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"Empirical study of evaluation of Training effectiveness in manufacturing industry with reference to Marathwada region"

Ms. Divya Sharma

Research Scholar, MBA Department, Maharashtra Institute of Technology, Aurangabad, Maharashtra State

ABSTRACT

In many organizations, especially in manufacturing industries, management training is considered as an integral part of organizational planning. This paper is an attempt to provide an insight into the evaluation of the training effectiveness in manufacturing industries where more emphasis is on improving business performance through training.

Keywords: Training evaluation, Training effectiveness

I. INTRODUCTION

Today's competitive environment necessitates up-gradation of knowledge and skills in the existing employees, procurement of skilled/trained employees and re-training them on a continuous basis.

Broadening of skill base of employees and overcoming human resource obsolescence is the need of the hour. One of the main challenges facing the organizations, especially manufacturing industries, is the need to develop human resources capable of handling global operations; and training is the key for developing global managers. In other words, to optimize human resources, organizations have to be receptive about designing and implementing human resource training programmes.

In recent years, training being the core part of HRD system has received considerable attention of researchers and HR practitioners. However, the work done by them relate to the need identification methods, training programs and their evaluation based on feedback systems. Very less work has been done on 'how training system can be made more effective in terms of achieving overall organizational goals by inviting participation of all levels of management in identifying training needs, tailoring the training programmes as per needs and selecting an effective combination of internal and external training resources.

Organizations are very complex systems, and training programs are but one sub-system. Thus, changes in the selection system, which can result in people with higher or lower job relevant skills and abilities, will have a dramatic effect in the level of training required. Changes in jobs as new technologies develop can have similar effects. More effective training programs can also affect all other systems in the work organization. The dynamics of training systems must include the realization that one of the first places to which many new employees are sent in a training program. Similarly, when individuals change positions as a result of a career change or promotion, many enter a training program. It is an important to understand the effects of training experiences as part of the socialization process in entering organizations as it is to evaluate specific training outcomes.

This paper presents the overarching framework which focuses on understanding the components of assessing, designing, and evaluating training. One well-established framework for organizing the important steps of training is the instructional design model based in the instructional technology area which refers to the systematic development of programs in training and education. The systems approach to instruction emphasizes the specification of instructional objectives, precisely controlled learning experiences to achieve these objectives, criteria for performance, and evaluative information. Other characteristics of instructional technology include the following:

1. The systems approach uses feedback to continually modify instructional processes. From this perspective, training programs are never totally finished products rather they are modified ad information becomes available as to whether training program is meeting its stated objectives.

2. The instructional system approach recognizes the complex interaction among the components of the system.
3. Systematics analysis provides a frame of reference of planning and remaining on target.
4. The system view treats training as one of a set of interacting systems. Training programs interact with and are directly affected by a larger system involving corporate policies.

II. TRENDS IN TRAINING

Globally business environment will continue to change rapidly. These changes bring both challenges and opportunities. Successful companies in most industries must constantly realign their activities to meet new conditions while remaining true to their mission and strategic direction. As companies adapt, their training function also need to adapt. Multiple surveys over the last several years have asked HR executives and human resource development (HRD) managers to identify their organizations needs for the next several years. These are the major trends in training.

- **Aligning training with business strategy**

As change is happening every now and then companies have realized that it is necessary to realign their business activities to meet new conditions and for this it requires more manpower at all levels in the organization to be able to make day to day decisions that support the business strategy. Training initiatives will need to support the strategic direction of the company and the people who carry it out. Organizations now realize that effective training is a tool for getting better job performance, better bottom line results and creating organization wide adaptability.

- **Advances in technology**

Now a days there is a progress improvement in the learning technologies pertaining to the training in an organization. Social networking can provide support for the on the job training and can engage trainees before and after they attend a session and can be used to reinforce learning back on the job. Training executive must develop strategies for utilizing the available technology in ways that meet their business needs.

- **Managing talent due to changing demographics**

India is one of the youngest countries in the world and India population was below 15 years in 2000 and close to 20 percent were young people in the age group of 15 to 24. The population in the age group 15 to 24 grew from around 1175 million in 1995 to 190 million in 2000 and 210 million in 2005, increasing by an average of 3.1 million a year between 1995 and 2000 and by 5 million between 2000 and 2005. In 2020, the average Indian will be only 29 years old, as compared with 37 in China and the U.S. and 48 in Japan. According to a study conducted by the Boston Consulting Group and the All India Management Association, developed countries will face a net workforce shortfall of 32 to 39 million by 2020. India, however, will have a surplus of people in the working age group by 2020. Then the key challenge will be talent development and management.

- **Improving the training function**

Training is seen as an integral part of the organization performance improvement system. It will continue to be seen as a cost center, providing less valued contributions to the organization. Several models exist for continuous improvement, common to them all are the following:

i. Identification of performance improvement opportunities and analysis of what caused the opportunity to exist (gap analysis)
ii. Identification of alternative solutions to the opportunity and selection of the most beneficial solution. A training program is one of many possible performance improvement solutions.
iii. Design and Implementation of the solution
iv. Evaluation of results to determine what, if any, further action should be taken.

- **Quality**

Quality improvement is a key component of most continuous improvement processes. To ensure the better quality the companies should go for the standardized certification process. Thus training is an important part of attaining ISO certification and is required on a continuous basis to maintain certification. The certification process also helps improve training. A research study showed improvements in TNA, design, delivery methods, and evaluation for the certification. This study also found that these companies provided more hours and more types of training and had a larger training budget for the certification.

- **Legal issues**

Equity, Equal employment opportunity, affirmative action, sexual harassment and related legislation have placed legal requirements on businesses regarding specific type of training. Trainers need to be aware of liability issues, copyright infringement and other legal concerns.

III. LITERATURE REVIEW

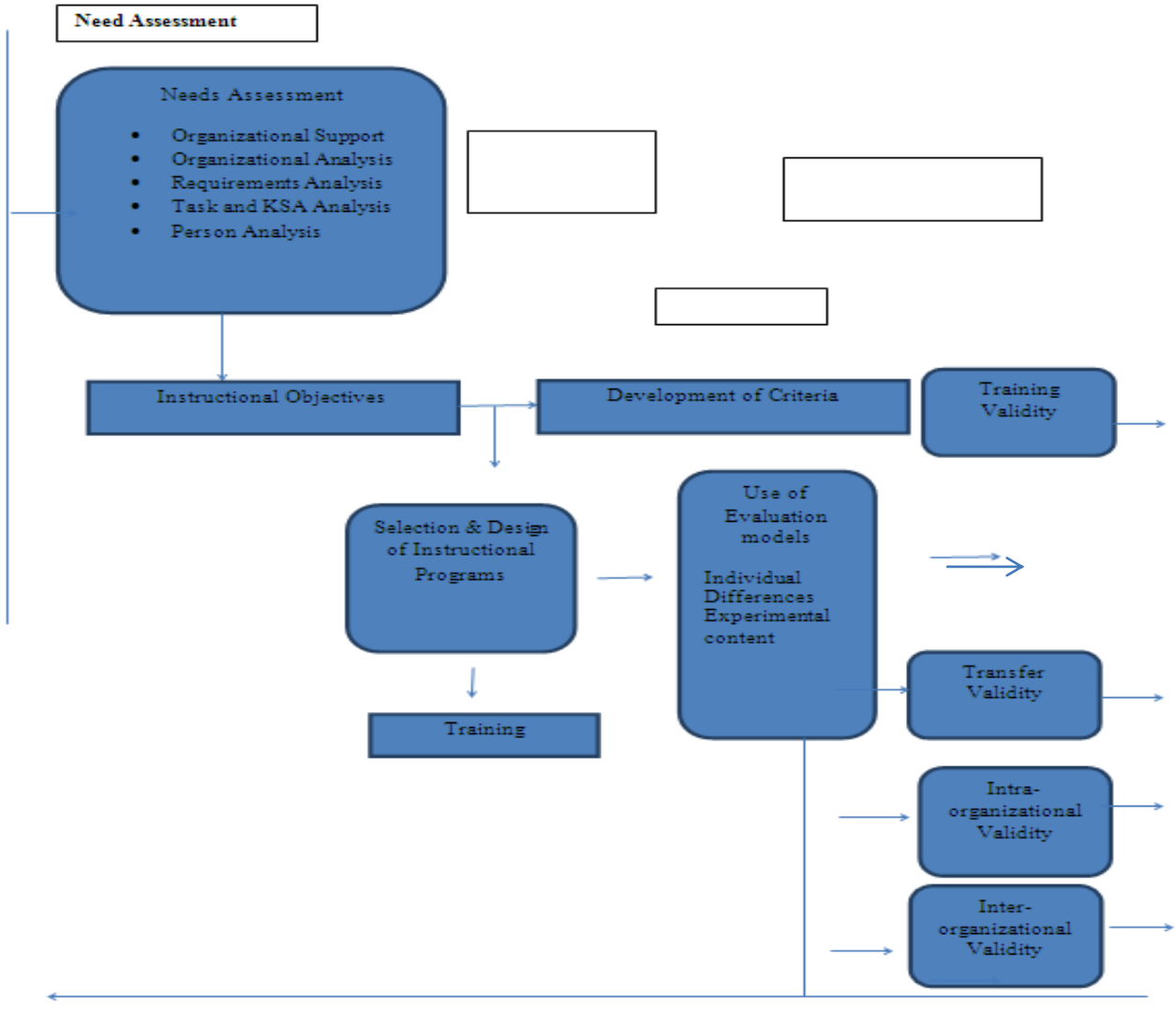
Dubashi[1] defines training "as a process of improving the knowledge skill and attitude of employees to achieve organizational objectives. It is only through a systematic program of training that necessary professional knowledge is imparted, skills developed and attitudes attuned to work situation. Generally, training is considered as an essential activity to increase the knowledge, skills, abilities and attitudes so that the employee will perform the job better than otherwise. According to **Keep**[2] , 'Effective training' will indicate 'not only finding out whether the training was well done but also asking what it achieved and whether it was worthwhile for the organization to be sponsoring it' **Rigg**[3] stated that Trainees' attitudes may affect the effectiveness of training. Attitudes are likely to be influenced by participants' experience of training and in turn affect trainees' perspectives about the evaluation of training.

Sanders[4]has presented a new point of view of training, according to him, previously training was considered to be an expenditure, but now it is serve a role of an investment activity. For better result organization should invest in improving hard and soft both type of skills. In addition to this Karen stated that training is an ongoing process and planning put effectiveness in training, along with this participant's selection, administrative support, venue, moderator/ facilitator, and contents of training.

Byrne[5] agrees that now a day'sorganization follows a modernization to scope with this, organization need employees with updated skills and knowledge, and this can be done through training and development.

P. Nick Blanchard, James W. Thacker, V. Anand Ram[6]Everyone in an organization is affected by training. Everyone receives training at one time or another, usually multiple times. Managers and Supervisors need to be sure that their direct reports have the competencies required to perform their jobs.

IV.MODEL OF AN INSTRUCTIONAL SYSTEM



Source: Extract from Training in Organization Textbook ; Author Irwin, Goldstein

Objective of the study

1. To analyze the effectiveness and significance of training function.
2. To examine the effectiveness and significance of training evaluation.

Research Methodology
To fulfill the requirement of the objective of the study, an empirical research methodology is followed in the search of excellence.

Primary Data: Questionnaires and one-to-one semi-structured interviews designed to obtain primary data.
Secondary Data: Data collected to gather information that facilitates the research. Literatures, textbooks, magazine, articles and relevant websites on human resource management and training to be reviewed to optimize secondary information.

Sample Design: Non- probability sampling
The target group for the sample in Industries, Employees .

- Total no. of employees selected is 500

Sample is being selected through Convenience sampling.

V. DATA ANALYSIS AND INFERENCES

The data has been collected and represented in the form of tables, and bar charts. To analyze the data techniques like mean , Standard Deviation , coefficient correlation , F –test, Descriptive and Cochran statistical tool has been used. To analyze the data T-test and F-test are applied. The study analyzed the effectiveness of the training function in the selected organizations. The effectiveness of the different elements of the training function has been analyzed .

Effectiveness of the Training Objective in the selected originations.

Table 1: Analyzed the effectiveness of the training objectives in the selected organizations.

Dimensions		Strongly Agree 4	Agree 3	Neutral 2	Disagree 1	Strongly Disagree	Mean	SD
Training objectives in your organisation are well defined.	F	229	257	14	00	00	3.43	0.54
	P	45.8%	51.4%	2.8%	00	00		
Training objectives are linked with the organizational objectives	F	297	203	00	00	00	3.59	0.49
	P	59.4%	40.6%	00	00	00		
Training objectives provides guidelines for planning training programs.	F	158	288	46	00	8	3.17	0.72
	P	31.6	57.6	9.2	00	1.6		
Training objective is always communicated to employees.	F	257	207	36	00	00	3.44	0.62
	P	51.4	41.4	7.2	00	00		

(F: frequency, P: Percentage)

Inferences: The above table 1 depicts that the
Statement 1: Training objectives in the organizations is well defined as this parameter scored mean **3.43** and all respondents are **AGREE**for it.
Statement 2: The training objectives are linked with the organizational objectives as this parameter has been scored mean **3.59**.
Statement 3: Training objectives provides guidelines for planning training programs
Statement 4: Training objective is always communicated to employees in the organization as both of these parameters scored mean more than **3.00**
Hence it is observed that the employees feels that training objectives are well defined and it gives proper implementation in terms of training programs in their organizations.

Analyzed the period of Effectiveness of a training program in the organisation is evaluated

Statistical Test: Cochran Test
Hypothesis: Effectiveness of the training program in organization is evaluated immediately after the completion of the training program rather than during the training and after the training program.
Each variable is measured using a dichotomous scale .
H0: Periods of training program for evaluation do not differ in frequency.

H1: Periods of training program for evaluation differ in frequency.
Level of significance α = 0.05

FREQUENCY TABLE :1

Periods of training	Frequency	Percentage
During the training itself	204	40.8
After a few weeks	96	19.2
Immediately after the completion of training	224	44.8
After a few months	113	22.6
After employees have reached their work place	83	16.6

Observation : Q(4) = 176.570[a]
P < 0.05

Inferences:
Since Cochran Skewness test is significant the (p <0.05)
Hence the Null Hypotheses is rejected and is concluded periods of training program for evaluation differ in importance pursued by the employees.
To find out where the difference lack, we referred to frequency distribution table and it can see that Immediately after the completion of training has a major frequency count of 224, followed by during the training itself = 204 and After a few months = 113.
Hence the hypotheses Effectiveness of the training program in organization are evaluated immediately after the completion of the training program rather than during the training and after the training program proved **positive** for the periods of the training program.

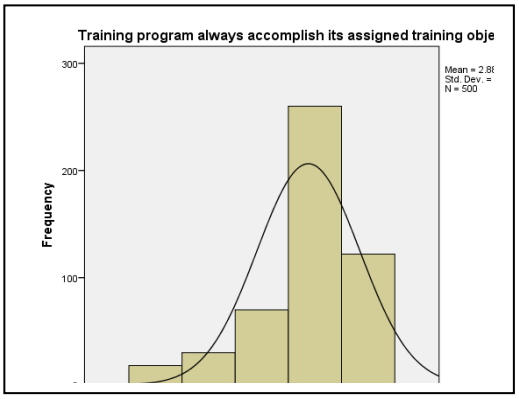
Training Evaluation significance

Statement 1: Training program always accomplish its assigned training objective

TABLE STATISTICS: 1

Mean	2.88
Standard Deviation	.967
Skewness	-1.113
Kurtosis	1.253
COV = (Std. Deviation / Mean) *100	33.57

FIGURE HISTOGRAM: 1



Inferences

Since Coefficient of Variance (COV) is more than 33%, Mean does not represent the data value . Hence interpretation is based upon the frequency distribution table.

Skewness is negative value (-1.113) the curve is left skewness curve and the concentration of the data is on the right. Kurtosis is positive value (1.253) the curve is tall and narrow. Skewness and Kurtosis values further confirmed the meaningfulness of mean.

FREQUENCY TABLE :2

		Frequency	Percent
Valid	Strongly disagree	18	3.6
	Disagree	30	6.0
	Neither agree nor disagree	70	14.0
	Agree	260	52.0
	Strongly agree	122	24.4
	Total	500	100.0

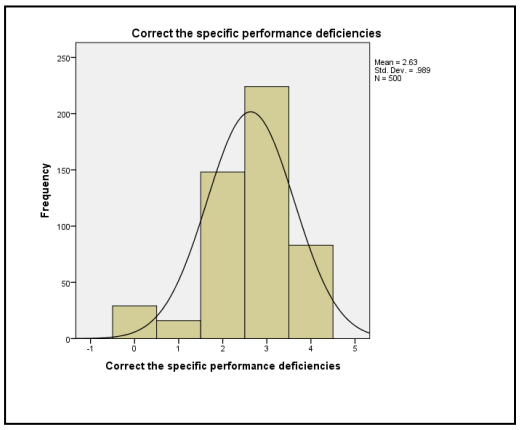
From the frequency distribution table it can be seen that 52% respondent Agree that the Training program always accomplish its assigned training objective, 24.4 % Strongly Agree, 14% have mixed opinion, 6 % disagree and 3.6 % Strongly disagree with the said statement.
Hence it is concluded that majority of the respondent **AGREE** that the Training program always accomplish its assigned training objective.

Statement 2: Correct the specific performance deficiencies

TABLE STATISTICS: 2

Mean	2.63
Standard Deviation	.989
Skewness	-.856
Kurtosis	.845
COV = (Std. Deviation / Mean) *100	37.60

FIGURE HISTOGRAM: 2



Inferences

Since Coefficient of Variance (COV) is more than 33%, Mean does not represent the data value . Hence interpretation is based upon the frequency distribution table.

Skewness is negative value (-.856) the curve is left skewness curve and the concentration of the data is on the right. Kurtosis is positive value (.845) the curve is tall and narrow. Skewness and Kurtosis values further confirmed the meaningfulness of mean.

FREQUENCY TABLE :3

Correct the specific performance deficiencies					
		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Strongly disagree	29	5.8	5.8	5.8
	Disagree	16	3.2	3.2	9.0
	Neither agree nor disagree	148	29.6	29.6	38.6
	Agree	224	44.8	44.8	83.4
	Strongly agree	83	16.6	16.6	100.0
	Total	500	100.0	100.0	

From the frequency distribution table it can be seen that 44.8% of the respondent Agree that the training evaluation Correct the specific performance deficiencies, 16.6 % Strongly Agree, 29.6 % have mixed opinion, 5.8% Strongly Disagree and 3.2 % Disagree with the said statement.

Hence it is concluded that the majority of the respondent **AGREE** that the training evaluation Correct the specific performance deficiencies.

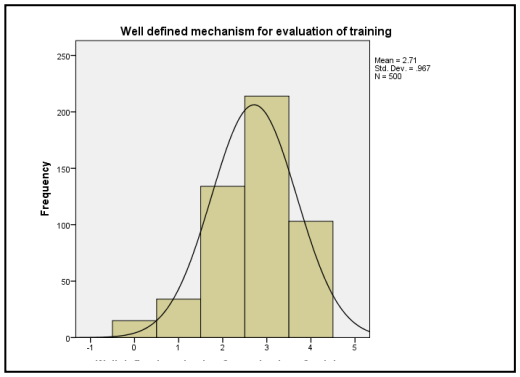
Training Program Evaluation Effectiveness

Statement 1: Well defined mechanism for evaluation of training

TABLE STATISTICS 3

Mean	2.71
Standard Deviation	.967
Skewness	-.652
Kurtosis	.284
COV = (Std. Deviation / Mean) *100	35.68

FIGURE HISTOGRAM 3



Inferences

Since Coefficient of Variance (COV) is more than 33%, Mean does not represent the data value . Hence interpretation is based upon the frequency distribution table.

Skewness is negative value (-.652) the curve is left skewness curve and the concentration of the data is on the right. Kurtosis is positive value (.284) the curve is tall and narrow. Skewness and Kurtosis values further confirmed the meaningfulness of mean.

FREQUENCY TABLE: 4

Well defined mechanism for evaluation of training					
		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	To no extent	15	3.0	3.0	3.0
	To a small extent	34	6.8	6.8	9.8
	To a moderate extent	134	26.8	26.8	36.6
	To a great extent	214	42.8	42.8	79.4
	To a very great extent	103	20.6	20.6	100.0
	Total	500	100.0	100.0	

From the frequency distribution table it can be seen that To a great extent 42.8 % of the respondent says that there is an Well-defined mechanism for evaluation of training, 20.6% To a very extent , 26.8% have mixed opinion, 3% To no extent and 6.8 % To a small extent with the said statement.

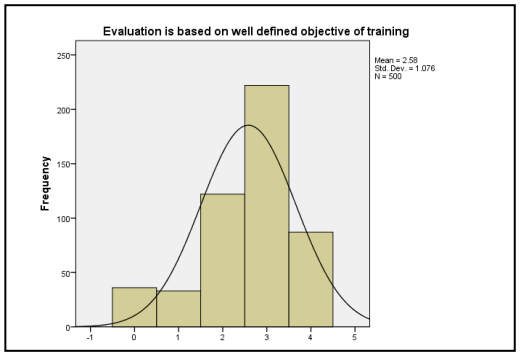
Hence it is concluded that the majority of the respondent says **TO A GREAT EXTENT** there is a Well-defined mechanism for evaluation of training in an organization.

Statement 2: Evaluation is based on well- defined objective of training

TABLE STATISTICS: 4

Mean	2.58
Standard Deviation	1.076
Skewness	-.824
Kurtosis	.280
COV = (Std. Deviation / Mean) *100	41.70

FIGURE HISTOGRAM: 4



Inferences

Since Coefficient of Variance (COV) is more than 33%, Mean does not represent the data value . Hence interpretation is based upon the frequency distribution table.

Skewness is negative value (-.824) the curve is left skewness curve and the concentration of the data is on the right. Kurtosis is positive value (.280) the curve is tall and narrow. Skewness and Kurtosis values further confirmed the meaningfulness of mean.

FREQUENCY TABLE: 5

Evaluation is based on well-defined objective of training					
		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	To no extent	36	7.2	7.2	7.2
	To a small extent	33	6.6	6.6	13.8
	To a moderate extent	122	24.4	24.4	38.2
	To a great extent	222	44.4	44.4	82.6
	To a very great extent	87	17.4	17.4	100.0
	Total	500	100.0	100.0	

From the frequency distribution table it can be seen that To a great extent 44.4 % of the respondent says that Evaluation is based on well- defined objective of training , 17.4% To a very great extent , 24.4% have mixed opinion, 7.2% To no extent and 6.6 % To a small extent with the said statement.

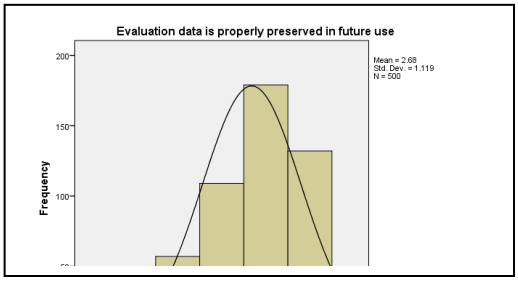
Hence it is concluded that the majority of the respondent says **TO A GREAT EXTENT**Evaluation is based on well-defined objective of training.

Statement 3: Evaluation data is properly preserved in future use

TABLE STATISTICS: 5

Mean	2.68
Standard Deviation	1.119
Skewness	-.629
Kurtosis	-.345
COV = (Std. Deviation / Mean) *100	41.75

FIGURE HISTOGRAM :5



Inferences

Since Coefficient of Variance (COV) is more than 33%, Mean does not represent the data value . Hence interpretation is based upon the frequency distribution table.

Skewness is negative value (-.629) the curve is left skewness curve and the concentration of the data is on the right. Kurtosis is negative value (-.345)) the curve is short and flat. Skewness and Kurtosis values further confirmed the meaningfulness of mean.

FREQUENCY TABLE: 6

Evaluation data is properly preserved in future use					
		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	To no extent	23	4.6	4.6	4.6
	To a small extent	57	11.4	11.4	16.0
	To a moderate extent	109	21.8	21.8	37.8
	To a great extent	179	35.8	35.8	73.6
	To a very great extent	132	26.4	26.4	100.0
	Total	500	100.0	100.0	

From the frequency distribution table it can be seen that To a great extent 35.8 % of the respondent says that Evaluation data is properly preserved in future use, 26.4% To a very great extent , 21.8% have mixed opinion, 4.6% To no extent and 11.4 % To a small extent with the said statement.

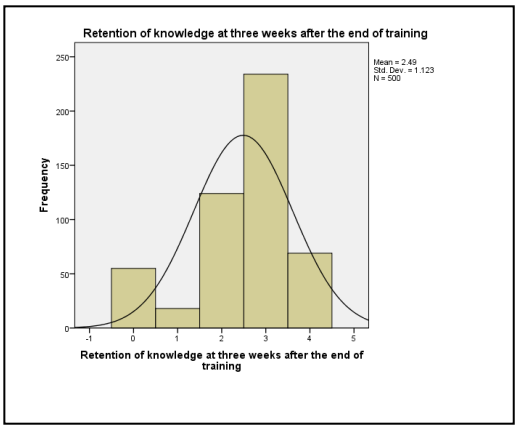
Hence it is concluded that the majority of the respondent says **TO A GREAT EXTENT**Evaluation data is properly preserved in future use.

Statement 4: Retention of knowledge at three weeks after the end of training

TABLE STATISTICS: 6

Mean	2.49
Standard Deviation	1.123
Skewness	-.925
Kurtosis	.275
COV = (Std. Deviation / Mean) *100	45.10

FIGURE HISTOGRAM: 6



Inferences

Since Coefficient of Variance (COV) is more than 33%, Mean does not represent the data value . Hence interpretation is based upon the frequency distribution table.

Skewness is negative value (-.925) the curve is left skewness curve and the concentration of the data is on the right. Kurtosis is positive value (.275)) the curve is tall and narrow. Skewness and Kurtosis values further confirmed the meaningfulness of mean.

FREQUENCY TABLE 7

Retention of knowledge at three weeks after the end of training					
		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	To no extent	55	11.0	11.0	11.0
	To a small extent	18	3.6	3.6	14.6
	To a moderate extent	124	24.8	24.8	39.4
	To a great extent	234	46.8	46.8	86.2
	To a very great extent	69	13.8	13.8	100.0
	Total	500	100.0	100.0	

From the frequency distribution table it can be seen that To a great extent 46.8 % of the respondent says that Retention of knowledge at three weeks after the end of training, 13.8% To a very great extent , 24.8% have mixed opinion, 11% To no extent and 3.6% To a small extent with the said statement.

Hence it is concluded that the majority of the respondent says **TO A GREAT EXTENT**they gain the retention of knowledge at three weeks after the end of training program.

CONCLUSION

Today in the HRD field are evaluation, results based training and ROI analysis. Training and Development departments are struggling to meet demands from managements for profit contributions and from participants who want a program that produce results. With all the tremendous growth and expenditures, todays HRD professionals can no longer ignore their basic responsibilities to evaluate programs and measure the results of their departments efforts. Therefore we can say training evaluation plays an significant role in organization to better understand the effectiveness of the training program.

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