The study of the factors of success as well as failures in the implementation of TQM in the industries in INDIA (case study conducted at the units @ Mysore and Bangalore)

[1]Arun Raj Urs.V , Ramaswamy S.[2], Vanitha.R.Bhargav [3],Asokkumar.s[4], Soumya .K[5] .And Preethi. M[6]

[1]arunraj_ursv@yahoo.co.in

Director -TTL College of Business Administration, I Main, Saraswathipuram, Mysore -,PIN-570009, Karnataka, INDIA, ph: 001 - 0821- 2340642R- 001 – 0821 -2411523

[2]rama_s_v@yahoo.com

Branch Manager, CGBK, and professor @ TQM school, Mysore-24 ph:001-0821-2483572

[3]vanithatqm@yahoo.com

HOD, TQM School, Mysore-24: PIN-5700024, PH:001- 0821-2445995

[4]asokahrm@yahoo.com

Director, SAIMAR,CHITODE-B-School ,Erode,638-102 Tamilnadu PH 001-:0424-2535171

[5]Sou17kum@yahoo.com

.Faculty, Presidency college, Bangalore-560078, ph-001-080-26590462,

[6] preethi_um@rediffmail.com

Asst Professor, TTL College of Business Administration, Mysore -570009, ph: 001-0821-541513,

ABSTRACT:

The quality movement caught on in the industries in India by 1985 in a big way after liberalization initiatives was taken by the Government of India by 1991, as competition from all over the world started putting pressure on the Indian industries to excel and have international alliances in the form of collaboration.

By this study we wanted to understand how these quality focused companies could succeed in their journey of TQM implementation. What were the factors of their success and what were their pitfalls .The objective of our study is specific to finding out the factors of success as well as failures in the implementation of TQM in the industries in INDIA,

A survey in the industries at Mysore and Bangalore industries, which have implemented TQM or are in the process of implementing TQM, were investigated with the use of questionnaires and by discussing with five industries selected for study by our team of five researchers and a guide.

Only four major areas were considered for study and they are:

Quality circle (team building),
Kaizen and OFI (opportunities for improvement)
The quality tools, advocated by Deming and others.
The Human Relations Factors used by these industries.

The units in which the study was undertaken are:

1) TVS Motor Co Ltd, Mysore
2) Bharat Electronics Ltd, Bangalore
3) BPL, Bangalore
4) JK Tyres Ltd, Mysore and Bangalore
5) Toyota Kirlosker Ltd, Bangalore

The study has revealed that some factors have contributed and some have not contributed to the implantation of TQM, because of either macro or micro aspects, unique to the Indian environment. These may be the guiding factors for industries, in future, in their path of implementing TQM.

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THE FULL PAPER IS PRESENTED IN THE NEXT PAGES:

INTODUCTION TO QUALITY:

Mankind has been in the pursuit of perfection in any field, be it art, literature, music, science or the very life itself & the way it is lead. The life we see today, with its cultural splendor or spiritual wealth or the glittering material progress one sees around, particularly in the west, is the result of an unending journey of mankind towards perfection, recourse toward consistent improvement for a better tomorrow: better lifestyle, better way of living & overall to be a better human being. This is the goal of Total Quality Management, when it comes to the question of an organization.

Pursuit of any business organization is perfection, not just for this day, or the present year, but for the life time of an organization, i.e., perpetually. Profit can be defined as progress, security & stability of an industry. Profit could also be defined as the quantum of happiness of employees and the growth of their standard of living. Profit is also defined under TQM as the delight of customer. Profit is the other name for stability, longevity, growth of the organization. The social commitment of the industry is to create employment, secure life & remuneration for its employees, by way of expanding markets & better quality in their products and services, day after day, by better design, better delivery, better satisfaction, and better service after sales based on the changing needs and requirements of the customer.

Introduction to quality movement in the world: Evolution of TQM

The father of TQM, Dr.Deming, was born with the century, was an American management consultant, who revolutionized the idea of quality, gave us its definition, spirit & implementation by a new management philosophy and protocols, based on the foundations of statistics and logic. Dr.Deming (1900-94;Profound Knowledge) was followed by Dr.Juran (1905-99; Quality Trilogy), Dr. Kauro Ishikawa (1915-89; CWQC; father of cause & effect diagram), D.B.Owen , Eli Goldrath (theory of constraints), Eliyahu (variation) , R Fukunda (C&EDAC), Hildebrandt(TQM), Philip Crosby (Quality

is Free), Dr.Joyce's Orsivi and other great quality teachers ,who laid a solid foundation for the new theory of management & quality, that will stand the test of time in the new millennium

Quality Redefined by Demings:

Total quality management could be defined under Deming's framework as follows:

"Quality" is to satisfy customer requirements continuously,

"Total Quality "is to achieve quality at lowest cost,

"Total Quality management" is to obtain total quality by involving everyone in the organization, with total commitment of top management in the process.

The background for the evolution of total quality management:

During the initial stages of Quality Revolution, America was in the forefront of promoting a quality culture. At the end of Second World War, when Japan started to rebuild its economy, it borrowed heavily from America. The demand for quality specialists resulted in a number of experts becoming prominent and some of them attained the status of "GURU". Some of the well known Gurus are:

1) Dr. W. Edward Deming
2) Dr. Joseph M. Juran
3) Dr. Philip. B. Crosby
4) Dr. Kaoru Ishikawa

Deming advocated 14 points that are listed below.

Create constancy of purpose for continual improvement of product and service - adopt the new philosophy for economic stability - cease dependency on inspection to achieve quality-end practice of awarding business on price tag alone - improve constantly and forever the system of production and service - institute training on the job -adopt and institute modern methods of supervision and leadership - drive out fear-break down barriers between departments and individuals - eliminate the use of slogans, posters and exhortations - eliminate work standards and numerical quotas.- remove barriers that rob the hourly worker of the right to pride in workmanship - institute a vigorous program of education and retraining - define top management's permanent commitment to ever-improving quality and productivity

Dr.Juran advocated and prophesized the philosophy of 'Quality Trilogy' with following the foot steps:-build awareness for the need and opportunity for improvement - set goals for improvement - organize people to reach the goals - provide training throughout the organization - carry out projects to solve problems - report progress - give recognition - communicate results - keep score - maintain momentum by making annual improvement part of the regular system and processes

of the organization. He also greatly stressed on Top-management's commitment to quality movement as the foremost factor of success for TQM to take off.

Traditional thinking would say that quality is *conformance to specifications,* that is, does the product do what it was designed to do? Some feel that this definition is the only meaningful definition of quality, because conformance is something that can be measured.

Quality According to Philip Crosby

We must define quality as *"conformance to requirements"* if we are to manage it. Thus, those who want to talk about the quality of life must talk about that life in specific terms, such as desirable income, health, pollution control, political programs and other items that can be measured. Crosby makes a good point. By defining quality in terms of conformance, we avoid making unreasonable comparison. Is Rolls-Royce a better quality product than a Toyota Corolla? Not necessarily. The Toyota may be a higher quality product relative to what it was designated to do.

This does not tell the entire story, however. Just as beauty is in the eye of the beholder, so is quality in the mind of the customer. If the customer is not happy with the product, it is not high quality. Viewed in this way, quality is a measure of the conformance of the product to the *customer's needs*.

Why is this different? Conformance to specifications assumes a given design and specifications resulting from that design. Conformance to customer needs means that the design of the product is part of the evaluation. Given two washing machines with comparable repair records, what determines which one the customer will buy? The answer is a combination of aesthetics, features and design. Viewing quality in this broader way is both good and bad. It is good in that it gets to the heart of the issue: quality is what the customer thinks it is. It is bad in that it makes it difficult to measure quality and then difficult to improve it.

Evolution of quality movement : JAPAN – US - INDIA

Quality Movement in Japan :

During the World War II, the Japanese economy was completely disrupted and Japan was in desperate conditions. The first task, immediately after war, was to restore industrial production. Before the war, Japan had become known as an exporter of cheap goods of very poor quality. For survival, Japan reversed its old policy and decided to establish a new image and reputation for exports of high quality goods at low prices.

In 1950, through the efforts of Dr. Edward Deming, the Statistical Quality Control (SQC) approach was introduced in Japan and was taken up enthusiastically by engineers and plant managers as well as the top management of industries. A large number of engineers were trained in SQC techniques. By 1960, in the course of 10 years or so, the proportion of industrial firms using SQC and the associated methods had become larger than that in USA or in any other country of the world. The result was a spectacular improvement in

quality coupled with an appreciable reduction in cost of production, which made it possible for Japan to enter the world market on competitive terms and become a major exporting country in a very short time.

Training of SQC personnel is essential but not enough. Japan has shown that it is necessary and possible to make SQC a truly management movement. Dr. K. Ishikawa of the Tokyo University also contributed significantly to the quality movement in Japan.

Because of the colossal scale of organization of educational and promotional programs and also because of the involvement of the general public on a large scale, Quality Control (Q.C.) has developed and is gaining strength in Japan more than in any other country of the world and is bringing about continuing improvement of quality and lowering of cost of Japanese goods in both domestic and export markets. The rate of economic growth increased to 9 to 10 percent per year and the national product doubled in 7 to 8 years. From 1950 to 1970, in the course of 20 years of quality movement in Japan, the per capita income has increased roughly by four times. During the same period, per capita national income in India increased by less than 20 percent.

The US "Quality Revolution":

The decade of the 1980s was a period of remarkable change and growing awareness of quality by consumers, industry and the government. During the 1950s and 1960s, when "Made in Japan" was associated with inferior products, US consumers purchased domestic goods and accepted their quality without question.

During the 1970s, however, increased global competition and the appearance of high quality products in the market led US consumers to consider their purchasing decisions more carefully. They began to notice differences in quality between Japanese and US made products, and they began to expect and demand high quality and reliability in goods and services at a fair price. Consumers became more apt than ever before to compare, evaluate and choose products critically for total value - quality, price and serviceability. Government safety regulations, product recalls mandated by Consumer Product Safety Commissions and rapid increase in product-liability judgments have changed society's attitude from "let the buyer beware" to "let the producer beware". Businesses have seen that increased attentiveness to quality is vital for their survival. Quality excellence became recognized as a key to world-wide competitiveness and was heavily promoted throughout the industry.

Most major US companies instituted extensive quality improvement campaigns, focused not only on improving internal operations but also on satisfying external customers. One of the most influential individuals in the US quality revolution was W. Edwards Deming, whose program entitled "If Japan can why can't we?" was televised by NBS in 1980. The widely viewed program revealed Deming's key role in the development of Japanese quality and in the transformation of the Japanese industry three decades earlier.
Soon, US companies started seeking his help and his leadership and experience helped many US companies such as Ford Motor Company, General Motors and Procter & Gamble to revolutionize their approach to quality.

As business and industry began to focus on quality, the US government recognized that quality is critical to the nation's economy. In 1985, NASA announced an Excellence Award for Quality and Productivity. The Malcolm Baldrige National Quality Award was established by the Act of Congress in 1987.

From the late 1980s and through 1990s, interest in quality grew at an unprecedented rate. Companies made significant strides in improving quality. By 1989, Florida Power and Light was the first non-Japanese company to be awarded Japan's coveted Deming Prize for quality. By the mid 1990s, thousands of professional books had been written on quality management and quality-related subjects. Consulting and training in quality had blossomed into an industry. Companies began to share their knowledge and experience.

Today, quality management and control is recognized as the foundation of business competitiveness and is proactively integrated with all business practices.

Future Challenges for US companies:

Despite widespread awareness of the importance of quality, many US companies still struggle to integrate quality into their management -efforts. The quality movement has resulted in many successes, but also in many failures. When a quality initiative fails, it is generally because of poor management, not the soundness of principles. Even though skeptics will continue to criticize the value and impact of quality management, the principles of quality will remain the foundation of high-performance management systems. Quality will have to be everywhere, integrated into all aspects of a successful organization. Quality professionals, meanwhile, "will need the business and functional skills in design, manufacturing and marketing to better contribute to their organization's long term success. Embracing quality at that level and to that degree is the only way to compete successfully in the digital age".

Quality Movement in India

Quality has been a tradition in India, and monuments, relics, handicrafts, gems, jewelry and craftsmanship have woven Quality into our heritage. But while quality was a way of managing business in the US and Japan in the 1950s, it was not so in India. The Quality Movement was consolidated in the 1980s in the Indian industries, to bring about a synergy of resources, by the pioneering efforts of Confederation of Indian Industries (CII).

Walter Shewart, the father of statistical quality control, visited India for a short period of three months during 1947-48 and initiated the SQC movement through visits to factories, personal discussions and lectures.

Dr. Edward Deming, who taught the Japanese the means of applying the "Plan-Do-Check-Act" cycle (known as Deming Cycle), came to India in the early 1950s. While the Japanese attributed their success to learnings from the two American Gurus, Dr. Deming and Dr. Juran, the rest of the world was lagging behind until the 1970s when the effect began to hurt businesses. The formal launch of TQM movement in the US in the early

1980s triggered a movement for quality in India, and in 1982 the quality control circle (QCC) was born. Some among the companies launching quality control circles first were public sector undertakings - Bharat Electronics Ltd and Bharat Heavy Electricals Ltd. A movement also began in Nasik under the umbrella of CII, when a small group of companies began to practice some of the quality circle techniques and showed some results. Later, CII provided a focus and an impetus to the quality movement by forming the TQM division in 1987. By then the focus had shifted from Quality Circles to Quality Management. The movement on Quality Circles was consolidated by the Quality Circle Forum in India (QCFI). Prof. Ishikawa, founder of the Quality Movement in Japan, was invited by CII to come to India to address the Indian Industry, in 1986. Also, some companies began to set up "Quality Improvement Teams" for setting up the path of continuous improvement. CII organized its first major seminar with Juran in 1987. The mid 80s also began the process of socio-economic reforms, setting a trend for competition and liberalization. CII set up the TQM division with the help of 21 companies who agreed to support the cause by pooling in resources and pledging to start the journey of TQM. The chief executives of these companies formed the National Committee on Quality, which brought into focus the need to build awareness, and "Quality Month" was declared to be an annual event to reinforce the message and spread it wider each year. CII also launched the first newsletter on quality.

The year 1987 brought the ISO 9000 standards into reality and visible strategies emerged from the European market to set a global trend towards standardizing and certifying Quality Systems. Since the European Market was a big market for Indian industries, CII organized training courses in ISO 9000 in 1989. Two years later, in 1991, the first company in India got certified for ISO 9000. From there onwards, the movement has gathered momentum and today more than 500 companies have secured ISO 9000 certification. The TQM movement today encompasses not only engineering industries, but also servicing and information technology industries. Today, TQM has become a thrust area in quality movement, as it was realized that through ISO 9000 certification alone companies cannot become world class or competitive. Many chief executives and senior management personnel visited Japan and started serious effort with enthusiasm to become the market leaders. CII organized domestic study missions to prove the applicability of TQM concepts in India. Sharing experiences, building each other's strengths became essential ingredients towards the idealization of the TQM concepts as accepted universally. CII developed through application research a set of nine modules for training on TQM.

CII worked with the Government of India to initiate a drive to create awareness on quality and customer orientation in State and Central Government Departments, Financial Institutions and Banks, Indian Railways, Textile Corporations, Leather Institutions and Educational Institutions including IITs and IIMs, Also, "National Quality Council" was promoted and integrated into an overall thrust for a National Movement. CII organized the launch of a National Quality Campaign in 1992, led by the Prime Minister of India and the "Quality Summit" organized by CII has now become an annual feature across the country.

The companies practicing TQM have implemented some common features such as "people movement" (through quality control circles, quality improvement teams,

suggestion schemes, Kaizen and JIT), Quality Assurance Systems (ISO 9000), Vendor Development, Statistical Process Control and other tools and techniques such as Quality Function Deployment, Reliability and Design of Experiments.

The future thrust of the quality movement in India would be in the following areas:
(i) Application Research where we need to understand the relationship of what has to be done with the context in which it needs to be done. This requires a depth of understanding and will be possible through synergy of industry and academics.

(ii) Grooming of facilitators through local people being trained as facilitators of TQM/ISO 9000 in every organization willing to implement TQM.

(iii) Experience sharing to understand the means to get organizational performance through TQM.

(iv) ISO 9000 certification for small scale industries who are exporters or potential exporters.

(v) Environmental protection, safety and consumer protection by the industrial organizations through highly focused effort on quality enhancement.

Objective of the study:

The objective of the study is to find out the factors of success as well as failures in the implementation of TQM in the industries in INDIA,

A survey of the industries at Mysore and Bangalore, which have implemented TQM or in the process, was carried out to find out success and failure factors.

We wanted to find out the contributing factors and the areas of weakness in the implementation of TQM. Four major areas were considered and we proceeded with the study.

THOSE FOUR FACTORS OF RESEARCH WERE:

1. **Quality circle (team building)**
2. **Kaizen and OFI (opportunities for improvement)**
3. **The quality tools, advocated by Deming and others.**
4. **The Human Relations Factors used by these industries**.

HR issues studied are: incentive systems, motivational plans, scrapping annual appraisal systems, driving out fear aspect, productivity based incentive, awards and rewards for suggestions, for improvement /innovation.

THE UNITS IN WHICH THE STUDY WAS UNDERTAKEN ARE:

1) The unit of TVS – Mysore
2) The units of BEL - Bangalore
3) The units of BPL - Bangalore
4) The units of JK Tyres Ltd - Mysore and -Bangalore
5) The unit of Toyota - Kirlosker Ltd – Bangalore

CASE STUDY:

First, the study of how TVS Company got the 'Deming' award was studied as part of research work:

The factors which were responsible for the TVS giant to get the prestigious Deming Award are:

I) Quality circle : outstanding points : -

The study revealed that Quality Circle movement and Kaizen had excellent results in the production department.

II) Kaizen – continuous improvement –outstanding points: -

The workers have contributed lots and lots of suggestions for improvement and such initiatives have been rewarded (monetarily as certain percentage of saving and value addition it has made to the product) faithfully by the top management leading to further enthusiasm from the peers.

To cite one example, two member operators have suggested 3450 suggestions and implemented them, and they were awarded a total sum of more than 20 lakhs.

III) Lean production – excellent points

The lean production system was adopted at the shop floor successfully.

IV) FIVE – S: excellent points. 5- S –house keeping systems are in place.

V) SIX SIGMA and process control:

- The six sigma methodology, control charts, and pareto diagrams are every day's routine for all engineers and supervisors of production units at TVS.
- Even the workmen knew to use control charts which were essential for process control.
- In addition they used CNC based production units.
- Flexible automation systems and new technology is installed in injection molding and painting sections.

VI) Team work and co-operation: Full points

Team work is the being religiously practiced in all departments

VII) International standards and documentation: Full points

QS Systems of Toyota standards in addition to ISO and TS systems were in place.

VIII) Training on JOB and Quality tools: Excellent points

To make TQM successful training is given (three days) in the use of statistical methods, pareto diagram, control charts, cause and effect diagram, and to show to the employees how important is the contribution of each employee in shaping the quality of final product.

IX) Targets for Zero defects: Excellent points

Each day engineers draw the pareto diagram with reference to defect percentages, and have weekly, monthly targets to reach better performance levels.

X) Quality consciousness and bringing every one in the organization to the quality movement: - Excellent Points

They celebrate Deming's, Juran's, Ishikawas's birthdays, with much enthusiasm, to motivate the stakeholders.

XI) Deming's fourteen points: Outstanding grades

TVS–Deming Award Case study conclusions:

These undaunted efforts for more than a decade have landed TVS the prestigious Deming Award. A team consisting of workmen, supervisors, representatives of supervisors and top executives, along with the CEO went to Japan to receive the Deming Award on behalf of company..

Final Research study at other units:

The other companies were also investigated into by the research group and they found many pitfalls in the implementation of TQM in Indian industries. The pitfalls are listed in the final summary. These pitfalls are because of lack of complete commitment from top-management and basic infrastructural facilities in India, and the whole consciousness is not a wholesale meal and is spread around all the suppliers of the TQM - oriented industries visited and researched into.

FINAL CONCLUSIONS:

1. The study has revealed that many factors like quality circle, use of Pareto Diagrams, and problem solving techniques such as 'Cause and Effect Diagram' and 'Six Sigma' methodology have shown great success, to an extent of 85 to 89 %.

2. Only in some industries Kaizen has succeeded in greater proportion. In some cases it has failed .In some industries and units of TVS and BEL it has succeeded. Others (researchers want to keep the names in confidence) have failed because of lack of training and top-management's lack of interest in the process.

3. Many factors such as Business Process Re-engineering, Just in Time, Kanban and Lean Production System have shown a back seat, because of improper transportation of goods

and infrastructural facilities between cities (suppliers to main industry) 'Zero-Inventory' is yet a dream in most TQM-based industries.

4. The HR issues like, scrapping the annual rating system and replacing it with leadership have shown only around 60% success, and some industries were reluctant to change to the new system, and were in the hold of the old way of appraisal systems. Some have shifted to productivity based annual rating systems, which have not contributed to the TQM movement to the full extent.

5. The culture of TQM has been quite successful in most of the TQM implemented industries, but their internal customers were not fully satisfied with the involvement and commitment of top-management. But those industries where TQM has failed have largely the same point. They scored very less and were not driven by trust and faith on the employees, and were controlling the industry with a fear factor.

FINAL WORD:

THE LONG UN-ENDING JOURNEY OF QUALITY SHALL HAVE THE SEED IN THE HEART OF THE TOP-MANAGEMENT AND THE TREE THAT SPROUTS SHALL HAVE TO GROW IN THE HEARTS OF EACH EMPLOYEE AND ALL INTERAL CUSTOMERS, WITH THE WATERING OF FAITH, TRUST AND MOTIVATION OF SELF-RESPECT, PRIDE OF WORK, AND RECOGNISING EACH STAKEHOLDER AS EQUAL AND CAPABLE OF CONTRIBUTING TO THE QUALITY MOVEMENT.

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