

CHAPTER 3

THE CONCEPT OF QUALITY CIRCLE

Introduction

The previous chapter presented the overview of literature on the research study. The aim of this chapter is to understand the concept of quality circles. It covers the meaning of quality circle, definition of quality circle, the essential elements and structure of quality circles.

3.1 Definition

There have been different interpretations of the concept of quality circles in various organizations in India and abroad. However, the most commonly accepted definitions in keeping with the essence of the philosophy as it originated in Japan are:

"Quality Circle is a small group of employees in the same work-area or doing a similar type of work who voluntarily meet regularly for about an hour every week to identify, analyse and resolve work-related problems, leading to improvement in their total performance, and enrichment of their work life" (Udupa 1986).

"Quality circles are a formal, institutionalized mechanism for productive and participative problem-solving interaction among employees"(Lozano & Thompson 1980).

"Quality control circle is not just a little room adjacent to the factory floor, whose occupants make a nuisance of themselves to everyone else. It is a state of mind and a matter of leadership with everyone from the president to production trainee involved"(Rehder 1981).

"Quality circle is a small group to perform capital quality control activities within the same workshop. This small group carries on continuously as a part of company wide quality control activities self development and mutual development and improvement within the workshop, utilizing quality control techniques with all member participating"(Dr.Ishikawa).

3.2 Meaning of Quality Circle

In Japan, quality circles are organized within a department or work area for the purpose of studying and eliminating production related problems. They are problem solving teams which use simple statistical methods to research and decide on solutions to workshop problems.

Quality circles in North America are similar to Japanese circles in spite in spite of the fact that each may emphasize a particular function such as problem solving, team building or quality control.

Underlying the quality circle concept is the assumption that the causes of quality or productivity problems are unknown to workers and to management. It is also assumed that shop floor workers have hands on knowledge, are creative and can be trained to use this natural creativity in job problem solving. Quality circles, however, are a people building, rather than a people using, approach.

3.3 Features of Quality Circles

The main features of quality circle are:

(a) Quality circle is a small group of employees

Quality circle is a small group of employee of 8 to 10. A circle with less than 5 members would lose its vitality due to high rate of absenteeism. This may cause a circle to become inactive. On the other hand, more than 15 members in a circle could result in denial of opportunity for active participation by every one. As

such, 8 to 10 are recommended as the minimum and maximum strength of quality circles respectively. The reason for such numbers is that number of interaction among members would be manageable.

(b) Quality circle is organized in the same work area or doing similar type of work

A quality circle is a homogeneous group and not an inter-departmental or inter-disciplinary one. Members participating in circle activities must be on the same wave-length. Discussions taking place at the meetings should be intelligible to each one of the members. This is possible only if the composition of the circle includes employees working in the same work area or engaged in a similar type of work. Designations of members need not necessarily be equal but the work in which they all are engaged should be common. For example, in any assembly area, turner, drillers, electricians, and unskilled workers, etc., could decide to form a circle. Similarly, circles could be composed of stenographers in an office, operators on a group of milling machines, nurses in hospitals, draughts men in an engineering section, clerks in a bank's. etc.

(c) Quality circles are voluntary

Employees decide to join quality circles on their own willingness. No compulsion, coercion or pressure can be brought on any employee to join or not to join quality circles. This is based on voluntarism principle.

(d) Quality circles meet regularly for about an hour every week

Normally, a quality circle meets for about an hour every week. It is therefore possible for the circle to meet atleast three or four times a month. The regularity of such meetings is very significant and it must be adhered to. These meetings could be conducted during or after working hours. This decision is left to quality circle members themselves. For example the Bharath Heavy Electric Ltd., Bangalore, have been conducting the meetings for an hour after the shift hours on every Saturdays (QCFI Convention Report 2008).

(e) Quality circles identifies, analyses and resolves work-related problems

The employees who work continuously in a work area knows best what problems are hindering achievement

of high quality, productivity and optimum performance as also how they can be remedied. The members of quality circles themselves can, therefore, identify problems and entertain requests from the management and other departments to look into certain problems that may be worrying them. The focus of quality circles is "work related problems" and not other extraneous issues such as grievances or demands.

For Example in a non ferrous foundry in BHEL, Hyderabad, one of the problems identified by a quality circle was on an unhealthy, smoke polluted environment (QCFI Convention Report 2008). Any unenlightened management might construe this problem as a grievance. But managerial maturity would also recognize that productivity and quality of work would be affected by such unclean environmental conditions. In this instance, the problem which had been repeatedly highlighted but had defied a solution for many years in the past was resolved by the quality circle members who analysed the problem systematically, found a solution and got it implemented with the cooperation of everyone in just six months.

(f) Quality circle leads to total performance

As quality circles resolve work related problems relating to quality, productivity, cost reduction, safety etc. the total performance of the work area naturally improves. This results in both tangible and intangible gains to the whole organization. Empirical data provided in chapter 5 would substantiate this feature of quality circle.

(g) Quality circle enrich work life

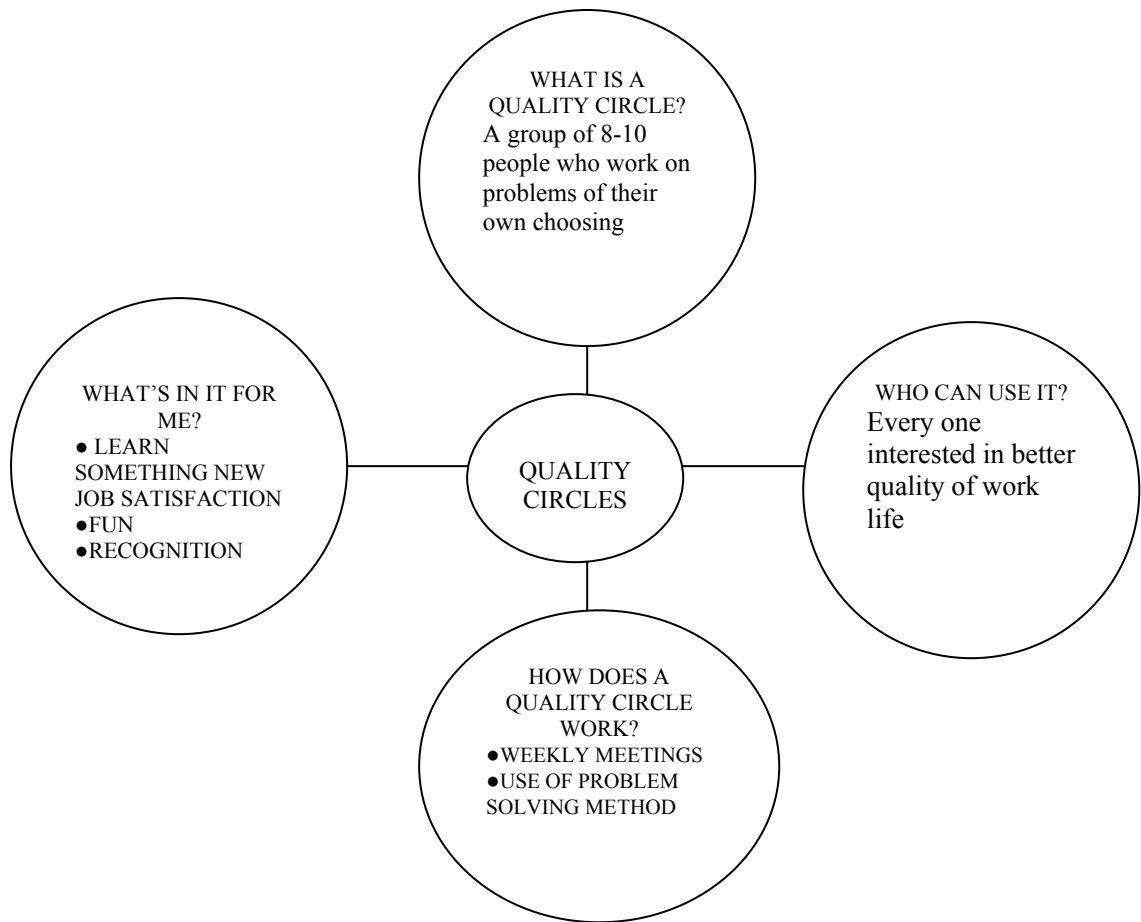
The spin off benefits of quality circles of the organization includes enrichment of the work life of their employees apart from attitudinal changes, cohesive team culture, etc. Improved working environment, happier relations with co-employees, greater job satisfaction etc. are responsible for this enrichment of their work life.

3.4 Assumptions of Quality Circles

The concept and philosophy of quality circles are derived from the following basic assumptions (Mathew George 1991):

1. It is primarily based on recognition of the value of a workman as a human being as someone who willingly activates on his job, his wisdom, intelligence, experience, attitudes and feelings.
2. Employees have the ability to contribute creative ideas to organizational processes. They are endowed with intelligence and imagination. If treated as human beings, and convinced that the management trusts them to be capable of responsibility and contribution, an explosion of creativity can be spontaneously permeated to the entire organization.
3. The employees are the real experts on the intricacies and hidden potentials of their jobs. They can make valuable suggestions on many small things that go wrong, or are not fully utilized provided they feel motivated to do so. They have a desire to participate in the problem solving process. If the natural urge to achieve excellence in work is properly guided and encouraged, every person can improve his performance endlessly.

Figure. 3.1 Quality Circle in a Nutshell



(Source: Mathew George 1991)

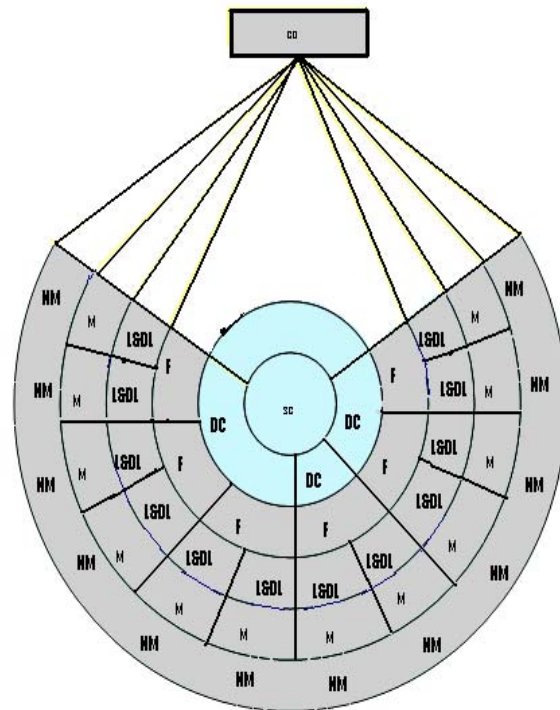
3.5 Structure of Quality Circles:

The structure of quality circles is governed by the unique conditions in different countries and organizations. Eventually, quality circles get integrated into the company's total operations and therefore, it is advisable not to give a separate entity to the structure of quality circles in any organization. Every department and every work area should feel personally responsible to

make the operation of quality circles a success. The aim is to see that the concept gets woven into the very fabric of the organization and becomes way of life with every one in every sphere of work (Olga L. Crocker, 1986). The following figure depicts organization of quality circles.

Figure 3.2 Organization of Quality Circles

- CO - Coordinating agency
- SC - Steering Committee
- DC- Department Committee
- F - Facilitator
- L -Leader
- DL - Deputy Leader
- M - Member
- NM - Non - Member



(Source: Udpa 1986)

This organistional structure is appliclable to medium and large size organizations, having a number of departments with a large work force. In small organizations the structure can be simplified to suit the requirements. Sometime individual unions have to make

certain changes in the suggested structure depending upon their unique needs.

3.5-1 Members

Membership is strictly voluntary and anyone who wishes to join is encouraged to join. Hence the members are heart of the circle programme and proper utilization of their untapped brain power is key top its success.

Functions of Members

An effective member should:

- Attend all meetings on time
- Learn problem solving techniques
- Follow the code of conduct
- Stay within all quality circle policy/rules
- Promote the quality circle programme
- Help other members in the work of the circle
- Participate in solving problems

3.5-2 Leader

The quality circle leader is elected by the circle members. Experience proves that circle activities will have a better chance of success when the supervisor or foreman is the leader. Leader is like the thread in a

garland of flowers. It is the thread which binds the individual flower into a garland. In a good garland, the thread is unseen. Flowers are prominent. Similarly, in an effective circle the leader will not be prominent but the members will be prominent. In other words, the leader is the binding for the effectiveness of the circle.

The leader -

- acquire skills in quality circle techniques
- motivate potential members to join circle activities
- schedule circle meetings
- decide the time frequency and duration of the meeting
- ensure effective participation of all members
- prepare agenda for effective utilization of meeting
- ensure that the problems discussed are work related problems
- stimulate group discussion, by giving necessary inputs and inputs and encouragement
- conclude each meeting with the responsibilities and assignments clearly defined
- ensure the minutes of the meeting are properly recorded and distributed

- arrange for management presentation
- maintain report with the facilitator
- plan the agenda to be meaningful and effective
- hold discussion with the facilitator before and after the meeting
- be responsible for people building
- encourage non members to become members
- records the minutes of each meeting
- maintain the members, attendance long maintain a member training status record

3.5-3 Deputy Leader

Like leader deputy leader is also elected by the circle members.

The deputy leader -

- generates enthusiasm for circle activities
- takes care for the operation of the circle
- meets with the circle once in a week
- calls upon the facilitator for assistance
- responsible for circle records
- creates co-ordination and harmony in the circle
- serves as a key link between members and management

- attends leadership training
- works closely with the foreman
- seeks advice and asks for help if required
- keeps the meetings on track
- enforces a code of conduct
- maintains a good attitude about circles
- gives assignments
- starts and ends meetings on time
- helps to get new members for the circle
- promotes the quality circle programme

3.5-4 Facilitator

The facilitator is an important link in the structure that is responsible for coordinating and conducting quality circle activities. He is a person who should make things happen through people. He is a combination of a coach, coordinator, communicator, innovator, promoter, teacher, statistician and catalyst - all in one.

The facilitator should be selected by the steering committee immediately after taking a definite decision to implement quality circle. In fact, the first task of the steering committee is to select the facilitator.

The facilitator is a senior officer of the department, where quality circles are working and is nominated by the management. Because of the crucial role that the facilitator plays in making quality circles operation a success this selection has to be done carefully.

The Facilitator -

- forms the link between the circles and the rest of the organization
- works closely with the steering committee
- continuously coach the circle leader
- trains the circle leader
- helps the leader during training of the members
- maintains circle records
- arranges meeting with outsiders if necessary
- publicizes the programme
- preparation for presentation - invitations, papers, visuals
- prepares training material
- organizes meetings

Thus the facilitator forms the link between the teams and rest of the organization and works closely with

steering committee. The facilitator may be assisted by a number of department coordinator.

3.5-5 Steering Committee

This committee comprises heads of major functions as members and the chief executive of the organization as the chairman. For the successful implementation of quality circles, the top management's support must not only be available but also visible to all.

Steering committee sets goals and objectives for quality circle activities. It also formulates and establishes operational guidelines and controls the rate of expansion. The steering committee should be formed immediately after taking a decision to implement quality circle activities.

The steering committee is policy making group. The success of quality circles in any organisation depends upon how the steering committee can use its expertise for achieving the primary objectives of the organization. The responsibility of steering committee is to create successful and harmonious quality circle activities. The success of quality circle depends on the effectiveness of the frame work of the five most important principles of management viz. (1) Setting objectives (2) Planning (3)

Staffing and scheduling (4) Directing and (5) Control. In other words, the steering committee is the Board of Director of the quality circle activities.

The Steering Committee -

- takes an overview of the operation of quality circles in the organization as a whole. On the basis of reports from the coordinator and the facilitators, problem areas are identified and remedial action suggested.
- takes decisions on important recommendations of quality circles falling outside the competence of other levels of management which are reported to the steering committee.
- gives major policy guidelines and directions for the healthy propagation of the concept.
- sanctions major programmes and financial support to give thrust to the promotion of the quality circles
- attends management presentations and get together
- meets regularly once in two to three months are convened by the coordinator.

3.5-6 Coordinating Agency

While the facilitator nurtures the quality circles in his section/department the coordinating agency coordinates the activities of circles throughout the organisation. In the coordinating agency depending upon the number of circles in operation, full time coordinators have to be nominated. The department to be nominated for coordination depends on the convenience of the organization. The formal naming of the department for the work of coordination is important for institutionalizing the movement as, individuals may get shifted, departments normally are permanent in any organization and therefore continuity of the quality circle's propagation is assured by earmarking a particular department for this task.

The Coordinating Agency -

- organises training programmes for members as and when new circle are formed
- convenes the steering committee meeting regularly once in two to three months and maintains the minutes thereof
- organizes top management presentations regularly once in two to three months

- centrally registers circles as and when formed and also maintains records of number of members, frequency of management representations, etc.
- coordinates and evolves a consensus for norms to assess the performance of different quality circles and of different divisions
- coordinates and ensures availability of common facilities to all quality circles
- prepares a budget for the functioning of quality circles and submits the same to the steering committee for adoption
- organizes social get together, conventions and conferences, etc., from time to time as decided by the steering committee
- coordinates the deputing of quality circle leaders and members to other organisation and programmes
- helps in resolving problems that may be encountered in the implementation of quality circles with the help of the steering committee, if necessary
- arranges for publication of the activities of the quality circles in newsletters and journals
- arranges for guest speakers to talk on subjects of interest to quality circles

- maintains a library of publications on quality circles for the benefit of those interested
- assists the steering committee in affording adequate level of motivation and recognition to quality circles in operation so as make the movement a self sustained one and help it to grow from strength to strength.

3.5-7 Top Management

The top management has an important role to ensure the successful implementation of quality circles in the organization.

The top management -

- must demonstrate unequivocally its understanding and faith in the concept of quality circle.
- must make provision in the annual budget for meeting the expenditure of operation of quality circles
- encourages healthy growth through competition between quality circles by instituting an award to the division/department which performs best in propagation on quality circles as well as to the quality circles which makes the best

presentations at any centrally organised convention or conference.

- gives necessary guidance to employees at different levels for making the quality circle movement a self sustained success.
- includes propagation of quality circles as one of corporate objectives.

3.5-8 Non-Members

It would be difficult for the members of the quality circles to implement their own suggestions without the cooperation of non-members. In fact non-members would be enthused to participate in quality circle activities and also to witness the presentations being given by quality circles from time to time. If this were to be done, non members' would gradually change their attitudes, appreciate what they, as individuals would get out of participation in circle activities and may then decide to join the existing circles or form new ones. Under no circumstances should a climate of conflict be created in any work area between members and non-members. The lines of communication should be kept open to the non-members. Non-members should encourage to present ideas to the circle.

The structure of quality circles as described above is relevant to large organizations with a large work force. It is not necessary for small organizations to adopt such an elaborate structure. The suggested set up may be suitably simplified to meet their requirements. A centrally organized top management presentation would be adequate for giving everyone of the small number of circles a chance to present their case studies and achievements.

3.6 Operation of Quality Circle

The operation of quality circle takes place following way.

- a) The initial meeting is held (week 1): Quality circle members meet at the appointed place and time and choose their leader and deputy leader by consensus. The facilitator or the coordinator provides the members with the necessary stationery such as pens, paper, notebooks, black board and any other items useful and necessary for their activities. Then the group, if it so chooses, gives itself a name for individual identity. The facilitator makes introductory remarks by way of reaffirming the management's support and its best wishes for the

success of the circle activities. Thereafter he withdraws and leaves the floor to the leader for conducting further proceedings. The leader and the members take the opportunity to get to know each other better in the new context of the circle activities. The leader concludes the hour long meeting informing the members that they would be conducting brainstorming at the second meeting to identify all the problems coming in the way of better quality, productivity and optimum performance of the work area.

b) The second /third meeting: When the quality circles start functioning, they are able to identify a large number of issues affecting their work adversely during their first few brainstorming sessions. The management, perhaps, may not even be aware of such problems. Through their own brainstorming efforts and suggestions from other related agencies, quality circle members compile a list of all the problems that require to be tackled by them one after the other . It may be so that circle members are exercising their creativity for the first time and therefore, problems may not strike their mind easily. They could then be guided to ask themselves the

following questions which would trigger their thinking.

- What specific jobs give you the most problems?
- What jobs are held up because of delays or bottlenecks?
- What jobs are causing a lot of rework?
- What reports, form or records require unnecessary information?
- Where can an operation be combined with another to save time?
- Can any process be made more efficient by new or modification of fixtures / jigs?
- What jobs or procedures take too long?
- Where can better use of space be made?
- On what jobs are too many mistakes being made or quality and work is unsatisfactory?
- Where can wear and tear or equipment be reduced?
- Where can materials, parts or supplies be reduced?
- What jobs require a lot of checking?
- Can any material be substituted for cost effectiveness?

The problems that may be tackled by quality circles can be classified as:

- (a) Those which affect their work-area and implementation of their solutions is under the purview of the quality circles.
- (b) Those which affect their work area but have in interface with other departments and implementation of recommendations can only be done with the cooperation of others.
- (c) Those which are totally outside the purview of the quality circle

Initially some guidance from facilitators may be necessary so that quality circles do not take up problems under category © but give priority to problems under category (a) and thereafter to those under (b).

C) The fourth meeting: The circle members now take up the task of assigning priorities to the problems that they have identified. The prioritizing of problems could on the basis of any other three criteria, either simplicity of the problem, which could be taken up first and resolved so that the members start developing self confidence in regard to their own capabilities to identify and resolve problems. Or by collecting or generating data as the case

may be and subsequently using the pare to analysis to identify which problem is hurting the work area performance the most. Or the members may also be asked by the leader to give their individual preferences for the selection of the priority problem. Which ever gets the highest number of preferences is taken up for resolving first and others subsequently in order of number of votes received. The circle leader or members may seek the guidance of other executives or the facilitator before coming to any conclusions in this respect.

d) The next two or three meetings: Having decided the priority of problems, and the first one to be tackled, the circle starts systematically analyzing the data relating to it. The necessary data is gathered from the concerned agencies or may be generated by observation, if it is not readily available. The data required could be on the frequency of occurrence, quantum of rejections or non conformances etc., which could indicate the depth of the problem. All the factors identified as responsible for the problems are listed out again by brainstorming. The important ones are segregated from the trivial ones by the use of pare to analysis. Cause and effect diagrams are drawn to analyse the factors. This enables the members to ensure that no probable reason for the problem is overlooked.

e) The factors which are identified as being responsible for the problems are then individually taken up and solutions acceptable to all are arrived at. In order to ensure that solutions which are beneficial to the work area where circles are operating do not pose fresh problems in other related sections, members are advised to involve representatives of other areas which are likely to be affected by the decision at the discussions stage itself.

Circle members usually try out the validity of their recommendation in their free time before it is finally adopted. A quality circle in a workshop decided to incorporate a new fixture in the method of machining, but before declaring the solution arrived at, they, in their own free time, went to the scrap yard, collected the necessary materials, manufactured a prototype outside the working hours and proved the advantages and feasibility of their suggestion before recommending it for adoption in technological documents. In the case of recommendations by quality circles which require the sanction of the highest authorities in the organization, they may be considered by the steering committee at its periodical meetings. Alternately, at the management presentations in the presence of the steering committee, the circle members give the required clarifications and a final decision on the practicality of the recommendation is given.

f) Implementation solutions: After arriving at a solution by consensus the circle members ensure that it is also implemented. If it is falling within their own purview, they may consult the local executives or managers and proceed to execute it. If implementation of their solution has to be followed up by some other agencies or by other higher levels of management, it could be passed on to them through the facilitator. However, even in such cases, the group pressure catalyses prompt action by the concerned agency to implement the circle's recommendations.

Thus the operation cycle for each problem taken up by quality circles is completed. And then the problem next on the list is taken up and is similarly treated in a systematic manner.

3.7 Management Presentation

Management presentation is the culmination of a circle's project study. The recommended solution of the selected problem would be more effective and purposeful if the presentation is made in a systematic way. These case studies would also serve as effective educational tools in future.

3.8 The Myths and Facts of Quality Circles:

A number of myths have grown up around quality circles and act as obstacles to utilizing workers creativity on the job. Among the most common are that quality circles are used solely to solve product quality problem, that there is a need to train only shop floor employees because managers and supervisors already have the needed training, that the quality circle concept requires copying of every detail of the Japanese practice, and that workers in successful quality circle projects must be compensated by financial rewards (Olga L. Crocker).

Table 3.1. The Myths and Facts about Quality Circles

Myths	Facts
The Quality Circle is to be used solely to solve problems in product quality.	Quality Circles can be used (and are being used) to solve problems in productivity, safety and cost as well as quality.
The quality circle concept is applicable anywhere provided the workers are	The quality circle concept involves a significant amount of worker

trained in problem solving. participation in decision making on matters previously regarded solely the responsibility of supervisors. Managers must be willing to accept such participation.

The need is to train only The training of managers and the workers. The managers supervisors must precede and supervisors already have that of the workers. This all the training needed. training is not only in techniques but in the entire idea of how o work with quality circles.

The quality circle is the Pride in crafts and skills only way ever invented to dates back many centuries to make use of the education, the days of the guilds. Even experience and creativity of in Taylor system type the worker. factories, ways were found to secure worker participation before the quality circle concept was invented.

Adoption of the quality The need is to establish circle concept requires practices which are

copying the Japanese compatible with the culture. practice on details of The Japanese practice application; for example, evolved in response to the should training be done nature or their unique outside or during working culture. hours; what amount of payment should made for time spent working on project, etc.

Workers associated with The rewards, if any whether successful quality circle financial or non financial, projects must be rewarded must be responsive to the specially, Just as in the cultural realities. case of useful employee suggestions.

The quality circle can make The contribution can be a major contribution to significant but not major. solution of the company's Most of the company's quality problems quality problems must be solved by the managers, supervisors and professional specialists.

(Source: Crocker, 1986)

Summary

This chapter throws a light on the concept of quality circles, features, structures process. In summary, quality circles are not a new panacea to cure all industrial ailments. They are a mechanism for creating the type of organization and the type of people oriented philosophy.

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