



RESEARCH ARTICLE  
Vol.6.Issue.3.2019  
July-Sept



INTERNATIONAL  
STANDARD  
SERIAL  
NUMBER  
INDIA  
2 3 4 9 - 4 6 3 8

## INTERNATIONAL JOURNAL OF BUSINESS, MANAGEMENT AND ALLIED SCIENCES (IJBMAS)

*A Peer Reviewed and refereed Journal*

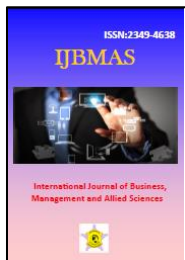
---

### COMPARTIVE STUDY ON QUALITY CIRCLES IN PRIVATE AND PUBLIC SECTORS IN ANDHRA PRADESH

Dr. HIMABINDU N\*, Dr. SIVA SANKAR

\*Email: [himansrees@gmail.com](mailto:himansrees@gmail.com)

[doi.org/10.33329/ijbmas.63.28](https://doi.org/10.33329/ijbmas.63.28)



#### ABSTRACT

Quality Circle is a method for increase productive and participative problem solving interaction among the various types of employees of an organization. It consists of small group of employees from all levels of the existing hierarchical structure within an organization. Many voluntarily are involved in the process of identifying, analyzing and formulating solutions to various technical and manual related problems in daily work life. The main feature of quality circle is that the basic philosophy, preamble, time and budget allocation is formulated by the organization itself and the members of each circle and prepare the target achievement for desired result and decide the course of work culture. The success of establish circle is totally depend on the organization's support and commitment for the formation of quality circle and necessary knowledge about quality circle activities. Quality circle have been effective tools for linking employees to the process of decision making in their work and growth increase their motivation to work and also increase productivity in any organization. The present study focus on general introduction of quality circle and its impact. It aims to determine the relationship between membership of circle and organization committee.

Keywords: Quality circle, Organization, Management.

---

#### Introduction

**History of Quality Circle:** During 1945 two atoms bombs were fall on Japan the whole economy change into smoke and dust many were killed every one thought Japan cannot get its glory again .But Japan grew like a phoenix from ashes to become a leading nation of the world within a short period of time.

The magic behind this miracle was fierce well determination and commitment of Japanese and their quest for quality aspect .They adopted **Quality Circle** as way of build attitudes to problems, improve quality and to be competitive.

#### **Origin of Quality Circle:**

- i. Quality circle was first established in **Japan 1962 by Prof Kaoru Ishikawa.**
- ii. The first circle were established at a " NIPPON WIRELESS AND TELEGRAPH COMPANY"

- iii. In April 1962 Prof. Kaoru Ishikawa presented this idea in the inaugural issue of JUSES (Japanese Union of Scientist and Engineers) journal gemba to quality circle.
- iv. Last 36 year this concept has been introduced in 130 countries.
- v. This concept is well established only in ASEAN countries like Japan , South Korea, the peoples of republic China and Taiwan
- vi. In India QCFI (quality circle forum of India) is promoting many activities
  - Pioneered by Japanese
  - Japanese nomenclature: quality control circle generally known as small group activity
  - 1962: First quality circle was registered with Japan
  - 1974: Lock Heed Company in USA started quality circle movement
  - 1977: International association quality circle formed in USA
  - 1980: BHEL (Bharat Heavy Electricals Ltd.) Hyderabad first in India to start quality circle
  - 1982: Quality circle forum of India (QCFI) was formed

### *Definition of Quality Circle*

A quality circle is a small groups of employee doing similar a related work who voluntary meet together on a regular basis to identify , define , analysis , solve work related problem and issues .

Quality circle is a process that stimulates everyone to achieve greater satisfaction in the work environment base on mutual trust and co-operation.

### *Who Should Involve in Quality Circle?*

Normally a quality circle should be consists of a group of about 6-9 people .The membership in a circle is a voluntary and the area of supervisor leads to each circle they are normally co ordinate within an organization by a person who has been trained as facilitator .Quality circle are frequent meet regularly to solve problems of group members .It is a set up by group members in a work place issue.

### *Reason For Establish Quality Circle*

There are several reasons to establish quality circle.

- (i) To get people participation.
- (ii) Individual development
- (iii) To improve quality.
- (iv) To create a sense of team work and team spirit.
- (v) To step back from the current condition and make improvement.
- (vi) To create more enjoyable work environment

### *How to Operate Quality Circle?*

- 1. Identification of problem:** - Identify and agree with the problem to be resolved normally quality circle will be use "BRAINSTROMING" at this stage.
- 2. Solution of problem:** - Agree as a team on the problem to be addressed initially.
- 3. Analysis of problem:** - Gather data associated with the problems .At this stage the team often applies one or more of the seven quality tools.

Histogram, flowchart, scatter diagram, control chart, pareto diagram, cause and effect diagram and check sheet.

### *Organizational structure of Quality Circle*

The organizational structure of quality circle different from industry to industry, they consist of the following elements.

1. STEERING COMMITTEE
2. CO -ORDINATORS
3. FACILITATOR
4. CIRCLE -LEADER
5. CIRCLE MEMBERS

1. **A STEERING COMMITTEE:** In steering committee include general manager or senior executive. These structures come top of the level its set objectives, examine work, take feedback, provide direction and make policy plan.

Function:

- i Official announcement of start movement of quality circle and high light its features and utility .
- ii. Establish policy and plan.
- iii. Provide resources
- iv. Give suggestion for improvement of quality circle. v. Regular check progress.

2. **CO ORDINATORS:** He may be personnel officers who co –ordinates the internal functions during problem solving stages.

Functions:

- i. To maintain attendances records of group members. ii. To maintain relation with higher authorities
- iii. Provide path for management presentation iv. organizes training programmes

3. **FACILITATOR:** The facilitator may be called a foreman. He arrange all facilities like training ,express his ideas and conduct meeting .Facilitator keeps all activities on right path .

Functions:

- i. Arrange for training of quality circle member .
- ii. Provide feedback and resources
- iii. Maintain budget and records

4. **CIRCLE LEADER:** Circle leader come lowest categories in an organization he conduct all circle activity and involves in asking questions.

Functions:

- i. Help in collection of data related problem .
- ii. Provide suggestion
- iii. Maintain records .

5. **CIRCLE MEMBERS:** Circle members are the biggest part of structure without circle members organization cannot achieve desired results .He focus on organization objective .

Functions:

- i. Be focused on organizational problems.

- ii. Provide opinion and suggestions
- iii. Mutual respect.
- iv. Give views, opinion, ideas, during the problem solving stages .
- v. Attend all meeting and training seriously .

#### *Uses of Quality Circle:*

The concept of quality circle adopted for a variety reasons like increases of product quality, involvement in decision making, mutual help, customer satisfaction etc. Quality circle increase job satisfaction level among employees and involvement in company policy decision. Another uses of quality circle is an improved communication within the organization, employees become identify routine problems through circle meeting managers get know employees need Quality circle helps to learn new ideas and also bring out workers hidden potential. It helps in increasing overall productivity and reduces waste materials.

1. Improvement in quality and productivity.
2. Promoting job involvement and sense of participation.
3. Provide a problem solving and problem preventing attitude.
4. Developing creativity and an innovative spirit.
5. Inspiring team work and developing harmonious relations among workers.

#### **OBJECTIVES**

To determine the quality circles

Most of the studies done on QCs focus on organisational performance through QC (Mitchell Lee Marks, et al. 1986; Robert Drago, 1988; Steel, et al., 1990; Everett, 1991, Jill L. Geehr, et al., 1995; Steel and Lloyd, 1988) and its impact on personnel of the organization (Head et al., 1986; Tulip and Ali, 2003), the work dynamics of the QCs (Mark Goh, 2000) and employees morale, output of the QCs (Steel and Shane, 1986) and so on. But none of the studies have focussed on studies on the organizations' support to QC activities.

Third world countries have experienced rapid industrialization in the twentieth century and continue to expand and strengthen their industrial sector. Adopting the Mixed economy formula, India has established several public sector manufacturing and heavy industries that has not only generated employment and economic opportunities, but has developed working technology required for the further growth and development. Similarly several private organizations have also established their strength in the Indian industrial sector especially after the Liberalization process in 1991, and continue to work in the line. With changing patterns of work relations and rapid automation and stiff competition among the public and the private organizations strive to not only keep their employees morale high but also develop various techniques to solve technical, manual and automation related problems through participative approach. The functioning of employees in private and public organizations differ on various grounds right from the orientation of fundamental ideology formulated by organization, work culture, access to resources, remuneration and commitment towards QCs and it is very important to study both the organizations' support to QC process, keeping this in view the present study is an attempt to study the organizations' support to QC in public and private sector.

To initiate the growth of QC, Quality Circle Federation of India (QCFI) was established in 1982, which is the principle regulatory body of the QCs in India. The concept was first adopted by BHEL, Hyderabad a public sector organization in the same year. Subsequently the QC movement spread among various private and public organizations. The application of QCs in both public and private sector has evoked mixed responses and results. The private sectors aiming on profit

maximization and the public sector aiming at service delivery have inherited and internalized the QC process differently.

A number of studies indicate that private performance is more efficient than public performance (George Boyne, 2002). Park (1991) examined the functioning of QCs in public and private sector organisations and found a higher rate of success in the functioning of QC in private sector. Robertson and Seneviratne (1995) have studied 47 organisations that adopted QC process and found that changes in private sector were effective in individual development and in public sector were more successful in improving system performances.

## Results and Discussion

The general aim of the analysis is to compare the functioning of QC programs in public and private sectors. This is to determine whether QCs in one sector are functioning more effectively than the other. This assessment includes length of participation, training, participants' feelings about QCs, Impact of QC among employees and Organisational Support to QCs.

**Table 1:** Frequency of Quality Circle meeting among Public and Private sector organisations

Frequency of Quality Circle meeting	Public sector		Private sector		Total	
Once a week	54	(81.8%)	38	(57.6%)	92	(69.7%)
More than once a week	1	(1.5%)	5	(7.6%)	6	(4.5%)
Monthly	5	(7.6%)	20	(30.3%)	25	(18.9%)
Yearly	1	(1.5%)	0 (0%)		1	(0.8%)
Others	5	(7.6%)	3	(4.5%)	8	(6.1%)
<b>Total</b>	<b>66</b>	<b>(100.0%)</b>	<b>66</b>	<b>(100.0%)</b>	<b>132</b>	<b>(100.0%)</b>

Note: Percentages are given in parentheses

QC members in both sectors were asked how often they hold QC meetings. This is to determine a level of employee involvement in terms of discussing activities and projects during meetings. The table 1 shows that, while 83.3 percentage of QC meeting were held once or more in a week, in public sector organizations and 65.2 percentage of QC meetings were held once or more than once in a week in private sector organisations. This result points out that more involvement by QC members was found in public sector than private counterparts.

**Table 2:** Length of participation in QC among Public and Private sector organisations

Year of participation in QC	Public sector		Private sector		Total	
Less than 6 months	2	(3.0%)	5	(7.6%)	7	(5.3%)
1 year	2	(3.0%)	9	(13.6%)	11	(8.3%)
2 year	5	(7.6%)	9	(13.6%)	14	(10.6%)
3 to 4 year	13	(19.7%)	17	(25.8%)	30	(22.7%)
More than 5 years	44	(66.7%)	26	(39.4%)	70	(53.0%)
<b>Total</b>	<b>66</b>	<b>(100.0%)</b>	<b>66</b>	<b>(100.0%)</b>	<b>132</b>	<b>(100.0%)</b>

Note: Percentages are given in parentheses

**Table 2a:** ANOVA for Length of Participation in Public and Private sector

	F	Sig.
Between Groups	3.188	.016*

\* Significant at .05 level

The length of participation in QC process is considered as a measure that indicates the longevity of the program. This measure has been widely used to identify the effectiveness of the program.

The study here divided the length of employee participation into two major periods; Up to two years, which is considered as short-term participation and more than 3 years, which comparatively indicates long- term participation. It is shown in table 2 that 86.4 percentage of public sector QCs members participated in the program for more than three years, which is considered as long term, whereas only 65.2 percentage of private sector QC members had relatively the same experience. This indicates that QC members in public sector have more experience of the success or failure of QCs than private QC members. One-way ANOVA test in Table 2a also confirms the significant difference between the two sectors.

**Table 3:** Training provided for QCs Participants in Public and Private sector organisations

Rate your training for participation in QC	Public sector	Private sector	Total
More than sufficient	7 (10.6%)	13(19.70%)	20(15.20%)
Sufficient	39(59.10%)	36(54.50%)	75(56.80%)
Some what sufficient	12(18.20%)	14(21.20%)	26(19.70%)
Not sufficient	3(4.50%)	2(3.00%)	5(3.80%)
Not received any training	5 (7.60%)	1(1.50%)	6(4.50%)
Total	66 (100.0%)	66 (100.0%)	132 (100.00%)

Note: Percentages are given in parentheses

**Table 3a:** ANOVA for Training received in the QC program between Public and Private sector

	N	Mean	Std. Deviation	F	Sig.
Between groups				2.99	0.09
Public sector	66	3.61	1.006		
Private sector	66	3.88	0.814		

1= Not received any training, 2= not sufficient, 3= some what sufficient, 4= sufficient, 5= More than sufficient

Training is an important aspect of Quality Circle activity. Members in both sectors were asked to rate their level of training received for the participation in the QCs. From table 3, it can be seen that the participants of QC in both the sector, all agreed that their training to QC problem solving tools and techniques have sufficient to participate in QC programme. One-way ANOVA test in Table 3a also confirms there is no significant difference between the two sectors.

**Table 4:** The differences of Participants' perception about QC's in Public and Private sector organisations

		N	Mean	Std. Deviation	F	Sig.
I enjoy being a member of the Circle	Between groups Public sector Private sector	66 66	4.82 4.58	.426 .609	7.015	.009*
I would join another circle if I was moved to another unit or area of work responsibility	Between groups Public sector Private sector	66 66	4.67 4.36	.641 .835	5.476	.021**
I would recommend to any friends that they join a circle	Between groups Public sector Private sector	66 66	4.76 4.41	.634 .784	7.885	.006*
My experience with the circle have not been unpleasant and frustrating	Between groups Public sector Private sector	66 66	4.45 3.65	.788 1.295	18.523	.000*
I communicate with supervisors more easily than I did in the past	Between groups Public sector Private sector	66 66	4.56 4.18	.767 .893	6.883	.010*
My relationship with my work group is better than it has been in the past	Between groups Public sector Private sector	66 66	4.70 4.39	.554 .721	7.336	.008*
Our circle is doing important Work	Between groups Public sector Private sector	66 66	4.76 4.44	.466 .787	7.987	.005*
Our circle has made a worth While contribution to the organization	Between groups Public sector Private sector	66 66	4.80 4.50	.401 .781	7.733	.006*
The company has profited financially from our circle efforts	Between groups Public sector Private sector	66 66	4.71 4.45	.548 .768	4.916	.028**
Our efforts are appreciated within this company	Between groups Public sector Private sector	66 66	4.68 4.29	.531 .924	9.015	.003*

1= Strongly disagree, 2= Somewhat disagree, 3= Have no opinion, 4= Some what agree, 5= Strongly agree

\*Significance at 0.01 levels \*\* Significance at 0.05 levels

The general perception of the participants towards QC in both the sectors is to some extent, positive. This is indicated by how strongly the participants agree to the positive statements regarding QCs. The variability response is shown by the standard deviation for the various statements. Participants in public sector organisations have better perception than the participants in private

sector organisation. The test result also shows that there is significant difference between the participants perception about QC from both sectors. The participants in private sector organisation felt that their experience in QCs was unpleasant and frustrating (SD= 3.65, F= 18.52) because of simultaneously they concentrating on production achievement and QC activities.

**Table 5:** Comparison of Impact of participation in QC in the Public and Private sector organisations

		N	Mean	Std. Deviation	F	Sig.
QCs brought an improvement in the personal life	Between groups Public sector	66	4.18	.821	7.500	.007*
	Private sector	66	3.82	.700		
Improvement in problem	Between groups Public sector	66	4.55	.502	17.324	.000*
	Private sector	66	4.17	.543		

1= Hardly at all, 2= To very less extent, 3= To some extent, 4= A fairly large extent, 5=A very large extent

\* Significance at 0.01 levels

The basic idea of establishing the QC in an organisation is that individuals contribute to collectively accomplish organisational goals through systematic and sustained cooperation with one another (Connor, 1997). The study tried to determine whether QC programme has improved the personal life of the participants by following the QC techniques. The results indicate that participants realised that there is an improvement in their personal life. However, it was less expressed by the participants in private sector organisations. One-way ANOVA test also confirms that there is a significant difference between the two sectors.

The study also tried to determine the improvement in problem solving skills since joining in QC. The results reveal that Quality Circle participants' in both sectors agree that their problems solving skills have improved since joining the program. However, it was quite less among the participants in Private sector organisations. One-way ANOVA test also confirms that there is a significant difference between the two sectors.

#### *Organisations' support to quality circles - A comparative study of public and private sector in India* Kannan S, Govinda Rajan S.R

**Table 6:** The differences in satisfaction at work and relationship with co-worker after joining QC

		N	Mean	Std. Deviation	F	Sig.
Satisfaction at work	Between groups Public sector	66	4.23	.675	.667	.417
	Private sector	66	4.14	.605		
Relationship between co-worker	Between groups Public sector	66	4.21	.512	.843	.360
	Private sector	66	4.12	.621		

1= Not at all satisfied, 2= Less satisfied, 3= No change, 4= Satisfied, 5= More satisfied

The above table results show that quality circle members in both sectors felt that their job satisfaction level has increased after joining the program. Further, it also reveals that relationship with co-worker has improved after participation in the QC. Finally, the results indicate that there is no



significant difference between the sectors in the level of satisfaction and relationship between co-workers.

**Table 7:** The differences of organisational support to QCs in Public and Private sector organizations

		N	Mean	Std. Deviation	F	Sig.
Do you think that management believes that the QC movement is mechanism for Continuous Improvement?	Between groups Public	66	4.48	.638	.771	.382
	sector Private	66	4.36	.992		
Does your management provide support for QC/ SGA Movement in your organization	Between groups Public	66	4.55	.587	3.917	.050**
	sector Private	66	4.27	.953		
Does your management support the Implementation of improvement brought out in QC/SGA	Between groups Public	66	4.52	.614	1.667	.199
	sector Private	66	4.35	.850		
Does your management reward for the successful completion of Projects	Between groups Public	66	4.33	.767	.472	.493
	sector Private	66	4.23	.893		
Does your management allow/ provide Opportunities to participate in Regional and National QC presentations	Between groups Public	66	4.74	.590	9.832	.002*
	sector Private	66	4.29	1.019		

1= Hardly at all, 2= To very less extent, 3= To some extent, 4= A fairly large extent, 5=A very large extent

1. Significance at 0.01 levels \*\* Significance at 0.01 levels

The results of table 7, shows that the organisational support to QCs in private sector organisations is less when compared to public sector organisations. In the private sector organisations, management is less willing to provide opportunities to participating in outside QCs presentations/seminars (SD=1.019). The results also indicate that, there is significant difference between the sectors in providing opportunities to participate in regional and national QCs presentation (F=9.832) and management support to the QCs in the organisation (F=3.917). However, there is no significant difference between the sectors in mechanism for continuous improvement (F=.771), implementation of improvement brought out in QCs (F= 1.667) and reward for the successful completion of the projects (F= .472).

#### 4. Conclusion

The present study is to determine whether QCs in public sector are functioning more effectively than the private sector in terms of length of participation, training, participants' feelings

about QCs, and organisational support to QCs. From the results of the study, it can be concluded that, participants from both sectors expressed their improvement in work life after joining in the QC programme with job satisfaction. But however, a significant difference is observed between the sectors in the organisational support to QC activities. Higher positive results were found in public sector organisations.

The aim of public sector organisations in implementing QC process is to increase not only their overall performance, but to achieve higher quality in delivering of service. The private sector organisations on the contrary, focus on profit and productivity maximisation and thereby initiating the QC processes to achieve higher financial benefits through efficient time and material management. The data reflects that the organisational support to QCs in private sector organisations is less when compared with public sector organisations.

It can be concluded that public sectors provides full-fledged support to QCs compared to private sectors in terms of longevity and employees' perception.

**Advantages:**

1. Quality circle help in develop build a positive attitudes among workers
2. Quality circle increases product quality and decrease defective problems
3. Strong communication between employees and management
4. Increase employee motivation and emphasis on team work concept
5. This concept help to understand new thought and theory
6. It help to improve organization environment and make better environment for employees
7. It increase self development and social development
8. To satisfy the employees need
9. It improve company performance
10. It is helpful tool to reduce complain and error
11. Increase working capacity

**Disadvantages of Quality Circle:** Quality circle is very effective technique to increases productivity but there are some disadvantages which are describe as follow:

1. Lack of coordination
2. Need more money
3. Weakness of organization show
4. Required more time
5. It is effective only for large organization

**Problem in Implementation:**

1. Required trained staff
2. Management does not take interest to establish circle
3. It is very tough method to find out truly voluntary
4. Top manager want immediate result
5. Unrealistic approach
6. Not clearly defined objective
7. Opposition thinking by group members
8. Members does not work on team base concept

**Quality Circles, In Conclusion:**

Quality circle is rapidly spread in variety of organization .It is use for group based solution of work related problem. It applicable in any type of organization like factories, hospital, industry, banks etc. After introducing quality circle technique in organization scenario is totally

changed. Now accessibility is improved and enhanced. There is also need to generate awareness about the quality circle so that more and more employees use it for their benefits

## OBJECTIVES

- The development of human relationships and communication among individuals, this being a people oriented program
- raising workers' awareness of the responsibilities that they have in relation to the quality of production and the products delivered
- creating a framework where improvement ideas can be brought to life
- Development of inner leadership and employees' responsibility to the enterprise
- Development of instruction skills that can be put to use in work groups.

Literature review:

## References

### Books:

1. Charantimath, M Poornima. (2011). Total Quality Management.
2. Ho, K Samuel. (2002). Total Quality Management an Integrated Approach.

### Journals:

1. Adam E. Evertt (1991) Quality circle performance. *Journal of management* .17
2. Amulia (2011) Peer evaluating of master programme; closing the quality circle of the CDIO approach.

*International journal of quality assurance* 2 (1).

1. Balkrishna Damle (2012) Cultivating quality culture through audio visual aid based training. *Journal of commerce and management*. 3 (3)
2. Hyland W Paul (2003) Continue improvement and learning in the supply chain. *International journal of physical distribution and logistics management* 33(4)
3. Jorgensen Frances, Boer Harry ((1980) Jump -starting continue improvement through self - assessment

*International Journal of operation and production management* .23 (10).

1. Mohammed Nasrollahniya (2011) Knowledge management and total quality management -a complement process

*Asian Journal of development matter* 5(1).

2. Rajan Govinda, S Kannan (2011) Organization Support to quality circle - A comparative study of public and private sectors in india. *Asian journal of management research*. 2 (1).
3. Rosefeld Yehil. Warszalvi Abraham (1992) Using quality circle to raise productivity and quality of work life

*Journal of construction engineering and management* .118(1).

1. Toro De j Irving (1987) Quality circle and the technique of creativity. *The journal of creative behavior* 21(2).
2. Dhanakumar, V. G. (1999), Total Quality Management (TQM) for plantation industry, Anmol Publications: New Delhi, Page 19.
3. Everett E. Adam Jr. (1991), Quality Circle Performance, *Journal of Management*, 17(1), pp 25-39.
4. George A Boyne. (2002), Public and Private Management: What's The Difference?, *Journal of Management Studies*, 39(1), pp 97-122.

5. Head, Thomas. C., Julie L. Molleston and Peter F. Sorensen Jr. (1986), The Impact of Implementing a Quality Circles Intervention on Employee Task Perceptions, *Group Organization Management*, 11(4), pp 360-373.
  6. Jill L. Geehr, Michael J. Burke and Jefferson L. Sulzer, (1995), Quality Circles: The Effects of Varying Degrees of Voluntary Participation on Employee Attitudes and Program Efficacy, *Educational and Psychological Measurement*, 55(1), pp 124-134.
  7. Maheshwari, B.L. (1987), *Quality Circles*, Oxford & IBH Publishing: New Delhi, page 10.
  8. Mark Goh, 2000, Quality circles: journey of an Asian public enterprise, *International Journal of Quality & Reliability Management*, 17(7), pp 784 - 799.
  9. Mitchell Lee Marks, Philip H. Mirvis, Edward J. Hackett and James F. Grady, Jr., (1986), Employee Participation in a Quality Circle Program: Impact on Quality of Work Life, Productivity, and Absenteeism, *Journal of Applied Psychology*, 71(1), pp 61-69.
  10. Park, S.J. (1991), Estimating success rates of quality circle programs: public and private experiences, *Public Administration Quarterly*, 15(1), pp.133-46.
  11. Robert Drago, (1988), Quality Circle Survival: An Exploratory Analysis, *Journal of Economy and Society*, 27(3), pp 336-351.
  12. Robertson, Peter J., and Sonal J. Seneviratne. (1995), Outcomes of Planned Organizational Change in the Public Sector: A Meta-Analytic Comparison to the Private Sector', *Public Administration Review*, 55 (6), pp 547-58.
  13. Steel, Robert P. and Shane, Guy S. (1986), Evaluation Research on Quality Circles: Technical and Analytical Implications, *Human Relations*, 39(5), pp 449-466.
  14. Lloyd, Russell F., (1988), Cognitive, Affective, and Behavioral Outcomes of Participation in Quality Circles: Conceptual and Empirical Findings, *Journal of Applied Behavioral Science*, 24 (1), pp 1-17.
  15. Abo-Alhol, T. R., Ismail, M. Y., Sapuan, S. M. and Hamdan M. M. (2005), The Effectiveness of Quality Circle Participation in Industrial and Service Organizations in Malaysia, *Journal of Social Sciences*, 1(1), pp 25-30.
  16. Connor, Patrick E. (1997), Total Quality Management: A Selective Commentary on Its Human Dimensions, with Special Reference to its Downside, *Public Administration Review*, 57(6), pp 501-509.
  17. Crocker Olga C., Cyril Charney and Johny Sikleung Chiu. (1984), *Quality Circles: A Guide to Participation and Productivity*, Methuen Publication: Canada, Page 6.
-