

A STUDY OF QUALITY CIRCLES MANAGEMENT TOWARDS MANUFACTURING INDUSTRY

Submitted in partial fulfillment of the requirements for the award of

Master of Business Administration

by

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SCHOOL OF BUSINESS ADMINISTRATION

SATHYABAMA

**INSTITUTE OF SCIENCE AND TECHNOLOGY
(DEEMED TO BE UNIVERSITY)**

**Accredited with Grade "A" by NAAC | 12B Status by UGC | Approved by AICTE
Jeppiaar Nagar, RAJIV GANDHI SALAI, CHENNAI - 600 119**

April – 2021



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SCHOOL OF BUSINESS ADMINISTRATION

BONAFIDE CERTIFICATE

This is to certify that this Project Report is the bonafide work of **EDWARD AROKIAM A 39410051** who have done the Project work entitled "**A STUDY OF QUALITY CIRCLES MANAGEMENT TOWARDS MANUFACTURING INDUSTRY**" under my supervision from January 2020 to March 2021.

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DECLARATION

I EDWARD AROKIAM A 39410051 here by declare that the Project Report entitled “**A Study Of Quality Circles Management Towards Manufacturing Industry**” done by me under the guidance of **Dr. Dhivya sathish** is submitted in partial fulfillment of the requirements for the award of Master of Business Administration degree.

DATE:

PLACE:

EDWARD AROKIAM A

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ABSTRACT

Quality Circles (QCs) are a popular tool to get solved work related problems, mainly in manufacturing organizations by groups of workers themselves by following a prescribed methodology. By solving the problems and also making desirable improvements, quality circles contribute in increasing the quality, productivity and safety of the operations. More importantly the workers develop a positive and problem solving attitude by participating in the QC activities and derive more job satisfaction. The project gives a step by step account of the implementation of the quality circles in a medium scale industry right from introduction to successful execution. A case study of implementing the QC concept Unit which illustrates how the QCs help in improving the productivity has been discussed. The factors which are important for the success of the quality circles are also explained. The serve as a guide and would be useful for the small and medium industries who are interested in introducing the quality circles

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CHAPTER 1

INTRODUCTION

INTRODUCTION

Though the entire manufacturing industry is under constant pressure to continuously keep improving the quality, productivity, safety of its products and services, the pressure is all the more when it comes to small and medium scale industries. The small and medium scale industries do not have the wherewithal of the large scale industries to implement the elaborate quality management programmes which are in vogue. They feel the lack the financial, technological and managerial resources for execution of the modern quality concepts. However out of the various quality concepts, quality circles are much easier to implement even in the small and medium enterprises (SMEs) and can give substantial tangible and intangible benefits. QCs do not really require a high level of technological facilities or managerial abilities or financial investments. In fact they give a high return on the investment as they use low cost creative solutions by using the common wisdom of the workers, channelized effectively by QC methodology, for solving the day to day problems at the workplace. Such problems when solved improve the quality, productivity, safety delivery time of their products and services. The cost benefits aggregated over a longer period of time are very substantial. Most importantly participation in this process of problem solving develops a positive attitude, self confidence and enthusiasm in the workers who develop a hunger for solving more and more problems with higher levels of complexities. This prepares the workers for adopting the higher level quality management systems. Quality circles thus serve as a foundation for building the more advanced quality management system in the organization

The Quality Circles (QCs) or Quality Control Circles (QCCs) as they are called in some countries originated in Japan in the year 1962. They consists of forming groups of workers, generally 8 to 12 working in similar areas to solve the work related problems by using a systematic problem solving approach and the QC tools. Though the name used is quality circles the groups try to take up the problems or improvements which increase the productivity, safety, comfort etc during the working. The philosophy behind the introduction of the QCs was to involve the

workers into the company wide effort of improving the organizational performance. In the process the workers remain engaged in the positive activities.

It is very important that the quality circle programme once implemented in an organization succeeds. Failure can result in loss of interest and motivation to continue further. The support and commitment from the top management, creation of the proper QC organizational structure, proper training of the workers and continuous facilitation and encouragement are very important for the success of the QC programmes.

Circle membership: It is more or less homogeneous group of people usually from the same work areas. However, whenever required experts may be invited for guidance or advice. QCs believe in voluntary participation by the workers without any compulsion.

Circle size: Usually a group of 6 to 12 members seems quite effective; however, it depends upon the people employed in a particular section

QC meetings: An hour's duration is usually quite adequate for a meeting. Whatever may be the frequency, regular meetings should be ensured.

Autonomy: An important ingredient of a QC is the sense of autonomy experienced by its members.

1.2 INDUSTRY PROFILE

The manufacturing industry differs from the production and in various ways. Thus we need to take into account the differences in the characteristics of the two industries when we implement quality circles to suit the manufacturing industry, while it was originally developed in the production and manufacturing industry. According to Bruno A. Gilly (1987), the following are some of the factors which clearly distinguish the construction industry from the manufacturing industry, while considering use of quality circles. Every manufacturing project is different from the other and hence unique. This is because different projects are built under different conditions, by different work force in different locations Araki 1984 , Gilly 1986 . Depending on the locations the projects are designed and planned differently. Even factors such as difference in season during a particular phase of a project contribute to it being planned in a different way as compared to another. The time which is taken to complete a project i.e. the end product is very long as compared to the manufacturing industry which take much lesser time to manufacture a product sometimes even to the extent of producing numerous products a day. Also the uniqueness of project causes the duration of the project completion also to be unique.

Most times in construction projects the main contractor completes various parts of construction by employing that particular part to subcontractors. In this case the main contractor does not have much control over the sub-contractors personnel. Whereas in manufacturing industry it is a set workforce working toward manufacturing the same product day-in and day-out, who are all employed by the main production company.

It is not uncommon that the owner influences the project by making changes to the design and/or specification. This causes a change in the duration or the activities involved. Whereas in the other industries there is no such influence from the owner on the production.

The hierarchical levels in a manufacturing company are relatively low as compared to other industries i.e. there are very few levels between the highest ranking and lowest ranking individuals . This could allow faster adjustment to changes and

reaction but will require a high degree of communication skills from the management's side.

Some of these factors could prove to be a barrier to the use of quality circles in construction projects especially such factors as project uniqueness, sub-contractors and also hierarchy of organisations. Especially considering India's difference in organisational culture as compared to the rest of the world the factor of hierarchy poses an important question mark into the applicability of quality circles in India. This is because Quality circles use a bottom-up approach i.e. participative management approach to solving problems arising in any project.

1.3 NEED OF THE STUDY

- To identify the members relationship in Quality Circle to promote more QC's teams and projects in Industry.
- This study identifies the role of trade union in successful implementation and development of QC's in the organization.
- To find out the effectiveness of QC's training program and their impact on the trained employee.

1.4 SCOPE OF THE STUDY

- This study supports to motivates employees in efficiently participation in QC's and improve their Quality of work life and Standard of living.
- This study helps to improve the strong and effective trade unionism & their enthusiastic supports for Quality circle projects.
- This study used to improve supportive atmosphere for participants in Quality Circle.

1.5 OBJECTIVE OF THE STUDY

1.5.1 Primary Objective

A study of quality circles management towards manufacturing industries.

1.5.2 Secondary Objective

- To find out effective participation of employees in Quality Circle .
- To reduce downtime of machines and equipments.
- To promote improved communications and team work between all level of the organization.
- To identify and solve work related problems that interfere with production to improve the productivity.
- To find out employees Recognition and Decision making process

1.6 LIMITATION OF THE STUDY

- The study is based upon the consumer satisfaction, perception and experience of consumer perception in online product ordering.
- The data collected for the research is fully primary data given by the respondents by filling the google form.
- The questionnaire was made available to consumers through google drive – forms.
- No personal biasness happens while taking filling the questionnaire because of the online google form.
- Limited time frame.

CHAPTER 2

REVIEW OF LITERATURE

2.1 REVIEW OF LITERATURE

Anad Jayakumar A etal. [2011] has discussed complete procedure for formation and implementation of Quality Circles in an organization including objectives of QCs activities operations of QCs, Structure of QCs, roles and function of members, coordinators, leaders and facilitators. The procedure for launching QCs in an organization and the training to be provided to the stake holders is also described.

Chiragkumar etal. [2012] has described 7 QCs tools and PDCA cycle which are at the core of solving the problems using the QC approach and discussed the application of the QCs to solve the problem of rejections in the taper roller bearings. Though Quality Circle is a low cost tool for implementing total quality management in an industry not all Quality Circle programmes achieve the desired success [Jyoti Prakash

Majumdar, etal. 2011]. Quality Circle can fail at various stages due to organizational issues, circle formation issues, operational issues recognition issues etc. QCs awareness for the management and QC training for the workers are very important for the success for the QC programme.

Shantanu Welekar and Shantanu Kulkarni [2013], have discussed the use of Quality Circle to improve productivity and compared the Quality Circles with, Quality Improvement Groups and Work Groups/Project Teams.

Monden (2014) and many other researchers made great contributions to popularize the lean approach. To analyze the implementation of lean approach, it is essential to study the inner working of companies following the basic principles of identified by various researchers over a time period. Researcher examined the lean principles implementation and inner workings of more than 50 companies in automotive sector in USA, UK and India. They studied production system, product development

processes, supply chain management, and management style to see how these companies are following lean principles.

Rahman (2015) describe quality circle and use this technique to improve the productivity. Author implement in BISF (Bangladesh Industrial Sanitary Ware Factory) and enterprise of Bangladesh Industrial Corporation. The factory produces various types of insulator and sanitary ware for local market and export. In the study five different product were considered for analyze. These are then eliminated by implementing the suggestion recommended by quality circle member. Author found good results after implementation with decrease in rejection percentage.

Karlsson (2016) summarizes the idea in three principles: being global, building knowledge structures together, and operating in networks with other actors. Perhaps most important is the organization and building of hierarchies of technological knowledge for the development and production of products. There is one common denominator in the studies cited above: their ideas were generated through research in large companies, most commonly the global automobile industry (Karlsson, 1992; Womack et al., 1990).

Adler (2017) suggest that quality and productivity depend on management's ability to free workers from the coercive constraints of bureaucracy is not true. According to him, bureaucracy can be reformed to encourage innovation and commitments while standardization, if properly understood and practiced, help continuous learning and motivation. His two-year study shows that Toyota succeeded in employing an innovative form of Toyota's time and motion regimentation on the factory floor not only to create comparatively better productivity and quality standards but also to enhance workers motivation and satisfaction. It also provides a unique example of employee empowerment, where workers themselves design their procedures and involved in continuous improvement and leading to better employee-employer relationship.

Kamath and Liker (2018) 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.

Womack and Jones (2019) developed the lean concept further. They considered it as: a group of individuals, functions, and legally separate but operationally synchronized companies. The idea is to link breakthroughs of individual companies, in terms of lean techniques, up and down the value chain to form a continuous value stream. Deming, W.E., (1943) encouraged employee participation as well as promotes teamwork and motivates people to contribute towards organizational effectiveness through group processes.

Mark Goh, (2019) has studied 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.

Clive Goulden, (2005) describe quality circle in workshop of university polytechnic AMU, Aligarh. Author find the problem of material loss in workshop university polytechnic AMU, Aligarh.

Ozden Bayazit, (2013) determined various aspects of Quality Circle and how improvements can be made by adopting practices of Quality Circle in chemical industries. The paper also presents a comparative discussion of various features of Quality Circle, Quality Improvement Group and Work Group/Project Team. The

paper describes a case study of QC concept in a chemical industry which illustrates the effectiveness of QC approach.

Michel Wensing PhD, Björn Broge (2014) determined the impact of a large-scale programmed of quality circles on quality and costs of prescribing method. A controlled before–after study was performed, in which primary care doctors were allocated to a quality circles group or a control group.

Abo-Alholet. al. (2015) describe about the performance of the quality circle in the both service as well as in manufacturing sector. Author states that quality circle in various countries are first introduced in the manufacturing sector and as the benefits expertise, published and confidence is built they introduced this in other areas and finally in service sector to survey the effectiveness of quality circles.

Dinesh P. Chapagain (2018) had studied Students' Quality Circle (SQC) activities in academics, students identify, analyze and solve their problems at school and at home by applying various QC tools in a QC team using QC story of systematic problem solving approach. This paper highlights the content analysis of the secondary information compiled from the proceedings of the recent national and international conventions on students' quality circles using KJ method. The result depicts that students have developed several characters deemed necessary to build leadership quality.

Salaheldin I. Salaheldin Mohamed Zain, (2017) 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.

Benazir Bhayana (2011) Groups are formed where members interact to share Information and to make decision within the specific area of responsibility. Teams are different from groups. A team is a cross Functional group of employees with focused objectives and autonomy in achieving them.

Mr. Rajesh Chaudhary, Mr. LalitYadav(2012) had an attempt to focus on the impact of quality circle towards employees & organization. Employee's attitude towards participative management is also discussed in detail through the case study. The observed data are analyzed through cause-effect diagram, Pareto-diagram etc. The results and findings are not only amazing but also beneficial to both employees & organization. It results in - Drastic reduction in wastage, considerable increase in average saving, minimizing financial losses, and increased employee's motivation. By operating machine with care and minimizing wastage, the production & hence productivity increases considerably.

Chitra Sharma(2013) had given enough evidence as case studies has been reported till date on the usage of quality circle in many manufacturing organization for drawing cost saving or quality improvement goals. It argues that the concept encourages employee participation as well as promotes teamwork and motivates people to contribute towards organizational effectiveness through group processes.

AbhijitChakraborty, RanjanBhattacharya(2013) focussed on the effect of quality circle when applied in small enterprises. In this competitive world, Process Development as per 'Voice of Customer' is the key word and the result there from is for better productivity and simultaneously cost-curtailment in production sphere of manufacturing. In this paper, effect of application of 'Quality Circle' has taken for finer tuning of process improvement in a small manufacturing enterprise and its impacts for the betterment of cost-effectiveness at the shop floor in various production processes have been analyzed to ascertain- to what extent the Quality Circle tool can be effective in the small enterprises of Indian environment for its betterment & making itcompetitive in the global market.

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.

CHAPTER 3

RESEARCH METHODOLOGY

3.1 RESEARCH DESIGN

The research design stands for advance planning of the method to be adopted for collection the relevant data and the techniques to be used in adopted for collecting the relevant data and the techniques to be used in analysis, keeping the view the objectives of the research and availability time.

In general, research design is the conceptual structure within which research is conducted: it constitutes the blueprint for the collection, measurement, and analysis of data.

The Research Design undertaken for the study is Descriptive Research Design. A study, which wants to portray the characteristics of a group or individuals or situation, is known as Descriptive study.

3.2 SAMPLING TECHNIQUE

One of the most prominent problems that countries like India face with regard to their construction projects is quality of construction which is below par as compare to international standards. There is a need for finding substantial solutions to these problems quickly. Quick problem solving leads to improved quality of construction, maintenance of schedule etc. The use of Quality Circles could prove to be an efficient problem solving technique which can improve the quality of construction. However,

- [1]. The temporary nature of teams formed by Quality Circles from project to project or even through the same project could affect the effectiveness of this method.
- [2]. The change in team dynamics and thus teamwork with the change/replacement of one or more of the members of a QC team has never been considered or studied.
- [3]. The applicability of QCs to India and considering the difference in India's organisational and cultural aspects as compared to the global scenario has never been considered. This is especially important to consider as QCs rely on bottom-up communication to take the necessary decisions.

3.3 SOURCES DATA

Data collection is one of the most important aspects of research. The information through research methodology must be accurate and relevant. The data collection method can be classified into two methods.

PRIMARY DATA

Questionnaire method have been used as a tool for a data collection in this research.

SECONDARY DATA

Secondary data means data that are already available . they refer to data which has been collected by google form method. The secondary data for the study was collected from book, company websites, magazines and other sources.

3.4 STRUCTURE OF QUESTIONNAIRE

The structure of questionnaire consists of two parts. Part A consists of profile of the respondents and part B consists of questions related to objectives.

3.5 SAMPLE SIZE

Sample size means the number of sampling units selected from the population for investigation. It helps to achieve the objective of research. the sample size taken for the study is 120.

3.6 PERIOD OF STUDY

The study period is from January 2020 - March 2021

3.7 ANALYTICAL TOOLS

- Percentage analysis
- Chi-square test
- Anova test

CHAPTER 4

DATA ANALYSIS AND INTERPRETATION

4.1 PERCENTAGE ANALYSIS

TABLE 4.1.1: Showing age wise classification of respondents

Particulars	No. of respondent	Percentage
18-24	88	77.8
24-30	16	11.1
30 & above	16	11.1
TOTAL	120	100

Sources: Primary Data

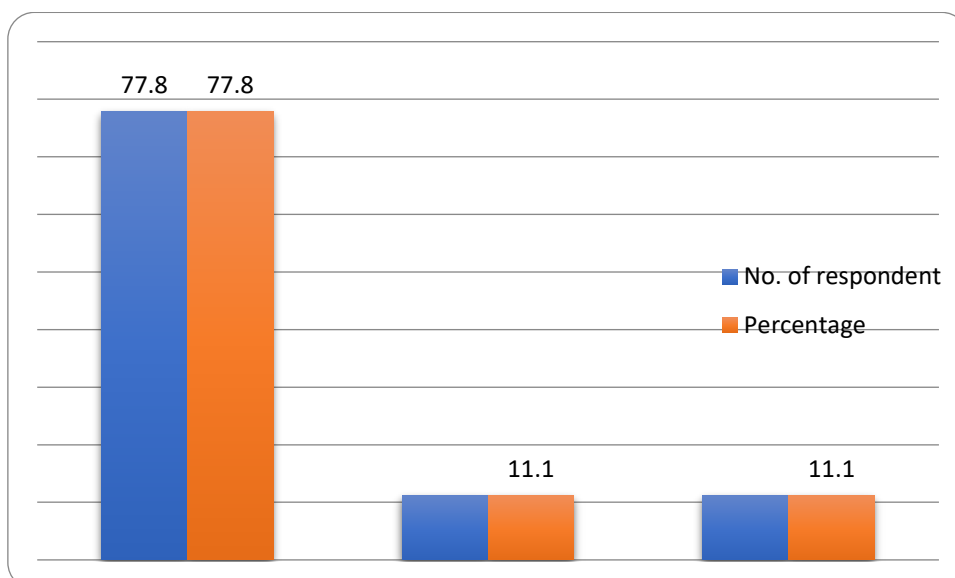


CHART 4.1 1: Showing age wise classification of respondents

INTERPRETATION

The above table shows that the age of the response, 77.8% of 18-24, 11.1% of 24-30 and remaining 11.1% of 30 above age of the response.

INFERENCE

Majority (77.8%) of the response belongs to 18-24 years of age.

TABLE 4.2.1: Showing gender classification of the respondents

Particulars	No. of respondent	Percentage
Male	65	55.6
Female	55	44.4
TOTAL	120	100

Sources: Primary Data

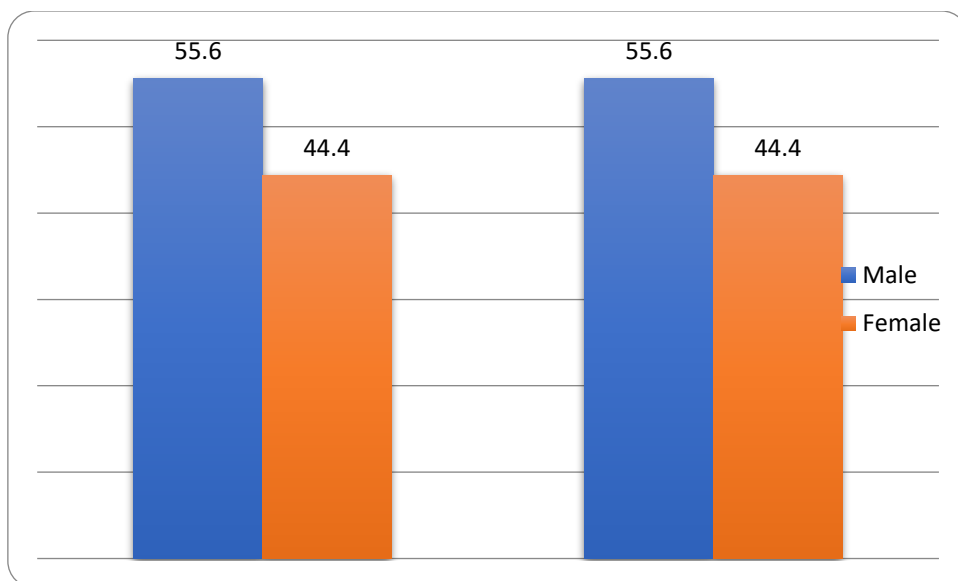


CHART 4.2.1: Showing gender classification of the respondents

INTERPRETATION:

The above table shows that the gender of the response, 55.6% of male and 44.4% of female

INFERENCE

Majority (55.6%) of the responses are male.

TABLE 4.3.1: Showing qualification of the respondents

Particulars	No. of respondent	Percentage
Undergraduate	66	55.6
Graduate	54	44.4
Post Graduate	0	0
Professionals	0	0
TOTAL	120	100

Sources: Primary Data

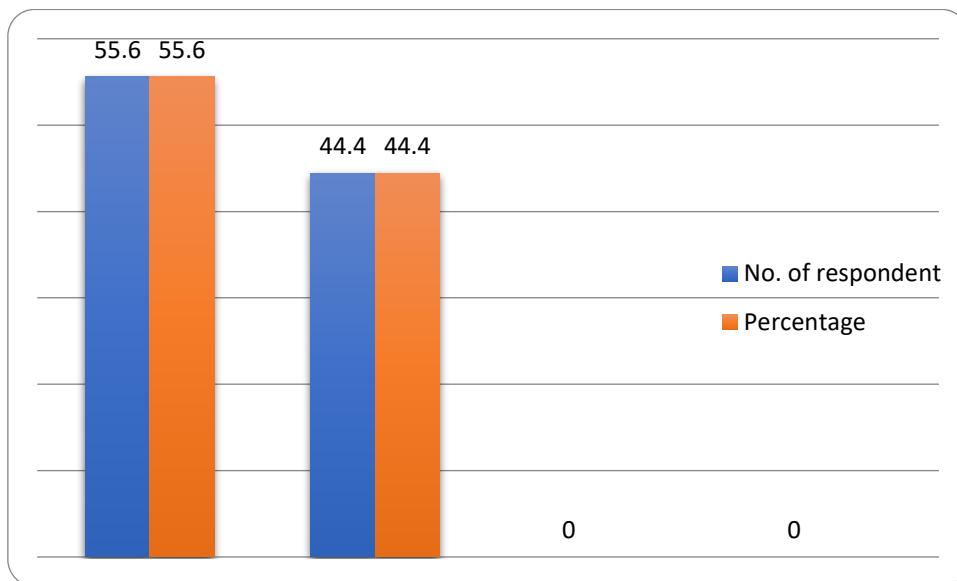


CHART 4.3.1: Showing qualification of the respondents

INTERPRETATION

The above table shows that the qualification of the response, 55.6% of Undergraduate, 44.4% of Graduate, 0% of Post Graduate and 0% of Professionals.

INFERENCE

Majority (55.6%) of the responses are qualification.

TABLE 4.4.1: Showing occupation of the respondents

Particulars	No. of respondent	Percentage
Business	33	33.3
Service	21	11.1
Professionals	66	55.6
TOTAL	120	100

Sources: Primary Data

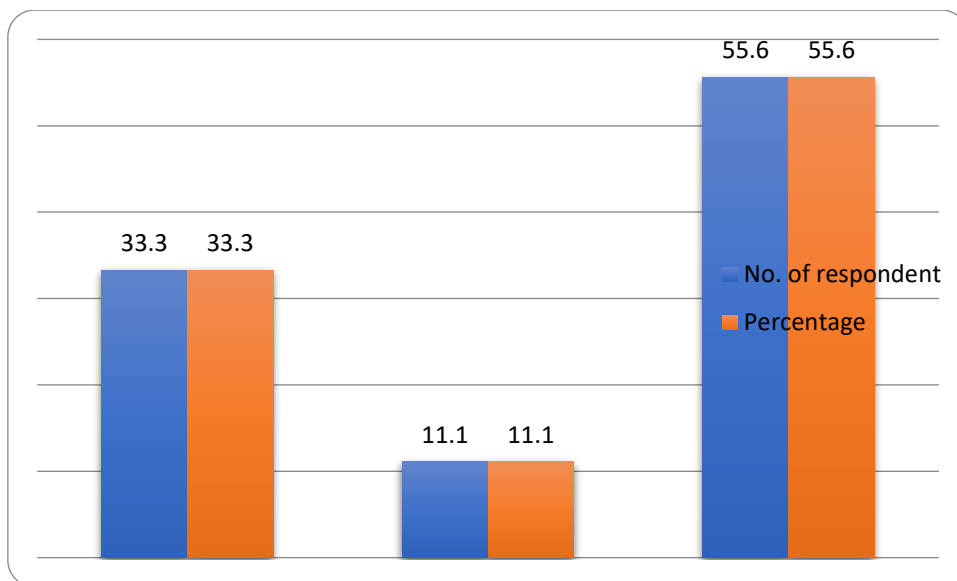


CHART 4.4.1: Showing occupation of the respondents

INTERPRETATION

The above table shows that the occupation criteria of the response, 33.3% of Business, 11.1% of Service and 55.6% of Professionals

INFERENCE

Majority (33.3%) of the responses are occupation.

TABLE 4.5.1: Showing marital status of the respondents

Particulars	No. of respondent	Percentage
Married	98	88.9
Unmarried	21	11.1
TOTAL	120	100

Sources: Primary Data

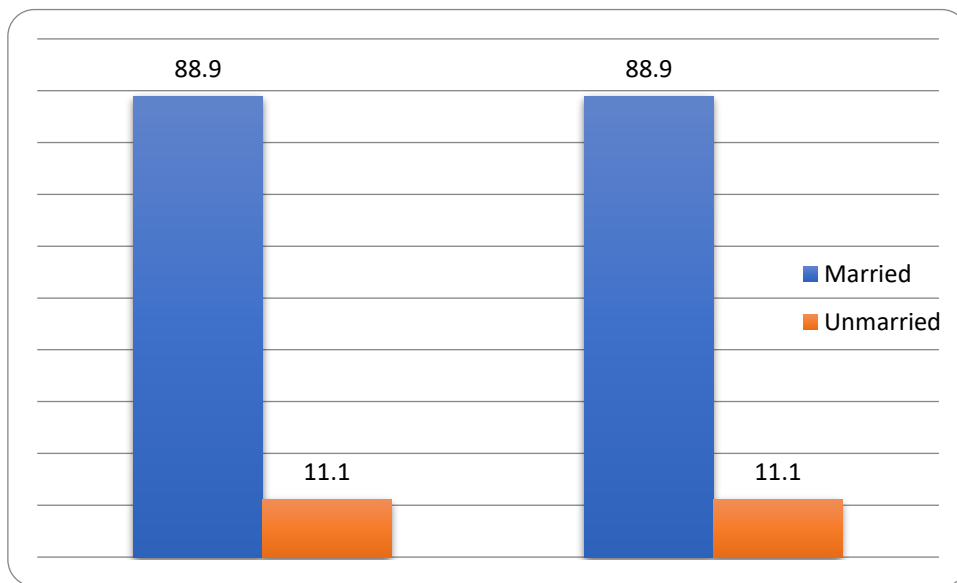


CHART 4.5.1: Showing marital status of the respondents

INTERPRETATION

The above table shows that the marital status of the response, 88.9% of Married and 11.1% of unmarried of the respondent.

INFERENCE

Majority (88.9%) of the responses are marital status.

TABLE 4.6.1: Showing primary aim of quality circle

Particular	No. of Respondent	Percentage
To solve company's problem	65	55
To develop people	10	10
To improve the image of the organization	30	20
To motivate people to work	15	15
Total	120	100

Sources: Primary Data

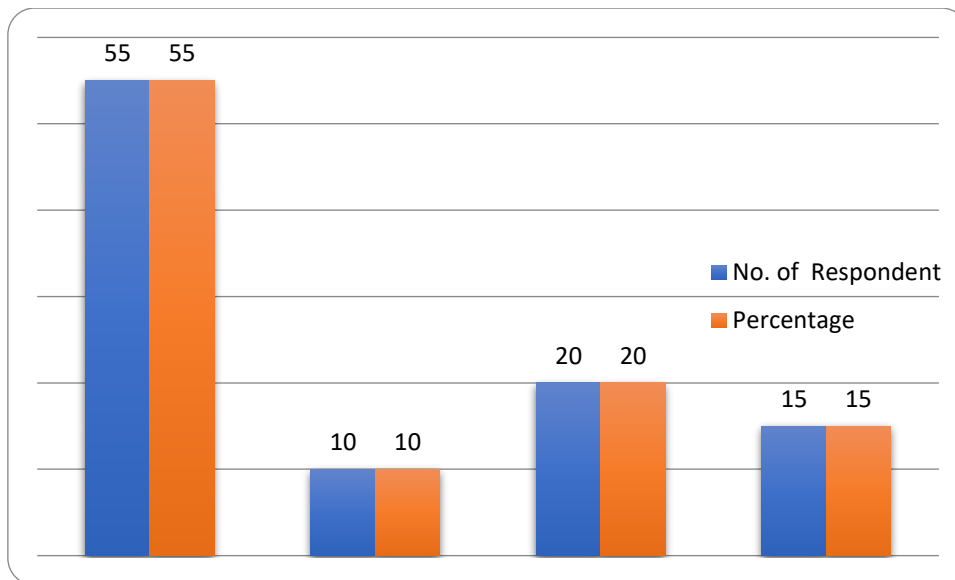


CHART 4.6.1: Showing primary aim of quality circle

INTERPRETATION

The above table shows that the aim of quality circle 55% of solve company's problem, 10% of To develop people, 20% of To improve the image of the organization and 15% of To motivate people to work

INFERENCE

Majority (55%) of the responses are aim of quality circle.

TABLE 4.7.1: Showing main purpose of Quality Circle in an Organization

Articular	No. of Respondent	Percentage
Improvement in Human Relations	15	15
Promotion of Work Culture	10	10
Develop Team Work	30	20
Improve Productivity	10	10
Enhance Problem Solving Capacity	15	15
All of the Above	40	30
TOTAL	120	100

Sources: Primary Data

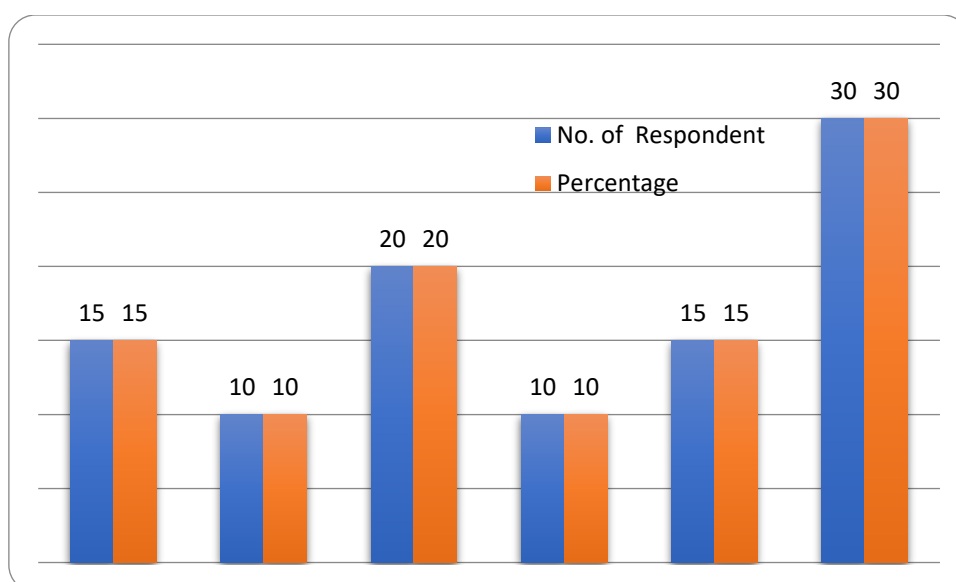


CHART 4.7.1: Showing main purpose of Quality Circle in an Organization

INTERPRETATION

The above table shows that the purpose of Quality Circle in an Organization 15% of Improvement in Human Relations, 10% of Promotion of Work Culture, 20% of Develop Team Work, 10% of Improve Productivity, 15% of Enhance Problem Solving Capacity and 30% of All of the Above.

INFERENCE

Majority (30%) of the responses are all the above.

TABLE 4.8.1: Showing the members in your quality circle are able to solve the problems and are participative

Particular	No. of Respondent	Percentage
Yes	70	60
No	06	06
Sometimes	34	24
Rarely	10	10
Total	120	100

Sources: Primary Data

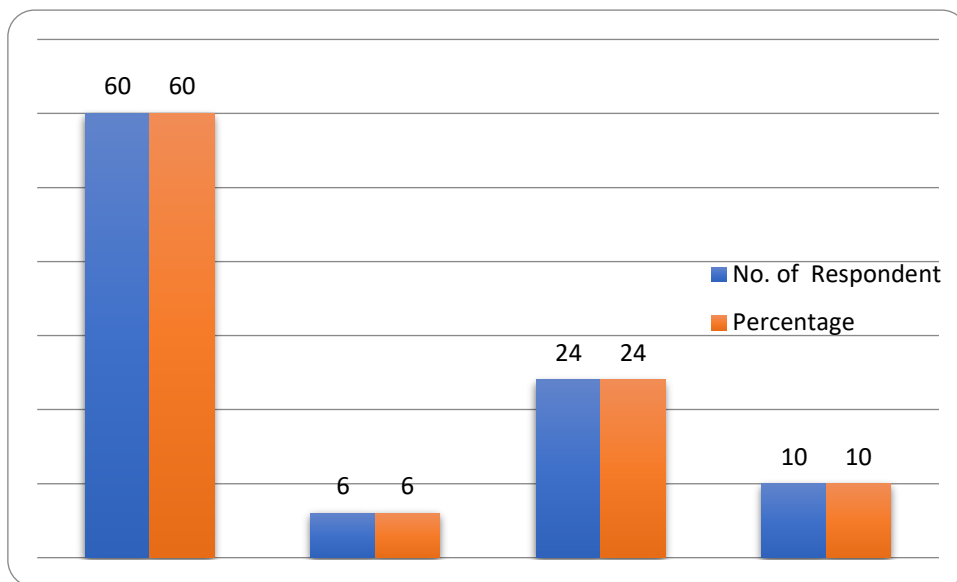


CHART 4.8.1: Showing the members in your quality circle are able to solve the problems and are participative

INTERPRETATION

The above table shows that the members in your quality circle are able to solve the problems yes 60% and are participative, 6% of No, 24% of Sometimes and 10% of Rarely.

INFERENCE

Majority (60%) of responses are solve the problem yes.

TABLE 4.9.1: Showing the Quality Circles are helpful in cost reduction and increases

Particular	No. of Respondent	Percentage
Yes	87	77
No	0	0
Somewhat	33	23
TOTAL	120	100

Sources: Primary Data

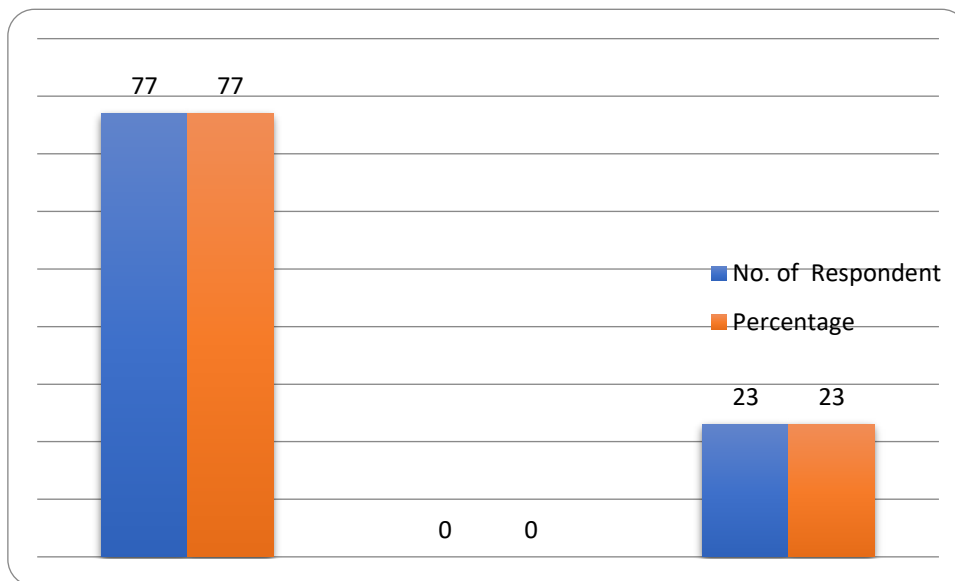


CHART 4.9.1: Showing the Quality Circles are helpful in cost reduction and increases productivity

INTERPRETATION

The above table shows that the think that Quality Circles are helpful in cost reduction and increases productivity 77% of Yes, 0% of No and 33% of Somewhat.

INFERENCE

Majority (77%) of the responses are increases productivity.

TABLE 4.10.1: Showing the preferably Quality Circles should meet

Particular	No. of Respondent	Percentage
Whenever they need	05	05
When they are ready	30	20
Once in a fort night	05	05
Once in a week	90	70
TOTAL	120	100

Sources: Primary Data

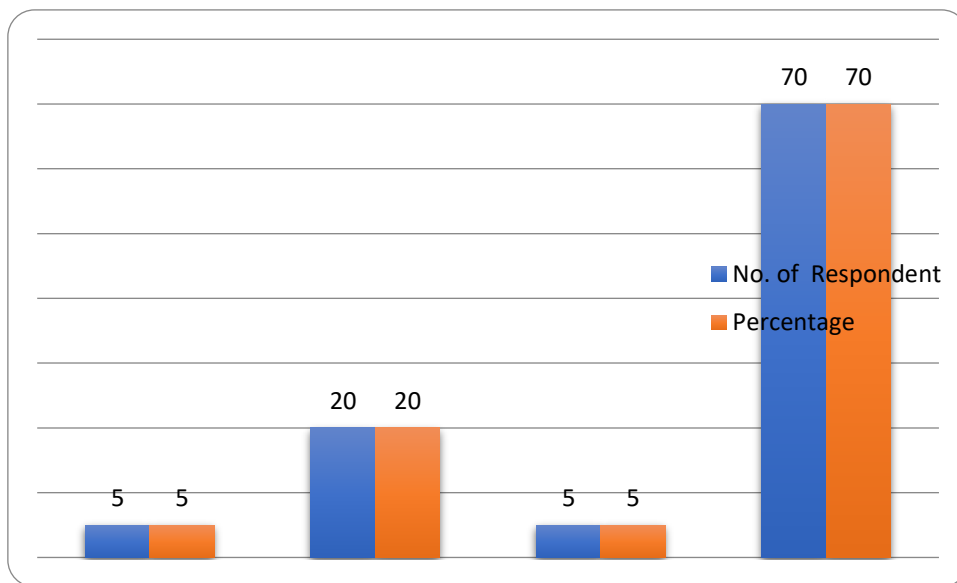


CHART 4.10.1: Showing the preferably Quality Circles should meet

INTERPRETATION

The above table shows that the preferably Quality Circles should meet 5% of whenever they need, 20% of When they are ready, 5% of Once in a fort night and 70% of Once in a week

INFERENCE

Majority (70%) of the responses are once in a week.

TABLE 4.11.1: Showing the management keep track on the activities of Quality Circle in your organization

Particular	No. of Respondent	Percentage
Yes	50	40
No	30	20
Sometimes	15	15
Rarely	17	17
Never	08	08
TOTAL	120	100

Sources: Primary Data

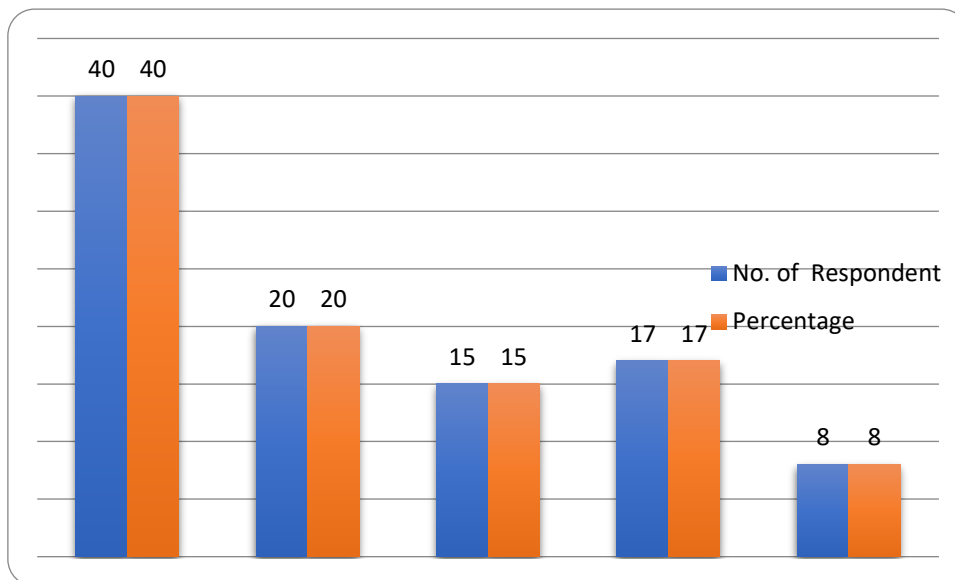


CHART 4.11.1: Showing the management keep track on the activities of Quality Circle in your organization

INTERPRETATION

The above table shows that the management keep track on the activities of Quality Circle in your organization of the respondent have 40% of yes, 20% of No, 15% of Sometimes, 17% of Rarely and 8% of Never

INFERENCE

Majority (40%) of the responses are yes.

TABLE 4.12.1: Showing the problems are resolved in an efficient manner by Quality Circle

Particular	No. of Respondent	Percentage
Yes	35	35
No	08	08
Sometimes	32	32
Rarely	15	15
Never	10	10
TOTAL	120	100

Sources: Primary Data

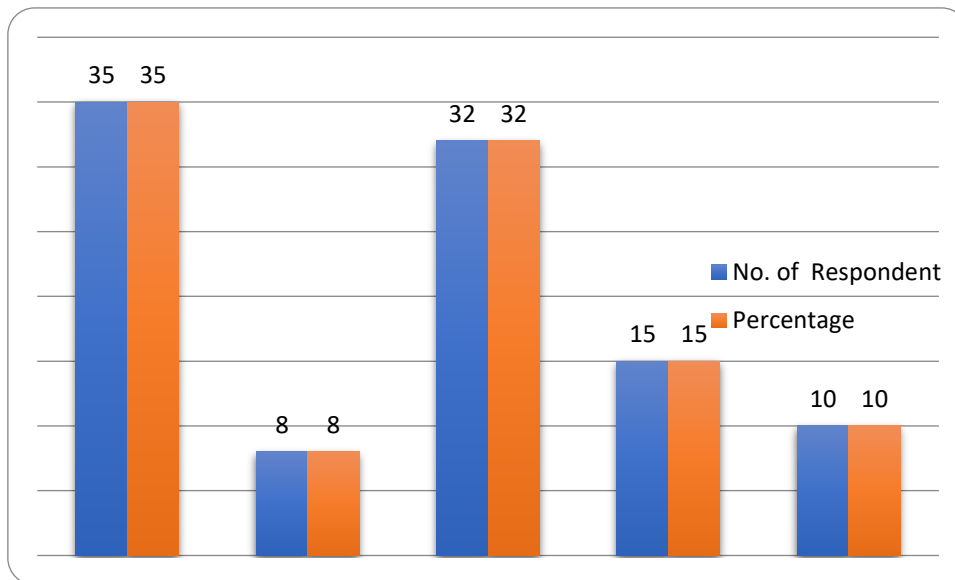


CHART 4.12.1: Showing the problems are resolved in an efficient manner by Quality Circle

INTERPRETATION

The above table shows that the problems are resolved in an efficient manner by Quality Circle 35% of Yes, 8% of No, and 32% of sometimes, 15% of rarely and 10% of Never

INFERENCE

Majority (35%) of the responses are resolved by quality circle.

TABLE 4.13.1: Showing the satisfaction level with the top Management role in Quality Circle of your organization

Particular	No. of Respondent	Percentage
Highly Satisfactory	24	24
Satisfactory	41	41
Average	25	25
Dissatisfactory	10	10
Highly Dissatisfactory	0	0
TOTAL	120	100

Sources: Primary Data

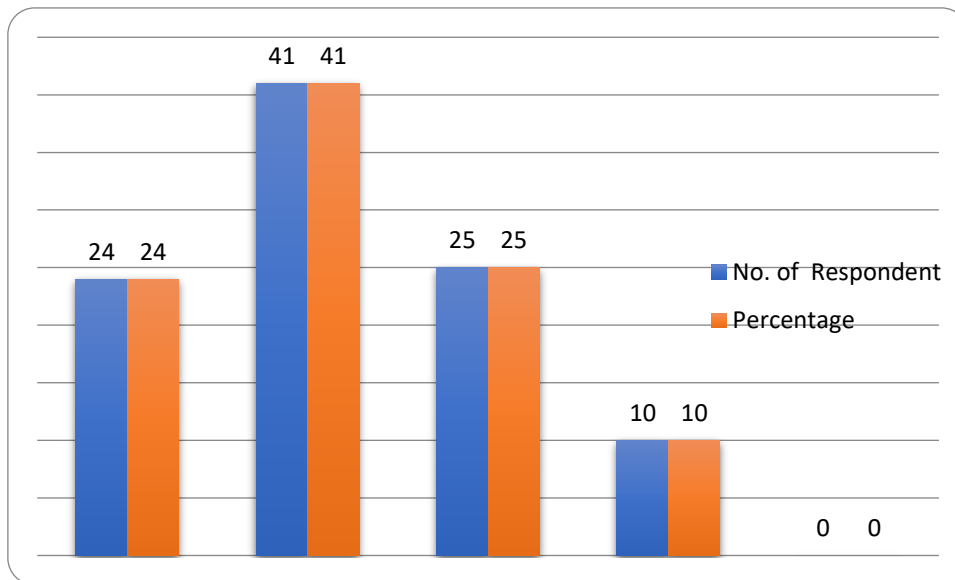


CHART 4.13.1: Showing the satisfaction level with the top Management role in Quality Circle of your organization

INTERPRETATION

From the above table shows that the satisfaction level with the top Management role in Quality Circle of your organization of the respondent have 24% of Highly Satisfactory, 41% of Satisfactory, 25% of Average, 10% of Dissatisfactory and 0% of Highly Dissatisfactory

INFERENCE

Majority (41%) of the responses are satisfactory.

TABLE 4.14.1: Showing the Quality Circle is not

Particular	No. of Respondent	Percentage
For individual's problem	38	38
A substitute for quality control department	32	32
For self & mutual development	15	15
Panacea for all ills	15	15
TOTAL	120	100

Sources: Primary Data

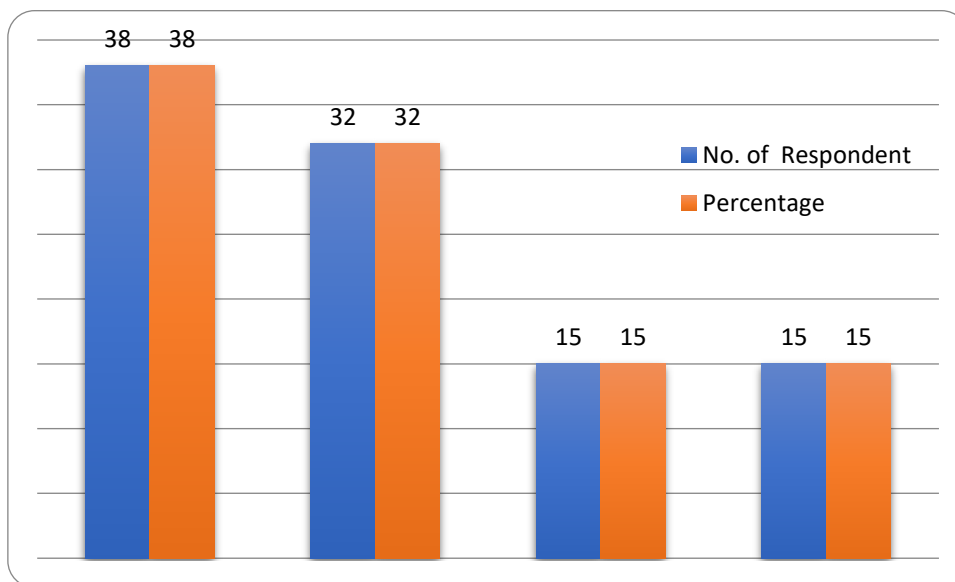


CHART 4.14.1: Showing the Quality Circle is not

INTERPRETATION

The above table shows that the Quality Circle of the respondent have 38% of For individual's problem, 32% of A substitute for quality control department, 15% of For self & mutual development and 15% of Panacea.

INFERENCE

Majority (38%) of the responses are individual problem.

TABLE 4.15.1: Showing the Quality circle identifies analyses and solves quality, cost reduction and any other problem in their work area

Particular	No. of Respondent	Percentage
Yes	65	65
No	05	05
Sometimes	10	10
Rarely	20	20
Never	0	0
TOTAL	120	100

Sources: Primary Data

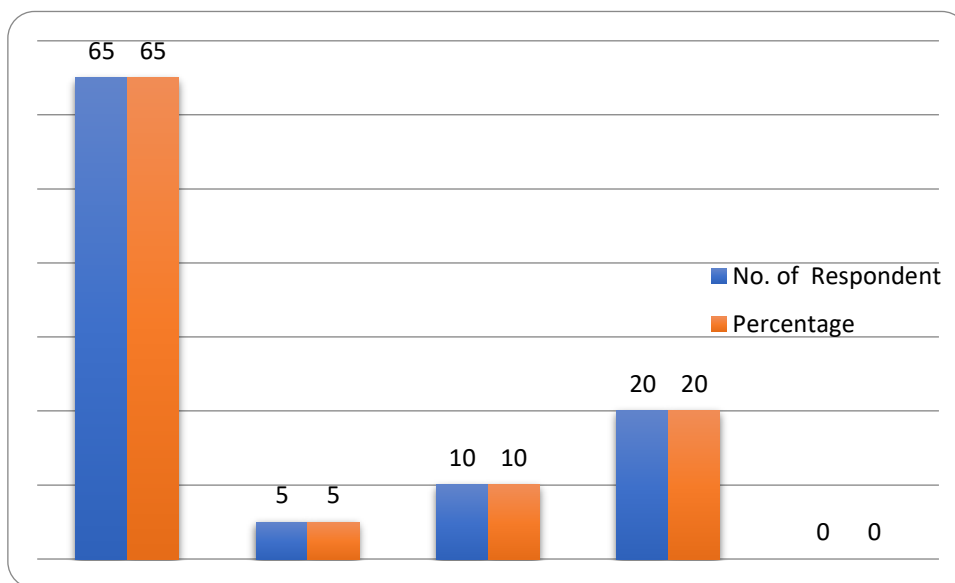


CHART 4.15.1: Showing the Quality circle identifies analyses and solve quality, cost reduction and any other problem in their work area

INTERPRETATION

The above table shows that the Quality circle identifies analyses and solve quality, cost reduction and any other problem in their work area of the respondent have 65% of yes, 5% of no, 10% of Sometimes, 20% of Rarely and 0% of Rarely

INFERENCE

Majority (65%) of the responses are yes.

TABLE 4.16.1: Showing the suggestions for change developed by your quality Circle been implemented

Particular	No. of Respondent	Percentage
Never	05	05
Some of the time	57	57
Most of the time	25	25
All of the time	13	13
TOTAL	120	100

Sources: Primary Data

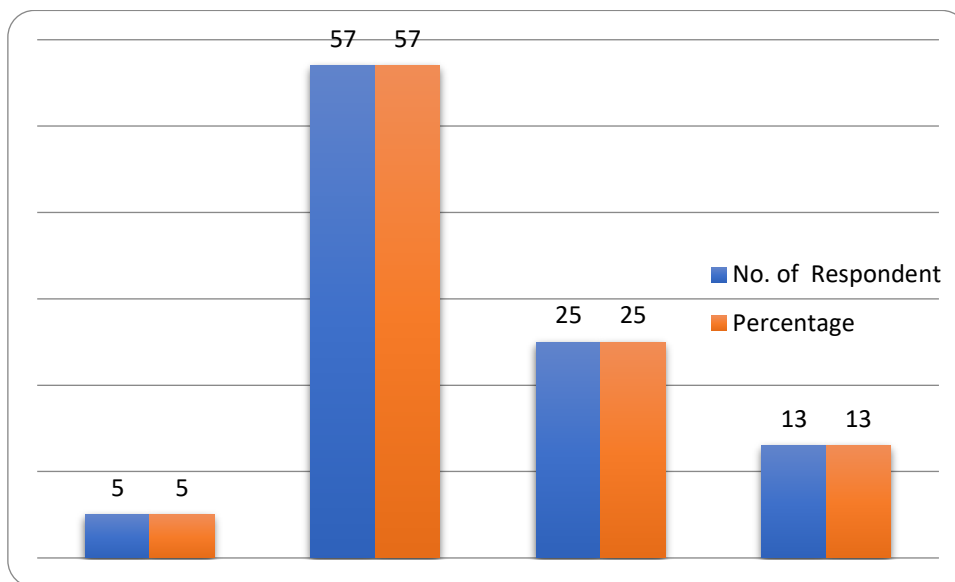


CHART 4.16.1: Showing the suggestions for change developed by your quality Circle been implemented

INTERPRETATION

The above table shows that the change developed by your Circle been implemented of the respondent have 5% of Never, 57% of Some of the time, 25% of Most of the time and 13% of All of the time

INFERENCE

Majority (57%) of the responses are some of the times.

TABLE 4.17.1: Showing the effective of Quality Circle in developing solutions to problems

Particular	No. of Respondent	Percentage
Not effective at all	10	10
Somewhat effective	54	54
Very effective	36	36
TOTAL	120	100

Sources: Primary Data

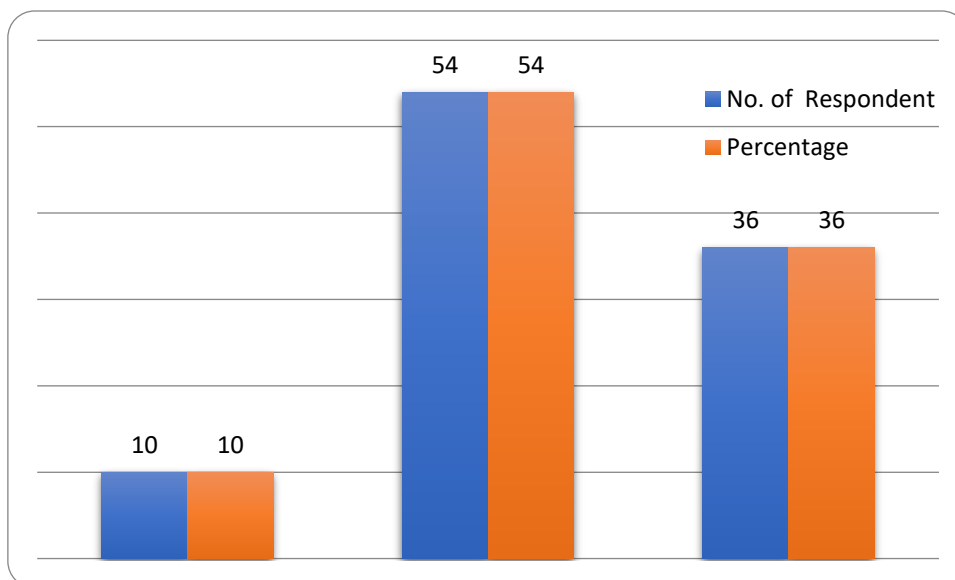


CHART 4.17.1: Showing the effective of the Quality Circle in developing solutions to problems

INTERPRETATION

The above table shows that the Quality Circle in developing solutions to problems of the respondent have 10% of Not effective at all, 54% of Somewhat effective and 36% of Very effective

INFERENCE

Majority (54%) of the responses are some effective.

TABLE 4.18.1: Showing the satisfied with Quality Circle process in your organization

Particular	No. of Respondent	Percentage
Very dissatisfied	0	0
Dissatisfied	10	10
Can't decide	15	15
Satisfied	45	45
Very satisfied	30	30
TOTAL	120	100

Sources: Primary Data

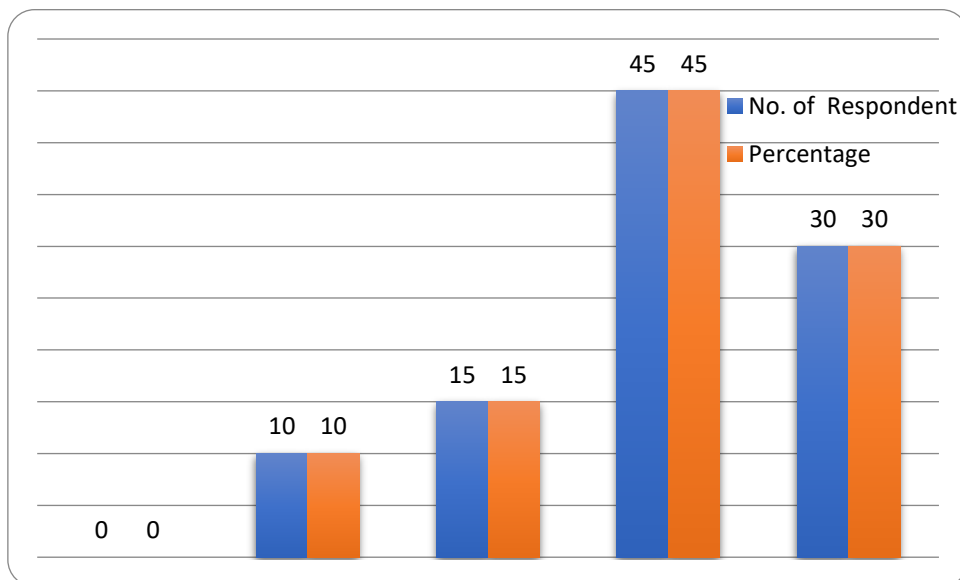


CHART 4.18.1: Showing the satisfied with Quality Circle process in your organization

INTERPRETATION

The above table shows that the Quality Circle process in your organization of the respondent have 0% of Very dissatisfied, 10% of Dissatisfied, 15% of can't decide, 45% of Satisfied and 30% of Very satisfied.

INFERENCE

Majority (45%) of the responses are satisfied.

TABLE 4.19.1: Showing the quality circle develops a participative environment in the organization

Particular	No. of Respondent	Percentage
Yes	70	60
No	50	40
TOTAL	120	100

Sources: Primary Data

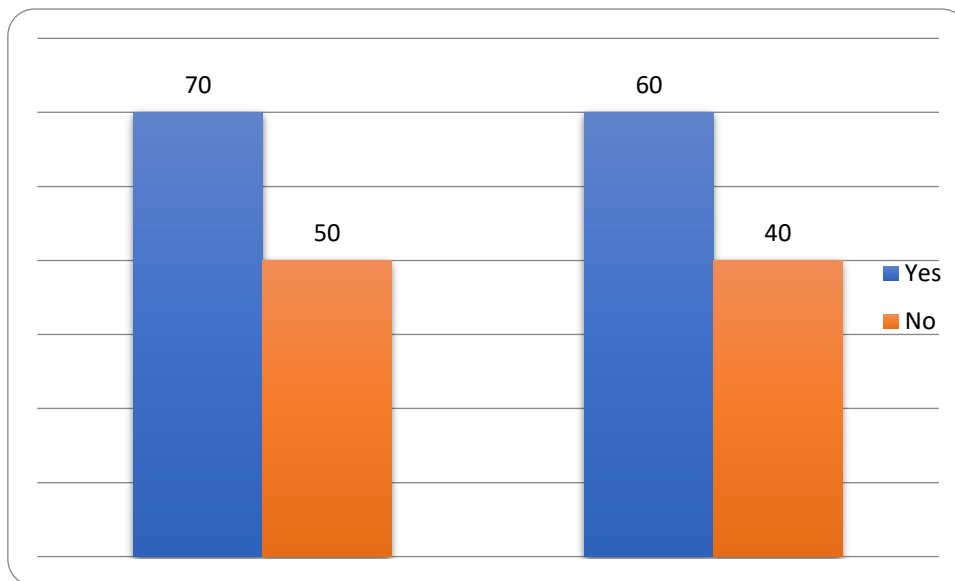


CHART 4.19.1: Showing the quality circle develops a participative environment in the organization

INTERPRETATION

The above table shows that the quality circle develops a participative environment in the organization of the response have 60% of yes , 40% of No

INFERENCE

Majority (60%) of the responses are yes.

TABLE 4.20.1:Showing the Quality Circles are helpful in cost reduction and increases productivity

Particular	No. of Respondent	Percentage
Yes	30	30
No	40	40
Somewhat	30	30
TOTAL	120	100

Sources: Primary Data

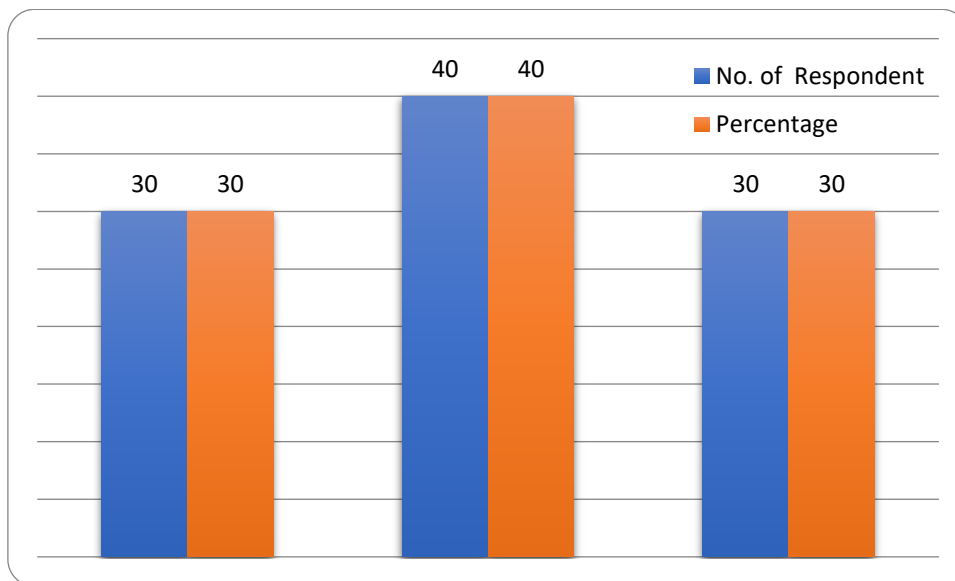


CHART 4.20.1:Showing the Quality Circles are helpful in cost reduction and increases productivity

INTERPRETATION

The above table shows that the Quality Circles are helpful in cost reduction and increases productivity of the response have 30% of yes , 40% of No,30% of somewhat.

INFERENCE

Majority (40%) of the responses are no.

4.2 Chi square method

4.2.1 To test age of the respondents and satisfaction level

Null Hypothesis (H₀): There is no association the Gender and general satisfaction level of the respondents and the satisfaction level

Alternative Hypothesis (H₁): There is an association the Gender and general satisfaction level of the respondents and the satisfaction level

$$Chi - square = \sum \frac{(O - E)^2}{E}$$

Where, O – Observed Value

E – Expected Value

Impact Gender	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree	Total
Male	4	12	17	20	5	58
Female	8	5	19	15	15	62
Total	12	17	36	35	20	120

INFERENCE

The calculated value, 3.33 is less than the critical chi-square value, 14.94, null hypothesis is accepted.

Hence, there is no association between the Gender of the respondents and their satisfaction level

4.3 ONE WAY ANOVA TEST

Table 4.3.1 Hypothesis set between age of the respondents and the rate your satisfaction level with the top management role in quality circle of your organization

Null Hypothesis:

Ho = There is no statistically significant relationship between age of the respondents and the opportunities for value addition of fish products will improve the livelihood of fishermen in your district

Alternate Hypothesis:

H₁ = There is a statistically significant relationship between age of the respondents and the opportunities for value addition of fish products will improve the livelihood of fishermen in your district

Descriptives								
Age								
	N	Mean	Std. Deviation	Std. Error	95% Confidence Interval for Mean		Minimum	Maximum
					Lower Bound	Upper Bound		
Agree	48	3.44	1.687	.244	2.95	3.93	1	5
Disagree	20	3.40	1.501	.336	2.70	4.10	1	5
Neutral	39	3.72	1.701	.272	3.17	4.27	1	5
Strongly agree	8	2.25	1.165	.412	1.28	3.22	1	4
Strongly disagree	5	2.60	1.517	.678	.72	4.48	1	4
Total	120	3.41	1.647	.150	3.11	3.71	1	5
Agree	48	3.44	1.687	.244	2.95	3.93	1	5

Disagree	20	3.40	1.501	.336	2.70	4.10	1	5
Neutral	39	3.72	1.701	.272	3.17	4.27	1	5
Strongly agree	8	2.25	1.165	.412	1.28	3.22	1	4
Strongly disagree	5	2.60	1.517	.678	.72	4.48	1	4

ANOVA					
Efficient					
	Sum of Squares	Df	Mean Square	F	Sig.
Between Groups	17.782	4	4.445	1.675	.161
Within Groups	305.210	115	2.654		
Total	322.992	119			

INFERENCE

This is the table that shows the output of the ANOVA analysis and we have a statistically significant difference between our group means. We can see that the significance level is 0.161, which is more than 0.005, therefore, there is a statistically significant relationship between age of the respondents.

CHAPTER 5

FINDINGS, SUGGESTIONS AND CONCLUSION

5.1 FINDINGS

- 77.8% of the respondent have 18-24 age of the response
- 55.6% of the respondent have male Gender Criteria
- 55.6% of the respondent have undergraduate Qualification Criteria
- 55.6% of the respondent have professional Occupation Criteria
- 88.9% of the respondent have married Marital Status Criteria
- 55% of the respondent have to solve company problem Primary aim of quality circle
- 30% of the respondent have all of the above main purpose of Quality Circle in an Organization
- 60% of the respondent have yes members in your quality circle are able to solve the problems and are participative
- 77% of the respondent have yes Quality Circles are helpful in cost reduction and increases productivity
- 70% of the respondent have once in a week Most preferably Quality Circles should meet
- 40% of the respondent have yes management keep track on the activities of Quality Circle in your organization
- 41% of the respondent have satisfactory satisfaction level with the top Management role in Quality Circle of your organization
- 38% of the respondent 35% of the respondent have yes problems are resolved in an efficient manner by Quality Circle

- have individual problem Quality Circle
- 65% of the respondent have yes Quality circle identifies analyses and solve quality, cost reduction and any other problem in their work area
- 57% of the respondent have sometimes change developed by your Circle been implemented
- 54% of the respondent have somewhat effective was the Quality Circle in developing solutions to problems
- 45% of the respondent have satisfied are you with the Quality Circle process in your organization
- 60% of the respondent have yes quality circle develops a participative environment in the organization
- 40% of the respondent have No Quality Circles are helpful in cost reduction and increases productivity

5.2 SUGGESTION

Problem of high gas consumption was identified and a solution of putting a solar heater was proposed and implemented through the quality circle. The various steps for the implementation of the quality circle were followed. Around 38 % of savings and hence increase in the productivity was achieved by the implemented modification. The whole activity demonstrates how quality circles can take up the problems in the work area related to productivity improvement and contribute to significant savings and increase in productivity.

5.3 CONCLUSION

Majority of employees are participating in the QC projects apart from their day to today accomplishment of task. Quality Circle was introduced in organization, the participation level is five percentages now the participation level is ninety percentages and their achievement in QC Projects have increased internally over and above sixty percentages. There is a supportive atmosphere for Quality Circle participants, each and every employee are showing good response for doing projects in Quality Circles. The company wants to implement more innovative ideas to increase the level of participation to hundred percentages and therefore to increase their employee's standards.

REFERENCES

- Chiragkumar S. Chauhan, Sanjay C. Shah, Shrikant P. Bharagalikar, (2014) “Improvement of Productivity by Application of Basic Seven Quality Control Tools in Manufacturing Industry”, International Journal of Advance Research in Engineering Science & Technology, pp-15-19.
- Anad Jayakumar A, C. Krishnaraj, (2015) “Quality Circle – Formation and Implementation” International Journal of Emerging Researches in Engineering Science & Technology, Vol – 2 Issue-2.
- Jyoti Prakash Majumdar, B. Murali Manohar, (2011) “How to make Quality Circle a success in Manufacturing Industries”, Asian Journal on Quality, Vol-12, Issue 3 pp-244- 253.
- Vinod S. Gorantiwar, R.L. Shrivastava, (2014) “Identification of Critical Success Factors for Quality –Productivity Management Approach in Different Industries”, International Journal productivity and Quality management, Vol.-14 No. 1, pp -66-106
- P. Aravindan, S. R. Devandasan,(1996) “An Expert System for Implementation Successful Quality Circle Programmes in Manufacturing Firms”, International Journal of Quality & Reliability Management , Vol.-13 No.7, pp 57-68.
- Shantanu Welekar, Shantanu Kulkarni,(2013),“Quality Circle to Improve Productivity”, International Journal of Engineering Research and Applications (IJERA), Vol. 3, Issue 2, pp.814-819

- Clive Goulden, (1995) "Supervisory Management and Quality Circle Performance An Empirical Study", Journal of Management Development, Vol.-14 No.7, pp-15-27
- Govindaraj Kumaresan, Rahulram Sridhar, Ramlingom Velraj, (2011) "Performance Studies of a Solar Parabolic Through Collector with a Thermal Energy Storage System", Energy, Elsevier, Vol.-47, pp-395-402
- Soteris A. Kalogirou, "Solar Thermal Collectors and Applications", (2004), Progress in Energy and Combustion Science, Vol.-30, PP-231-295.
- V. Dudley, G. Kolb, M. Sloan and D. Kearney, (1994)" SEGS LS2 Solar Collector-Test Results", Report of Sandia National Laboratory,
- R. Divyaranjani and Dr. D. Rajasekar. A Research on Effectiveness of Training and Development on Worker's Productivity in Automobile Manufacturing Companies with Reference to Chennai City. International Journal of Civil Engineering and Technology, 8(6), 2017, pp. 19 –30.
- Saurav Dixit, Amit Kumar Pandey, Satya N Mandal And Sanjeev Bansal A Study of Enabling Factors Affecting Construction Productivity: Indian Scenario,. International Journal of Civil Engineering and Technology , 8(6), 2017, pp. 741–758
- A. Suresh and Dr. N. Somasundaram, A Study on Impact of Barcode and Radio Frequency Identification Technology on Maximized Productivity in Manufacturing Industries at Sipcot, Chennai. International Journal of Management, 8(1), 2017, pp. 13–20.

BIBLIOGRAPHY

- Quality circles were originally described by W. Edwards Deming in the 1950s. Edward E. Lawler III and Susan A. Mohrman, "Quality Circles After the Fad", Harvard Business Review, January 1985. <https://hbr.org/1985/01/quality-circles-after-the-fad>
- Munchus, George (1983). "Employer-Employee-Based Quality Circles in Japan: ". The Academy of Management Review. **8** (2): 255–261. doi:10.5465/amr.1983.4284735. JSTOR 257753. PMID 10263059. <https://www.jstor.org/stable/257753?seq=1>
- Nayak, P. Rangath; John Ketteringham (1994). Breakthroughs! How the Vision and Drive of Innovators in Sixteen Companies Created Commercial Breakthroughs that Swept the World. Rawson Associates. ISBN 978-0892562947 <https://archive.org/details/breakthroughs00naya>

APPENDIX-I

QUESTIONNAIRE

1. Age

- a) 18-24
- b) 24-30
- c) 30 & above

2. Gender

- a) Male
- b) Female

3. Qualification

- a) Undergraduate
- b) Graduate
- c) Post Graduate
- d) Professionals

4. Occupation Criteria

- a) Business
- b) Service
- c) Professionals

5. Marital Status Criteria

- a) Married
- b) Unmarried

6. Primary aim of quality circle

- a) To solve company's problem
- b) To develop people
- c) To improve the image of the organization
- d) To motivate people to work

7. Main purpose of Quality Circle in an Organization

- a) Improvement in Human Relations
- b) Promotion of Work Culture
- c) Develop Team Work
- d) Improve Productivity
- e) Enhance Problem Solving Capacity
- f) All of the Above

8. Do you think that members in your quality circle are able to solve the problems and are participative

- a) Yes
- b) No
- c) Sometimes
- d) Rarely

9. Do you think that Quality Circles are helpful in cost reduction and increases productivity

- a) Yes
- b) No
- c) Somewhat

10. Most preferably Quality Circles should meet

- a) Whenever they need
- b) When they are ready
- c) Once in a fort night
- d) Once in a week

11. Does the management keep track on the activities of Quality Circle in your organization

- a) Yes
- b) No
- c) Sometimes
- d) Rarely
- e) Never

12. Does the problems are resolved in an efficient manner by Quality Circle

- a) Yes
- b) No
- c) Sometimes
- d) Rarely
- e) Never

13. Rate your satisfaction level with the top Management role in Quality Circle of your organization

- a) Highly Satisfactory
- b) Satisfactory
- c) Average
- d) Dissatisfactory
- e) Highly Dissatisfactory

14. Quality Circle is not

- a) For individual's problem
- b) A substitute for quality control department
- c) For self & mutual development
- d) Panacea for all ills

15. Quality circle identifies analyses and solves quality, cost reduction and any other problem in their work area

- a) Yes
- b) No
- c) Sometimes

16. Have the suggestions for change developed by your quality Circle been implemented

- a) Never
- b) Some of the time
- c) Most of the time
- d) All of the time

17. Effective of the Quality Circle in developing solutions to problems

- a) Not effective at all
- b) Somewhat effective
- c) Very effective

18. Are you satisfied with the Quality Circle process in your organization

- a) Very dissatisfied
- b) Dissatisfied
- c) Can't decide
- d) Satisfied
- e) Very satisfied

19. Do you think quality circle develops a participative environment in the organization

- a) Yes
- b) No

20. Do you think that Quality Circles are helpful in cost reduction and increases productivity

- a) Yes
- b) No
- c) Somewhat

APPENDIX-II

ARTICLE

A STUDY OF QUALITY CIRCLES MANAGEMENT TOWARDS MANUFACTURING INDUSTRY

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ABSTRACT

Quality Circles (QCs) are a popular tool to get solved work related problems, mainly in manufacturing organizations by groups of workers themselves by following a prescribed methodology. By solving the problems and also making desirable improvements, quality circles contribute in increasing the quality, productivity and safety of the operations. More importantly the workers develop a positive and problem solving attitude by participating in the QC activities and derive more job satisfaction. The project gives a step by step account of the implementation of the quality circles in a medium scale industry right from introduction to successful execution. A case study of implementing the QC concept Unit which illustrates how the QCs help in improving the productivity has been discussed. The factors which are important for the success of the quality circles are also explained. The serve as a guide and would be useful for the small and medium industries who are interested in introducing the quality circles

INTRODUCTION

Though the entire manufacturing industry is under constant pressure to continuously keep improving the quality, productivity, safety of its products and services, the pressure is all the more when it comes to small and medium scale industries. The small and medium scale industries do not have the wherewithal of the large scale industries to implement the elaborate quality management programmes which are in vogue. They feel the lack the financial, technological and managerial resources for execution of the modern quality concepts. However out of the various quality concepts, quality circles are much easier to implement even in the small and medium enterprises (SMEs) and can give substantial tangible and intangible benefits.

REVIEW of LITERATURE

Anad Jayakumar A etal. [2011] has discussed complete procedure for formation and implementation of Quality Circles in an organization including objectives of QCs activities operations of QCs, Structure of QCs, roles and function of members, coordinators, leaders and facilitators. The procedure for launching QCs in an organization and the training to be provided to the stake holders is also described.

Chiragkumar etal. [2012] has described 7 QCs tools and PDCA cycle which are at the core of solving the problems using the QC approach and discussed the application of the QCs to solve the problem of rejections in the taper roller bearings. Though Quality Circle is a low cost tool for implementing total quality management in an industry not all Quality Circle programmes achieve the desired success [Jyoti Prakash

Majumdar, etal. 2011]. Quality Circle can fail at various stages due to organizational issues, circle formation issues, operational issues recognition issues etc. QCs awareness for the management and QC training for the workers are very important for the success for the QC programme.

Shantanu Welekar and Shantanu Kulkarni [2013], have discussed the use of Quality Circle to improve productivity and compared the Quality Circles with, Quality Improvement Groups and Work Groups/Project Teams.

OBJECTIVE OF THE STUDY

Primary Objective

A study of quality circles management towards manufacturing industries.

Secondary Objective

- To find out effective participation of employees in Quality Circle .
- To reduce downtime of machines and equipments.
- To promote improved communications and team work between all level of the organization.

RESEARCH METHODOLOGY

Research is the process of systematic and in-depth study or search for any particular topic, subject or area of investigation, backed by collection, compilation, presentation and interpretation of relevant details or data. One of the most prominent problems that countries like India face with regard to their construction projects is quality of construction which is below par as compare to international standards. There is a need for finding substantial solutions to these problems quickly. Quick problem solving leads to improved quality of construction, maintenance of schedule etc.

DATA ANALYSIS AND INTERPRETATION

PERCENTAGE ANALYSIS

1.The Quality Circles are helpful in cost reduction and increases

Particular	No. of Respondent	Percentage
Yes	87	77

No	0	0
Somewhat	33	23
Total	120	100%

INTERPRETATION

From the above table shows that the think that Quality Circles are helpful in cost reduction and increases productivity 77% of Yes, 0% of No and 33% .

2. The management keep track on the activities of Quality Circle in your organization

Particular	No. of Respondent	Percentage
Yes	50	40
No	30	20
Sometimes	15	15
Rarely	17	17
Never	08	08
Total	120	100%

INTERPRETATION

From the above table shows that the management keep track on the activities of Quality Circle in your organization of the respondent have 40% of yes, 20% of No, 15% of Sometimes, 17% of Rarely and 8% of never.

FINDINGS

1. 77% of the respondent have yes Quality Circles are helpful in cost reduction and increases productivity.

2. 65% of the respondent have yes Quality circle identifies analyses and solve quality, cost reduction and any other problem in their work area.

3. 70% of the respondent have once in a week Most preferably Quality Circles should meet

SUGGESTION

Problem of high gas consumption was identified and a solution of putting a solar heater was proposed and implemented through the quality circle. The various steps for the implementation of the quality circle were followed. Around 38 % of savings and hence increase in the productivity was achieved by the implemented modification. The whole activity demonstrates how quality circles can take up the problems in the work area related to productivity improvement and contribute to significant savings and increase in productivity.

CONCLUSION

Majority of employees are participating in the QC projects apart from their day to today accomplishment of task. Quality Circle was introduced in organization, the participation level is five percentages now the participation level is ninety percentages and their achievement in QC Projects have increased internally over and above sixty percentages. There is a supportive atmosphere for Quality Circle participants, each and every employee are showing good response for doing projects in Quality Circles. The company wants to implement more innovative ideas to increase the level of participation to hundred percentages and therefore to increase their employee's standards.