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A study of Workers' Perception of Effectiveness of Training

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Abstract

Training evaluations should provide relevant information about the extent and direction (Positive-negative) of trainee change, and about the causes of that change. There are various training evaluation models, important among them are Noe model, **Baldwin and Ford's Training Evaluation Model, and Kirkpatrick model**. Kirkpatrick developed a model consisting of four levels of evaluation to measure effectiveness of training. The first level measures the trainee reactions i.e. utility reaction of trainees towards training; the second level measures the learning of training contents; the third level measures the changes in job-behaviour; and the fourth level measures the organizational results. Using simple regression analysis, the hypotheses have been tested and the results reveal that evidence of the relative importance of each stage in relation to the next stage.

Key words: Learning, Transfer of Training, Organizational commitment, Productivity.

Introduction:

Training evaluation issues have been of concern to researchers and practitioners who are pressed to determine the value of training efforts (**Alliger&Janak, 1989; Campbell,1988; Cascio, 1989; Kirkpatrick, 1977; Wexley& Latham, 1991**). Training evaluations should provide relevant information about the extent and direction (Positive-negative) of trainee change, and about the causes of that change. Causal attributions in training evaluation require the empirical confirmation that post training changes be larger than those changes that could have occurred by chance or through the action of contiguous events independent of the training experience. To help provide that confirmation, researchers rely on two basic

strategies. The first of these strategies, the experimental approach, draws causal inferences by comparing the trained group to one or more untrained, groups. While it is the method of choice for inferring training effectiveness, practical constraints, including the difficulties inherent in obtaining and measuring comparison groups, greatly reduce its applicability in organizational settings.

Training Evaluation Models

Noe's Model:

Noe (1986) proposed a model of the motivational influences of the effectiveness of training programmes. The dependent variables for the model include the multiple measures of training effectiveness described by **Kirkpatrick (1977)**. The model describes the possible influence of trainees' attitudes towards their behaviours, job career, and work environment on learning, behaviour change, and attainment of desirable organizational outcomes.

Baldwin and Ford's Training Evaluation Model

Baldwin and Ford(1988) building on earlier work by Noe and Schmitt(1986) posited environmental favourability comprising (1) social Support and (2) opportunity to use, as two key dimensions of an overall construct suggested to influence the use of training on the job.

Kirkpatrick Training Evaluation mode(1959):

The effectiveness of training is measured using Kirkpatrick's model of training evaluation. Kirkpatrick developed a model consisting of four levels of evaluation to measure effectiveness of training. The first level measures the trainee reactions i.e. utility reaction of trainees towards training; the second level measures the learning of training contents; the third level measures the changes in job-behaviour; and the fourth level measures the organizational results. If each level in the hierarchy is evaluated the full effects of the training can be better understood (Hamblin, 1974).

The discussion about the insufficiency of reaction measures has been prevalent in the literature since 1980s (Rouna et al., 2002). **Warret al.**(1999) used a multi dimensional reaction measures that differentiated between enjoyment of training, perceptions of usefulness and perceived difficulty. But it is clear that reaction measures cannot be viewed as surrogate measures for other valued outcomes such as learning and results (Swanson & Holton, 1999).

Research Methodology:

The present study is based on the empirical data collected through a personally administered structured questionnaire from 706 workers employed in 30 medium and large scale industrial units operating in Mysore district of Karnataka. The study variables Reactions, Learning, transfer of training, Productivity of workers and Organizational commitment have been measured using 5 point Likert scale. The respondents have been selected using convenience sampling which is a non-probability technique. About 950 questionnaires have been administered but only 706 workers returned the filled questionnaires resulting in a response rate of 74.31 percent. Besides using descriptive statistics such as mean, standard deviation, simple regression analysis is used to test the hypotheses.

The training evaluation has been made using Utility Reaction, Learning, Job-behaviour change/ Transfer of training etc', have been analyzed as under;

Utility reaction (Level I): The utility reaction of sample workers shows the reaction of workers towards the usefulness of the training programmes. The descriptive statistics for the utility reaction of sample workers towards training are as under;

Table 1: Mean score and standard deviation for utility reaction

Sl. No.	Factors	Mean	Std. Deviation
A	The training programmes will influence my ability to perform my job	4.022	0.764
B	The training programmes were relevant	3.916	1.032
C	The training programmes were useful	4.056	0.861
D	The course contents were valuable to my job	4.034	1.088
	Aggregate mean and standard deviation	4.007	0.936

Source: Field survey

The table 1 highlights the mean score and standard deviation for utility reaction of sample workers of the respondent industrial units. The mean scores range from 3.916 to 4.056 and standard deviations range from 0.764 to 1.088. The aggregate mean score and standard deviation are 4.007 and 0.936 respectively. The aggregate standard deviation being less than 1, it indicates that there is a consistency in the views expressed by the workers.

The workers' utility reaction towards the training programmes influence the other outcomes of the training i.e. the extent of learning, transfer of training and organizational results. The respondent workers agreed that the training programmes would influence their ability to perform job (mean score of 4.022). The training programmes were found significantly relevant (mean score of 3.916) and useful (mean score of 4.056). The training programmes will benefit workers only when the course contents are valuable to their job. The results indicate that workers were satisfied with the contents of training as they were valuable to their job (mean score 4.034).

Learning (Level II): The effectiveness of training is measured by the extent of perceived learning of contents of training by the sample workers who participated in training programmes. It is known that better the learning of the training content, greater is the application of knowledge and skills to the job situation. The descriptive statistics for the learning perception of sample workers are given in the following table;

Table 2: Mean score and standard deviation for perceived learning

Sl. No.	Factors	Mean	Std. Deviation
A	I learnt a lot attending training programmes	4.062	0.771
B	I have learnt all the skills required for doing my job	4.052	1.063
C	I remember almost everything covered in the training programmes	3.943	0.911
	Aggregate mean and standard deviation	4.019	0.915

Source: Field survey.

The table 2 highlights that the mean score ranges from 3.943 to 4.062 and standard deviation varies between 0.771 and 1.063. Since the aggregate standard deviation is less than 1, the mean score is dependable and workers' rating of the scale is consistent.

The perceived level of learning indicates the sample worker's belief in their ability to learn the training contents. The level of confidence expressed by the workers in acquiring of required skills is an index of the usefulness of the training programmes. The workers believe that they have learnt a lot attending training programmes (mean score of 4.062). The second statement has a mean score of 4.052 indicating that sample workers agree that they have learnt all the required skills for doing their job. Again in the last statement, workers affirmed that they remember whatever is taught in the training programmes (mean score 3.943).

Job-behaviour change/ Transfer of training (Level III):

The third level of evaluation of training is the change in the job-behaviour of workers or the level of transfer of training by the workers to the job. It indicates the extent of application of skills, knowledge, and attitudes learnt in the training to the work-environment context. The following table highlights the mean score and standard deviation for the transfer of training:

Table-3: Mean score and standard deviation for training transfer

Sl.No.	Factors	Mean	Std. Deviation
A	I have been using new skills to improve my performance	4.184	0.545
B	The training programmes have helped me to improve my job performance	4.318	0.829
C	I have been incorporating learned skills into daily work activities	4.107	0.630
D	I use more of what was learnt in the training programmes	3.869	1.164
	Aggregate mean and standard deviation	4.112	0.792

Source: Field survey

The table 3 highlights that the mean score varies between 3.869 and 4.318 and standard deviation varies between 0.545 and 1.164. The aggregate mean score and standard deviation are 4.112 and 0.792 respectively. The aggregate standard deviation being less than 1, it indicates consistency in the views expressed by the sample workers.

The transfer of training involves application, generalizability, and maintenance of new knowledge and skills. The transfer of training is a significant predictor of effectiveness of training programmes.

The sample workers agree that they have been using new skills to improve their performance (mean score of 4.184). The training programmes have helped them to improve their job performance (mean score 4.318). The improvement in job performance is a significant outcome of training. The workers also strongly believe that they have been incorporating learned skills into daily work activities (mean score 4.107). Another important dimension of transfer of training is that greater use of what was learned in the training programmes on the job. The mean score 3.869 indicates that the workers have been utilizing to a greater extent the learned skills at the work place.

Results (Level IV)

Level IV evaluations measure the extent to which training has aided the attainment of objectives set forth by the organization. Organizational outcomes are generally perceived as the most tangible and objective measures of training effectiveness. However, most researchers consider level 4 evaluations is the most difficult to attain (Kirkpatrick, 1994; Lupton et al.,1999).

In this study, training results are measured in terms of organizational commitment and productivity of workers and the results are presented in the following paragraphs:

a. Organizational commitment:

It is the fourth level evaluation measuring the training outcome in terms of organizational commitment. This variable is used to measure the level of commitment on the part of the employees after being trained. The following table highlights the mean score and standard deviation for the organizational commitment of the sample workers;

Table 4: The mean score and standard deviation for organizational commitment

Sl. No.	Factors	Mean	Std. deviation
	The training programmes have-----		
A	Made me feel more committed to my company	4.174	0.582
B	Given me a sense of loyalty to my company	4.307	0.902
C	Made me feel like I will stay with my company for any years	4.051	0.833
	Aggregate mean and standard deviation	4.177	0.722

Source: Field survey

The table 4 shows that the mean score ranges between 4.051 and 4.307 and standard deviation ranges between 0.582 and 0.902. The aggregate mean score and standard deviation are 4.177 and 0.722 respectively. The aggregate standard deviation being less than 1, it indicates consistency in the views expressed by the respondent workers.

An important outcome of training is the organizational commitment. The training must lead to a high level of organizational commitment by the trained workers. The descriptive statistics indicate that training has made respondent workers feel highly committed to their company (mean score of 4.174). They also have a strong sense of loyalty to the organisations in which they have been employed as indicated by mean score of 4.307. The mean score of 4.051 implies that the respondent workers would like to work for the company for longer years.

b. Organizational Results

It highlights the impact of training on organizational results in terms of productivity of workers. Sanchez et al., (2003) observes that data from the study of the effect of training on business results through objective indicators are not conclusive, and even contradictory. Hence, the use of perceptions about the training outcome in terms of productivity of workers is also a good predictor of training success. The following table shows the impact of training on the productivity of workers. The mean score and standard deviation for the organizational results are given in the following table:

**Table5: Mean score and standard deviation for the organizational results-
Productivity of workers**

Sl. No.	Factors	Mean	Std Deviation
A	Helped to considerably reduce waste of materials	4.026	0.564
B	Helped in cost reduction	4.215	0.967
C	Helped in avoidance of reworking of defective product	3.958	0.706
D	Helped to attain a higher production volume.	3.997	1.087
E	Helped to become more efficient with utilization of machinery	4.075	0.798
F	Resulted in improvement in the quality of the product	4.168	0.977
G	Improved safety at work	4.157	0.900
	Aggregate mean and standard deviation	4.085	0.857

Source: Field survey

The table 5 shows that the mean score varies between 3.958 and 4.215, and the standard deviation varies between 0.564 and 1.087. The aggregate mean score and standard deviation are 4.085 and 0.857 respectively. The aggregate standard deviation being less than 1, it indicates consistency in the views expressed by the workers.

The sample workers of the respondent units agreed that training has considerably reduced the wastage of materials (Mean score 4.026). The workers felt that the training has helped in reduction of cost (Mean score 4.215). The trained workers also opined that the reworking of defective product (mean score 3.958) has decreased leading to reduction in cost. The training has also made a significant impact on the attainment of higher level of production (mean score 3.997). The trained workers concur that the training has helped in the efficient utilization of machinery (Mean score 4.075) and led to improvement in the quality of products (mean score 4.168). Lastly, the workers expressed the view that training has improved safety at the work (mean score 4.157).

In the following paragraphs, an effort has been made to test the impact of one criterion upon the other criterion as proposed in the research model I which is given in chapter I (Figure 1.1). Firstly, to study the impact of utility reaction on learning, the following null and alternative hypotheses are postulated;

Testing of Hypothesis- Reaction and learning

H₀: There is no positive relationship between utility reaction and learning of training contents.

H₁: There is a relationship between utility reaction and learning of training contents.

The hypothesis is tested using simple regression and the results are as under:

Table 6: Co-efficients^a- Reaction and learning

Model	Unstandardized co-efficients		Standardised Co-efficients	t	Sig
	B	Std. Errors	Beta β		
1 (constant)	1.875	0.123		15.251	0.000
Utility reaction	0.539	0.031	0.554	17.568	0.000

a. Dependent variable: Learning

P<0.05

As in table 6, the beta coefficient and t value for the relationship between utility reaction and learning are 0.554 and 17.568 respectively. With the significance value of 0.000(p<0.05), the null hypothesis: “There is no direct positive relationship between utility reaction and learning of training contents” is rejected and the alternative hypothesis: “There is a positive relationship between utility reaction and learning of training content” is accepted.

Secondly, to test the relationship between the learning of training contents and transfer of training, the following null and alternative hypotheses are formulated:

Testing of Hypothesis- Learning and Transfer of training

The hypothesis is tested using simple regression and the results are as under:

H₀: There is no positive relationship between the learning of training contents and transfer of training.

H₁: There is a positive relationship between the learning of training contents and transfer of training.

Table 7: Co-efficients^a Learning and Transfer of training

Model	Unstandardized co-efficients		Standardized Co-efficients	t	Sig
	B	Std. Errors	Beta β		
1 (constant)	2.336	0.109		21.506	0.000
Learning	0.445	0.027	0.532	16.663	0.000

a Dependent variable: transfer of training

P<0.05

As in table 7, the beta coefficient and 't' value for the relationship between learning and transfer of training are 0.532 and 16.663 respectively. Since the observed significance value 0.000 is less than set value of 0.05, the null hypothesis: "There is no positive relationship between learning and transfer of training" is rejected, and the alternative hypothesis: "There is a positive relationship between learning and transfer of training" is accepted.

Thirdly, to test the relationship between transfer of training and organizational commitment, the following null and alternative hypotheses are formulated:

Testing of Hypothesis- Transfer of training and organizational-commitment

The hypothesis is tested using simple regression and the results are as under:

H₀: There is no positive relationship between transfer of training and organizational commitment.

H₁: There is a positive relationship between transfer of training and organizational commitment.

Table 8: Co-efficients^a - Transfer of training and orgl.commitment

Model	Unstandardized co-efficients		Standardised Co-efficients	t	Sig
	B	Std. Errors	Beta β		
1 (constant)	1.511	0.142		10.661	0.000
transfer of training	0.642	0.034	0.579	18.830	0.000

a Dependent variable: Organizational commitment

P<0.05

As in table 8, the beta coefficient and 't' value for the relationship between transfer of training and organizational commitment are 0.579 and 18.830 respectively. As the significance value 0.000 is less than 0.05, the null hypothesis: "There is no relationship between transfer of training and organizational commitment" is rejected, and the alternative hypothesis: "There is a direct positive relationship between transfer of training and organizational commitment" is accepted.

Lastly, to test the relationship between the transfer of training and organizational results, the following null and alternative hypotheses are formulated:

Testing of Hypothesis -Transfer of training and organizational Results

The hypothesis is tested using simple regression and the results are as under:

H₀: There is no positive relationship between the transfer of training and organizational results.

H₁: There is a positive relationship between the transfer of training and organizational results.

Table 9: Co-efficients^a Transfer of training and orgl.Results

Model	Unstandardized co-efficients		Standardised Co-efficients	t	Sig
	B	Std. Errors	Beta β		
1 (constant)	1.382	0.126		10.992	0.000
Transfer of training	0.654	0.030	0.632	21.651	0.000

Dependent variable: organizational results

P<0.05

As in table 9, the beta co-efficient and 't' value for the relationship between transfer of training and organizational results are 0.632 and 21.651 respectively. As the significance value 0.000 is less than 0.05 (p<0.05), the null hypothesis: "There is no relationship between transfer of training and organizational results" is rejected, and the alternative hypothesis "There is a positive relationship between transfer of training and organizational results" is accepted.

Discussion

Companies specifically invest in the training of their workers because they believe that the outcome of the training will help achieve organizational goals. Furthermore, the workers need to sharpen their existing skills and acquire new skills. Therefore, the study empirically examines the interrelationships among the four levels of training evaluation model. The findings provide evidence of the relative importance of each stage in relation to the next stage.

Specifically, the analysis of the regression results for the hypothesis concerning the relationship between utility reactions and learning indicate that trained workers who had positive reactions about the utility of training programmes would have a greater liking about the training programmes. It can be said that if workers find that training programmes are useful then they would exercise greater efforts to learn the skills and knowledge taught at the training programmes.

The study also provides evidence of link between learning and transfer of training. The results for the hypothesis concerning relationship between the learning and transfer of training show a very significant relationship between learning and transfer of training. Participants with higher learning reported higher levels of transfer. It is difficult to imagine the transfer of training in the absence of some type of learning, particularly when the focus is on skills-based training or knowledge acquisition.

Moreover, the trained workers whose knowledge acquisition is high, they are more likely to transfer learned skills to the workplace. Further, the organizational results that were measured i.e. organizational commitment and in terms of productivity of workers are significantly related to the transfer of training.

The results for the hypothesis relating to transfer of training and organizational commitment shows a significant positive relationship between transfer of training and organizational commitment. It can be said that Higher the transfer of training leads to greater commitment of the workers towards their organization.

Lastly, the results for the hypothesis concerning the relationship between transfer of training and **organizational results** show that the transfer of training is significantly and positively related to organizational results. It can be inferred from the results that if the trained workers feel confident that they can apply the skills to a greater extent, then, it

significantly influences the organizational results. The workers concurred (**as shown in table 7**) that training has led to reduction in cost; wastage of materials; reworking of defective products. They also felt that the training has led to improved quality of products, improvement in utilization of machinery and safety at work.

Colquitt et al.,(2000) have demonstrated a link between skill- based learning and results. The positive relationship between transfer of training and results provides evidences of relationship between the two. Thus, the findings of the current study provide further support that the stages of Kirkpatrick's model of evaluation is hierarchical, where higher levels are predicted by lower levels(Alliger and Janak, 1989; Alliger et al., 1997; Warr, et al., 1999; Liberaman and Hoffman, 2008).

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