CHAPTER 2
REVIEW OF LITERATURE

Introduction

The aim of this chapter is to review the literature relevant to the research problem. It reviews the literature on quality circles practices in manufacturing enterprises, its relationship with job satisfaction, teamwork, communication, training, production, quality and cost in manufacturing enterprises. The literature on the obstacles to the implementation of quality circles in manufacturing enterprises is also reviewed.

2.1 Foreign Studies

In this section review of literature relevant to quality circles, their influential factors and the critical success factors are presented.

Grya (1981), based on the study of eleven companies which have adopted quality circles has reported that a number of attitudinal changes are being observed in management and workers. Workers believed that participation in quality circles has resulted in improving their personal capabilities and self respect. It also
helped in improving their communication with supervisors and management. Supervisors also reported that image of workers improved in their eyes due to workers abilities to solve problems. However, this study is limited to a small sample and more descriptive in nature.

Srinivasan (1982), had studied quality circles in a large computer peripheral manufacturing company in U.S.A. He used experimental design to measure both pre-test and post-test measures to examine the impact of quality circles on productivity, group behaviour, and interpersonal behaviour. He found no significant difference between quality circle and non quality circle groups after a period of two months. Though this study was based on experimental design, the weakness of the study was that two months may be too short a period to measure the impact of quality circles.

Zahara (1982), conducted a study of quality circles in two U.S. organizations. Using ANOVA and the 't' test, did not find any support for an association between quality circle membership and job satisfaction. However, Strong association was found between quality circle membership and perceived changes in quality of work life.
Rieker & Sullivan (1982), have found that, in USA, quality circles were started as a part of a programme for improving quality of work life. International Association of Quality Circles and American Society of Training and Development were two prominent agencies, actively prorogating quality circles in USA. Both of them have been focusing on motivational aspects of quality circles.

Rosow & Zager (1983), has stated that participation in quality circles may promote the objectives of unions such as democratization of the work place and strengthening of union membership. Therefore, in the U.S.A., some of the large unions, namely, United Auto Workers, Communication Workers of America, International Brotherhood of Electrical Workers and United Steel Workers, together representing almost three million workers have been supporting quality circle interventions.

Takezawa (1982), stated that the unions in Japan have played a major role in the acceptance of quality circles and improvement in productivity. A large percentage of unions are enterprise based and include all the workers, regardless of type of work. These unions identify their interest with the interest of the organization and cooperate with the company to better the company's
competitive position vis-à-vis other companies. Therefore, they support quality circle activities.

The above discussion suggests that organization having healthy management-union relations is likely to receive union support for quality circle activities. Also, an educational strategy explaining to the unions how quality circles can help to improve quality of work life for workers and a guarantee that problems under the purview of collective bargaining will not be discussed in quality circles, can facilitate acceptance of quality circles by unions.

Dale (1984), studied the quality circle programmes in five manufacturing companies in U.K. He found that quality circle leaders believed that employees who participated in quality circle activities were more quality conscious. In all five companies it was recognized that relationship between circle members had improved, leading to increased cooperation in their work environment. Some cost savings were also achieved. However, this study is limited to five manufacturing companies only.

Cole (1984), had reported that the success of quality circles in an organization depends upon the support of the management. Top management can support a
quality circle intervention by forming a steering committee and ensuring that it meets regularly to guide and monitor quality circle activities, providing budget for quality circle members to attend activities, attending quality circle presentations, and encouraging quality circle members to attend the quality circle conventions seminars etc. This study is more descriptive in nature.

Smith (1984), based on a study of quality circles in four organizations found that the employee’s alienation decreased. Also, the employee’s ability to manage job-dissatisfaction increased as a result of membership in quality circle. This is because of an exigencies related to work and superiority complexities.

Abott (1984), has found that quality circle member’s desire for participation has emerged as a salient intervening variable in terms of quality circle relationship to job satisfaction. Quality circle members having high desire for participation were found to be more satisfied with their jobs as compared to those quality circles members who had low desire for participation. It was found that employees who reported equilibrium between the desired and available influences were the most satisfied.
Ishikawa (1984), has stated that Japanese Union of Scientists and Engineers (JUSE) and its regional offices have played a very active role in propagating the cause of quality and quality circles in Japan. They offer awards to the companies who show maximum improvement in quality and the award is considered to be very prestigious. Workers through their involvement in quality circles actively participate in these competitions. Quality circles that make good suggestions are invited to participate in regional conferences. In 1984, more than 60,000 employees participated in these conferences further, JUSE also arranges courses and seminars for top and middle management. This results in acceptance of quality as a corporate philosophy and as a result top and middle management also take interest in quality circles.

White and Bednar (1985), have made a study on locating problems with quality circles, found one third of all problems found to be associated with quality circles occurred at the point at which circle programmes interfaced with the existing organisation. Difficulties such as effectively staffing and training participants at all levels of the program, along with individual and operational problems within circles, must be anticipated.
Lawler (1985), observed that many organizations in U.S.A. started quality circles as a fad. Some features of quality circles also contributed for their popularity. First, the programmes are available for a fixed price. The executive can buy a standardized package complete with training and support materials and instructions on how to proceed. Second, management can easily control the number of people involved as well as the size and cost of the programme. Third, because quality circles have no decision-making power, managers do not have to give up any control or prerogatives. Also, top management can easily eliminate them if they become troublesome. The authors suggested that after the success of initial few circles, an organization expands the quality circle programme. This is the time when it experiences many problems. The cost of training and providing facilities substantially go up. The aspiration of quality circle members who have successfully solved some problems may rise. They may expect additional training, greater career mobility, and financial rewards for participation in quality circle activities. Thus, the cost of managing and expanding the quality circle programs may keep rising, and many managers start questioning whether the savings justify the expense. And, it often leads to managers losing interest in quality circle activities, leading to inactivitation of a quality circle programme.
Grady Jr. (1986) made a study of quality circles in an American manufacturing firm, multiple regression analysis revealed a positive relation between quality circle participation and quality of work life parameters directly affected by quality circle activities but not in more general work life areas. Employee productivity and absenteeism rates also showed improvements where quality circles were active.

Ootaki (1986), has found through his study that the objectives of a quality circles intervention are likely to affect its success. The focus of quality circle movement in Japan, for instance, has been quality improvement through involvement of blue collar workers. It facilitated diffusion and success of quality circles in Japan.

Saleh, and Hull (1990), has made a study on the use of quality circles in the automobile parts industry about their practices in quality control (QC) circles. The results supported the value of using QC circles for both quality improvement and organizational effectiveness. The support of the different levels of management, particularly those in the plant, was found to be an important consideration for their success. The unions' involvement and support, as well as employee
participation, were also related to the circles' success. Neither the method of choosing the leader of the QC circle nor the selection of the problems on which the group worked was found to be related to the success of the circles.

Boaden (1993), had reported that quality circles are not fad, they are still an important and widely used tool within the overall concept of total quality management, albeit under different names. There is a need for more analysis and model development to assist organizations wishing to utilize the powerful and effective technique of quality circles.

Gerry (1996), had reported that the quality circles were not dead, with the right support and nurture, quality circles just keep on evolving and improving. In addition to the cost savings ($650,000 savings on an 18 month payback period), quality circles were the basis for launching pad for initiatives of total quality management; business process improvement teams; statistical process control; and self directed work teams.

Gary (1996), based on a study of quality circles at Honda Research and Development, North America found that through the quality circles they have reduced CAD terminal
system problems where earlier they were pretty frustrated due to the plotters, the file size limitation and the slow system response. Usually quality circles if they are used at all anymore are found on the factory floor. But at Honda, they are everywhere even in research and development.

Li-Ping, (1997), based on the study of fifty three quality circles in united state stated that the perception of quality circle increases the effectiveness of the organization is negatively correlated with lack of middle management support and positively correlated with the nature of the task as sources of quality circle’s problem solving failures. Those who experienced high job satisfaction due to quality circle experiences also tended to perceive the nature of the task as source of quality circle’s problem solving failure. In a sense, these individuals reporting positive quality circles attitudes and satisfaction are making external attributes for quality circle’s problem solving failure. The findings further support the notion that attributed styles were related to self esteem, subjective well being or health status.

Gerlach, and Romer(1998), has made a study on “quality circles in ambulatory care: state of development
and future perspective” in Germany. The ASHIP promoted the
work of QC by providing organizational or financial
support, materials or mediation of resource persons. Eleven
ASHIP received grants from drug companies. ASHIP rated the
future importance of QC as increasing or stable, but in no
case as decreasing. However this study never revealed any
thing about problem-oriented evaluation of their impact on
health care as they are essential for further successful
development. Principles, problems and solutions discussed
may be relevant for similar QI activities in other
countries.

Berndt and Harter (2001), have made study on
perceived effectiveness of diagnostic and therapeutic
guidelines in primary care quality circles. They evaluated
hundred and six quality circle meetings and concluded that
the higher benefit was correlated with more regular
participation in quality circle meetings. Working with
predesigned guidelines was both feasible and effective in
quality circle and provided a starting point for
developing guidelines in primary care. There is some
empirical evidence that participating in quality circles
may increase general practitioner’s job satisfaction.
However there is a need for further studies using
intervention and control group designs to investigate
whether quality circles really improve daily practice through clinical audit and benchmark techniques.

Beyer and Grola (2003), have made study on the development of quality circles/peer review groups as a method of quality improvement in Europe. Their study revealed that quality circles were very active in 10 countries; 16 countries showed little or no activity. Participation ranged from 2 to 86% of all quality circles. Development appeared to be associated with establishment in private practice and the portion of quality circles with vocational training. Eight programmes from six countries describing the establishment and the targeting of quality circles work are presented as case reports. However in the last 10 years, substantial development of quality circles has taken place in Netherlands, UK, Denmark, Belgium, Ireland, Sweden, Norway, Germany, Switzerland and Austria, further evaluation is needed to clarify the impact on quality of care.

Alhol and Ham (2005), have made a study on the Effectiveness of Quality Circle Participation in Industrial and Service Organizations in Malaysia. This study reported that quality circle proponents suggest a wide array of positive results when this participation technique is used either in manufacturing or in service
sector. This study is to determine whether quality circles in one sector are performing more effectively than the other. This assessment includes technical aspects, length of participation, training, members' feelings about quality circles, job satisfaction and job commitment. The study also illustrated the impacts of participation on 109 quality circles members from five Malaysian companies. Results showed that Industrial QCs members were more enthusiastic than service QCs members in terms of involvement in QCs activities and showed higher job satisfaction and job commitment compared to members in service organizations.

Pereira and Osborn (2007), conducted a study on “Effects of Participation in Decision Making on Performance and Employee Attitudes: A Quality Circles Meta-analysis”. This study explores the effects of a participative technique, quality circles, on several employee attitudes and performance. The sample included 36 studies with 42 independent samples. Mean effect sizes were small for employee attitudes and moderate for job performance suggesting quality circles affected job performance to a greater degree than employee attitudes. For organizations involved in quality management these results seem to suggest that quality interventions have a stronger impact on job performance than on employee
attitudes. The study conclusions provide a positive outlook on the effects of quality circle interventions on productivity.

A single intervention in quality circles of group participations integrated in the group's normal working procedure did not have a significant effect on the quality of antibiotic prescribing. More attention to the context and structure of primary care practice, and insight into the process of self-reflective learning may provide clues to optimise the effectiveness of quality circles.

2.2 Indian Studies

In India only a few research studies were conducted. This has been described in this section.

Kamat (1983), based on his experiences as a blue collar worker in a Toyota assembly line, observed that Japanese employees participated in quality circle activities due to pressure from their peers and superiors. Further, he commented that the shop foreman often sets the targets about number of suggestions a quality circle group should forward, and that becomes a goal to be met by everybody in the group.

Joseph (1984), conducted a study of quality circles at Bharath Heavy Electronics Limited, Hyderabad found
that members of those quality circles which met regularly perceived that their quality of work life to be better as compared to that of non quality circle members. But non quality circle members were found to be superior on quality of work life parameters as compared to the quality circle members whose circles were not functioning properly. However this study is limited to only one variable and one industry.

Amsa (1990), in her study has observed that with regard to quality circles in India was not one of culture or group orientation, but of preparedness on the part of the top management of Indian organisations to introspect and examine their own beliefs and values about workers and to reorient themselves suitably. Some management in India was responding remarkably well to that challenge and if that trend continues quality circles would find a place in Indian organisations. After all, the idea or the philosophy of quality circles, viz., respecting human dignity and potentials of the workers, and involving them in organisational affairs is neither new nor can be confined to any nation, but what was new about quality circle was that it provides a structure and methodology for translating that philosophy into practice in today’s organisations.
Srinivasan (1991), through an empirical survey had reported that the organizations which are practiced quality circles were at a better level in operating income and gross profit compared to others. And quality circle has helped to impart creativity among workers and a sense of belonging to the organization.

Krishnamurthy (1992), reviewed the functioning of quality circles in Bharath Electronics Limited Bangalore. The experience at the Bharath Electronics Limited in implementation of quality circles found that the implementation of quality circle has enabled the company to reduce the time required for development and implementation of a company specific model for total quality management. However this study is very much limited to only one organization.

A study conducted by Agarwal (1994), has focused on the impact of quality circle as an intervention, on improving the quality of work life and productivity. This has provided only partial answer to the research question on how to evaluate the performance of a quality circle.

Rajkumar and Garg (2002), has conducted a case study in Dye House of a Shipping mill of West Bengal and in that a quality circle, through the use of statistical tools had
solved the problems one by one and moved the industry towards increasing profits and improves productivity. The study found that among the various quality control techniques, quality circles was simple, with economic and best techniques for bringing incremental improvement in the organization.

The review of research described so far appears to show mixed evidence for the success of quality circles. In some instances, or with respect to some effectiveness variables, quality circles appear to be effective. In other cases, they appear ineffective. This suggests a need for a more systematic examination of the effectiveness of quality circles.

It is this mixed scenario of the high potential of quality circles with many ifs and buts attached to them which makes it a subject rich and relevant for the research. Accordingly, it was planned to study quality circle movement and its effectiveness in Indian organizations.

Accordingly, the present study was planned to investigate the effectiveness of quality circles in Indian enterprises. Research questions identified to fill
research gap with special reference to Indian manufacturing enterprises were:

- What is the structure of quality circles?
- How are quality circles functioning in Indian manufacturing enterprises?
- What is the impact of quality circles on cycle time, customer complaints, scrap and defect levels and cost?
- What are the tools and techniques used in quality circles?
- What are the factors which contribute towards success or failure of quality circles in Indian manufacturing enterprises?

Summary

This chapter reviews the relevant literature on effectiveness of quality circles both in India and foreign countries. It includes quality circles practices in manufacturing enterprises, its relationship with enterprise performance, productivity and quality, cost benefit in manufacturing enterprises. The obstacles to the implementation of quality circles manufacturing enterprises are also reviewed.
References:


