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QUALITY CONTROL CIRCLE ON INDIAN MANUFACTURING INDUSTRIES TO IMPROVE PRODUCTIVITY

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Abstract- There are different elements of productivity, failure to acknowledge which would make one unfit to recognize feeble operational areas in time and accordingly, permit such area to get sick out in the real sense in not so distant future. Organizational working depends on collaborations. Extraordinary practical areas are put under various departments and in this manner extreme achievement relies upon powerful joint endeavors of various groups (diverse as far as their nature of work). In this paper we have take some steps to improve the organization productivity improvement with the help of Quality Circle and its survey based analysis.

Keywords- Quality Circle, Quality Control Circle, Quality Control Techniques, Productivity, Random Sampling

I. INTRODUCTION

Generally, productivity is considered basically as a proportion of the input-output relationship. Conventional views, which think about efficiency as far as output (estimated as far as value included manufacturing) only, are inclined to focus much on specific aspect productivity, i.e. labour productivity, in segregation. A lapse in a solitary functional territory can especially balance the efficiency of the other useful areas to such an extent that eventually the organizational efficiency may be influenced.

They propounded the possibility of the 'Theory of unavoidable losses' for all assets. Be that as it may, in the nineteenth Century, F. W. Taylor's proposition on 'Task Study' gave an increasingly levelheaded view on the issue, i.e. people can be made increasingly productivity not by 'working harder' however by 'working smarter'.

The following have been perceived as the basic factors during the time spent economic development:-

- I) Capital development for the present and to battle uncertainties later on
- II) High productivity of all factors of production and inputs (including time and information).

Productivity — The Concept from the perspective of financial aspects, productivity implies the yield from:
I) Each factor of production (land, labour, capital and management),
II) Every asset (raw material, fuel, etc.) time and information, and
III) The joint components and the joint assets (expressed in (I) and (II) above) in combination.

Variables Influencing Productivity

Six main considerations have been recognized which influence productivity in a industrial organization and such factors have been examined, to some things up, beneath.

- I) Quality of raw materials
- II) The procedure utilized
- III) Employment of capital facilities
- IV) Effectiveness with which the capital facilities are utilized
- V) Standardization of Production and Utilization of labor
- VI) Productivity Improvement—the normal misguided judgments
- VII) Productivity improvement isn't simply worried about a specific group of peoples, rather it is a social issue.
- VIII) Productivity improvement doesn't infer simply more production however represents useful enhancement.
- IX) Productivity improvement doesn't really require 'working harder' as it were.

QC and Productivity Improvement

For productivity improvement through the QCs, the requirements, inter alia, are including the worker's



organizations, guaranteeing complete support, founding rewards and acknowledgment frameworks and concentrating on continuous training.

Many industrial organizations have prevailing with regards to improving their productivity by organizing QCs there. QCs have now end up being more practical than numerous different procedures of interest. Many leading organizations everywhere throughout the world, at this point, have felt that in their organizations the QCs can possibly improve quality and productivity.

Both the management and employees in a huge number (and varied types) of organizations have understood the importance of QC as a useful asset for worker motivation, QC as an productivity upgrading component, is viewed as more successful than numerous different methods,

A QC can include every one of its members in the productivity improvement endeavors. Productivity improvement models recommend that an organization should connect with itself in a demonstrative point of view to improve productivity.

II. QUALITY CIRCLE — POSSIBLE BENEFITS

Significant Benefits that are typically gotten from QC activities have been discussed, in brief, in this section. Advantages that an organization can hope to get because of tasks of the QCs can be named advantages to the (I) QCs members, (II) the management and (III) Organization all in all. Advantages to the organization are both tangible and intangible. Tangible advantages accruing to an organization are those which can be estimated in fiscal terms and the intangible ones are those which can't be so estimated yet are very recognizable,

- I) Benefits to the QCs' members
 - a) Improvement in the quality of work: life (QWL)
 - b) Self development and mutual development
 - c) Improvement in Leadership characteristics
 - d) Increase in sentiment of helpfulness
- II) Benefits to the management
 - a) Reduction in job related pressure
 - b) Increase in opportunities to broaden skill base
- III) Benefits to the Organization
 - a) Developing solution for the issues about which even the management doesn't know about
 - b) Improvement in quality, housekeeping, security measure and decrease in cost
 - c) Improvement in Organizational Effectiveness

III. QUALITY CIRCLE — BARRIERS TO OPERATIONALISATION

The significant barriers to viable working of QC have been talked about, in brief, below.

A. Senior Management Level

- I) Lack of conviction and insufficient understanding of concepts
- II) Absence of visible support
- III) Delay in implementation or non-implementation of the suggest at particles

B. Middle Management Level

The barriers at the middle management level are the most widely recognized and serious of all the barriers that the QCs face. Be that as it may, this issue isn't impossible to miss to the Indian organizations as it were. These boundaries which reflect a negative attitude with respect to the middle management work force might be because of three principle reasons examined below.

QCs dread that their deficiencies will be known Middle-management people's misguided judgment that QCs weaken their position

Lack of or insufficient understanding of the concept and mechanism of QC

C. Facilitator

- I) Not attending the meetings
- II) Too much or too little facilitation (help)

D. Leaders and Members

- I) Lack of or inadequate preparing
- II) Lack of or insufficient will to work in the individuals interest
- III) Irregular Meetings
- IV) Internal clashes and misunderstanding

IV. RESULT AND DISCUSSION

In the First Stage, the data identifying with 4 (four) biographical attributes, considered in the study (Section A of the Questionnaire/question nos. I to IV) of the respondents have been introduced in even structures (frequency distributions) and analyzed and interpreted.

PART A

TABLE NO. 1 DISTRIBUTION OF THE RESPONDENTS AS PER SEX

Sex	No. of Respondents	Percentage to the Total
MALE	293	85.67
FEMALE	49	14.33
TOTAL	342	100

TABLE NO. 2 DISTRIBUTION OF THE RESPONDENTS AS PER AGE

Age (Years)	No. of Respondents	Percentage to the Total
21-30	31	9.064



31-40	61	17.84
41-50	169	49.42
51-60	81	23.68
TOTAL	342	100

TABLE NO. 3 DISTRIBUTION OF THE RESPONDENTS AS PER LEVEL OF EDUCATIONAL ATTAINMENTS

Level of Educational Attainments	No. of Respondents	Percentage to the Total
Illiterate	22	6.433
Below Secondary	27	7.895
Secondary	84	24.56
H.S./Technical Diploma	156	45.61
Degree	53	15.5
	342	100

TABLE NO. 4 DISTRIBUTION OF THE RESPONDENTS AS PER NUMBER OF YEARS IN THE PRESENT ORGANISATION

No. of Years in the Present Organisation	No. of Respondents	Percentage to the Total
1-10	22	6.433
11-20	64	18.71
21-30	183	53.51
31-40	73	21.35
	342	100

The distribution shows that 85.7% of the respondents are male (Table No. 1) which is very normal in the Indian industrial organizations, especially in the lower levels. The age-group appropriation of the respondents shows that 49.41% of the them are in the 41-50 age-group, trailed by 23.68%, 17.83% and 9.06% in 51-60, 31-40 and 21-30 age-groups separately (Table No. 2).

The distribution of the respondents (Table No. 3) shows that a significant high percentage, i.e. 45.61% of them are H.S./Technical Diploma, 15.49% of them are Degree, trailed by 7.89% and 24.56% of them who are in the 'below secondary' level and 'secondary' level individually.

The distribution of the respondents (Table No.4) shows that 'number of years in the current organization'. Such distribution shows that a high percentage of them (i.e. 53.50%) are in the '21-30 years' group, trailed by 21.34%, 18.71% and 6.432% of than in the '31-40 years', '11-20 years' and '1-10 years' groups individually. A high percentage of the respondents i.e., 74.84% are in the '21-40 years' group.

In the Second Stage, the respondents reactions identifying with 10 (ten) questions (question nos. 1 to 10/Part B of the Questionnaire) in regards to the working of the QCs in their organization and some allied issues have been introduced in various tables and analyzed and interpreted.

PART B
TABLE NO. 5 DISTRIBUTION OF THE RESPONDENTS VIS-A-VIS THEIR STATUS IN THEIR QCs

Status in the QC	No. of Respondents	Percentage to the Total
Co-ordinator/Facilitator	57	16.66666667
Leader	57	16.66666667
Deputy Leader	39	11.40350877
Member	189	55.26315789
	342	100

TABLE NO. 6 DISTRIBUTION OF THE QCs VIS-A-VIS FREQUENCY OF QC MEETING

Frequency of QC meeting	No. of QC	Percentage to the Total
Bi-weekly	3	6.25
Weekly	7	14.58333333
Fortnightly	15	31.25
Monthly	23	47.91666667
	48	100

TABLE NO. 7 DISTRIBUTION OF THE QCs VIS -A-VIS DURATION OF QC MEETING

Duration of QC meeting	No. of QCs	Percentage to the Total
Less than one hour	6	12.5
One hour	31	64.58333333
More than one hour	11	22.91666667
	48	100

TABLE NO. 8 DISTRIBUTION OF THE QCs VIS-A-VIS PLACE OF QC MEETING

Place of QC meeting	No. of QCs	Percentage to the Total
Department	39	81.25
Any other place	9	18.75
	48	100

TABLE NO. 9 DISTRIBUTION OF THE RESPONDENTS RESPONSES VIS-À-VIS THE EXISTENCE OF ANY SYSTEM OF GIVING FEEDBACK OF THEIR QCs ACTIVITIES TO THE MANagements

Existence of the system of giving feedback of their QCs' activities to the managements	No. of Respondents	Percentage to the Total
YES	297	86.84210526
NO	45	13.15789474
	342	100

TABLE NO. 10 DISTRIBUTION OF THIS RESPONDENTS RESPONSES VIS-À-VIS WHETHER THEIR SUPERIORS ENCOURAGE QC ACTIVITIES

Encouragement of QC activities by the superior(s)	No. of Respondents	Percentage to the Total
YES	241	70.46783626
NO	101	29.53216374
	342	100

TABLE NO. 11 DISTRIBUTION OF THE QCs VIS-A-VIS HOW THE RESPONDENTS PRESENT THEIR CASES TO THE MANagements

Ways of presentation of QCs cases to the managements	No. of QCs	Percentage to the Total
a) Through the co-ordinator	5	10.41666667
b) Through the departmental head (when the departmental head is not	7	14.58333333



the co-ordinator)		
c) Directly to the management by the QC members	3	6.25
d) In a seminar where the managerial personnel are invited	33	68.75
	48	100

TABLE NO. 12 DISTRIBUTION OF THE RESPONDENTS' RESPONSES VIS-À-VIS SPONSORING THEIR QCs FOR ANY COMPETITION BY THEIR ORGANISATIONS

Whether the organization sponsors QCs for any competition	No. of Respondents	Percentage to the Total
YES	279	81.57894737
NO	63	18.42105263
	342	100

TABLE NO. 13 DISTRIBUTION OF THE QCs VIS-A-VIS BAGGING, OF ANY AWARD SO FAR

Whether the QC has bagged any award so far	No. of QCs	Percentage to the Total
YES	9	18.75
NO	39	81.25
	48	100

TABLE NO. 14 DISTRIBUTION OF THE QCs VIS-A-VIS RESIGNATION OR DISCONTINUATION OF THEIR MEMBERS SO FAR

Whether any member of the QC has resigned or discontinued so far	No. of QCs	Percentage to the Total
YES	27	56.25
NO	21	43.75
	48	100

In the Third Stage, the respondents reactions with respect to 15 (fifteen) questions (question nos. 11 to 25/Part C of the Questionnaire) planned essentially to catch the impression of the respondents opposite various issues identifying with the QCs in their organizations and the normal positive results as a rule because of working of QCs.

PART C		
TABLE NO. 15 DISTRIBUTION OF THE RESPONDENTS' RESPONSES VIS-À-VIS WHETHER THE EMPLOYEES IN GENERAL ARE AWARE OF THE ROLE OF THE QCs IN THEIR ORGANISATIONS		
Whether the employees in general are aware of the role of the QCs in their organisation	No. of Respondents	Percentage to the Total
YES	193	56.43274854
NO	149	43.56725146
	342	100
TABLE-NO. 16 DISTRIBUTION OF THE RESPONDENTS' RESPONSES VIS-À-VIS WHETHER THE EMPLOYEES IN GENERAL ARE DISINTERESTED IN THE QC ACTIVITIES IN THEIR ORGANISATIONS		
Whether the employees in general are disinterested in the QC activities in their organisations	No. of Respondents	Percentage to the Total
YES	244	71.34502924

NO	98	28.65497076
	342	100

TABLE NO. 17 DISTRIBUTION OF THE RESPONDENTS RESPONSES VIS-À-VIS WHETHER THE TOP MANagements SERIOUS ENOUGH TO MAKE THE QCs OPERATIONALLY EFFECTIVE IN THEIR ORGANISATIONS

whether the top managements serious enough to make the QCs operationally effective in their organisations	No. of Respondents	Percentage to the Total
YES	113	33.04093567
NO	229	66.95906433
	342	100

TABLE NO. 18 DISTRIBUTION OF THE RESPONDENTS RESPONSES VIS-À-VIS WHETHER THE TRADE UNION ENCOURAGE THE QC ACTIVITIES IN THEIR ORGANISATIONS

whether the trade union encourage the QC activities in their organisations	No. of Respondents	Percentage to the Total
YES	44	12.86549708
NO	298	87.13450292
	342	100

TABLE NO. 19 DISTRIBUTION OF THE RESPONDENTS RESPONSES VIS-À-VIS WHETHER THERE IS MY FINANCIAL REWARD SYSTEM LINKED TO THE FUNCTIONING OF THE QCs IN THEIR ORGANISATIONS

whether there is my financial reward system linked to the functioning of the qcs in their organisations	No. of Respondents	Percentage to the Total
YES	115	33.62573099
NO	227	66.37426901
	342	100

TABLE NO. 20 DISTRIBUTION OF THE RESPONDENTS RESPONSES VIS-À-VIS WHETHER ABSENCE OF ANY REWARD SYSTEM ADVERSELY AFFECTS THE QC MEMBERS IN THEIR ORGANISATIONS

whether absence of any reward system adversely affects the QC members in their organisations	No. of Respondents	Percentage to the Total
YES	84	35.44303797
NO	153	64.55696203
	237	100

TABLE NO. 21 DISTRIBUTION OF THE RESPONDENTS RESPONSES VIS-À-VIS WHETHER THERE IS ANY DELAY IN GENERAL IN IMPLEMENTING THE QCs RECOMMENDATIONS IN THEIR ORGANISATIONS

whether there is any delay in general in implementing the QCs recommendations in their organisations	No. of Respondents	Percentage to the Total
YES	237	69.29824561
NO	105	30.70175439
	342	100

TABLE NO. 22 DISTRIBUTION OF THE RESPONDENTS RESPONSES VIS-À-VIS WHETHER THE QC MEMBERS GET ADEQUATE TRAINING IN THEIR ORGANISATIONS



whether the QC members get adequate training in their organisations	No. of Respondents	Percentage to the Total
YES	66	19.29824561
NO	276	80.70175439
	342	100

TABLE-NO. 23 DISTRIBUTION OF THE RESPONDENTS RESPONSES VIS-À-VIS WHETHER FUNCTIONING OF QCs INCREASES THE LEVEL OF EMPLOYEE MOTIVATION

Whether functioning of QCs increases the level of employee motivation	No. of Respondents	Percentage to the Total
YES	271	79.23976608
NO	43	12.57309942
UNDECIDED	28	8.187134503
	342	100

TABLE NO. 24 DISTRIBUTION OF THE RESPONDENTS RESPONSES VIS-À-VIS WHETHER FUNCTIONING OF QCs LEADS TO IMPROVEMENT IN THE ORGANISATIONAL PRODUCTIVITY

Whether functioning of QCs lead to improvement in the organisational productivity	No. of Respondents	Percentage to the Total
YES	225	65.78947368
NO	54	15.78947368
UNDECIDED	63	18.42105263
	342	100

TABLE NO. 25 DISTRIBUTION OF THE RESPONDENTS RESPONSES VIS-À-VIS WHETHER OPERATION OF QCs FOR SOME TIME RESULTS IN INCREASED LOYALTY AND COMMITMENT TOWARDS THE ORGANISATION

Whether operation of QCs for sometime result in increased loyalty and commitment towards the organisation	No. of Respondents	Percentage to the Total
YES	243	71.05263158
NO	46	13.4502924
UNDECIDED	53	15.49707602
	342	100

TABLE NO. 26 DISTRIBUTION OF THE RESPONDENTS RESPONSES VIS-À-VIS WHETHER QCs ACTIVITIES HELP MEMBERS BECOME MORE EFFECTIVE FUNCTIONALLY

Whether QCs activities help members become more effective functionally	No. of Respondents	Percentage to the Total
YES	228	66.66666667
NO	47	13.74269006
UNDECIDED	67	19.59064327
	342	100

TABLE NO. 27 DISTRIBUTION OF THE RESPONDENTS' RESPONSES VIS-À-VIS WHETHER EMPLOYEES' GRIEVANCES REDUCE IN AN ORGANISATION AS A RESULT OF FUNCTIONING OF QCs

Whether employees grievances reduce in an organisation as a result of functioning of QCs	No. of Respondents	Percentage to the Total

YES	241	70.46783626
NO	38	11.11111111
UNDECIDED	63	18.42105263
	342	100

TABLE NO. 28 DISTRIBUTION OF THE RESPONDENTS' RESPONSES VIS-À-VIS WHETHER FUNCTIONING OF QCs WILL LEAD TO BETTER INTER-PERSONAL RELATIONS

Whether functioning of QCs will lead to better inter-personal relations	No. of Respondents	Percentage to the Total
YES	296	86.5497076
NO	19	5.555555556
UNDECIDED	27	7.894736842
	342	100

TABLE NO. 29 DISTRIBUTION OF THE RESPONDENTS' RESPONSES VIS-À-VIS WHETHER FUNCTIONING OF QCs HELP DEVELOP A PARTICIPATIVE CULTURE THROUGHOUT THE ORGANISATION

Whether functioning of QCs help develop a participative culture throughout the organisation	No. of Respondents	Percentage to the Total
YES	262	76.60818713
NO	28	8.187134503
UNDECIDED	52	15.20467836
	342	100

The respondents responses with admire to the question no. 19 to 25 (presented in Table No. 23 to 29) unambiguously make one point very clear, i.e. consistent with them powerful functioning of QCs does increase employee motivation and organizational productivity and manifestly generate the important thing benefits anticipated of QC functioning over a time frame and assist cause an organization extensive participative culture.

V. CONCLUSION

QCs offer a lot of extension for development in organizational working on various checks humanization of work, participative work culture, self-advancement, work satisfaction, acknowledgment, cooperation, successful correspondence, quality improvement, cost decrease, and so on. The significant barriers that come in the manner to effective operationalisation and support of QCs in any organization have been talked about in some detail in a separate section prior. My research has offered some particular recommendations (given below) with the end goal of making the working of QCs effective.

I) Understanding of the idea of QC and important support from the top managerial personnel



- 2) Removing questions with respect to the adequacy of QCs in the brains of the middle managerial personnel
- 3) Launching Pilot QCs
- 4) Establishing the controlling Committee
- 5) Holding QC meetings consistently
- 6) Applying basic methods for critical thinking
- 7) Use of natural/local language and Improving the communication system
- 8) Developing a system for status detailing and survey of QC exercises
- 9) Proper execution of the proposals of QCs
- 10) Effective utilization of rewards and recognition
- 11) Campaigning for productivity and quality-improvement
- 12) Publicizing the role of QCs

All these should be at such level that will bring about effective working of the QCs. Because of Japan's noteworthy economic development, numerous countries have demonstrated incredible enthusiasm for the essential highlights of the Japanese organizations. A considerable lot of the reasons for disappointment of QCs emerge due to false sense of ego and self centered attitude of numerous employees, especially the senior ones. The organization should guide its efforts to make an 'atmosphere' in which people shed their false ego and self centeredness and work for the benefit of all.

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