CHAPTER 4

CONTEMPORARY LITERATURE ON TQM - A REVIEW

The Longer the Island of Knowledge, the Longer the Shoreline of Wonder- Ralph, W. Sockman.
4.1 INTRODUCTION

Total Quality Management (TQM) as well, like Quality, is an abstract and hence defining it in a comprehensive unique terms and language acceptable universally, is almost impossible. Nevertheless, some definitions and explanations had been provided to highlight the multiple views expressed by many practitioners and researchers on this apparently simple subject namely TQM. Even well known quality gurus had advocated differing approaches:

- Crosby (1979) – 4 Absolutes and Zero-Defect concept.

The odyssey towards TQM is a long, steady, sustained and demanding one. A plethora of research works, on the tools, techniques, critical dimensions and other organizational requirements for the effective implementation of TQM, had emerged, as a result of quality revolution (Sureshchander et al. 2001 a). Virtually thousands of research papers and hundreds of books were written resulting in the duplicity and multiplicity of views. The plenitude of quality strategies indicate that the pursuit of quality improvement is not a finite task, but a continuous journey with no definable destination other than the wish to strive for continuous improvement towards excellence. The subject of quality management had, has been a matter of great interest and concern for business and academia alike.
The paradigm of TQM applies to all enterprises, both manufacturing and service. Of late, with the integration of Organizational Development (OD) into the Quality System, the TQM philosophy and approaches had started finding firm root in Human Resources Development as well. This view was adduced by the comments of Rama (1994), that 'the importance of TQM strategy was achieving impounds quality, productivity, customer satisfaction and employees' morale, in manufacturing and service sectors. The planning and execution of the TQM was a lengthy process requiring, understanding, involvement and total dedication of all personnel in diverse functions. Accordingly, the present review of the contemporary literature on TQM had been categorized under the following topics.

- TQM in Manufacturing.
- TQM in Service.
- TQM in Human Resources.

4.2 TQM – DEFINITIONS

Total quality management (TQM) is a management philosophy under which an organization operates, which seeks to improve quality and increase customer satisfaction. The philosophy is holistic, applying to everything (total). Its aim is to satisfy all customers, internal and external, specifically users of the customers' products and services (quality), and it follows the example set and reinforced in the organization (management). TQM is not only a management process, but also a corporate philosophy, which recognizes that customer needs and business goals are inseparable. To be successful, it must be top management-driven and focus on maximizing efficiency and effectiveness, and promoting market dominance through improving systems and processes, error prevention, and aligning business objectives.
and customer needs. The main objective of TQM is to establish a management system and corporate culture to ensure that customer satisfaction is enhanced. The organization's culture is defined by and supported for the constant attainment of customer satisfaction through an integrated system of tools, techniques, and training. It involves a systematic method for continuous improvement of organizational processes, resulting in high-quality products and services (Sashkin et al. 1991), (Waldman 1994).

Lindsay et al. (1997) defined it as "total quality is a set of philosophies and concepts by which management systems can be directed to the efficient achievement of the organization's objectives to assure ongoing, comprehensive customer satisfaction and maximum stakeholder value." Total Quality Management is the integration of all functions and processes within an organization in order to achieve continuous improvement of the quality of goods and services. The goal is customer satisfaction (Swift et al. 1998). Shiba et al. (1993) defined TQM as a mass movement intended to reach every one in the company. Kanji et al. (1993, 1999) termed it, as "TQM is an approach for continuously improving the quality of every aspect of the business life i.e. it is a never ending process of improvement for individuals, groups of people and the whole organization." It is an integrated approach and a set of practices that emphasizes \textit{inter alia}, management commitment, continuous improvement, customer focus, long range thinking, increased employee involvement, teamwork, employee empowerment, process management, competitive benchmarking, etc. (Ross 1993).

Total Quality Forum defined TQM as 'a people-focused system that aims at continual increase in customer satisfaction at continually low cost. TQM is a total system approach (not a separate area or program), and an integral part of the high-
level strategy. It works horizontally across functions and departments, involving all employees, top to bottom, and extends backwards and forwards to include the supply chain and customers chain (Rampey, et al. 1992). TQM has been described as a management philosophy and a way of thinking that has helped many organizations towards achieving world-class status (Yusof et al. 2000). Merlyn and Parkinson (1994) defined TQM as 'the integration of quality management methods, concepts and beliefs into the culture of the organization to bring about continuous improvement. Wilkinson (1992) viewed TQM as a dichotomy of soft (e.g. customer awareness, human resource management) and hard (e.g. statistical process control SPC and other quality tools) issues, while Motiska and Shilliff (1990) perceived leadership, procedures, data and information handling, on-going audits, and performance measurement as the basic principles.

4.3 BENEFITS AND ELEMENTS OF TQM

There is unity in diversity in agreeing that the adoption to TQM is a value adding and quality image-enhancing activity with immense benefits, such as (Sprouster 1990), (Francis 1990), (Ferguson 1991), (Evans et al. 1993):

- Improving Customer Satisfaction.
- Enhancing the Quality of Goods and Services.
- Consistency in Quality.
- Reducing Waste and Inventory thus Reducing Cost.
- Improving Productivity and Process Efficiency.
- Reducing Product Development Time.
- Increasing Flexibility in meeting Market Demands.
- Improving Customer Service and Delivery Times.
Better Utilization of Human Resources.
Higher Utilization and Realization Rates at Lower Cost.
Shift in Management Thinking.
Communication and Employee Morale.

The list is neither exhaustive and nor complete. In short, TQM is judged as success (Loiselle 1989).

TQM, which is a combination of two independent spheres of functions – namely Quality in Totality and the Management of it. Hence, confusion, complexity and diversity exist in understanding and advocating TQM. Various authors, researchers and practitioners had identified different aspects of TQM and called them by various terminologies such as: factors, critical-factors, concerns, constructs, elements, critical-elements, dimensions and so forth. These aspects were forged with the perception and philosophy of the advocator, resulting in diversity of approaches towards TQM. Some of the dimensions, tools and techniques employed for shaping TQM approaches are:

- Corporate Quality Culture.
- Top Management’s Commitment.
- Visionary Leadership.
- Quality Policy and Objectives (Quality Planning).
- Training.
- Robust Design of Products and Processes.
- Supply Chain Management and Supplier Quality Management.
- Process Management.
- Quality Data and Reporting.
- Employee Relations.
- Workforce Management.
Customer Focus.
Customer Involvement.
Benchmarking.
Statistical Process / Quality Control.
Employee Empowerment.
Employee Involvement.
Strategic Quality Management.
Business Process Re-engineering / Re-engineering.
Concurrent Engineering.
Quality Circle.
Role of Quality Control Department.
5-S Schemes.
Quality Improvement Programmes.
Just-in-Time.
Quality Function Deployment.
Total Productive Maintenance.
Value Engineering.
Cost Reduction / Control.
Zero-Defects.
Flexible Manufacturing System.

The number might increase steadily as more and more experts enter in the field.

4.4 TQM IN MANUFACTURING

Almost every exponent of quality had covered the most important branch of the business – namely, the manufacturing, extensively. The effectiveness of quality control that is exerted will determine the speed, the quality and the cost of production. (Thomas 1965). American Society for Quality Control (ASQC) defined
Quality Systems, as "the collective plans, activities and events that are provided to ensure the product, process, or service, will satisfy given needs" (ASQC-1987). In the 'big picture', quality management is an element in the World-Class Manufacturing approach for achieving and sustaining a competitive advantage (Flynn et al. 1989, 1994), (Giffi et al. 1990). 'The world-class quality is the production of goods and services that not only are the quality and price leaders in one country but which are capable of capturing and retaining market share elsewhere in the world. It is on the basis of performance superior to competition, as well as providing trouble free service to customers up to and beyond their expectations. World-class quality is essential for those who wish to compete in the domestic and international markets' (Edwin 1992). Edwin also suggested 25 key points to achieve world-class quality. Joseph et al. (1999 a) believed that the means to achieve the world-class-manufacturing capability would be through the practices of TQM.

Total Quality Management is an Integrative Management concept for continuously improving the quality of goods and services delivered through the participation of all levels and functions of the organization (Evans et al. 1993). TQM is nothing more, nothing less than the 'system approach' to management, perhaps in more comfortable clothing; TQM is a clone of system approach (Roth 1999). Juran defined TQM as the set of management processes and system that create delighted customers through empowered employees, leading to higher revenue and lower cost (Ross 1999).

Erdman (1986) developed a quality system with two fundamental goals: orienting everyone in the organization towards the customer and continuously improving products and services. Narusky (1989) advocated five elements for TQM system: the process of initiation, the cultural change within Aero jet and its supplier,
sustaining approach, operational tools i.e. SPC, QFD etc., and the results that were achieved. The essence of TQM is defined as the search for operations for improvement. (Grunenwald1989). TQM advocates continuous improvements through worker involvement in manpower, methods, machine and material improvements. (Hansen 1989). Pang et al. (1991) had coined two taxonomy i.e. Quality Intervention and Supporting Quality Management Tools for effective implementation of TQM. The Quality Intervention consisted of six quality checkpoints: management of up stream systems, incoming quality assurance, in process quality management, outgoing quality assurance, pro-active assurance of customer satisfaction, and the over all quality management processes. The second dimension consisted of seventeen supporting quality management tools.

Guzzi (1990) brought out that the Reliability, Maintainability and Produceability (RM&P) as the building blocks of TQM and continuous improvement of weapon system. Reliability and maintainability strategies could adopt TQM concepts in selection of efficient vendors and establishment of design process (Yoo 1991). TQM efforts in purchasing tend to focus on supplier quality improvement (Frank 1990).

Different tools of quality control and management techniques were combined by the various practices resulting in innumerable combinations to the approach of TQM. TQM integrated the fundamental techniques and principles of Quality Function Deployment (QFD), Taguchi Methods, Statistical Process Control (SPC) Statistical Quality Control (SQC) Just-in-Time (JIT), Concurrent Engineering (CE), Quality Improvement Team (QIT), and Time Compression (TC) with the existing management tools into a structured approach (Aly et al. 1990), (Ginder1990), (Ferguson'1991). The corner stones of TQM approach were team problem solving and the use of six basic statistical tools: flow-charts, histogram, Pareto analysis,
control charts / check sheets, scatter diagram, and cause and effect diagram. (Crisp et al. 1992).

SPC was not only boosting product quality, but was also increasing plant productivity, cutting energy consumption, reducing inventory level and improving maintenance (Chowdhury 1986). Ashland chemical was dedicated to SPC / SQC, because customer wanted it (Hearn et al. 1987). SPC and SQC are powerful tools in maximizing productivity and minimizing waste, (Hunkar 1987), controlling the process for consistency (Bishop et al. 1987) and continuous improvement (Shaw 1989), (Robbins et al. 1991), (Whiteman 1993), (Hutchins 1995). SPC/SQC plays a significant role in machine diagnostic function by showing process trends that may point to a pending machine failure (Gibbs 1987), and improves reliability and process capability (Herrera et al. 1991). SPC/SQC being an in-process control could not be isolated from production process and had to be a real-time process (Whitten et al. 1990), in Open Industrial System (OIS) (Badavas et al. 1988). Krumwiede et al. (1996) suggested a Six-step procedure for implementing SPC study. Built-in sensors, capability studies and use of capability indexes were emphasized in SPC adoption (Reinertsen et al. 1991).

According to Sullivan (1986 a) TQC is a subset of Company-Wide Quality Control (CWQC) and it covered all the first through of seven stages of quality: inspection after production, quality control during production, quality assurance involving all departments, education and training, product and process design optimization for more robust function, the Taguchi loss function, and quality function deployment to define the 'Voice of the Customer' in operational terms. QFD is further broken down into 'product quality deployment' and 'deployment of quality function'. Three other concepts are also essential to QFD, i.e. the voice of the customer, counterpart
characteristics and quality tables (Sullivan 1986 b). Computer Aided Valediction Expert System (CAVE) was suggested to be integrated for validating the products as a part of TQM system (Simmonds 1990). Fishburn (1992) came out with the design, qualification, planning and scheduling as the phases of TQM and advocated the use of function analysis, task analysis, quality function deployment, product breakdown structure, work breakdown structure, and PERT.

QFD could be used as a strong relationship between supplier and the customer as a part of TQM. Also QFD Matrices could be combined to demonstrate the link between critical process parameters, critical part characteristics, technical requirements and customer requirements (O'Brien 1992). QFD integrates performance rises, economist concerns, and customer preferences in the concurrent product design process and it also improves the decision making design, resulting in optional design (Locascio et al. 1993). TQM system could adopt QFD during product design / development process (Hongen et al. 1996) which synergies quality system (Nagel et al. 1994). Haag et al. (1996) developed QFD for software quality improvement.

Re-engineering paradigm focuses on TQM (Tan et al. 1994), (Allen 1994), (Alexander 1995). Business Process Re-engineering (BPR) can maximize the benefits gained from continuous improvement (Foddy 1994). Re-engineering has supplanted TQM and alternates with TQM, allowing continuous improvements between periods of radical change (Fallah et al. 1995).

Total Preventive / Productive Maintenance (TPM) could give remarkable and sustaining benefits (Kennedy 1991), (Kelly et al. 1993) and profit (Willmatt 1994). Many practitioners had advocated the use of various other tools / techniques such as Concurrent Engineering (CE) (Neal 1991), (Frank 1992, 1993, 1994), (Jacobs 1993),
Just-In-Time (JIT) (McMurrer 1990), (Eade 1992), (Sundararajan et al. 1995), (Nyerges 1996); Value Engineering (VE) (Wu 1992); Bench Marking (BM) (Lema et al. 1995) for achieving and accelerating the implementation of TQM systems. Japanese 5-S practice: organization, neatness, cleanliness, standardization, and discipline would improve the quality of products and services (Ho et al. 1996).

Organizational Commitment to TQM and empowerment of technical team could result in the strategy to achieve six-sigma excellence (Conway et al. 1993). Carr (1994) also had advocated the use of six-sigma concept for achieving the quality goals that only the best company in the world could achieve. Motorola applies TQM to every aspect of its operation and six-sigma to every significant business process (Swift et al 1998). According to Juran et al. (1970), the Quality Costs were associated solely with defective products – the cost of making, finding, repairing or avoiding defects. TQM through cost control was recommended by Carter (1991). Grunenwald (1989), Koon (1996) and McConachy (1996) considered quality cost as a means of measurement of success of TQM. Activity Based Costing (ABC) was proposed to determine the tangible benefits and the visible increase in business performance by Letza et al. (1994). Total Quality Manufacturing is a flawless and waste-less production (Mani et al. 1998).

Quite a few researches (Puri 1991), (Pengelley et al. 1992), (Huyink 1996), (Hayden 1996) were in favour of implementing TQM through the implementation of Quality Management Systems such as ISO 9000, BS 5750. It lays down a strong foundation for TQM. The organization undergoes a cultural change during system registration effort (Dale 1996), (Majerczyk et al.1994), (Robinson 1995). The introduction of quality assurance through ISO 9000 was perceived as the most popular approach towards TQM in Indian Companies (Singh 1991), (NPC-IFC Group 1994), (Business
Today 1995). ISO 9000 certification is not an end but a means to an end. It is a foundation and not the building and much more needs to be done in building the house of TQM (Mani et al. 1997 b). Acharya et al. (2000) insisted to go beyond ISO 9000 certification.

Herber et al. (1993) studied the outcome of adopting and implementing TQM as a cultural intervention in an electronics industry. Ahire (1996 a) based his research on the Age of TQM implementation to analyse the success of TQM, and formulated a Eleven / Twelve constructs model (Ahire 1996 b), (Ahire et al. 1996). Silvestro (1998) had made a comparison between the manufacturing and service perspectives on TQM and created two models one for manufacturing TQM and another for service. Victor et al. (2000) developed a model in which the TQM role for line employees resulted in a duel work-design that required both standardized production and continuous improvement. Black et al. (1996) proposed a Ten critical factor model of TQM and compared it with the three factor models of Bradford's Nine / Ten factors and with that of Saraph's Eight factor model (Black et al. 1995). Naveh et al. (2000) had combined the measurement in the engineering spheres and measurement in the human factors to develop their framework on quality information system.

After several years of experience companies had accepted that the performance of business process should be increased by radical approach (BPR) and stepwise continuous improvement (CI). Kueng (2000) had developed a dual approach model for process-oriented organization. The performance indicators must be process-specific and must be derived from both the strategic enterprise-wide goals and the process goals (Kueng 2000). Quality Management Method (QMM) has positive effects on product quality and TQM can lead to improvement not only in product quality, but also in strategic business performance (Zhang 2000). Quality function
project groups (a cross-functional) are a good means of creating a win-win situation for all parties in organization (Steensma et al. 2000). As global competition intensifies, achieving ‘best practice’ and ‘world class’ performance is not just a desirable goal, but it is a necessity for survival (Prabhu et al. 2000).

4.5 TQM IN SERVICE

The service industry is fast moving to establish itself a prime slot in the business scenarios, as the manufacturing industries had done it so far. Goods and services are grouped together as products. The TQM philosophies, concepts, and techniques applicable to manufacturing could, typically, be applied to service industries as well, might be with certain adaptation to suit. That might be the reason why many practitioners and researchers alike clubbed together the service and manufacturing sectors in their approaches to quality improvement. Nevertheless, the service industry had started its own approaches towards TQM. Those approaches were based on the experience of other existing models. The literature on service quality might not be that abundant like that of manufacturing quality, yet sufficient research papers are available to comprehend.

Dedication to the customers, internal as well as external should be the critical theme of service industry. Six general targets for serving the customer are: high quality, flexibility, service, low cost, quick response and minimal variability (Schonberger et al. 1997) and suggested the following Ten dimensions of Service Quality.

- Reliability.
- Responsiveness.
- Competence.
- Approachability.
Crosby (1990) emphasized that while the tools of quality controls were useful and valuable, they must be put into perspective of understanding and meeting the customer requirements. Ackoff and Emery (Roth 1999) stated in their book titled, *On Purposeful System*, that, while the machines were 'purposive' (their purpose was assigned by the designer), the humans were 'purposeful'. People have needs, wants and also have values of their own and work for them (Roth 1999). Hence, service quality management should be based on human approach. Many service-oriented organizations had adopted TQM concepts to improve their performance.

Narausky (1989) had discussed the use of the TQM elements: the process of initiation, cultural change within and with its supplier, sustaining approach, operational tools, and results achieved, for quality improvement programmes in Aero Jet Ordnance. US Air Force had a structured approach to TQM through leadership initiative on innovation and continuous improvement (McCarthy 1994). Schools had adopted the concept of student as a customer / employee role combined with motivational principles and techniques to implement successfully the TQM philosophies (Helms et al. 1994), (Scharged 1994). The quality improvement in administrative area was based on teamwork (Grunenwald 1991). TQM principles are applicable to the regional and local government and academia when they address the economic and social problems at grass root level (Waldrop 1996).
The future in health care would be all about quality of service. The system started with quality policy and extended up to a comprehensive monitoring quality method. It was designed to look at the care being delivered (from the activities of the doctor at one end and the telephone operator at the other end). This was meant to result in a change of corporate culture in health care management (Fried 1991). The environment clean up programmes should be anchored on the three basic elements: planning, implementation, and review of the TQM approach (Lillian 1992).

Project management followed Zero-Defect concept to overcome the difficulties faced by the management in implementation (Redmill 1990). Project level technical services found a competitive factor in adopting quality-centred approach (Strong 1991). Quality assurance and Software Quality Assurance (SQA) were used for software system improvement and to have a defect free soft were product (Lowe et al. 1992). Common project mission with specific objectives, customer satisfaction, respect for people, management by facts, and continuous improvement were some of the tools used in construction industry for creating a win-win situation (Deffenbaugh 1993). Extension of supply chain management to create customer / vendor partnership was the tool adhered to for the improvement of quality in Telecom service (Eck et al. 1995). Kowloon Canton Railway Corporation had adopted ‘Customer satisfaction Index’ for continuing quality enhancement for both internal and external customers (Tam 1996).

The researchers and experts had postulated quite a few models on service quality. Parasuraman et al. (1985, 1988, 1993, 1994), (Cadotte et al. 1987) had defined the customers’ Perceived Service and Expected Service (P-E) quality in the service provided, as well as the terms Service Quality, Service Superiority, and Service Adequacy. They had also brought out the difference between them and measured
with the Satisfaction and Dis-satisfaction standards (CS/D). His concept on service quality deals with attitude, which is different from satisfaction (Parasuraman et al. 1988). Cronin et al. (1992) investigated how the service quality be conceptualised and measured and the relationship between service quality and the customer satisfaction.

Service Quality is based essentially on five dimensions — namely — core service / service product, human element of service delivery, systematisation of service delivery — non-human element, tangibles of service (service-scapes), and social responsibilities (Sureshchander et al. 2001 a, b). He also had evolved a Twelve-Element TQM Model for service quality and called it as Total Quality Service (TQS).

Other factors such as assets, finance, performance, etc., influencing customer satisfaction and service quality were also considered for analysis. Hackl et al. (2000) proposed that the value of intangible assets should concentrate on measuring the customer assets. The basic reasons for customer satisfaction measurement were: to provide stakeholders with reliable information about values and prospects of their investment, and to provide the management with information that allows for making good decision in their market behaviour. Agus et al. (2000) dealt with the correlation between TQM and customer satisfaction, factors contributing customer satisfaction on financial performance in comparison with competitors. Samson et al. (1999) concluded that elements of TQM leadership, people management and customer focus had significant positive effect on performance. Needless to say, the quality of software is of paramount concern to everyone, including users and developers (Parzinger et al. 2000).
TQM had entered into the banking industries as well. The macro-function quality consists of a set of activities carried out for the definition and attainment of the desired quality, both for products and services. It ought to cover the whole-life-cycle of the organization, its products and services (Bilich et al. 2000). They also proposed a macro-function model for banks. The UK market is already heavily banked and in order to keep their customers and attract new ones, it is necessary to establish the needs and expectations of those whom the financial companies seek to serve. They are to be customer-driven and total-quality concept based with zero-defect approach (Longo et al. 2000).

A number of Fiji companies had adopted the principle of TQM. Currently the Fiji National Training Council is providing incentives for adopting quality circles and ISO 9000 programmes. It will be introducing “Fiji Quality Award” to promote quality movement (Djerdjor et al. 2000). Herguner et al. (2000) undertook a study to measure the culture change through the implementation of TQM concepts in higher Education in Turkey. Culture change is invariably necessary for any success in implementing TQM in an organization and service quality aims to achieve that.

4.6 TQM IN HUMAN RESOURCE

The quality experts working on Total Quality Management (TQM) and the human resource management pioneers concentrating on the Organization Development (OD) struck a common point namely the Culture. The concept of culture, which is now considered for the theory of OD has its origin within anthropology (Kanji et al. 1997). The two almost parallel developments changed the courses and started merging their valued concepts and philosophies and created a common strategy for TQM and OD based on the attitude, culture, and wisdom of people who lead,
manage, and perform for Corporate Excellence. Harvey and Brown (1998) defined OD as 'an attempt to achieve corporate excellence by integrating the desires of individuals for growth and development with organization goals'. Corporate excellence being the vision of TQM, human source development automatically had become an integral part of TQM.

Total Quality Leadership (TQL) and Strategic Change Management (SCM) are the transformational elements of TQM (Dockstader 1995). Understanding of the TQM philosophy and top management commitment were needed for the success, which heavily relied on ‘thinking’ and not on static system of results and tools (Dobbins 1995). Total Self-Development (TSD) based on fearlessness and transcendentalism is the main criteria for TQM in human resource development area (Singh 1996). OD has Seven Concerns, which are applicable to TQM as well: Leadership, organization goals, planned improvement, problem solving and renewal process, teamwork, change agents / facilitators and individual skills (Lindsay et al. 1997). Drucker said that quality improvement would result from people improving the process and the management improving the system (Ross 1999). World-Class manufacturing is nothing but an attitude (Mani et al. 2000) to switch the philosophy of management, from control-based to value-based. TQM helps to promote a culture of trust, participation, teamwork, quality-mindedness, zeal for continuous improvement, continuous learning and ultimately, a working culture that contributes towards a firm's success and existence (Yusof et al. 2000).

TQM requires culture change. Quality was a function of employee 'knowledge' and 'interaction' rather than the just application of quality control technology (Robbins et al. 1991), (Chang et al. 1996). It required behaviour change of managers and engineers (Hayden 1992). Powell (1995) concluded that the tacit, resources,
behavioural, imperfectly imitable features (such as: open culture, employee empowerment, and executive's commitment), rather than mere TQM tools and techniques, would improve quality. People started talking about the need for culture change, empowerment organization-wide (Roth 1999), and effective leadership for successful TQM Programmes. Demski (1993), Danials et al. (1993), Johnson (1993) and Paul (1991) recommended for sharing the decision-making powers, with employees for quality transformation.

Employee involvement and participation in quality improvement teams, problem solving systems, and suggestion schemes would accelerate the quality movement (Naguib 1992) resulting in customer satisfaction, employee satisfaction, improvement in productivity, profitability, and product quality, and reduction in cost, and delivery time. TQM program may start with the employees through employee involvement. It may start with the process through process re-design (Process Re-Engineering Program) and / or with organizational initiatives (Plante 1992). Powell (1995) found an association between TQM and performance. Madu et al. (1996) also had brought out the association between the quality dimensions namely customer satisfaction (CS), employee satisfaction (ES), employee service quality (ESQ) and organizational performance.

Juhl et al. (2000) studied the way the quality leadership, human resource systems, manufacturing systems and company performance were related and whether the relationship was dependent upon a specific culture. They concluded that the choice of leadership style was crucial to the success of business operation and hence to the ultimate performance of the company.
As Juran emphasized, training and education are the foundation of any improvement and almost every practitioner of quality advocates training of people on Quality tools such as SPC / SQC (Westbrook 1991). Deming (1992) had insisted that the organization needed not only just the good people but also the people who could improve themselves with education and training. Environmental Protection Agency (EPA) recognizes human resources as the strongest asset of the quality programme and focuses on training (Johnson et al. 1992) which provides managers with tools to measure the effectiveness of their environmental programme.

TQM ideas and concepts were applied to individual's job performance and personal life. Personal quality checklist could enhance personal job performance, satisfaction, pride, and reinforce the organization-wide TQM initiatives. Experience suggested that those benefits could be sustained for years as improved working habits were discovered and established (Roberts et al. 1994). Joseph et al. (1999 b) investigated correlations between levels of quality management and levels of organizational factors i.e. Quality of Work Life (QWL), Organizational Climate (OC), and Communication. Mani et al. (1997 a) explained that the Total Quality was a convergence of two streams emanating from 'Knowledge' but taking two different routes: one through the adoption of tools and skills and the other through the path of values and culture as shown in Fig. 4.1. Chakraborty (2001) too had combined classical values and ethics with the management of an organization. He postulated that TQM was a consequence to Total Quality Mind, which was a cause and TQ Management, was the effect.
The use of motivation, instead of compulsion had been a major advancement in management. The human personality as a product of the past had been carrying with it the susceptibilities for motivation, which were internal, inherent and persistent. A cynical and a dichotomy of life had been developed, in which Success (however achieved) was the rule at work and the Moral Code was the rule at home. Such a double standard had to be changed (Thandaveswara 1989). Inspired work not only brings out higher production in his efficiency, but also gives great dividend of joy to the worker. To work in this way is the art of living that had been described in Vedas, especially in the Bhagavad Gita (Chinmayananda 1989 a). Such elated level of life comes from the synergic integration of ‘mind’ and ‘intellect’ - in other words ‘knowledge’ and ‘wisdom’, which brings prosperity and progress through continuous improvement (Chinmayananda 1989 b).

4.7 SUMMARY

The history of total quality was divided into four parts: the early technical systems development, the early management systems development, the early socio-technical systems development, and the era of the gurus (Lindsey et al. 1997). One could,
from the extensive and exhaustive contemporary literature available on TQM, summarise that they were addressed under the following generalized categories:

- Tools and Techniques.
- Organizational Performance
- Benefits.
- People Oriented Issues.
- Customer Oriented Issues.
- Demarcation between TQM and Non-TQM Firms
- Effect of Age of TQM Implementation.
- Social and Environmental Effects.

TQM is not a fixed method of management, which can be taught at all. It is not even a fixed objective for management, other than the total continuous improvement. TQM is evolving and, it is evolving rapidly (Macdonald et al. 1992). The principles of TQM are pivotal in creating products, which are perceived by customers, to be superior to the equivalent products from competitors (Chamberlain 1987). Numbers, measurements and statistics are at the heart of TQM. TQM began with SPC / SQC in achieving successful interaction between human system and measurement techniques (Simmons 1994). Terziovski et al (1999) found that there were significant differences in the relationship between TQM and organizational performance across industry sectors and different size companies, particularly on the effect of defect rates, warranty costs and innovation of new products. They also found that the organizations practicing TQM were more likely to achieve better performance in employee relations, customer satisfaction, and operational and business performance than those without TQM.
As Burati et al. (1993) asserted that there was no single universal cookbook approach to TQM implementation and the four generally emerged phases were:

- Exploration and Commitment.
- Planning and Preparation.
- Implementation.
- Sustaining.

The indicators of the success of TQM implementation were profit margin, return on total assets, turnover per employee, profit per employee, total assets per employee, fixed assets trend and average remuneration per year as the bottom line results (Oakland et al. 1994). TQM was described as the staircase to sustained excellence with success. The various tools, techniques, systems and the elements form its steps (Mani et al. 1997a). The height of the staircase depended upon the attitude and the goals of the organization (Mani et al. 1998, 2000). In a TQM environment standards were continuously challenged and improved and new standards were established only to be challenged and improved again (Hanson 1989). The clock was moving rapidly toward better quality and into a condition by which everyone might take pride in quality (Deming 1992).

Various TQM models and frameworks along with concepts and philosophies of TQM are reviewed in the next chapter.

Our Knowledge can only be Finite, while our Ignorance must Necessarily be Infinite - Sir Karl Popper.