A STUDY ON EFFECTIVE MAKING TOOL OF AN ORGANIZATION…QUALITY CIRCLE!!!

Priyanka Manhas[1]

Abstract

Quality circles have been hailed to be effective tool for linking employees to the process of decision making in their work premise and hence enhancing their motivation to work and perform. As one of the participative approach, Quality Circle programmes were one the major initiatives of various manufacturing units in last decade that has revealed great success for various organisations in terms of increasing organisational effectiveness and empowering employees, in both public and private organisations. Also, its effectiveness has been questioned by many researchers in the recent past. However, with the time and new innovative approaches that has come up in recent years, Quality Circle programmes has been reducing very fast. With many organizations using and discarding quality circles in the recent year the present study was conducted to evaluate the impact of quality circle in enhancing organisational commitment and effectiveness. Further, it aims to examine the relationship between the membership of QC and organisational commitment and effectiveness. The results have depicted a positive impact of quality circle membership on both the measures of commitment and effectiveness. Furthermore, the correlation results depicted that membership of quality circle enhances the perceived organisational commitment and organisational effectiveness.

Key Words: Quality Circle; Organisational Commitment; Organisational Effectiveness

Introduction to Quality

Every manufacturing organisation is concerned with the quality of its product. While it is important that quantity requirements be satisfied and production schedules met, it is equally important that the finished product meet established specifications. Because, customer's satisfaction is derived from quality products and services. Stiff competition at national and international level and consumer's awareness require production of quality goods and services for survival and growth of the company. Quality and productivity are more likely to bring prosperity into the country and improve quality of work life.However, the management looks to achieve customer satisfaction by running its business at the desired economic level. Both these can be attained by properly integrating quality development, quality maintenance and quality improvement of die product. The

[1] manhas.priyanka@rediffmail.com

integration of these three aspects of a product can be achieved through a sound quality control system.

The Meaning of Quality

Quality is a relative term and it is generally used with reference to die end use of the product. For example, a gear used in sugarcane juice extracting machine may not possess good surface finish, tolerance and accuracy as compared with the gear used in the head stock of a lathe, still it may be considered of good quality if it works satisfactorily in die juice extracting machine. The quality is thus defined as die fitness for use/purpose at die most economical level. The quality depends on die perception of a person in a given situation. The situation can be user-oriented, cost-oriented or supplier-oriented. Since, die item is manufactured for me use of die customer, die requirements of die customer dictates die quality of die product. Quality is to be planned, achieved, controlled and improved continuously.

The word "Quality" has variety of meanings :-

1. **Fitness for purpose** : The component is said to possess good quality, if it works well in the equipment for which it is meant. Quality is tiius defined as fitness for purpose.
2. **Conformance to requirements** : Quality is die ability of the material/component to perform satisfactorily in an application for which it is intended by die user. Quality of a product, thus, means conformance to requirements. Customer needs have to be assessed and translated into specifications depending upon die characteristics required for specific application. Just as every human has his own characteristics every application has its own characteristics.
3. **Grade** : Quality is a distinguishing feature or grade of the product in appearance, performance, life, reliability, taste, odor, maintainability etc. This is generally called as quality characteristics.
4. **Degree of preference** : Quality is the degree to which a specified product is preferred over competing products of equivalent grade, based on comparative test by customers, normally called as customer's preference.
5. **Degree of excellence** : Quality is a measure of degree of general excellence of the product.
6. **Measure of fulfillment of promises** : The quality of a product is a measure of fulfillment of the promises made to the customers.
    1. **Suitability** : For specific application.
    2. **Reliability** : It should give efficient and consistent performance.
    3. **Durability** : It should have desired life.
    4. **Safety** : Safe and foolproof workability.

5. **Affordability** : It should be economical.
6. **Maintainability** : It should be easy to maintain.
7. **Aesthetic look** : It should look attractive.
8. **Satisfaction to customers** : It should satisfy the customers' requirements.
9. **Economical** : It should have reasonable price.
10. **Versatility** : It should serve number of purposes.

Quality Control :Control can be defined as "a process by means of which we observe the actual performance and compare it with some standard". If there is a deviation between the observed performance and the standard performance then it is necessary to take corrective action. The term "Quality Control" has variety of meanings :

1. Quality control is the process through which we measure the actual quality performance, compare it with the standards and take corrective action if there is a deviation.
2. It is a systematic control of various factors that affect the quality of the product. It depends on : Material, Tools, Machines, type of labour, working conditions, measuring instruments, etc.
3. Quality control can be defined as the entire collection of activities which ensures that the operation will produce the optimum quality products at minimum cost.
4. It can also be defined as the tools, devices or skills through which quality activities are carried out.
5. It is the name of the department which devotes itself full time to quality functions.
6. The procedure for meeting the quality goals is termed as quality control.
7. It is a system, plan or method of approach to the solution of quality problems.

As per **A.Y. Feigorbaum**

Total Quality control is "An effective system for integrating the quality development, quality maintenance and quality improvement efforts of the various groups in anorganization, so as to enable production and services at the most economical levels which allow full customer satisfaction."

Background of quality circles…A Brief history!!!

Quality circles were originally associated with Japanese management and manufacturing techniques. The introduction of quality circles in Japan in the postwar years was inspired by the lectures of W. Edwards Deming (1900—1993), a statistician for the U.S. government. Deming based his proposals on the experience of U.S. firms operating under wartime industrial standards. Noting that American management had typically given line

managers and engineers about 85 percent of the responsibility for quality control and line workers only about 15 percent, Deming argued that these shares should be reversed. He suggested redesigning production processes to account more fully for quality control, and continuously educating all employees in a firm—from the top down—in quality control techniques and statistical control technologies. Quality circles were the means by which this continuous education was to take place for production workers.Deming predicted that if Japanese firms adopted the system of quality controls he advocated, nations around the world would be imposing import quotas on Japanese products within five years. His prediction was vindicated. Deming's ideas became very influential in Japan, and he received several prestigious awards for his contributions to the Japanese economy.

The principles of Deming's quality circles simply moved quality control to an earlier position in the production process. Rather than relying upon post-production inspections to catch errors and defects, quality circles attempted to prevent defects from occurring in the first place. As an added bonus, machine downtime and scrap materials that formerly occurred due to product defects were minimized. Deming's idea that improving quality could increase productivity led to the development in Japan of the Total Quality Control (TQC) concept, in which quality and productivity are viewed as two sides of a coin. TQC also required that a manufacturer's suppliers make use of quality circles.

Steps in Quality Control Programme

1. Formulate quality policy.
2. Work out details of product requirements, set the standards (specifications) on the basis of customer’s preference, cost and profit.
3. Select inspection plan and set up procedure for checking.
4. Detect deviations from set standards or specifications.
5. Take corrective action through proper authority and make necessary changes to achieve standards.
6. Decide on salvage method i.e. to decide how the defective parts are disposed of, entire scrap or rework.
7. Co-ordination of quality problems.
8. Developing quality consciousness in the organization. Quality control is not a function of any single department or a person. It is the primary responsibility of any supervisor to turn out work of acceptable quality.

Quality control is one aspect of production planning and control. It is basically concerned with the quality production through regular inspection technique. Quality is a combination of characteristics pertaining to the manufacture of the product and control is the correction in the quality of the product, when the deviations in the product are more than expected. A good quality item is one which conforms to some standard

specifications. These specifications are determined by the expectations of consumers and also by the availability and costs of processes and materials. To most people, quality is variable. It is subjectively judged because it deals with the relative goodness of a product. When a buyer boasts that his house or car is the best, it implies high quality. Quality is thus subjective and vaguely measurable.

In the words of **Broom**,

"subjective quality refers to degree of goodness of a product and objectively it consists of a set of measurable characteristics for which standard dimensions together with small, allowable departures, up and down, may be prescribed."

Objectives of Quality Control

1. **Establishment of quality standard** : The main objective of quality control is the economical production of a high quality product at the quality level the customer wants. It is basically for eliminating variations in production and in order to have uniformity in production.
2. **Locating quality deviations** : It is necessary to analyze the trend and extent of quality deviations in a manufacturing process. Such deviations should be explained by statistical techniques when they cannot be attributed to the element of chance.
3. **Evaluating methods and processes of production** : By evaluating methods and processes of production, quality control helps to take corrective measures to maintain the quality of the product during the process of manufacture.
4. **Quick sale of quality goods** : Quality control accelerates the sale of the goods by supplying only the quality goods in the market. Consumers also support quality goods.
5. **Production of standard quality goods** : Quality control aims at manufacturing standard quality products and avoids the production of inferior quality goods. Such standard quality goods give satisfaction to consumers and also create goodwill in the market.
6. **Improvement in quality** : One objective of quality control is to find out high quality standards and to make constant efforts to reach those standards. Quality control aims at creating quality consciousness at all levels in the Organisation.

Steps In Quality Control Process

1. **Devising control over raw materials** : The quality of the finished product is determined mostly by the quality of raw materials. It calls for close connection between the raw material purchase department of the company and the vendors. As and when necessary, a resident inspector may be deputed by the Quality Control Department in the vendor's place to see that only goods in accordance

with specifications are supplied. It is advisable to reinspect the raw materials before putting them to actual use.

2. **Fixing standards and specifications** : In order to make any scheme of quality control successful, it is essential to predetermine standards and specifications. The practice should be to provide quality instructions in the form of drawings, showing shapes, dimensions and specifications describing color, strength, thickness, chemical composition, etc.
3. **Exercising control over production operations** : In order to execute efficient practices, the technical expert of the Quality Control Department must investigate, from time to time, the operating methods. Such investigation helps to eliminate all possible variables.
4. **Locating inspection points** : When the points at which defects occur are wrongly located or located with delay, it hinders quality control. Therefore there should first inspection of the raw materials at the vendor's places, then at the company's plant, then at the various points during the process of production and finally at the time of packing. The defects are likely to occur at these points. The finished goods can be cleared after obtaining 'O.K.' or 'All Correct' from the Quality Control Department.
5. **Maintaining quality of equipments** : The final quality of the products is conditioned by the quality of the equipments and other devices used. The Quality Control Department is responsible for testing the equipment used in inspection such as gauges, which measure dimensions, electronic devices, magnetic devices and industrial radio graphical instruments.
6. **Maintaining records** : The Quality Control Department is responsible for maintaining all records relating to quality inspection and control and the number rejected.

Literature review

1. **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.
2. **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.

3. **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.
4. **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.
5. **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.
6. **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 Concept of Total Quality Management (TQM)

Total quality management is a comprehensive concept and not related only to the quality of goods and services. It suggests that high quality standards (e.g., ISO 9000) should be maintained in other aspects of management such as production cost, marketing, sales promotion, etc. For such quality/efficiency in all aspects of business management, awareness needs to be developed at all levels and among employees working in all departments of the enterprise. Employees must be motivated for maintaining high quality standards. In addition, their cooperation/involvement is necessary for maintaining efficiency in all aspects of business management. In brief, quality management is not the responsibility of management alone. Participation/involvement of both parties (management and employees) is essential for achievement of quality and other benefits. The concept of TQM is closely related to the concept of quality circles which is very

popular and also successful in Japan. Quality circles are work groups that meet frequently to study the ways and means to improve quality, reduce cost, eliminate wastages and solve other production problems. Here, employees are associated with quality, cost, efficiency, productivity, consumer service and satisfaction. This creates background for the concept of TQM.

Objectives of Quality Circles

Objectives which contribute to the improvement and development of the enterprise and indirectly the interest of the employees are :

1. To improve the quality and productivity and thus contribute to the improvements and development of the enterprise.
2. To reduce the cost of products or services by waste reduction, safety, effective utilisation of resources, avoiding unnecessary errors and defects.
3. To identify and solve work related problems that interfere with production.
4. To tap the creative intelligence of the persons working in the organisation and to make full use of its human resources.
5. To permit employees to develop and use greater amount of knowledge and skill and motivate them to apply to a wide range of challenging tasks.
6. To improve communication within the organisation.
7. To increase employees' loyalty and commitment to the organisation and its goals.
8. To respect humanity and build a happy bright work place environment which is meaningful to work in.

Advantages of Quality Circles

The organization can accomplish one or more of the following advantages by establishing quality circles:

1. Promote high level of productivity and quality-mindedness.
2. Self and mutual development of employees.
3. Creating team spirit and unity of action.
4. Increased motivation, job satisfaction and pride in their work.
5. Reduced absenteeism and labour turnover.
6. Developing sense of belongingness towards a particular organization.
7. Waste Reduction.
8. Cost reduction.
9. Improved communication.
10. Safety improvement.
11. Increased utilization of human resource potential.

12. Enhancement in consciousness and moral of employees through recognition of their activities.
13. Leadership development.

Quality circles….as an requirement for success

The problems of adaptation, which have caused quality circles to be abandoned, are made plain by a look at the conditions two experts think are necessary for the success of quality circles. Ron Basu and J. Nevan Wright, in their book Quality Beyond Six Sigma (another quality management technique) specified seven conditions for successful implementation of quality circles. These are summarized below:

1. Quality circles must be staffed entirely by volunteers.
2. Each participant should be representative of a different functional activity.
3. The problem to be addressed by the QC should be chosen by the circle, not by management, and the choice honored even if it does not visibly lead to a management goal.
4. Management must be supportive of the circle and fund it appropriately even when requests are trivial and the expenditure is difficult to envision as helping toward real solutions.
5. Circle members must receive appropriate training in problem solving.
6. The circle must choose its own leader from within its own members.
7. Management should appoint a manager as the mentor of the team, charged with helping members of the circle achieve their objectives; but this person must not manage the QC.

Developing Quality Circles in Organisations:
QC should be developed and introduced with great concern and precaution as discussed below:

1. Publicising the Idea:
Introduction of QC is just like an organisational change programme Hence, like an organisational change programme, the workers need to be convinced about the need for and significance of QC from the points of view of the workers and the organisation. Moreover, participation in QC being voluntary, its publicity among the workers is necessary. To begin with, management can also arrange for initial training to those workers who want to form a quality circle.
2. Constitution of QC:
Workers doing the same or similar type of work are drawn voluntarily to form quality circle. The membership of a QC is generally restricted to eight to ten. Once a QC is formed, they remain as permanent members of the circle unless they leave that work area.

3. Initial Problem Solving:
The members of QC should discuss the problem at threadbare and, then, prepare a list of alternative solutions. Thereafter, each alternative solution should be evaluated and the final solution should be arrived at on the basis of consensus.

4. Presentation and Approval of Suggestions:
The final solution arrived at should be presented to the management either in oral or in written form. The management may evaluate the solution by constituting a committee for this purpose. The committee may also meet the members of the quality circle for clarifications, if required. Presentation of solutions to the management helps improve the communication between management and workers and reflects management's interest to the members of QC.

5. Implementation:
Once the suggestion or solution is approved by the management, the same is being put into practice in a particular workplace. Quality circles may be organized gradually for other workplaces or departments also. In this way, following above outlined process, the entire organisation can have quality circles.

Quality Circles – An Effective Tool for Management
Quality circles consist of a basically formal, institutionalized mechanism for productive and participative problem solving interaction among the employees of an organization. Quality circles are made of groups of employees (normally 6 to 12) who perform similar tasks or share an area of responsibility. The groups meet on a regular basis, usually under the leadership of a supervisor and often with management, to discuss work related issues and to offer suggestions and ideas which when implemented not only improve the performance of the organization but also motivate and enrich the work of the employees. Quality circles operate on the principle that employee's participation in decision making and problem solving improves the production methods and the quality. The characteristics of quality circles are that they consist of volunteers who set their own rules and priorities, take decisions by consensus and use organized approaches to problem solving. Quality circles activities should not be in the direction of fault finding. When matured quality circles become self managing, and gain the confidence of management. Quality circles enable the enrichment of the lives of the employees and create harmony and high performance. Typical work related issues are improvements in occupational health and safety, product design, manufacturing processes and improvement in the workplace.
Methodology in creating quality circles…

- The structure of a quality circle is the basic elements in the formation of a quality circle are (i) top management (ii) steering committee (iii) coordinator or facilitator (iv) leader (v) members and (vi) non member.
- Top management plays an important role in ensuring the success of implementation of quality circles in the organization. Steering committees consisting of middle management are also to play a positive role in quality circle activities for its success. Coordinator who also acts as a facilitator is an individual in the organization who has responsibilities for coordinating and directing the quality circle activities within the organization and carries out such functions as would make the operations of quality circles smooth, effective and self sustainable. He is nominated by the management and also acts as a catalyst, innovator, promoter and a guide. Leader of the quality circle is chosen by the members among themselves. Since the members of the quality circles are the basic element in the structure of the quality circle, they may decide to have a leader by rotation. Members of the quality circles are the small group of employees from the same work area or doing similar type of work. Non members are those who are not members of the quality circle but may be involved in the quality circle recommendations.
- Members of a quality circle normally use the following basic problem solving techniques to identify, analyze and find solutions to the problem. The members are to be properly trained in these techniques.
  - Identify exact problem being faced
  - Brainstorming within the team
  - Collection of relevant data from available sources
  - Analysis of the data using statistical tools like graphs, scatter diagrams, pareto diagrams, cause and effect or fishbone diagram, histograms and cumulative line diagram.
- Use of problem solving techniques such as matrix diagrams, control charts, the 3 Mu approach, the 5 Ws and 1 H concept, 4 M and 1 E approach and many other techniques.

Bibliography:

1. http://www.inc.com/encyclopedia/quality-circles.html
2. http://www.referenceforbusiness.com/small/Op-Qu/Quality-Circles.html
3. http://ispatguru.com/quality-circles-an-effective-tool-for-management/