

A Study on the Activation Diagnosis of QCC Activities in Korean Industries

Hyung-Jin Rho
Dept. of Business Administration
Kyonggi University
Seoul, Korea

Myung-Bok Chang
Dept. of Accounting for Taxation
Kyung Moon college
Kyonggi-Do, Korea

Abstract

QCC(Quality Control Circle) is a labor or employee group that regularly meets to discuss ways of improving product quality.

Its goal is to develop and present various ways for employees to solve problems, generate and implement new ideas and gather information that would prove helpful in both areas. It will also educate employees of the responsibilities that a quality warranty will bring forth.

This study conducted research on the QCC activity of Korean manufacturers in two primary ways: first part consisted of items used to diagnose QCC activity, Second part consisted of 8 items used to investigate goals and their effectiveness, obstruction and organization.

Accordingly, main goal of our research was to find ways to improve through QCC.

I. Introduction

1. The Background of the Research

QCC activities might be said to be the core of TQM (total quality management) activity. To produce manufactures of good quality for satisfying consumers in the most economic way, it shall be required for workers at a field, as a basic organization, in charge of production to make their efforts to manufacture excellent goods in quality at the lowest cost, as they will have improved practical problems voluntarily in the consciousness of quality.

In the past, QCC activities served to promote quality and productivity in a great extent by solving practical problems in a concrete manner and by utilizing efficiently thereof. We should understand that no TQM activity may be accomplished without QCC activities, and it shall be required, from now on, to make positive strategy of QCC activities for the development of an individual worker and an enterprise by vitalizing TQM.

2. The Method and the Purpose of the Research

This research has made an investigation over the situation of QCC activities in the manufacturing industry of Korea, after dividing it into two sectors. One consists of items for the activation diagnosis of QCC activities, and the other consists of items for investigating the actual operation conditions of QCC activities, such as its goal, effect, obstacle factors, office organization, etc.

Accordingly, this research aims to advance a proposal on quality improvement by the way of the activation diagnosis and the actual operation conditions of QCC activities.

II. Situation of QCC activities in Korea

1. Data collection and Research Methodology

For the purpose of investigating the actual conditions of QCC activities, this research carried out the investigation over the activation diagnosis and the actual operation conditions through questionnaires concerning QCC activities sectors. The investigation of activation diagnosis has been done by 8 factors; that is, ability of a team leader, team atmosphere, autonomy, degree of a lively discussion, critical mind, ability in resolving problems, office organization, result presentation and its evaluation. For this, each factor has few sub-items and said investigation has been done over 41 items in total. The investigation of actual operation conditions has been done in terms of (1) QCC activities goals both in the best 100 ranking companies in the competitiveness of quality and in ordinary companies in Korea, (2) QCC activities operations of importance, (3) effect, obstacle factors, expectations and future changes of QCC activities, (4) relation between QCC activities and its office organization, and (5) situation of QCC activities in classifications by scale and industry. An examination of significant differences and analysis of variance have been done to review significant differences of the best 100 ranking companies from ordinary companies, and a comparative research with the case of Japan has been also done.

2. Characteristics of Samples

Each of 41 items has been evaluated with a measure of 5 points' scale and valid questionnaires collected are 201 in total. The valid samples of 201 consist of 89 companies selected as the best 100 ranking companies in the competitiveness of quality and 112 ordinary companies. One shall compare the best 100 ranking companies with ordinary companies.

III. Activation Diagnosis and Process of QCC Activities

1. Activation diagnosis of QCC activities

Table 1 shows that the best 100 ranking companies have higher averages than ordinary companies over all of 8 factors. In other words, the best 100 ranking companies are more activated than ordinary companies in their activities concerning any small teamwork or autonomy improvement.

Also, Table 2 shows that as a result of an examination of significant differences between the best 100 ranking and ordinary companies in terms of 8 factors, it might be said that the best 100 companies are more activated than ordinary companies, on a basis of the facts that there have been significant differences between them over all factors only except the factor concerning ability of a team leader.

2. Goal and Commencement Motive of QCC activities

One may find that more of the respondents answered by favoring the development of a team members as a goal of QCC activities, and they expect individual growth and self-development through QCC activities.

For commencement motive of QCC activities, 'company policy' has been given less importance and the other items have been given more importance, in comparison with the 1987 results. Also, the percentage distribution between the best 100 ranking and ordinary companies is quite different.

3. QCC activities Operations of Importance

Even though this part does not show a wide difference between the best 100 ranking and ordinary companies in the percentage distribution, the latter is inclined to concentrate on 'theme completion', and the former, on the other hand, is inclined to concentrate on 'QCC operating method research', relatively.

4. Effect, Obstacle Factors, Expectations and Future Changes of QCC activities

Table 3 compares with the result from the 5th investigation over the actual operation conditions of QCC activities in Japan in 1996.

IV. Analysis of QCC activities in Classifications by Scale and Industry

1. Situation Difference in Scale

Table 4 and Table 5 is a table concerning the examination of an average in terms of 8 factors in classification by scale (number of workers). As a result of analysis, there are significant differences in classification by scale in all of 8 factors. It might be said that small and medium enterprises under 300 workers are required to vitalize QCC activities, especially.

2. Situation Difference in Industry

As the results that all of 201 companies have been divided into 5 groups according to their business and examined in terms of the differences of activation in classification by industry, there are significant differences in 4 factors (out of 8 factors in total) of team atmosphere, autonomy, degree of a lively discussion, and critical mind, and that there are no significant difference in the other factors.

V. Conclusion

As a result of this research, we may suggest the following proposals for the activation of QCC activities: first, as to the reorganization for carrying out QCC activities, its method will be dependant upon business scale, quality, composition, etc., however, QCC autonomy should be emphasized as a common factor for all enterprises; secondly, as to the training for QCC, it should be operated in terms of a substantial and systematic, conscious, and practical training; thirdly, as to the improvement of QCC operation method, it should be accomplished by efficient operation for resolving problems, operating improvement of in-house presentations, and improvement of evaluation system and method; fourthly, as to the motivation and the support reinforcement, it shall be required to motivate in terms of raising autonomy, to induce positive support of one's superior officer, and to operate incentive system; and lastly, establishing business culture being connected with business-culture movements should be activated because QCC activities being connected with business culture has an important function to form the sense of value for human beings and businesspersons and in addition, to help workers to find and solve problems voluntarily with the improvement of their business knowledge, judgment, and ability in resolving problems.

References

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Table 1 Result of Activation Diagnosis

Factors	Total (n=201)	Best 100 ranking (n=89)	Ordinary (n=112)
1. Capability of a team leader	3.25	3.51	3.05
2. Atmosphere of QCC	3.18	3.64	2.84
3. Autonomy	2.86	3.10	2.69
4. Degree of discussion activation	2.90	3.45	2.49
5. Critical mind	3.09	3.70	2.63
6. Ability in resolving problem	2.88	3.34	2.53
7. Office organization	3.12	3.37	2.95
8. Capability of presentation	2.75	3.07	2.51

Table 2 Test of Significant Difference

Factors	Best 100 ranking (n=89)	Ordinary (n=112)	Difference
1. Capability of a team leader	3.51	3.05	1.34
2. Atmosphere of QCC	3.64	2.84	5.93*
3. Autonomy	3.10	2.69	3.57*
4. Degree of discussion activation	3.45	2.49	7.00*
5. Critical mind	3.70	2.63	9.49*
6. Ability in resolving problem	3.34	2.53	11.23*
7. Office organization	3.37	2.95	3.48*
8. Capability of presentation	3.07	2.51	8.41*

* p < 0.05 ** p < 0.01

Table 3 Comparison Korea with Japan of QCC Activities

Items	Sub-items	Korean (n=201)		Japan (n=491)	
		(%)	Rank	(%)	Rank
Enhancement of a critical mind	Enhancement of a critical mind	34.8	3	37.7	2
	Enhancement of improvement	66.7	1	42.4	1
	Enhancement of quality	50.7	2	12.2	3
	Enhancement of cost	24.4	4	3.9	4

Outcome	Enhancement of efficiency	50.7	2	35.8	1
	Cost reduction	37.8	4	14.9	3
	Quality enhancement	56.7	1	25.7	2
	Increment of a proposal	16.4	6	4.3	5
	Arrangement	43.8	3	3.9	7
	Safety enhancement	15.9	7	1.0	8
	Standardization	12.9	8	5.7	4
	Job satisfaction	16.9	5	4.1	6
	Preventing pollution	6.0	9	0.0	9
	Enhancement of human relation	Human growth	7.5	7	9.4
Desirable workplace		47.8	1	14.1	4
Teamwork enhancement		45.3	2	18.7	3
Smooth communication		29.4	4	21.2	2
Good workplace		23.4	5	22.8	1
Good human relation		33.8	3	6.5	6
Leadership enhancement		14.4	6	3.5	7
Enhancement of knowledge, function	Enhancement of problem solving	75.1	1	64.0	1
	Enhancement of knowledge, function	28.9	2	24.0	2
	Enhancement of arrangement	16.4	3	7.3	3
Morale enhancement	Morale enhancement	20.9	4	32.6	1
	Autonomy enhancement	33.8	3	15.1	4
	Participation enhancement	63.2	1	23.8	2
	Selfactualization enhancement	37.3	2	23.4	3
	Enhancement of nonabsent	4.0	5	0.0	5

Table 4 Result of Activation Diagnosis

Unit : point

Factors	Best 100 ranking (n=89)	Ordinary (n=112)
1. Capability of a team leader	70.2	61.0
2. Atmosphere of QCC	72.8	56.8
3. Autonomy	62.0	53.8
4. Degree of discussion activation	69.0	49.8
5. Critical mind	74.0	52.6
6. Ability in resolving problem	66.8	50.6
7. Office organization	67.4	59.0
8. Capability of presentation	61.4	50.2
Average	68.0	54.2

Table 5 Result of Difference in Scale

Unit : point

Factors	Under 300 workers (n=90)	300~1000 (n=52)	Over 1000 workers (n=59)
1. Capability of a team leader	56.0	70.0	73.4
2. Atmosphere of QCC	54.8	69.4	71.4
3. Autonomy	49.0	61.8	64.6
4. Degree of discussion activation	48.4	64.8	66.2
5. Critical mind	51.4	69.6	70.0
6. Ability in resolving problem	47.8	63.4	66.6
7. Office organization	55.0	67.4	68.8
8. Capability of presentation	44.4	62.0	64.2
Average	50.9	66.1	68.2