

## **Quality Circle as an Effective Tool to Increase Productivity: A Case Study of Eastern Coalfields Limited**

Parimalendu Bandyopadhyay  
Assistant Professor, Department of Commerce  
Kazi Nazrul University, Asansol, WB, India.  
email2pari@gmail.com

Lalit Kumar Joshi (Corresponding Author)  
Assistant Professor, Department of Commerce  
Kazi Nazrul University, Asansol, WB, India.  
lalitjoshi83@gmail.com

### **Structured Abstract**

**Purpose:** Eastern Coalfields Limited (ECL) has acquired a prominent position as an indicator of the growth of economy and industrial progress of the country.

**Design/Methodology:** To assess the prevailing state of Quality Circle practice in collieries of Eastern coalfields Limited are helping to increase the productivity or not.

**Findings:** It indicates that a congenial atmosphere prevails but not prevailing the practices of Quality Circle in all the situation in the collieries of ECL.

**Conclusion:** it can be said that few cases are solved by the practice of Quality Circle. If the authority implement it as mandatory and also should aware among employees about the utility of the Quality Circle.

**Originality/Value:** This research work is very valuable in understanding the climate of Quality Circle existed or not in the collieries of ECL under the study period.

**Implication:** Maintenance of Quality Circle is an effective tool to help the people grow, develop and deliver optimum performance in the collieries of ECL.

**Keyword:** Quality Circle, Industrial Relations, organizational development, Quality, Productivity, Total Quality Management, Employee involvement.

**Paper type:** Empirical Study

## **Introduction**

Quality circles concept originated first in Japan in 1962. It has made a great contribution to achieve the large number of industrial, commercial and also service organizations in Japan and this state of affairs has encouraged many organizations in various countries in the world including India to implement the quality circle programmes for excellent organization performance.

The term ‘quality circle’ means a small group built among employees working within the same department, on voluntary basis to identify, prioritize, discuss and analyze problems and suggest solutions in the work related issues in the regularly held meeting on schedule time.

The main objective of the Quality circle

The objectives of the Quality Circle are as follows (Gaikwad and Gaikwad, 2010):

- Cost reduction
- To motivate the employees
- Encourage for team work
- To enhance the quality and productivity
- To improve the communication in the organization
- To improve the quality of products and services
- To build a happy and meaningful environment

- To develop a positive attitude and a sense of involvement in the decision making processes.
- To contribute towards the improvement and development of the organization
- To satisfy the human needs

### Benefits of Quality circle

Some of the benefits of Quality Circle are as follows (Brown and Van der Wiele, 1995):

- Increase in company quality awareness;
- Increase in product quality awareness;
- Improvement in management;
- Improvement of customer relations;
- Improvements in the products and services offered;
- Improved relationships within the organization;
- Greater customer satisfaction
- Increased respect from competitors

### **Literature Review**

Different eminent experts have given different opinion about the study of Quality Circle. A gist of many studies is discussed herein below.

Steel and Shane (1986), conducted a study on, "Evaluation research on Quality Circles: Technical and analytical implications", The results of well-designed quality circle evaluation studies may be misleading if relevant organizational circumstances are not given due consideration when a change agent selects quality circles from his or her repertoire of organizational development (OD) interventions. The effectiveness of quality circles, depends upon the compatibility of the intervention and attributes of the organization's situation, the demand placed upon tangible and intangible resources, and the type of response desired from participants.

Feriman and Saxberg (1989), in their study on "Impact on the Quality Circles on productivity and quality: Research limitations of a field research", They

conducted a natural experiment which was an attempt to measure the impact of the quality circle intervention on productivity and quality in a multi-plant food manufacturing firm. The study used multiple time series design for the analysis of the performance indices having a time span of about 23 months. There were uncontrollable factors at the site which demonstrated the pitfalls of evaluating a managerial intervention and its impact on the performance of the organization. The results thus obtained were inconclusive but illustrated the hazards in the field research.

Brah, Wong and Rao (2000), in their paper “Total Quality Management (TQM) and Business Performance in the service sector: A Singapore study”, focused on gaining insight into the impact of TQM on the business performance of the service sector of the economy. The study yields clear evidence that TQM implementation improved business performance in the service sector of Singapore. Success of TQM implementations appears to be more effective on the basis of its implementation rather than the duration. The study concluded that benefits can be attributed to some of the tools of TQM- customer focus and quality improvement rewards, the key to the success of TQM lies in its behavioural and intangible features such as top management support, employee empowerment and employee involvement.

Feng, Prajogo, Tan and Sohal (2006), conducted a study on “The impact of TQM practices on performance: A comparative study between Austrian and Singaporean Organizations”, their paper analyses the multidimensional it of TQM and its relation with innovation and quality performance. The results coincided with the survey that TQM practices take place along several practices. This comparative analysis is based on both- structural and descriptive relationships.

Srivastava (2012), in his study on “A study of the quality circles concept in Indian Industry (A case study on Bharat Electronics Limited”, he analyzed that how the quality control proponents suggest a wide array of positive results when this chipping in technique is either used in the industrial or the service sector.

Akhil kumar (2014) Lack of Planning, Lack of top management commitment, Lack of Methodology, Unwillingness to learn and see and Human Aspects are the main barriers or problems which can be faced while implementing the Lean Manufacturing. These have already been discussed in the previous section. This paper shows that one the major difficulties companies encounter in attempting to apply lean is not knowledge of particular tools and techniques, perhaps lack of comprehensive and suitable lean knowledge related to probable problems within the companies by the managers, direction, gap and a lack of recognition of lean culture in whole of the organization and planning cause the fails within the implementations.

Mark Goh, (2000) has studies the role of quality circle as a management tool to enhance the effectiveness of library services. They concluded that if concept is appropriately implemented in the field of Library and Information Science the results and conclusions outcomes will not only be amazing but it will also help us to stumble on attitude over our own lacunae and facilitate designing of a better system.

Kapil Deo Prasad Sanjay Kumar Anand Prakash (2015) This paper examines gender attitudes towards employee involvement scheme. Employee involvement (EI) has been the focus of considerable research on the management of people in organizations, particularly on whether EI results in improved employee attitudes and behaviors, and, in turn, company performance.

Kamath and Liker (1994) went through study of best practices used by Toyota and other Japanese manufactures in supplier management and product development. They claim that Japanese structure their development programs tightly and use targets and prototype to keep suppliers in line. Japanese set clear, and understandable goals and communicate them consistently to suppliers. Japanese use schedules and targets as major coordinating mechanism. Toyota and others treat suppliers based on their capability and mutual alignment, not blind trust, is what binds important suppliers to customers. Surprisingly, number of lean tools and practices were actually similar to those used by USA companies. In fact, Toyota imported these ideas from US only and put them into practice (Ohno, 1988). However, the insight that Toyota applies underlying principles rather than specific tools and processes explains why the company continues to outperform its competitors.

Salaheldin I. Salaheldin Mohamed Zain, (2007) deals with various aspects of Quality Circle and how improvements can be made by adopting practices of Quality Circle in petrochemical

industries. The paper also presents a comparative discussion of various features of Quality Circle, Quality Improvement Group and Work Group/Project Team.

### **Purpose of the study**

In this paper we have tried to study the impact of the Quality circles on the Eastern Coalfields Limited. The study is also focused on the need to raise the productivity level with help of introducing the Quality Circle. The involvement of workers and also make a small group of employees who work together and meet voluntarily to analyze and resolve work related problems as a means for inducing motivation in the workers enhancing to positive work attitude and high productivity.

### **Objective of the study**

The study attempts to assess the prevailing state of Quality Circle practice in collieries of Eastern coalfields Limited are helping to increase the productivity or not.

### **Hypotheses of the study**

In order to realize the objective of the study following null hypothesis has been formulated:

$H_0$ : Quality Circle practice does not work effectively to increase the productivity in collieries of ECL.

With the help of the above hypothesis, an attempt has been taken to establish the fact that, whether the prevailing state of Quality Circle practice in collieries of Eastern coalfields Limited are helping to increase the productivity or not.

### **Database/Methodology**

We have constructed the empirical results thorough the primary data obtained via questionnaire in which we have studied the various aspects of the Quality Circle - Its functioning, impact on productivity and the other factors. Moreover the status of the organization is also analyzed pre and post implementation of the Quality Circle measures. Based on the study some recommendations are given so that the productivity, customer satisfaction and the market share can be increased to a larger extent. Here, we have also studied the workers attitude through 'interview technique'- both guided and

unguided in considering the more rational and scientific method of technique. Moreover, as such, questionnaires were administered and interview was made on 500 workers, 100 trade union officials and 100 executives in the sampled collieries. Strict attention has been paid to the sampling procedure so that all the requisite characteristics in the unit may not have any scope to lose its representative character. In order to measure the area of workers participation management, a pilot survey has been conducted to prepare questionnaire. And on the basis of the replies obtained in the pilot survey hypothesis have been taken into consideration in the area of workers participative in management.

Information and data were collected personally by the authors from each of the concerned department from files and documentary sources. After collection, information and data were compiled and duly represented. A few office bearers of the trade unions as well as company employees have been interrogated through stratified random sampling method and tested by Chi-square to know homogeneity of the data and also their views regarding the existence of workers participation in management in the Eastern Coalfields Limited.

### **Findings**

Chi-Square value at 5% level of significance and at 8 degree of freedom = 15.507

Here calculated value = 14.641

So, calculated value < tabulated value.

Hence our hypothesis is accepted (Quality Circle practice does not work effectively to increase the productivity in collieries of ECL) implying thereby that the rankings have no group bias.

**Table 1**

**Percentage distribution of Workers, Trade union officials and Management regarding Quality Circle practices help to increase the productivity in collieries of Eastern Coalfields Limited.**

Percentage distribution of Workers, Trade union officials and Management regarding quality circle in the Eastern Coalfields Limited. Quality Circle practices helps to increase the productivity in collieries of ECL.	VHDA		HDA		MDA		LDA		Dis.		
		%		%		%		%		%	
Workers	59	11.8	63	12.6	85	17.0	190	38.0	103	20.0	500
Trade Union Official	9	9.0	10	10.0	19	19.0	38	38.0	24	24.0	100
Management	16	16.0	18	18.0	26	31.0	25	20.0	15	15.0	100
Total	84		91		130		253		142		700

Source: Author's Complied



Table 2

Results						
	Very High Degree of Agreement	High Degree Agreement	Moderate Degree Agreement	Low Degree Agreement	Disagreement	Row Totals
Workers	59 (60.00) [0.02]	63 (65.00) [0.06]	85 (92.86) [0.66]	190 (180.71) [0.48]	103 (101.43) [0.02]	500
Trade Union Officials	9 (12.00) [0.75]	10 (13.00) [0.69]	19 (18.57) [0.01]	38 (36.14) [0.10]	24 (20.29) [0.68]	100
Management	16 (12.00) [1.33]	18 (13.00) [1.92]	26 (18.57) [2.97]	25 (36.14) [3.44]	15 (20.29) [1.38]	100
<b>Column Totals</b>	84	91	130	253	142	<b>700 (Grand Total)</b>

\*Chi-square statistic is 14.5127, *p*-value is .069343. The result is not significant at  $p < .05$ .

Source: Author's Complied

The term 'Quality Circle' means a small group formed with employees working in the same department on voluntary basis, to identify, discuss and analyze problems and suggest solutions in the quality related issues in the regularly held meeting on company time. It is some sort of improvement group which solves problems of the workplace / work areas to produce quality goods and to deliver the same to the satisfaction of customers that all the parties (i.e. 58% workers, 62% trade union officials and 35% management) have given the same view regarding the ineffectiveness of the Quality Circle in coal belt. It appears on the above that QC are working in the collieries (though it is not up to the mark) and identifying the problems, suggesting measures for development of operation and are implementing the agreed / approved suggestions. It gives some morale boost to the colliers when they find that their suggestions are approved by the higher authority.

After studying the detailed answers of the respondents of three target group ( Workers, Trade Union Officials and Management) on this issue from Eastern Coalfields Limited it is observed that all target group would like to focus on Quality, Productivity, Cost cutting and Customer satisfaction through Quality Circle which helps in achievement of goals. Though

utility of QC is admitted by the three target group, the growth and development of quality circle in Eastern Coalfields Limited has not reached the benchmark level as expected due to negligence of top management, non-cooperation of trade union officials, lack of knowledge most of leaders of quality circles cannot run in proper way, lack of communication skills of members and inadequate training facilities

Barriers to the growth of Quality Circle activities in Eastern Coalfields Limited:

- Top management attitude not so positive for introduction of quality circles in various departments/ work areas of the organization.
- Resistance made by trade unions for operations of quality circle.
- Due to lack of knowledge most of leaders of quality circles cannot run in proper way.
- Lack of communication skills of members due to heterogeneous employee composition members speak different languages.
- Irregular meeting and implementation of the approved suggestions cannot be executed timely.
- Proper records are not maintained so that quality circle operation cannot be performed in a planned and systematic way.
- Inadequate training facilities and faulty designed training system.

### **Conclusion**

Quality Circle is a way of achieving harmonious industrial relations at work place and promotes the feeling of wefeeling, togetherness, belongingness, cooperativeness, mutual development and team spirit among the members. Three major aspects of Quality Circle are Motivation, Participation & Recognition. It is an effective tool to solve work related problems, unless that doesn't need a great deal of specialization. It is the best way of the proper utilization of human resources within the hidden talent and creative abilities of the organization members. Quality Circle helps in enhancing the positive attitude of employees and motivating them which will help to improve productivity and lead to efficiency.

Quality circle (QC) in Eastern Coalfields Limited is not working effectively. Some collieries under Eastern Coalfields Limited have not introduced such concept. Management should put in efforts to design a suitable QC structure and should ensure that effective working is made

in all the collieries under Eastern Coalfields Limited. Top management needs to take initiative for introduction of QC and its proper implementation. Company should frame a policy on quality enhancement. And also a scheme may be designed to award prizes, incentives to those departmental QCs that will have highest number of suggestions approved by the steering committee/ top executives in a particular period.

Suggestions to Improve the Effectiveness of Quality Circle activities in Eastern Coalfields Limited:

- Chief Executive should be taken necessary measures to develop faith in the concept, philosophy and operations of the quality circle, and feels the necessity for implementation of quality circles in his organization.
- Middle management personnel should be made aware of quality circle concepts, philosophy, and utility through proper presentation.
- After identification of the work areas / departments the facilitator should be appointed and then the coordinators for respective work areas / departments should be nominated by the facilitator.
- The steering committee should be formed and this committee should be headed by head of the company.
- The members of the circle would elect their leader.
- The coordinators should have direct access to facilitator.
- The suggestions given by members affecting circle's objectives / goals should be discussed regularly.
- Team members must be motivated to effectively contribute in circle meeting.

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