making them serve their organization in a better manner. M. Srimannarayana (2019) in his study concluded that there is a significant gap between the importance and demonstration of training & development competencies. The study points to certain specific competencies areas where a gap is identified.

Objective of the study

To understand the deflation of learning at the offering of training stage and implementation of the learning outcomes stage at the workplace in the context of a training programme.

Hypothesis of the study

Hypothesis corresponding to the above objective of the study is as follows:

H0: There is no significant difference in the learning at the offering of the training stage and implementation of the learning outcomes stage at the workplace.

Scope of study

The present study covers the training programmes offered by CSIR - HRDC to its human resource primarily the scientific and technical fraternity. Moreover, the main focus of the study is on the Leadership Development Programme of CSIR - HRDC which is considered as the flagship programme of the CSIR. The sample size is limited to 135 in the first stage and 62 in the second stage. The respondents for the study were considered during the training programmes offered from 2017 to 2019.

3. Research Methodology

The methodology of the study is based on the quantitative method where a questionnaire survey was used as an instrument. To evaluate the training programme, the LDP of CSIR - HRDC is selected for the study with a sample size of 135 participants from among the participants of 7 LDPs held during 2017 - 2020 at the first stage of the study which relates to the evaluation of LDP at offering. At the second stage, an online survey was conducted to analyse the LDP learning outcome implementation by the 132 respondents of the first stage. Only 62 participants have responded to this online survey. Table 1 explains the sample plan of the study.

Table 1: Sample Design of Study

Name of the Training Programme	Leadership Development Programme			
	Stage	No. of Programmes	No. of Participants	No. of Respondents
First stage of study: Evaluation of LDP at offering stage	7	135	132	
Second stage of study: Analysis of the LDP learning outcome at implementation stage	7	132	62	

The following steps were undertaken to test the Hypothesis:

The Learning Scores (LS) and Post - Learning during Implementation Stage Scores (PLIS) of 62 respondents who participated at both stages of the evaluation were calculated to find out the relative variation of learning at the offering stage and at the implementation or outcome stage. The difference in mean scores is supposed to reflect the amount of deflation or inflation between two stages of evaluation - the offering stage and the implementation stage.

Statistical Tools Used in Analysis

In this study Paired t - test was conducted using R. A t - test is an inferential statistic that is used to see if there is a significant difference in the means of two groups that are related in some way. A t - test is a hypothesis - testing technique that can be used to assess an assumption that applies to a population. To apply this test, we first work out the difference score for each matched pair, and then find out the average of such differences, \bar{D} , along with the sample variance of the difference score.

Paired t - test Formula

The formula for the two - sample t - test is shown below.

$$t = \frac{\sum_i D_i}{\sqrt{\frac{n(\sum D_i^2) - (\sum D_i)^2}{n-1}}}$$

where,

D_i = Difference of i^{th} Pair Value

N = No. of Samples

4. Data Collection, Analysis and Interpretation

The Learning Score (LS) and Post - Learning during Implementation Stage Scores (PLIS) of 62 respondents who participated at both the stages of the evaluation were calculated and presented in Table - 2 to find out the relative variation of learning at the offer stage and implementation at the outcome stage.

Table 2: Learning and Post Learning Scores

Learner No.	Learning Score (LS) (%)	Post - Learning during Implementation Stage Scores (PLIS) (%)	Learner No.	Learning Score (LS) (%)	Post - Learning during Implementation Stage Scores (PLIS) (%)
1.	98.46	54.54	32	77.69	74.54
2.	96.15	100.00	33	76.61	76.36
3.	85.00	63.63	34	83.07	83.63
4.	88.44	83.63	35	92.30	96.36
5.	87.69	83.63	36	79.95	81.81
6.	85.38	89.09	37	74.07	70.90
7.	87.30	80.00	38	89.23	89.09
8.	78.64	83.63	39	86.15	100.00
9.	93.84	78.18	40	90.24	92.72
10.	98.46	80.00	41	89.20	85.45
11.	85.00	98.18	42	90.23	83.63
12.	95.07	58.18	43	91.53	74.54
13.	80.00	78.18	44	98.00	81.81
14.	95.38	85.45	45	86.15	87.27
15.	94.35	90.90	46	92.29	76.36
16.	70.52	67.27	47	85.90	76.36
17.	74.61	78.18	48	75.12	92.72
18.	80.38	60.00	49	90.00	92.72
19.	85.24	94.54	50	83.53	89.09
20.	88.44	72.72	51	94.76	92.72
21.	84.13	92.72	52	92.03	85.45
22.	83.07	90.90	53	98.46	100.00
23.	80.95	80.00	54	97.93	87.27
24.	87.69	81.81	55	98.46	92.72
25.	88.30	81.81	56	82.83	61.81
26.	94.60	87.27	57	91.41	83.63
27.	83.83	76.36	58	87.69	78.18
28.	80.76	83.63	59	85.69	89.09
29.	79.98	87.27	60	94.92	63.63
30.	90.06	92.72	61	88.92	72.72
31.	87.69	89.09	62	83.56	74.54

The same was tested with help of a statistical tool called t - test. The paired sample t - test has four main assumptions. All four assumptions were met therefore paired t - test was performed using SPSS. The box plot to identify outlier

detection for Learning Score & Post - Learning during Implementation Stage Scores (PLIS) is shown in Figures 1 & 2 respectively.

Results of Paired t - test:**Table 3:** Paired Samples Statistics

Paired Samples Statistics					
		Mean	N	Std. Deviation	Std. Error Mean
Pair 1	Learning Scores (LS)	87.3804	62	6.79083	0.86244
	Post - Learning during Implementation Stage Scores (PLIS)	82.4340	62	10.50387	1.33399

Table 3 shows that the mean value of the Learning Score is 87.3804 while that of the Post Learning during Implementation Stage Score is 82.4340.

Table 4: Paired Samples t - Test

Paired Samples Test									
		Paired Differences					t	df	Sig. (2 - tailed)
		Mean	Std. Deviation	Std. Error Mean	95% Confidence Interval of the Difference				
					Lower	Upper			
Pair 1	Learning Score (LS) - Post Learning during Implementation Stage Score (PLIS)	4.94638	11.5076	1.46147	2.024	7.86876	3.385	61	0.001

From Table 3 it is clear that there was a significant difference between Learning Score (LS) and Post Learning during Implementation Stage Score (PLIS). The mean of the Learning Score is 87.38 with a standard deviation of 6.79 and the mean of the Post Learning during Implementation Stage Score is 82.43 with a standard deviation of 10.50. Table 4 shows that the t - value with a degree of freedom (df) of 61 was found to be 3.385, with the value of p (p=0.001) which is less than the value of alpha ($\alpha=0.05$). Hence, the null hypothesis is rejected and thus we can say that PLIS is significantly different from the LS. Since the mean value of PLIS is lower than the LS, we can say that there is deflation in the pattern of learning outcomes implementation with respect to the actually reflected level of learning at the time of the offering of LDP.

It is a common perception that in general skills learned at training programme is not implemented in totally by the trainees at their actual workplace. In other words, we may expect some deflation of learning from the training to the implementation stage. This can be related to the peculiar human tendency of failing to implement a hundred percent of what he is taught or trained. Some unwanted squeezing of learning is there. However, exceptions can be there but are rare.

5. Results and Discussion

It is not difficult to ascertain from Table 3 that there was a significant difference between Learning Score (LS) and Post Learning during Implementation Stage Score (PLIS). The mean of the Learning Score is 87.38 with a standard deviation of 6.79 and the mean of the Post Learning during Implementation Stage Score is 82.43 with a standard deviation of 10.50. Table 4 shows that the t - value with a degree of freedom (df) of 61 was found to be 3.385, with the value of p (p=0.001) which is less than the value of alpha ($\alpha=0.05$).

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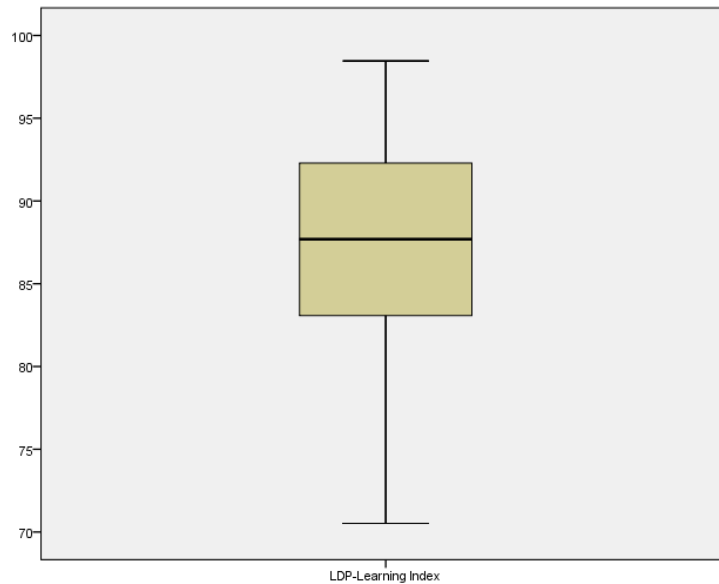


Figure 1: Outlier detection for Learning Score (LS)

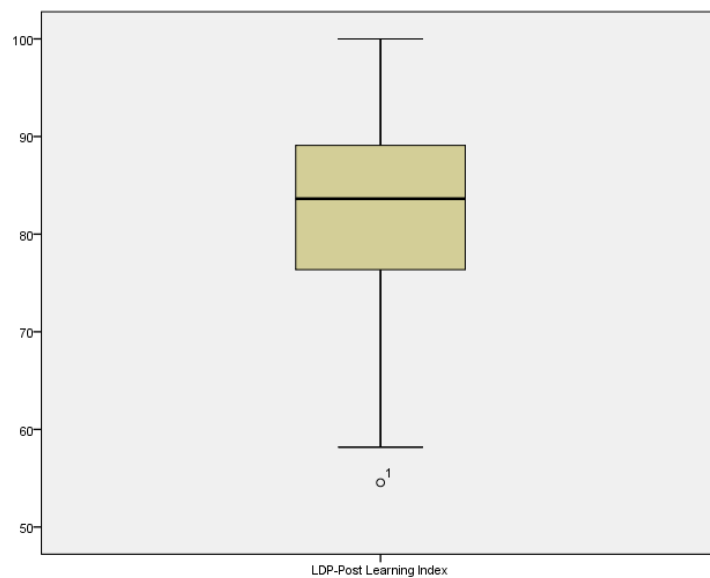


Figure 2: Outlier Detection for Post - Learning during Implementation Stage Scores (PLIS)