



## The impact of training in manufacturing industry

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### Abstract

Training is inevitable irrespective of any industry in which manufacturing industry is not of any exception for the enrichment of the organization. The outcome of training is seen faster in manufacturing industry. The literature available is reviewed. The need for the study is found and the training in Visakhapatnam steel plant is taken for study through the primary and secondary sources of data and analyzed the data with statistical tools like S.D, Mean, Chi-Square, Regression and F Test. Hypotheses are framed and tested with statistical tools and the outcome of the study ensured suggestions to the training practices in Visakhapatnam steel plant.

**Keywords:** training, effectiveness, experience, academic qualifications and age

### 1. Introduction

The concept 'Training' is not new to the manufacturing industry. Its impact is continuously changing with the changes in the environment factors like industrialization, education qualifications and automation. In the initial days, the demand being more than supply, the impact of training was not seen but it has become the inevitable dependent for improving the productivity and reducing the cost internally. In other words, it is evident that the training leads to the core competency of the organization in the form of high returns on the human capital employed and act as catalyst in change management.

But, training also faced lot of challenges in manufacturing industry. At the time of World War II, most of the employees are deployed in to the armies and led into war field leading to severe crunch in the required manpower in the industry. 'Training' helped partially in improving the productivity of the existing employees. In the later stage, the service sector has grown much faster than the manufacture industry. Most of the employees are attracted to the services sector leaving the manufacturing industry to crunch in the desired skilled manpower. The software industry multiplied this impact, especially during Y2K problem and two decades after that. Globally, there exists high scarcity of skilled manpower in manufacturing industry irrespective of the developed nations.

In the above discussion, we have seen various factors that changed the manufacturing industries. In tune to the respective changes in the environment the face sets of Training also increased in such a way that training could be a solution it the problems generated to some extent at least. In the journey new methods & techniques like, training with in Industry (TWI), Job relations Training (JRT), Job Instruction Training (JIT), Job Methods Training (JMT), and also Job Safety Training (JST) are popularly used. Similarly, the knowledge of pertaining to the training recognized in the form of professional societies and bodies like ASTD, ISTD, IJIR etc., are formed to which many management gurus contributed immense knowledge through fellowships.

Training may be defined as a planned programme designed to improve performance to bring about measurable changes in

knowledge skills, attitude and social behavior for respondents for doing a particular job. A profound training program acts as a vehicle to enhance employee skills and enable them to perform better in their job. Training and development is very crucial to the employees, the organization and their effectiveness<sup>[1]</sup>. Training and skills development comprises a broad range of activities and arrangements, including formal and informal training, job-rotation, traditional class-room courses, internal vs. external training, cooperation with e.g. universities, competence mapping, (personal) training plans (development plans), special (introductory) training for newly recruited people, mentoring and the use of new organizations or technologies in training. One other important issue is the question of the cost/benefits of training and how to measure and evaluate the outcome of training activities. The importance of training is stressed by a growing gap between existing competences and skills and those competences and skills that are required to meet future challenges and ensure a successful modernization of official statistics. A framework of skills/capabilities begins with a gap analysis and a description of how to close the gap. Lack of resources is a major barrier. To stay updated competences of employees need to be assessed and trained regularly. The key issue is that the management regularly assesses the skills and knowledge of the employees in a systematic way and follow-up on this<sup>[2]</sup>.

### Trainings' effects ripple throughout the organization

The training empowers employees and adds value to the organization. "It eases the burden on management when employees can alleviate situations immediately before they boil over, "From a guest complaint to a problem with a room - whatever the situation is, when employees can resolve issues,

<sup>1</sup> Malisetty V. Suryanarayana and B. Srinivasa Rao (2011). Evaluating Training & Development Effectiveness - A Measurement Model, Golden Research Thoughts, Vol.1 (4), pp. 1-2, 2011.

<sup>2</sup> Wouter Jan van Muiswinkel, "Future Challenges in Human Resources Management and Training in National Statistical Offices", Human Resources Management and Training, United Nations Economic Commission for Europe, 2013

it reduces stress for everyone". Increased employee efficacy and decreased workplace stress, results in a bonus: "It leads to satisfaction of the customer."

The correlation of employee training to employee retention is nothing to sneeze at; some studies have attributed a retention increase by as much as 70 percent to employee training. They can have a huge impact on the bottom line, especially when an organization consider the resources that go into establishing a new hire into its organization. And retention isn't the only benefit of employee training as it relates to smooth operations and financial concerns. Training increases employee efficiency and productivity (some say up to 230 per cent). It also keeps employees up-to-date with new technology and current best practices, resulting in superior job performance. From enhanced performance and increased job satisfaction, to strengthened problem-solving skills and alleviated stress, and ultimately to customer satisfaction – it's almost impossible to count the numerous ways that employee training benefits the entire organization.

### Need for the study

The objective of any business organization is either profit (or) wealth maximization. In this scenario, every investment is linked with return on investment and training is of no exemption even though training is a short term oriented the investment is high compared to the immediate returns. The benefits of training are only recurring in nature and not assured against the all the odds.

So, the significance and effectiveness of the training must be evaluated regularly. Sometimes the objective of the training is to meet the change management pre-requisite. In such cases written on training cannot be quantified. So, either with the quantitative (or) qualitative outcomes the training has become inevitable. Unfortunately, the manpower available in the market are reelected to join manufacturing industry and the approach of the people /employees mostly performing the duties as an ad hock opportunity until they land in services industry. Training this kind of people don't yield desirable outcome due to high employee turnover. So, there is immense need to study the impact of training in manufacturing industry.

## 2. Review of Literature

Ryne's (1990) <sup>[3]</sup> suggested that recruitment covers all organizational practices and decisions that affect either the number, or types, of individuals who are prepared to apply for, or to admit, a given vacancy also recommended that job and organizational attributes may be the leading factors in applicant attraction; and that applicant insight of job and organizational characteristics, such as compensation, internal career paths, work environment and the type of work, have an optimistic direct result on applicant attraction to firms.

Torrington and Hall (1991) <sup>[4]</sup> stated that the three components can be distinguished in a recruitment process. First is the job analysis which is carried out in order to collect relevant information about the job demands and to set the hiring principles. The second part concerns the recruitment strategy, the strategy to extend relevant information among the possible

set of candidates; and the third element is the selection method, the purpose of which is to screen the applicants' abilities and characters in order to evaluate the degree of success and compatibility of the individual in the organization".

Trank, C.Q., Rynes, S.L. and Bretz, Jr, R.D. (2002) <sup>[5]</sup> highlighted that the most essential corporate resource over the next few years will be talent: smart, sophisticated business people who are technically literate, internationally shrewd, and operationally agile. And even as the demand for talent goes up, the supply of it will be going down. This seems to mainly hold true in case of the IT industry in India which needs high quality and skilled personnel to cater to the fast-rising global demand for software services but at present it is facing an increasing deficiency of skills supply.

According to Vikas Agarwal (2011) <sup>[6]</sup> Human Resource is the most important resource for the reason that is the only resource which has got brain. Even the computer brain which has been developed has human brain behind it. Development is an organized procedure of learning and growth by which managerial personnel gain and apply knowledge, skills, attitudes and insight to manage the work in their organization effectively and efficiently.

Clarke (2012) <sup>[7]</sup> suggests that "the organization needs to address the way it communicates the request for vacant and new positions to the person responsible for recruitment; the need has been detected for the organization to enlist the services of an employment agency for the recruitment of low skilled temporary staff; the need for the organization to widen the coverage area when advertising in the newspaper for positions vacant has been established; it has been established that the organization should advertise all positions internally, prior to searching outside the company for the most suitable applicant; it has been shown that the organization needs to change the current structure used in interviews for professional positions, from unstructured to structured; the need for the organization to change the seating arrangements in the interview room has been identified and finally the need for the organization to develop an orientation program to be implemented within the first week of an employee commencing employment has been established".

### Objectives of the Study

1. To study the outcome of the training programmes.
2. To study the relationship between respondents age, academic qualification and number of training programmes given on the outcome of training programmes.
3. To suggest for the better implementation of training programmes

### 3. Research Design

In the research design, an exploratory survey was conducted using well-structured questionnaire according to the objectives of the study to collect the first-hand information from the

<sup>5</sup> "Trank, C.Q., Rynes, S.L. and Bretz, Jr, R.D. (2002). Attracting applicants in the war for talent: Differences in work preferences among high achievers, *Journal of Business Psychology*, Vol.16, No.3, spring, pp.331-345".

<sup>6</sup> "Vikas Agarwal (2011). Training and Development in Public Organization with Reference to LIC, India, *Gurukul Business Review (GBR)*, Vol.7, Spring-2011, pp.87-95".

<sup>7</sup> "Clarke (2012). Recruitment and Selection Practices in a Selected Organization, *Journal of Management Practice*, (4), 1, 2012, pp.166-177".

<sup>3</sup> "Rynes, S.L. and Barber, A.E. (1990). Applicant Attraction Strategies: An Organizational Perspective, *Academy of Management Review*, Vol.15, No.2, pp.286-310".

<sup>4</sup> "Torrington, D. and Hall, L. (1991). *Personal Management: A New Approach*, 2<sup>nd</sup> Edition, Prentice Hall".

responds from Visakhapatnam Steel Plant, Visakhapatnam which is the largest manufacturing unit in Andhra Pradesh to collect, tabulate and analyse the data with appropriate statistical tools and interpret the outcome and suggest the suitable suggestions regarding the impact of training.

**Sampling and Data Collection**

Human resource is the essence of development and the development largely lies with the quality of human resources. Quality of human resource depends on so many factors and training is one among the vital factors. Therefore, the researcher has made an attempt to study the performance evaluation of training and development in Visakhapatnam Steel Plant.

The present study is based on both primary and secondary data. The primary data were collected from the respondents of different departments. Prior to the administration of the questionnaire; a pilot study was also conducted. Based on the pilot study, some questions were dropped and some questions were modified.

The primary data have been collected from the workers and supervisors, working in Brakes India Ltd. In order to collect the primary data from cross section of employees, questionnaire, containing 20 well thought out questions were issued to 520 respondents, selected on the basis of convenient sampling technique.

**4. Analysis and Interpretation**

The researcher has discussed about the effectiveness and impact of training and development and also presented the analysis and interpretation in detail.

**Table 1:** Mean, S.D., F-value of respondents’ opinion about Effectiveness of training on basis of Age

S.No	Age	N	Mean	SD	F Value	Level of Significance
1	20-30	216	52.56	4.18	4.21	0.01 (P<0.01)
2	31-40	128	58.02	6.23		
3	41-50	92	52.46	6.68		
4	>51	80	54.73	7.06		
	Total	520	55.89	9.64		

**H<sub>0</sub>:** There is a no significant difference in respondents’ opinion about the Effectiveness of training programs on the basis of their age.

**H<sub>a</sub>:** There is a significant difference in respondents’ opinion about the Effectiveness of training programs on the basis of their age.

It is revealed from the table that the middle age group respondents are highly satisfied about the effectiveness of training programs than the other age groups. This difference is confirmed by the calculated F- value (4.21), which is significant at 0.01 level. Hence, the null hypothesis is accepted.

**Table 2:** chi-square test for positive change after training on the basis of academic level

Academic Qualification	Yes	NO	Total
Secondary	103 (19.81%)	15 (2.88%)	118 (22.69%)
Diploma/ITI	156 (30.0%)	17 (3.27%)	173 (33.27%)
Graduate	186 (35.77%)	12 (2.31%)	198 (38.08%)
Post Graduate	28 (5.38%)	3 (0.58%)	31 (5.96%)
Total	473 (90.96%)	47 (9.04%)	520 (100.0%)

Chi-Square Value (Calculated)	DOF	Level of Significance
5.898	3	0.1112 (P>0.01) Not Significant

**H<sub>0</sub>:** There is no relationship between the positive change after training and their academic qualification.

**H<sub>a</sub>:** There is relationship between the positive change after training and their academic qualification.

From the above table, it can be revealed that the majority (90.96%) of the respondents have opined that, there was a positive change among them after attending various training programs in the company and outside the company. Among them, the respondents with graduate level academic qualification were the majority with 35.77 per cent, 30 per cent were Diploma/ITI, 19.81 per cent of the respondent’s belonged to secondary level and 5.38 per cent were the post graduates by academic qualification. Only 8.08 per cent of the respondents have opined that there were not any significant changes occurred after attending the training programs.

It is evident from the table that, the calculated Chi-square value is not significant at 0.01 levels. Hence, the null hypothesis is accepted. So, it is concluded that, there is no association between the positive change after the training programs and their academic qualification.

**Table 3:** Chi-square test for enrich the job knowledge on the basis of academic level

Academic Qualification	Yes	No	Total
Secondary	116 (22.31%)	10 (1.92%)	276 (53.08%)
Diploma/ITI	138 (26.54%)	12 (2.31%)	150 (28.85%)
Graduate	183 (35.19%)	24 (4.62%)	207 (39.81%)
Post Graduate	32 (6.15%)	5 (0.96%)	37 (7.12%)
Total	469 (90.19%)	51 (9.81%)	520 (100.0%)

Chi-Square Value (Calculated)	DOF	Level of Significance
26.67	3	0.001 (P<0.01) Significant

**H<sub>0</sub>:** There is no relationship between the enrichment of job knowledge and their academic qualification.

**H<sub>a</sub>:** There is relationship between the enrichment of job knowledge and their academic qualification.

As far as the above table is concerned, 90.19 per cent of the respondents have accepted that, the training programs certainly enrich their job knowledge. Among them, 35.19 per cent of them had graduate level of academic qualification, 26.54 per cent of them were Diploma/ITI, 22.31 per cent of the respondents were secondary level and 6.15 per cent of them belonged to post graduation category. 9.81 per cent of the respondents have rejected the statement that, the training programs enrich their job knowledge.

It is evident from the table that, the calculated Chi-square value is significant at 0.01 level. Hence, the alternative hypothesis is accepted. So, it is concluded that, there is an association between the enrichment of the job knowledge and their academic qualification.

**Table 4:** Stepwise Regression Analysis for the Effectiveness of Training Programs

Sl.No	Step/Source	Cumulative R <sup>2</sup>	ΔR <sup>2</sup>	Step t	P
1.	Academic level	0.041	0.049*	3.182	0.01
2.	Length of service	0.053	0.051*	2.419	0.01
3.	Number of training Programs	0.064	0.056	2.301	0.01

\* P < 0.01, Constant value = 17.424

Three variables namely, academic level, length of service and number of training programs attended have significantly contributed for predicting the effectiveness of training programs. The variable academic level predictive value of effectiveness of training programs seems to be 0.049, when paired with the variable, length of service is 0.053 and with number of training programs attended is 0.064. The predictive value of these variables separately is 0.01.

*Training* is an academic process. People can learn new information, re-learn and reinforce existing knowledge and skills, and most importantly have time to think and consider what new options can help them improve their effectiveness at work. Effective trainings convey relevant and useful information that inform participants and develop skills and behaviours that can be transferred back to the workplace.

### Suggestions

The following suggestions raised out of the study of impact of training in manufacturing industry.

- The materials required for training are to be made available in more number facilitating the employees to refer at their convenience than a particular time.
- The art of balancing work life and personal life need to be trained to the employees.
- The outcome of training need to be tested in their actual work by the employees after training.
- Training must be done with vision and that need to be seen accomplished in the future through employees trained.
- The employees need to be made part in designing the training calendar and areas in which the training is required.

### 5. Conclusion

Despite being expensive training is inevitable in manufacturing industry where the performance has the highest impact on the cost of production. The cost curve is negative only when there is significant upward move in the productivity which could be possible with training. The changing methods of production and tools used and the application of computers in manufacturing is leaving a lot of space for training and it needed to be implemented effectively and with the participation of the employees in the training programme. The company need to follow the suggestions given and strive for the further betterment even though the employees are satisfied partly with the current training programmes.

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