International Journal of Human
Resources Management (IJHRM)
ISSN(P): 2319-4936; ISSN(E): 2319-4944
Vol. 6, Issue 4, Jun - Jul 2017; 29-38

International Academy of Science,
Engineering and Technology
Connecting Researchers; Nurturing Innovations

EVALUATION OF TRAINING EFFECTIVENESS BASED ON LEARNING – A CASE STUDY

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ABSTRACT

Kirkpatrick's training evaluation model, consisting of four levels, i.e., reaction, learning, job behavior and the result has been the basis for evaluating the training effectiveness. The objective of this study is to measure the effectiveness of the training programs at learning level and also to find out the difference of opinion and relationship among the variables of learning (knowledge and skill), based on the demographic profile of the respondents. Data collected from 267 respondents from a population of 2645 participants attended training programs from six selected public sector undertakings. Descriptive statistics were applied by using SPSS statistics version 20 software for data analysis. As a result of the analysis, it was found that the training programs are effective at learning level; still there is a need for improvement in case of machinery and also to improve the competency of the faculty. Achieving training effectiveness is a combined responsibility of participants, the sponsoring organization and also the training institute. The sponsoring organization must ensure that suitable candidates are nominated for training programs.

KEYWORDS: Training, Learning, Training Effectiveness, Knowledge, Skill, Training Evaluation, Employee Training, Public Sector Undertaking

INTRODUCTION

Training

Training is the process of increasing the knowledge and skills for doing a particular job. It is an organized procedure by which people learn knowledge and skill for a definite purpose. The purpose of training is basically to bridge the gap between job requirements and present competence of an employee. Training is aimed at improving the behaviour and performance of a person and also it is a never ending or continuous process. Today, Indian organizations have realized the importance of training as a tool to achieve their strategic goals. It is not viewed by the organization as a longer, but as an investment on one of its most dynamic assets, namely, employees. Many organizations consider training as a strategic employee retention tool. It helps the organization create a smarter force capable of meeting any situation and challenges.

Evaluation of Training Effectiveness

Training effectiveness is determined with respect to the achievement of training's goals or set of training's goals (Warner and DeSimone, 2009). In other words, training effectiveness must be determined in relation to the goals of the program or programs being examined.

Training evaluation is defined as the systematic collection, analysis, and synthesis of descriptive and judgmental information necessary to make effective training decisions related to the selection, adoption, value, and modification of various instructional activities (Warner and De Simone, 2009).

In sum, training evaluation is a methodological approach for measuring learning outcomes. Training effectiveness is a theoretical approach to understanding those outcomes. Because training evaluation focuses solely on learning outcomes, it provides a micro view of training results. Conversely, training effectiveness focuses on the learning system as a whole, thus providing a macro view of training outcomes.

Evaluation seeks to find the benefits of training to individuals in the form of learning and enhanced on-the-job performance. Effectiveness seeks to benefit the organization by determining why individuals learned or did not learn. Finally, evaluation results describe what happened as a result of the training intervention. Effectiveness findings tell us why those results happened and so assist experts with developing prescriptions for improving training (Alvarez, Salas, and Garofano, 2004).

Learning - A Dimension of Training Effectiveness

The Kirkpatrick's four-level evaluation model was the main basis for measuring the effectiveness of the training programs. The four levels are reaction, learning, behaviour and results. This study is limited to second level learning.

Learning is defined as the extent to which participants change attitudes, improve knowledge and increase skill as a result of attending the program. No change in behaviour can be expected unless one or more of these learning objectives has been accomplished (Kirkpatrick, 1994). This level of evaluation allows trainees to demonstrate their understanding of specific knowledge, skills, and attitude (KSAs) within the learning program.

REVIEW OF LITERATURE

Chaturvedi Bhartiya (2015) in the research on "Impact of training and development of employee performance in selected public sector organizations" highlighted that human resource is the life blood of any type of organization. An organization can achieve its goals only through well-trained personnel; Training is distinct as learning that is provided to get better performance on the present job. The findings revealed that impact of training on employee satisfaction in public sector organization are not in line with the best practices regarding levels of performances as is generally known.

Falola et al. (2014) in the study entitled "Effectiveness of Training and Development on Employees' Performance and Organizational Competitiveness in the Nigerian Banking Industry" mentioned that training and development is an indispensable strategic tool for enhancing employee performance. Organizations keep increasing training budget on a yearly basis with believing that it will earn them a competitive edge. The results show that a strong relationship exists between training and development, employees' performance and competitive advantage.

According to **Saxena (2012)** training and development programmes are, undoubtedly a costly investment which will yield rich dividends in the long run. Hence the role and relevance of this most important human resource management function must be recognised and valued at all levels of the organisation. Accordingly, training and development program should be planned, developed, budgeted, conducted and evaluated with great care.

Research Gap

It is found from the literature review that there is no much research conducted on the evaluation of effectiveness of training programs in the areas of skill development conducted by government training institutes. Researcher got motivated to fill this gap. The researcher himself is a trainer directly involved in imparting skill development training programs.

This study not only brings out the drawbacks of the training programs, but also shows the ways to improve future training programs.

RESEARCH METHODOLOGY

Research Questions

The Main Research Questions are

- What is the socioeconomic profile of the participants attended training programs?
- Whether the training programs are effective or not at a learning level?
- What is the difference of opinion of the participants on the variables of learning based on their demographic profile?
- What is the relationship between the variables of the learning level of training effectiveness?

Research Objectives

The main objective of the study is to evaluate the effectiveness of training programs among employees of the select public sector undertakings at learning level. The specific objectives of this study are:

- To analyze the socioeconomic profile of the participants attended training programs from public sector industries.
- To measure the effectiveness of training at the learning level as opined by the respondents of public sector industries.
- To evaluate the difference of opinion on the learning based on the demographic profile of the respondents.
- To investigate the relationship between the variables of the learning level of effectiveness of training.
- To provide the suitable suggestions if necessary.

Hypotheses

Hypothesis 1: Training programs are effective at learning level as opined by the respondents.

Hypothesis 2: There is no significant difference of opinion on the learning based on the demographic profile (age, qualification, designation, experience) of the respondents.

Hypothesis 3: There is no significant relationship between the variables of learning level of training effectiveness.

Scope of the Study

This study focuses on the effectiveness of training programs conducted by Advanced Training Institute,

Hyderabad for the employees of six selected public sector industries. The analysis is carried out by investigating variables of learning, i.e., knowledge and skill. Questionnaires were distributed and data collected from the participants who attended the training programs.

Statistical Population

The researcher has identified the list of six public sector undertakings. The training programs are conducted by the Advanced Training Institute, Hyderabad for the participants sponsored by public sector undertakings. The total number of employees who have attended the training programs are 2645 from the public sector industries.

Sample of the Study and Sampling Method

The use of a sample about 10% size of parent population is recommended for any research. According to Roscoe (1975), it seems to use 10% as a "rule of thumb" acceptable level. Then another author Alreck & Settle (1995) state that, if the parent population is 1400 and then the sample size should be about 140. Hence, the researcher has identified 10% of the sample size is selected from each company from public sector undertaking. In this research, the researcher has adopted a simple random sampling method to collect the primary data.

Data Collection Method

Totally 300 questionnaires were distributed among the trainees from six public sector industries, the researcher found 267 filled questionnaires are in order and 23 questionnaires were found to be incomplete. So 267 samples from public sector industries has been taken for the study.

Measurement Scale

The questionnaire consisted of a series of statements, where the trainees needed to provide answers in the form of agreement or disagreement. A Likert scale was used so that respondent could select a numerical score ranging from 1 to 4 to indicate their degree of agreement or otherwise. Numerical scores ranging from 1 to 4 indicate “strongly disagree”, “disagree”, “agree” and “strongly agree” respectively.

ANALYSIS AND DATA INTERPRETATION

Descriptive statistics were applied by using SPSS statistics version 20 software for analysis.

Demographic Profile

This part of analysis analyses the age, the educational qualification, designation and experience of the respondents from public sector undertakings.

Table 1: Age of the Respondents

Categories	Public Sector Undertaking	
	Frequency	Percent
30 Years – 40 Years	197	73.8
40 Years – 50 Years	70	26.2
Total	**267**	**100.0**

From the table 1, it’s much clear that the majority of the respondents are between the age group of 30 years – 40 years with 73.8 percent and then 26.2 percent of the respondents are between 40 years – 50 years of age group.

Table 2: Educational Qualification of the Respondents

Categories	Public Sector Undertaking	
	Frequency	Percent
ITI	143	53.6
Diploma	124	46.4
Total	**267**	**100.0**

Table 2 clearly shows that the majority of the respondents have ITI as their educational qualification with 53.6 percent and then 46.4 percent of the respondents have a diploma as their educational qualification.

Table 3: Designation of the Respondents

Categories	Public Sector Undertaking	
	Frequency	Percent
Technician	143	53.6
Supervisor	124	46.4
Total	**267**	**100.0**

Table 3 clearly shows that the majority of the respondents are working as technician with 53.6 percent and 46.4 percent of the respondents are working as supervisors.

Table 4: Experience of the Respondents

Categories	Public Sector Undertaking	
	Frequency	Percent
5 Years – 10 Years	103	38.6
10 Years – 20 Years	72	27.0
20 Years – 30 Years	92	34.5
Total	**267**	**100.0**

Table 4 clearly shows that the majority of the respondents is having a work experience between 5 years – 10 years with 38.6 percent, then 34.5 percent of the respondents are having a work experience between 20 years – 30 years, then 27 percent of the respondents are having a work experience between 10 years – 20 years.

Testing of Hypotheses

Effectiveness of Training Programs at Learning Level

The variables measuring the learning like knowledge, skills and the overall mean score are displayed below.

H0: Training Programs are Effective at Learning Level as Opined by the Respondents

Table 5: Mean and Standard Deviation of Overall Learning

Measuring Questions	Public Sector Undertaking	
	Mean	Sd
Knowledge	3.10	0.579
Skills	3.22	0.749
Mean Score	3.07	0.551

The respondents clearly state that they highly agree with the skills to a mean value of 3.22 and with a standard deviation of 0.749. Similarly the respondents clearly state that they highly agree with the knowledge to a mean value of 3.10 and with a standard deviation of 0.579.

As it can be seen from the table 5, this hypothesis have been approved as the respondents clearly state that they highly agree with overall learning with mean value of 3.07 and with a standard deviation of 0.551.

Thus the null hypothesis H_0 is accepted. Hence training programs are effective at learning level as opined by the respondents.

Testing of Hypothesis 2

Difference of opinion on the learning level based on the demographic profile

H_0: There is no significant difference between the variables measuring learning based on the age category of the respondents.

Table 6: Difference of Opinion between the Variables Measuring Learning Based on the Age Category of the Respondents

Public Sector Undertaking						
Variables	**Labels**	**N**	**Mean**	**Sd**	**F**	**Sig.**
Knowledge	30 Years – 40 Years	197	2.94	.399	79.997	.000*
	40 Years – 50 Years	70	3.57	.734		
	Total	267	3.10	.579		
Skills	30 Years – 40 Years	197	3.14	.589	7.736	.006*
	40 Years – 50 Years	70	3.43	1.057		
	Total	267	3.22	.749		
Learning	30 Years – 40 Years	197	2.94	.399	47.934	.000*
	40 Years – 50 Years	70	3.43	.734		
	Total	267	3.07	.551		
* Significant at the 0.05 level (2-tailed).						

The variables knowledge, skills and learning from the public sector undertakings show that there is a significant difference between the opinions of the respondents based on the age of the respondents. The calculated significance is less than the assumed significance ($P < 0.05$). Hence the null hypothesis is rejected.

Thus the null hypothesis H_0 is rejected. There is a significant difference between the variables measuring learning based on the age of the respondents.

H_0: There is no significant difference between the variables measuring learning based on the educational qualification of the respondents.

Table 7: Difference of Opinion between the Variables Measuring Learning Based on the Educational Qualification of the Respondents

Public Sector Undertaking						
Variables	**Labels**	**N**	**Mean**	**Sd**	**F**	**Sig.**
Knowledge	ITI	143	3.35	.608	69.237	.000*
	Diploma	124	2.82	.384		
	Total	267	3.10	.579		
Skills	ITI	143	3.21	.768	.030	.862
	Diploma	124	3.23	.731		
	Total	267	3.22	.749		
Learning	ITI	143	3.28	.586	54.968	.000*
	Diploma	124	2.82	.384		
	Total	267	3.07	.551		
* Significant at the 0.05 level (2-tailed).						

The variables knowledge and learning from the public sector undertaking shows that there is a significant difference between the opinions of the respondents based on their educational qualification. The calculated significance is less than the assumed significance (P < 0.05). Hence the null hypothesis is rejected.

Whereas, the variable skill shows that there is no significant difference between the opinions of the respondents based on their educational qualification. The calculated significance is greater than the assumed significance (P > 0.05). Hence the null hypothesis is accepted.

Thus the null hypothesis H_0 is rejected in case of varying knowledge and learning. H_0 is accepted in case of varying skill.

H_0: There is no significant difference between the variables measuring learning based on the designation category of the respondents.

Table 8: Difference of Opinion between the Variables Measuring Learning based on the Designation Category of the Respondents

Public Sector Undertaking						
Variables	**Labels**	**N**	**Mean**	**Sd**	**F**	**Sig.**
Knowledge	Technician	143	3.35	.608	69.237	.000*
	Supervisor	124	2.82	.384		
	Total	267	3.10	.579		
Skills	Technician	143	3.21	.768	.030	.862
	Supervisor	124	3.23	.731		
	Total	267	3.22	.749		
Learning	Technician	143	3.28	.586	54.968	.000*
	Supervisor	124	2.82	.384		
	Total	267	3.07	.551		
*** Significant at the 0.05 level (2-tailed).**						

The variables knowledge and learning from the public sector undertaking shows that there is a significant difference between the opinions of the respondents based on their designation. The calculated significance is less than the assumed significance (P < 0.05). Hence the null hypothesis is rejected.

Whereas, the variable skill shows that there is no significant difference between the opinions of the respondents based on their designation. The calculated significance is greater than the assumed significance (P > 0.05). Hence the null hypothesis is accepted.

Thus, the null hypothesis H_0 is rejected in case of varying knowledge and learning. H_0 is accepted in case of varying skill.

H_0: There is no significant difference between the variables measuring learning based on the experience category of the respondents

Table 9: Difference of Opinion between the Variables Measuring Learning based on the Experience Category of the Respondents

Public Sector Undertaking						
Variables	**Labels**	**N**	**Mean**	**Sd**	**F**	**Sig.**
Knowledge	5 Years – 10 Years	103	2.79	.412	31.368	.000*
	10 Years – 20 Years	72	3.28	.451		
	20 Years – 30 Years	92	3.33	.665		
	Total	267	3.10	.579		
Skills	5 Years – 10 Years	103	3.27	.795	.665	.515
	10 Years – 20 Years	72	3.14	.348		
	20 Years – 30 Years	92	3.22	.912		
	Total	267	3.22	.749		
Learning	5 Years – 10 Years	103	2.79	.412	26.223	.000*
	10 Years – 20 Years	72	3.28	.451		
	20 Years – 30 Years	92	3.22	.626		
	Total	267	3.07	.551		
*** Significant at the 0.05 level (2-tailed).**						

The variables knowledge and learning from the public sector undertaking shows that there is a significant difference between the opinions of the respondents based on their experience. The calculated significance is less than the assumed significance ($P < 0.05$). Hence the null hypothesis is rejected.

Whereas, the variable skill shows that there is no significant difference between the opinions of the respondents based on their experience. The calculated significance is greater than the assumed significance ($P > 0.05$). Hence the null hypothesis is accepted.

Thus, the null hypothesis H_0 is rejected in case of varying knowledge and learning. H_0 is accepted in case of varying skill.

Pearson's Bivariate Correlation

This part measures the relationship between the variables of learning (knowledge and skills)

H_0: There is no significant correlation between the variables of learning.

Table 10: Correlation between the Varieties of Learning

Public Sector Undertaking				
Variables		**KNOW**	**SKILL**	**LEARN**
KNOW	PC	1		
	Sig.			
	N	267		
SKILL	PC	.658**	1	
	Sig.	.000		
	N	267	267	
LEARN	PC	.944**	.711**	1
	Sig.	.000	.000	
	N	267	267	267
**. Correlation is significant at the 0.01 level (2-tailed).				
PC – Pearson Correlation				
N – Number of Respondents				
KNOW- Knowledge				
LEARN - Learning				

Positive Correlation – All variables of learning are positively correlated. The variable knowledge has positive correlation with the varying skill (0.658) and learning (0.944). Similarly the variable skill has positive correlation with the varied learning (0.711).

Thus, the null hypothesis H_0 is rejected. There is significant correlation between the variables of learning.

SUGGESTIONS

To Improve the Effectiveness of Training Programs the Following Suggestions are Recommended

- Training programs are to be designed by keeping in mind age, qualification, designation, length of service of the participants.
- Tailor made programs are to be conducted for each job level like technician, supervisor, etc.
- The learning phase may be evaluated by conducting pre-test before training and post-test after training.
- Training programs are effective, but improvement is still needed in case of machinery and trainer competency.
- Machinery and Equipment in the training institute is to be upgraded.
- There is a need for a separate HR department at the institute mainly to take care of faculty development, faculty motivation, etc.
- Faculty competency is to be improved.
- Organizations should sponsor suitable employees for training programs.

CONCLUSIONS

Achieving training effectiveness is a combined responsibility of participants, sponsoring organizations and the training institute. The sponsoring organization must ensure that suitable candidates are nominated for training programs. While nominating candidates, the sponsoring organization may record major expectations from the participants after training. There should be mandatory training evaluation.

This can be done through appropriate pre and post-training knowledge or skill or both tests. This will give an indication about the performance, effectiveness of both participants and the training program itself.

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