CHAPTER 1

INTRODUCTION

Technical training of employees has become one of the major activities in modern industries in India due to the rapid growth in technology, modernization, competition and the implementation of total quality management (TQM).

Training is one of the crucial strategies for organizations to assist employees to gain those necessary knowledge and skills needed to meet the challenges (Goldstein and Gilliam 1990, Rosow and Zager 1988). More recent studies indicated that today's organizations will face two oncoming trends, the increasing age of the workforce and the increasing introduction of new technologies, and suggested that training is especially critical, as the workplace introduces further new technologies, such as web-based operation, computerized intelligent systems, and other task technologies (Colquitt et al 2000, Howard 1995, Quiñones 1997).

Training is the catalyst for the continual and rapid improvement in all areas of the company. Training helps in maintaining a valuable and knowledgeable workforce. The importance of employee development increases with the jobs becoming more complex.

The companies want to keep and leverage talent. They do not want to lose out to the competition. There is extensive evidence that investment in employee training enhances the human capital of the organization and results
in improving the organizational performance. Moreover, there is a requirement for higher qualifications and the present qualifications are becoming outdated.

The importance of technical training is growing with the level of competition going up in the manufacturing sector. Keeping this in view, an attempt is made in this research, to make a comprehensive study on the major effect of technical training that results in the benefits for the organization, the improvements achieved by the employee and work practices.

1.1 EFFECT ON THE EMPLOYEE

In many countries there has been a gradual reduction in the number of mass production jobs with increasing job complexity and skill requirements now being characteristic of all employees (Westhead 1998).

The analysis by Loof and Heshmati (2002) resulted in the finding that job-specific skills obsolescence is fostered by the degree of technological and organizational developments. 61 per cent of respondents of a study by Devins (2004) reported that they were more confident at work consequential of the training received. Training will play a critical role in increasing workers' adaptability and flexibility which employers have found is becoming increasingly important (Tai 2006).

1.2 EFFECT ON THE WORK

Based on responses from a large number of Canadian and Australian manufacturing plants, Gordon and Sohal (2001) concluded that the greater emphasis on training at the “most successful” plants indicated a desire to upgrade the skills of individual workers to achieve company objectives.
Cocheu (1989) advocates this and highlights training as being a vital component of a quality improvement strategy in any organization. Training has an influence on improvements in quality. Gowen and Tallon (2003) determined that as the rate of environmental change increases, so does the need for the training and retraining of the workforce. Best practice firms treat training and human resource development as a strategic need, not as a discretionary budget item whose funding may be reduced in off years.

The research by Smith and Hayton (1999) made three key observations that relate to the development of employer training in Australian enterprises at that time. First, workplace change emerged as a key driver for employer training in both the survey and the case studies. Thus the research confirmed the growing strength of the link between training and organization development. Second, the research found that individuals played an increasingly important role in their access to training from their employers. Enterprises reported that training needs were increasingly fragmented to the individual level and that they were progressively abandoning the traditional approach to training programmes that saw large groups of employees receive the same training regardless of individual need.

A study by Swierczek and Dhakal (2004) on the implementation of learning strategies in developing countries in manufacturing industries showed that there is improvement in performance after conducting training programmes.

1.3 EFFECT ON THE ORGANIZATION

Garavan et al (1995) stress that since the prime objective of any organization is to sustain long-term profitability through high levels of productivity and competitiveness, the training and development of human
resources must receive due recognition and status as a critical strategic activity.

The review paper by Mital et al (1999) shows that there is a dire need to train workers in manufacturing organizations and thereby improve the overall effectiveness and efficiency of such organizations. Gordon and Sohal (2001), based on responses from a large number of Canadian and Australian manufacturing plants, concluded that the greater emphasis on training at the “most successful” plants indicated a desire to upgrade the skills of individual workers to achieve company objectives.

Chang (1989) noted that an organization can never realize change by simply hiring engineers and technicians with new technical expertise from outside. New tests with US data (Black and Lynch 2000) suggest that training has a positive effect on productivity and earnings.

1.4 TECHNICAL TRAINING

Technical training may be understood to mean instruction intended to help people perform the unique aspects of a special kind of work and apply the special tools, equipment, and processes of that work, usually in one organizational setting. Technical training includes training people how to use technology and perform under unique conditions for which special expertise is necessary.

1.5 SUPERVISORS

Supervisors are in an important position to influence individual and collective tacit knowledge sharing in teams and thus overall organizational performance. Supervisors are also called line managers often in literature. The
main strategic advantage which line managers possess in comparison to senior managers is of being closer to the daily operations and customers. This gives line managers unique knowledge concerning organizational realities, which can inform their understanding of the important issues for implementing strategic choices through people. Supervisors are required to “productively manage the business and continuously be looking for opportunities for quality improvement” (Bunning 1996).

1.6 THE DEMING AWARD

Deming was one of the world’s leaders of Quality management. His contributions had great impact on American and Japanese industries. The Deming Prize was created in 1951 by the Japanese Union of Scientists and Engineers (JUSE). The purpose of the Deming Prize was to recognize those who excelled in quality control and a way of driving quality control. It was also established to thank Deming for his accomplishments and impact in the Japanese industry. The award is available to individuals and organizations. The Deming prize is based mainly on the process rather than their business results. There were four Deming prize awarded companies among the companies where the survey for this research work was conducted.

1.7 MOTIVATION FOR THE PRESENT STUDY

Technical training of employees has become one of the major activities in modern industries in India. There is a necessity to study the various effects of technical training because of the enormous investment made in the industry in terms of time and money. The results of this work will provide the insight needed for the industry on technical training.
1.8 NEED FOR THE STUDY

Little work has examined the extent to which trainees effectively apply the knowledge, skills and attitudes acquired in a training context once they are back in the job (Tannenbaum and Yukl 1992, Tracey et al 1995). Clearly the success with which individuals apply new skills in the workplace is of importance both to those attending training programmes and to the employing organizations who continue to invest heavily in such development activities. Several research studies have studied the effect of training, taking only a few variables like increase in confidence (Devins 2004), empowerment (Siegel et al 1997), success of teams (Banker et al 1996), return of participation in a training programme (Krueger and Rouse 1998), competitiveness of the organization (Caudron 1991), improvement in performance (Swierczek and Dhakal 2004), achievement of company objectives (Gordon and Sohal, 2001) and productivity (Denison 1984, Carnevale and Goldstein 1990). However, there is a need for a comprehensive study of the effect of technical training. A study of the effect of technical training is needed with particular reference to the automobile manufacturing companies as they spend a considerable amount of time and money to train their employees.

1.9 PROBLEM STATEMENTS

It is important to study the effect of technical training in Indian automotive manufacturing companies because training has become one of the major activities and enormous investment is made to train the personnel. The industry will benefit by understanding the effect of training. The responses, regarding technical trainings from the shop floor supervisors are important because they are closer to the daily operations and customers. What are the effects of technical trainings on the organizations, the employees and work
practices? How are employee improvement and improvements in the work practices contribute to the organizational benefits? Are the effects different between the different types of companies? These questions have greatly influenced the current study on the effect of technical training in Indian automotive manufacturing companies.

1.10 OBJECTIVES

The following are the objectives of the study:

1. To find the effects of technical training on the organization, the employee and work practices.

2. To find the relationship between the organizational benefits of training and the following two effects: (1) employee improvement and (2) improvements in the work practices.

3. To find if there are significant differences in the effects of training among the original equipment manufacturing (OEM) companies.

4. To find if there are significant differences in the effects of training among the auto component producing companies which have received the Deming award.

5. To find if there are significant differences between OEM companies and the auto component producing companies as a whole (including the Deming award receiving companies) in the effects of training.

6. To find if there are significant differences between the auto component supplying companies with and without the Deming award in the effects of training.
1.11 METHODOLOGY

The methodology adopted for the research work is depicted in Figure 1.1. The effect of training in automobile manufacturing companies has been selected as the broad field of research. A literature survey has been conducted to investigate the research work already carried out in this area. The effect of training in automobile manufacturing companies has not been studied fully in any literature. An attempt has been made in this study to find the effect of training in automobile manufacturing companies. Based on the review of the results, conclusions have been drawn. Finally, the scope for further research has been projected.

**Survey:** The research is based on a survey, to find out the effect of technical training on the organization, employee and work practices. The relationship between the organizational benefits of training, employee improvement and the improvements in the work practices are also investigated. The model of effect of technical training is shown in Figure 1.2. The effects on the OEM and the auto component suppliers are compared. The effects on the Deming award winning suppliers and other suppliers are also compared.

This survey was conducted among the companies that are categorized into the following classes.

1. Original Equipment Manufacturers
2. Auto component supplying companies
3. Auto component supplying companies which received the Deming award
Problem recognition

Selection of domain of research

Literature survey

Problem recognition

1. Questionnaire design
2. Pilot survey
3. Revision of questionnaire
4. Survey

Data analysis and hypothesis testing

Results and findings

Summary and conclusions

Figure 1.1 Research methodology

Figure 1.2 Model for effect of technical training
Survey Methodology: In order to measure the effect of technical training, a survey instrument consisting of 150 items has been developed. Since there was no prior instrument available to measure the effect of technical training from the viewpoint of supervisors, a new instrument was developed on the basis of an exhaustive review of literature, brainstorming with employees and a pilot survey among the employees. The instrument underwent refinements based on the pilot survey and the suggestions from the experts from the academic field and industry. The instrument has been designed to maximally capture the effect of technical training on the capabilities of the employees.

The following are the stages of the survey:

1. Questionnaire design
2. Pilot survey
3. Revision of questionnaire
4. Survey
5. Data analysis
6. Results and findings

The items in the questionnaire are jumbled and arranged in a random order in the instrument. The random sampling procedure was followed to get the responses. The respondents were approached personally and were explained the purpose of the project. The respondents were requested to indicate their perception of the effect of technical trainings with respect to each item on a seven point Likert scale. The survey was conducted in three major OEM companies, four Deming award winning companies and twenty auto component supplying companies located in Chennai, India. A total of 305 candidates were approached and all of them returned correctly completed questionnaires, yielding a response rate of 100%. The high response rate was due to personal contact approach. Out of the 305 responses
63 were from original equipment manufacturing companies and 242 were from auto component supplying companies. Among the 242 responses from the suppliers 90 responses were from the Deming award winning companies and the remaining 152 responses were from companies which have not yet received the award.

A combination of factor analysis, multiple regression analysis, analysis of variance (ANOVA) and independent sample t-tests will be used to analyze the data and to check for the differences among companies.

Factor analysis will be performed on the responses with the objective of reducing many variables that belong together and having overlapping measurement characteristics to a manageable number. Reliability analysis will be conducted on the factors.

Multiple regression analysis will be used as a descriptive tool to develop a self-weighing estimating equation to predict values for a criterion variable (dependant variable) from the values for several predictor variables (independent variables). ANOVA and independent sample t-tests will be performed to analyze the data and to check for the differences among companies. The results obtained from the above mentioned techniques will be discussed further.

Summary of variables under study are reported below:

1. Demographic variables: age of the respondents, tenure, type of the industry, age of the company, number of training programmes attended and the number of days in training
2. Effect on the organization
3. Effect on the employee
4. Effect on the work
1.12 LIMITATIONS OF THE STUDY

This study has been conducted in Chennai city which is considered as a Detroit of India. A study of automobile industries in different parts of India can be undertaken to further validate the findings of this work. This study is restricted to large scale industries. The large scale industries heavily depend upon small and medium scale industries to supply components and sub assemblies. A study involving small and medium scale industries will further validate the findings of this work on the effect of technical training in automobile industries. This study has been conducted in automobile industries. Future work may include other factories in the manufacturing sector. This study is cross sectional and relies on perceptional measures that were self reported by study participants. Future work may also include quality and content of technical training undergone by the employees. These factors were not included in this study.

1.13 ORGANIZATION OF THE THESIS

The introductory part of the thesis is given in Chapter 1, which includes the importance of technical training, motivation and need for the study, objectives, summary of variables and the proposed model. The review of literature is given in Chapter 2. Methodology adopted for conducting this research study has been discussed in Chapter 3. This chapter is divided into various sections such as, variables under study, instrument used, pilot study, final study and overview of statistical techniques. Chapter 4 covers the data analysis and the results of the tests of hypotheses. For this purpose reliability analysis, validity tests, factor analysis, multiple regression, ANOVA and independent sample T-tests have been carried out. Chapter 5 covers the summary and conclusion of the work. It includes findings, conclusion, contributions of the study and scope for future research.