CHAPTER-1

INTRODUCTION

The concept of quality has been with us since the dawn of civilization. As early as the creation of the world described in the Bible, when God looked at His creation; He pronounced “good” - i.e. acceptable in quality. Artisans and craftsmen’s skills and the quality of their work are described throughout history. Typically the quality intrinsic to their products was described by some attribute of the products such as strength, beauty or finish. However, it was not until the advent of the mass production of products that the reproducibility of the size or shape of a product became a quality issue (Sytsma, 2000, p.1).

According to the Oxford English Dictionary, the notion of quality includes all the attributes of a thing, except those of relation and quantity. The British Standards Institution (BSI) defines quality as the “totality of features and characteristics of a product or service that bear on its ability to satisfy stated or implied needs”. A more pragmatic definition is “to meet or exceed the expectations of customers” (Yeo, 2009, p. 63). In the management literature, the term quality has different meanings and has been variously used as “Excellence” (Peters and Waterman, 1982), “Value” (Feigenbaum, 1991), “Fitness for Use” (Juran and Gryna, 1988), “Conformance to Specifications” (Gilmore, 1974), “Defect Avoidance” (Crosby, 1979), etc (quoted by Cheng and Tam, 1997, pp. 22-23). Sallis (2002, p.13) cited examples of the overhead projector and ballpoint pens and exhorted in the name of quality, ‘they must do what they claim to do, and do what their customers expect of them’. Quality is thus a positive and dynamic idea achievable by design with meaningful investment; it is not a negative idea of absence of defect (Crawford and Shutler, 1999, p. 69). Crosby (1979, p. 17) viewed quality as "conformance to requirements" rather than "goodness, or luxury, or shininess, or weight". Hence, exact definitions of quality are not particularly helpful when actual ‘consequences flow from different meaning’ attached to quality (Sallis, 2002, p.38). The quality-journey is characterized by a customer-focused approach to continuous improvement of processes, products and services through an interdependent system of planning, implementing, evaluating and decision-making (Navaratnam, 1997, pp. 23). Idrus (1996, p.34) stated that, “what quality has done basically is shifted the
way organizations and their people think about themselves and about all the things that impact on them”. Sallis (2002, p.13) described that quality is not an end in itself, but a means by which the end product is judged as being up to (or not up to standards).

Then, there are different levels of difficulty in defining quality. The easiest is defining the quality of lifestyle and consumer product. Defining the quality of service is more complicated. This inadequacy in defining quality has been the precise problem of management of quality in the service sector. The issue gets far more complicated and nearly impossible as we move on to defining the quality of human beings, as it is shaped in education.

1.1 TOTAL QUALITY MANAGEMENT

Total Quality Management is an approach to the art of management that originated in Japanese industry in the 1950's and has become steadily more popular in the West since the early 1980's. Total Quality is a description of the culture, attitude and organisation of a company that aims to provide, and continues to provide, its customers with products and services that satisfy their needs. The culture requires quality in all aspects of the company's operations, with things being done right first time, and defects and waste eradicated from operations.

Many companies have difficulties in implementing TQM. Surveys by consulting firms (as reported by Stark, 1998, pp.1-2) have found that only 20-36% of the companies that have undertaken TQM have achieved either significant or even tangible improvements in quality, productivity, competitiveness or financial return. As a result, many people are skeptical about TQM. However, when we look at successful companies we find a much higher percentage of successful TQM implementation. Before the concepts and ideas of TQM were formalized, much work had taken place over the centuries to reach this stage. The section below charts the evolution, since its inception to the present times of TQM concepts.

Total Quality Management is a management approach that originated in the 1950's and has taken the world in its operational sweep since the early 1980's. Total Quality is a description of the culture, attitude and organisation of a company that strives to provide customers with products and services that satisfy their needs. The culture
requires quality in all aspects of the company's operations. Total Quality Management is a method by which management and employees can become involved in the continuous improvement of the production of goods and services. It is a combination of quality and management tools aimed at increasing business and reducing losses due to wasteful practices. TQM is a management philosophy that seeks to integrate all organisational functions (marketing, finance, design, engineering, and production, customer service, etc.) to focus on meeting customer needs and organisational objectives (Hashmi, 2002, p.1).

TQM views an organisation as a collection of processes. It maintains that organisations must strive to continuously improve these processes by incorporating the knowledge and experiences of workers.

The TQM Policy has two components: defect free product/service supported on time to customers, and advancing the state-of-the-art, which is a development process – to meet the rising expectations of customers in their product and service requirements.

There are a number of evolutionary strands with different sectors creating their own versions from the common ancestor. Hashmi (2002, p.1) stated that TQM is the foundation for activities, which include:

- Commitment by senior management and all employees
- Meeting customer requirements
- Reducing development cycle times
- Just In Time/Demand Flow Manufacturing
- Improvement teams
- Reducing product and service costs
- Systems to facilitate improvement
- Line management ownership
- Employee involvement and empowerment
- Recognition and celebration
- Challenging quantified goals and benchmarking
- Focus on processes / improvement plans
- Specific incorporation in strategic planning

This clearly shows that TQM must be practiced in all activities, by all personnel,
in Manufacturing, Marketing, Engineering, Research and Development, Sales, Purchasing, Human Resource, etc.

Some of the companies which have implemented TQM include Ford Motor Company, Phillips Semiconductor, SGL Carbon, Motorola and Toyota Motor Company.

Wille (Quoted by Garbutt, 1996, p. 18) stated that TQM is a process which John Hinch, the Managing Director of Heinz, believes has made his company great. The “total quality” movement has transformed enterprises. In fact, “total quality” is fundamentally about new attitudes to people and by people. In “total quality”, people try continuously to improve. It is no longer a question of “We’ve always done it this way”, but rather, “There must be a better way”.

When the quality problem in an organization is severe and pervasive enough, major quality improvements are necessary from shop floors to board rooms. Such efforts have an organization-wide view of product quality and enable the organizations to achieve positions to compete with their competitors who offer superior quality products to the consumers.

Total quality involves satisfying customer requirements with least possible cost. The standard must be right first time. In industry, the measure is the cost of quality as poor quality costs money. In education, students only have one chance; it has to be right. The cost of getting it wrong is disastrous for them in future, their future employment and the country as a whole. TQM involves total commitment from everyone in search for continuous improvement, individually and collectively. It must be management-led, at the most senior level. Total quality involves liberating people at work, whose talents are recognized and utilized.

TQM as an organic approach has emerged in response to the need for improving and assuring quality in production as well as service sector for effectively restoring and achieving total customer satisfaction.

TQM requires: clarity of vision, a planned approach, appropriate organisation, selecting areas of improvement, formation of project or action teams, improvement by everyone, strategies to change attitude, training in quality techniques, team work, problem solving, consistency and good communication. It includes measurement of improvements in financial terms and the opportunity to understand the process. Aspects
of this method of working are taking place in institutes and may be most valuable in devising the institute development plan (Garbutt 1996, pp 18).

The concept of TQM hinges on continuous improvements as the core mission of the top management. Formulation and implementation of TQM policies and programmes is often a tough exercise for the management as the management pressures and the prevailing policy parameters interact frequently to produce uneven results. A core attribute is its focus on customers. Fine-tuning the various business processes within the organisation to the needs of the customer is a continuous and often challenging task for the management. With the right blend of the policy and expertise, TQM can provide the operational link for top management to respond promptly to customer expectations and requirements.

From Inspection to Total Quality

During the early days of manufacturing, an operative’s work was inspected and a decision made whether to accept or reject it. As businesses became larger, so did this role, and full-time inspection jobs were created.

Accompanying the creation of inspection functions, other problems arose:

- More technical problems occurred, requiring specialized skills, often not possessed by production workers.
- The inspectors lacked training.
- Inspectors were ordered to accept defective goods, to increase output.
- Skilled workers were promoted into other roles, leaving less skilled workers to perform the operational jobs, such as manufacturing.

These changes led to the birth of the separate inspection department with a “chief inspector”, reporting to either the person in-charge of manufacturing or the works manager. With the creation of this new department, there came new services and issues, like standards, training, recording of data and the accuracy of measuring equipment. It became clear that the responsibilities of the “chief inspector” were more than just product acceptance, and a need to address defect prevention emerged.

Hence, the quality-control department evolved, in-charge of which was a “quality control manager”, with the responsibility for the inspection services and quality
control engineering. In the 1920’s, statistical theory began to be applied effectively to quality control, and in 1924, Shewhart made the first sketch of a modern control chart. His work was later developed by Deming and the early work of Shewhart, Deming, Dodge and Romig constitute much of what today comprises the theory of Statistical Process Control (SPC). However, there was little use of these techniques in manufacturing companies until the late 1940’s (Department of Trade and Industry, 1998, p.2).

At that time, Japan’s industrial system was virtually destroyed, and it had a reputation for cheap imitation products and an illiterate workforce. The Japanese recognised these problems and set about solving them with the help of some notable quality gurus – Juran, Deming and Feigenbaum. In the early 1950’s, quality management practices developed rapidly in Japanese plants, and became a major theme in Japanese management philosophy, such that, by 1960, quality control and management had become a national pre-occupation. By the late 1960’s/early 1970’s Japan’s exports into the USA and Europe increased significantly, due to its cheaper but higher quality products, compared to the Western counterparts.

Business Performance Improvement Resource (2007, pp 1-2) reported that in 1969, the first international conference on quality control, sponsored by Japan, America and Europe, was held in Tokyo. In a paper written by Feigenbaum, the term “TOTAL QUALITY” was used for the first time, and referred to wider issues such as planning, organisation and management responsibility. Ishikawa presented a paper explaining how “total quality control” in Japan was different, meaning “company wide quality control”, and describing how all employees, from the top management to the workers, must study and participate in quality control. Company-wide quality management was common in Japanese companies by the late 1970’s. The quality revolution in the West was slow to follow, and did not begin until the early 1980’s, when companies introduced their own quality programmes and initiatives to counter the Japanese success. Total Quality Management (TQM) became the centre of these drives in most cases.

Department of Trade and Industry (1998, p.2.) reported that in the publication of same department in 1982, it was stated that Britain’s world trade share was declining and this was having a dramatic effect on the standards of living in the country. There
was intense global competition and any country’s economic performance and reputation for quality was made up of the reputations and performances of its individual companies and products/services.

The British Standard (BS) 5750 for quality systems had been published in 1979, and in 1983 the National Quality Campaign was launched, using BS5750 as its main theme. The aim was to bring to the attention of industry the importance of quality for competitiveness and survival in the world market.

Since then, the International Organisation for Standardization (ISO) 9000 has become the internationally recognised standard for quality management systems. It comprises a number of standards that specify the requirements for the documentation, implementation and maintenance of a quality system. TQM is now part of a much wider concept that addresses overall organisational performance and recognises the importance of processes. There is also extensive research evidence that demonstrates the benefits from this approach.

As we move into the 21st century, TQM has developed in many countries into holistic frameworks, aimed at helping organisations achieve excellent performance, particularly in customer and business. In Europe, a widely adopted framework is the so-called “Business Excellence” or “Excellence Model”, promoted by the European Foundation for Quality Management (EFQM), and in the UK by the British Quality Foundation (BQF).”

Definition of TQM

TQM is a management philosophy that seeks to integrate all organisational functions (marketing, finance, design, engineering, and production, customer service, etc.) to focus on meeting customer needs and organisational objectives.

Oakland (quoted by Wong, 2002, p.567) defined TQM as follow “it is a way of managing to improve the effectiveness, flexibility and competitiveness of a business as a whole”.

Indian statistical Institute, Hyderabad (quoted by DD Sharma, 2007, p. 53) defined TQM as “An integrated organisational approach in delighting customers (both internal and external) by meeting their expectations on a continuous basis through
everyone involved with the organisation, working on continuous improvement in all products, services and processes, along with proper problem-solving methodology”.

Kanji (1997, p.8) defined that, “Total quality management is the culture of an organization aiming to satisfy customers, secure greater market share, increase profits and reduce costs through continuous improvement”.

1.2 TQM GURUS

An extensive review of literature was carried out to identify the concept of TQM from quality gurus such as Deming (1986), Juran (1988), Crosby (1979), Feigenbaum (1991), and Ishikawa (1985). Their propositions are the foundations for understanding the concepts of TQM. The following sub-sections present the main principles and practices of TQM proposed by these quality gurus.

Deming’s Approach

The theoretical essence of Deming’s approach to TQM is concerned with the creation of an organisational system that fosters cooperation and learning for facilitating the implementation of process management practices, which, in turn, leads to continuous improvement of processes, products, and services as well as to employee fulfillment, both of which are critical to customer satisfaction, and ultimately, to institute survival (Anderson et al., 1994, p. 19). Deming (1986) stressed upon the responsibilities of top management to take the lead in changing processes and systems. Leadership plays a crucial role in ensuring the success of quality management, because it is the top management’s responsibility to create and communicate a vision to move the institute toward continuous improvement. Top management is responsible for most quality problems; it should give employees clear standards for what is considered acceptable work, and provide the methods to achieve it. These methods include an appropriate working environment and climate for work-free of fault-finding, blame or fear. Deming also emphasized the importance of identification and measurement of customer requirements, creation of supplier partnership, use of functional teams to identify and solve quality problems, enhancement of employee skills, participation of employees, and pursuit of continuous improvement. Anderson et al. (1994, p. 21) developed a theory of
quality management underlying the Deming Management Method. They proposed that the effectiveness of the Deming Management Method arises from leadership efforts toward the simultaneous creation of a cooperative and learning organisation to facilitate the implementation of process-management practices, which, when implemented, support customer satisfaction and organisational survival through sustained employee fulfillment and continuous improvement of processes, products, and services.

The means to improve quality lie in the ability to control and manage systems and processes properly, and in the role of management responsibilities in achieving this. Deming advocated methodological practices, including the use of specific tools and statistical methods in the design, management, and the improvement of process, which aim to reduce the inevitable variation that occurs from “common causes” and “special causes” in production. “Common causes” of variations are systemic and are shared by many operators, machines, or products. They include poor product design, non-conforming incoming materials, and poor working conditions. These are the responsibilities of the management. “Special causes” relate to the lack of knowledge or skill, or poor performance. These are the responsibilities of the employees.

Deming in his book “Out of Crisis” (1986) proposed 14 points as the principles of TQM, which are listed below:

- Create constancy of purpose toward improvement of product and service, with the aim to become competitive and to stay in business, and to provide jobs.
- Adopt the new philosophy. We are in a new economic age. Management must awaken to the challenge, must learn their responsibilities, and take on leadership for change.
- Cease dependence on mass inspection for quality. Eliminate the need for inspection on a mass basis by building quality into the product in the first place.
- End the practice of awarding business on the basis of price tag. Instead, minimize total cost. Move toward a single supplier for any one item, on a long-term relationship of loyalty and trust.
- Improve constantly and forever the system of production and service, to improve quality and productivity, and thus constantly decrease costs.
- Institute training on the job.
Introduction

• Institute leadership. The aim of supervision should be to help the people and the machines and gadgets to do a better job.
• Drive out fear, so that people may work effectively for the company.
• Break down barriers between departments. People in research, design, admission, counseling, teaching, administration must work as a team, to foresee problems that may be encountered with the product or service.
• Eliminate slogans, exhortations, and targets asking for new levels of productivity without providing the workforce with the methods to do the job better.
• Eliminate work standards that prescribe numerical quota.
• Remove barriers that rob people of their right to the pride of workmanship.
• Institute a vigorous program of education and self-improvement.
• Put everybody in the company to work to accomplish the transformation. The transformation is everybody’s job.

Juran’s Approach

Juran (1988) viewed TQM as the system of activities directed at achieving delighted customers, empowered employees, higher revenues, and lower costs. He believed that main quality problems are due to management rather than workers. The attainment of quality requires activities in all functions of an institute. Institute-wide assessment of quality, supplier quality management, using statistical methods, quality information system, and competitive benchmarking are essential to quality improvement. Juran’s emphasis is on team (QC circles and self-managing teams) and project work, which can promote quality improvement, improve communication between management and employees, and improve coordination between employees. He also emphasized the importance of top management commitment and empowerment, participation, recognition and rewards in the success of TQM.

According to Juran, it is very important to understand customer-needs. This requirement applies to all involved in marketing, design, manufacture, and services. Identifying customer-needs requires more vigorous analysis and understanding to ensure that the product meets customers’ needs and is fit for its intended use, not just meeting product-specifications. Thus, market research is essential for identifying customers’
needs. In order to ensure design quality, he proposed the use of techniques, including quality function deployment, experimental design, reliability engineering and concurrent engineering.

Juran considered quality management consisting of three basic processes (Juran Trilogy): Quality control, quality improvement, and quality planning. In his view, the approach to managing for quality consists of: The sporadic problem is detected and acted upon by the process of quality control; the chronic problem requires a different process, namely, quality improvement; such chronic problems are traceable to an inadequate quality planning process. Juran defined a universal sequence of activities for the three quality processes which is listed below in Table 1.1.

### TABLE – 1.1

**UNIVERSAL PROCESSES FOR MANAGING QUALITY**

<table>
<thead>
<tr>
<th>Quality planning</th>
<th>Quality control</th>
<th>Quality improvement</th>
</tr>
</thead>
<tbody>
<tr>
<td>Establish quality goals</td>
<td>Choose control subjects</td>
<td>Prove the need</td>
</tr>
<tr>
<td>Identify customers</td>
<td>Choose units of measure</td>
<td>Identify the projects</td>
</tr>
<tr>
<td>Discover customers</td>
<td>Choose units of measure</td>
<td>Organize project teams</td>
</tr>
<tr>
<td>Develop product features</td>
<td>Create a sensor</td>
<td>Diagnose the causes</td>
</tr>
<tr>
<td>Develop process features</td>
<td>Measure actual performance</td>
<td>Provide remedies</td>
</tr>
<tr>
<td>Establish process control</td>
<td>Interpret the difference</td>
<td>Deal with resistance to change</td>
</tr>
<tr>
<td>Transfer to operations</td>
<td>Take action on the difference</td>
<td>Control to hold the gains</td>
</tr>
</tbody>
</table>

Source: Juran (1986, p.21)

Juran, in his book *Planning for Quality* (1988), defined four broad categories of quality costs, which can be used to evaluate the institute’s costs related to quality. Such information is valuable for quality improvement. The four quality costs are listed as follows:
1 Internal failure costs (scrap, rework, failure analysis, etc.), associated with defects found prior to transfer of the product to the customer;

2 External failure costs (warranty charges, complaint adjustment, returned material, allowances, etc.), associated with defects found after the product is shipped to the customer.

3 Appraisal costs (incoming, in-process, and final inspection and testing, product quality audits, maintaining accuracy of testing equipment, etc.), incurred in determining the degree of conformance to quality requirements;

4 Prevention costs (quality planning, new product review, quality audits, supplier quality evaluation, and training, etc.), incurred in keeping failure and appraisal costs to a minimum.

**Crosby’s Approach**

Crosby, in his book *Quality is Free* (1979), identified a number of important principles and practices for a successful quality improvement program, which includes, for example, management participation, management responsibility for quality, employee recognition, education, reduction of the cost of quality (prevention-costs, appraisal-costs, and failure-costs), emphasis on prevention rather than after-the-event inspection, doing things right the first time, and zero defects. Crosby claimed that mistakes are caused by two reasons: Lack of knowledge and lack of attention. Education and training can eliminate the first cause and a personal commitment to excellence (zero defects) and attention to detail will cure the second. Crosby also stressed the importance of management style to successful quality improvement. The key to quality improvement is to change the thinking of top managers to get them not to accept mistakes and defects, as this would, in turn, reduce work expectations and standards in their jobs. Understanding, commitment, and communication are all essential. Crosby presented the quality-management maturity-grid, which can be used by institutes to evaluate their quality management maturity. Its five stages are: Uncertainty, awakening, enlightenment, wisdom and certainty. These stages can be used to assess progress in a number of measurement categories such as management understanding and attitude, quality organisation status, problem handling, cost of quality as percentage of sales, and
summation of institute quality posture. The quality management maturity-grid and cost of quality measures are the main tools for managers to evaluate their quality status. Crosby offered a 14-step program that can guide organisations in pursuing quality improvements. These steps are listed as follows:

1. **Management commitment**: To make it clear where management stands on quality.
2. **Quality improvement team**: To run the quality improvement program.
3. **Quality measurement**: To provide a display of current and potential nonconformance problems in a manner that permits objective evaluation and corrective action.
4. **Cost of quality**: To define the ingredients of the cost of quality, and explain its use as a management tool.
5. **Quality awareness**: To provide a method of raising the personal concern felt by all personnel in the company toward the conformance of the product or service and the quality-reputation of the company.
6. **Corrective action**: To provide a systematic method of resolving forever the problems that are identical through previous action-steps.
7. **Zero-defects planning**: To investigate the various activities that must be conducted in preparation for formally launching the Zero-Defects program.
8. **Supervisor training**: To define the type of training that supervisors need in order to actively carry out their part of the quality improvement program.
9. **Zero-defects day**: To create an event that will make all employees realize, through a personal experience, that there has been a change.
10. **Goal-setting**: To turn pledges and commitments into actions by encouraging individuals to establish improvement goals for themselves and their groups.
11. **Error causal removal**: To give the individual employee a method of communicating to management the situation that makes it difficult for the employee to meet the pledge to improve.
12. **Recognition**: To appreciate those who participate.
13. **Quality councils**: To bring together the professional quality people for planned communication on a regular basis.
(14) Do it over again: To emphasize that the quality improvement program never ends.

**Feigenbaum’s Approach**

Feigenbaum (1991) defined TQM as: “An effective system for integrating the quality-development, quality-maintenance, and quality-improvement efforts of the various groups in an institute so as to enable marketing, engineering, production, and service at the most economical levels which allow for full customer-satisfaction”. He claimed that effective quality management consists of four main stages:

- Setting quality-standards
- Appraising conformance to these standards
- Acting when standards are not met
- Planning for improvement in these standards

The quality-chain, he argued, starts with the identification of all customers’ requirements and ends only when the product or service is delivered to the customer, who feels satisfied. Thus, all functional activities, such as marketing, design, purchasing, manufacturing, inspection, shipping, installation and service, etc., are involved in and influence the attainment of quality. Identifying customers’ requirements is a fundamental initial point for achieving quality. He claimed that effective TQM requires a high degree of effective functional integration among people, machines, and information, stressing a system-approach to quality. A clearly defined total quality-system is a powerful foundation for TQM.

Total quality-system is defined as, “The agreed institute-wide operating work structure, documented in effective, integrated technical and managerial procedures, for guiding the coordinated actions of the people, the machines, and the information of the institute in the best and most practical ways to assure customer-quality satisfaction and economical costs of quality”.

Feigenbaum emphasized that efforts should be made towards the prevention of poor quality rather than detecting it after the event. He argued that quality is an integral part of the day-to-day work of the line, staff, and operatives of an organisation. There are two factors affecting product quality: The technological i.e; machines, materials, and processes; and the human i.e. operators, foreman, and organisation personnel. Of these
two factors, the human factor is of greater importance by far. Feigenbaum considered
top management commitment, employee-participation, supplier quality management,
information system, evaluation, communication, use of quality costs, use of the
statistical technology to be an essential component of TQM. He argued that employees
should be rewarded for their quality improvement suggestions as quality is everybody’s
concern. He stated that effective employee-training and education should focus on the
following three main aspects: quality attitude, quality knowledge, and quality skills.

**Ishikawa’s Approach**

Ishikawa (1985) argued that quality management extends beyond the product and
encompasses after-sales service, the quality of management, the quality of individuals
and the institute itself. He claimed that the success of an organisation is highly
dependent on treating quality improvement as a never-ending quest. A commitment to
continuous improvement can ensure that people will never stop learning. He advocated
employee-participation as the key to the successful implementation of TQM. Quality
circles, he believed, are an important vehicle to achieve this. Like all other gurus, he
emphasized the importance of education stating that quality begins and ends with it. He
has been associated with the development and advocacy of universal education in the
seven QC tools (Ishikawa, 1985). These tools are listed below:

- Pareto chart
- Cause and effect diagram (Ishikawa diagram)
- Stratification chart
- Scatter diagram
- Check sheet
- Histogram
- Control charts

Ishikawa (1985) suggested that the assessment of customer requirements serves
as a tool to foster cross-functional cooperation; selecting suppliers should be on the basis
of quality rather than solely on price; cross-functional teams are effective ways for
identifying and solving quality problems. Ishikawa’s concept of TQM contains the
following six fundamental principles:
• Quality first, not short-term profits first.
• Customer orientation, not producer orientation.
• The next step is your customer-breaking down the barrier of sectionalism.
• Using facts and data to make presentations-utilization of statistical methods.
• Respect for humanity as a management philosophy, full participatory management.
• Cross-functional management.

Results from Quality Gurus

After the review of the approaches to TQM of the five quality gurus, it is evident that each has his own distinctive approach. Nevertheless, the principles and practices of TQM proposed by these quality gurus do provide the author with a better understanding of the concept of TQM. Their insights offer a solid foundation for conducting this study. Although their approaches to TQM have subtle differences, they do share some common points which are summarized below:

• It is management’s responsibility to provide commitment, leadership, empowerment, encouragement, and the appropriate support to technical and human processes. It is the top management’s responsibility to determine the environment and framework of operations within an institute. It is imperative that the management fosters the participation of the employees in quality improvement and develops a quality-culture by changing the perceptions and attitudes toward quality.

• The strategy, policy, and institute-wide evaluation activities are emphasized.

• The importance of employee-education and training is emphasized in changing employees’ beliefs, behavior, and attitudes, enhancing employees’ abilities in carrying out their duties.

• Employees should be recognized and rewarded for their quality improvement efforts.

• It is very important to control the processes and improve quality-system and product-design. The emphasis is on prevention of product defects, not inspection after the event.
• Quality is a systematic institute-wide activity from suppliers to customers. All functional activities, such as marketing, design, teaching, purchasing, inspection, shipping, accounting, installation and service should be involved in quality improvement efforts.

1.3 TQM AND ISO 9001:2000

Many countries have either embraced ISO 9000 or used it as the basis of their national quality certification system (Chow-Chua et al., 2003, p.940). Gotzamani and Tsiotras (2002, p. 155) explained that ISO 9000 is a sub-system of TQM which, when consciously and consistently implemented by the companies, will lead to improvements in the functioning of the organization.

TQM models are compatible and complementary with models like ISO 9000, and favour implementing a quality system in accordance with the ISO 9000 norms to launch the TQM process; the new edition of the ISO 9001: 2000 norm tends to increase the intersection area between the requirements of the quality management system and TQM models (Biazzo and Bernardi, 2003, p. 160). This new ISO version adopts TQM philosophy with stronger emphasis on customer- satisfaction and an effective process-oriented approach, focusing on continual performance improvement (Chan et al., 2002, p. 347) and stresses that top management should ensure that all personnel understand the importance of meeting customer- requirements (Karth 2004,p.345).

Incorporation of some TQM principles would appear to be a better bridge for integrating ISO 9000 standards and TQM (Sun et al., 2004, p. 133). ISO 9000 and TQM have some common points and this fact may help the companies that get an ISO 9000 certificate to be more similar to a TQM company (Martinez-Lorente and Martinez-Costa, 2004, pp. 260-276).

Some researchers view ISO 9000 as a ritualized form of TQM from which it should not be separated (Magd and Curry, 2003, p. 252). About 70 per cent of ISO organisations surveyed would like to progress on the quality journey through the implementation of TQM (Lau et al., 1999, p. 127). This leads to a number of research questions viz ;How do students in ISO as well as non-ISO technical institutions perceive the quality of education offered to them? Is there any difference in the levels of quality
of education offered between these institutions? Is such a difference significant?

1.4 MANAGEMENT EDUCATION

Management education is defined as the formal instructions in the principles and techniques of management, and in related subjects, leading to a degree. Management education strives to develop management knowledge, understanding, and competence through classroom or distance-based methods. Management education is the main component of management development and differs from management training in that the latter may exploit any one of a variety of formal or informal methods, tend to focus on a specific skill, and does not result directly in a formal degree.

In the modern economic scenario all over the world, “Management” as a stream of education and training has acquired new dimensions. Global competition is changing the relationship between management education and business and management education has become a major profession that attracts considerable attention across the world (Bowonder & Rao, 2004, p.1). The efforts for building leadership pipelines in organizations have intensified. The field of Management is dynamic in nature. New tools and techniques are continually being introduced to improve the efficiency, productivity, and profitability of any organisation. All organisations and their departments, functions, or groups use Management methodologies which include problem-solving techniques and guidelines for various related activities.

Education in management should have mainly the following aims:

- Increase the understanding of the factors which influence the conduct of organisations.
- Provide students with the tools and techniques that they may use to influence organisational life, and the economy in general.

A modern day Business Manager is required to have proficiency in:

- Functional knowledge of a business organisation.
- In-depth knowledge of minimum one discipline of Management.
- The ability to adapt to new environments at micro- and macro- levels
- Problem analyzing and solving.
- Inter-personal skills.
Introduction

- Knowledge of functional interdependencies and adaptability.
- Communication skills.
- Self-confidence and motivational skills.
- Drive to succeed and control with initiatives.
- Entrepreneurial skills
- Management skills

Concept of Management Institute

A Management Institute is normally a university-level institution that teaches subjects such as accounting, finance, marketing, organisational behavior, strategic planning, quantitative methods, etc (Chakravartty, 2007, p.1). These include "business", "business administration", and "management". In addition to this, they must also get to learn the actual running of an enterprise. Management institute must have a branding and that can come only from the quality of teaching and their richness. The alumni bring prestige to the Management Institute. Placement is a sequel to the quality of teaching staff and education provided in the Institute.

Management Education in India

In India, Management Education started in the 1950's. The first institute to impart formal Management Education was Indian Institute of Social Welfare and Business Management (IISWBM) in 1953. Thereafter, In the early 1960's, two Indian Institutes of Management's (IIM 's) were set-up, one at Kolkata in 1961 and another at Ahmedabad in 1962 on the initiative of the Indian Government. To meet the increasing demand for professional managers, a few more management institutes were set-up mostly by the government. Till 1980, the role of private sector in this stream was nominal. From the middle of 1980's, Indian government started to encourage participation of the private sector in education, particularly in professional education. By this time, it had been established that the students of business management/administration usually have a good prospect of getting jobs with high pay-packets. As a result, students started opting for these courses in large numbers. Master of Business Administration (MBA) became a coveted degree.
FIGURE - 1.1
GROWTH OF MANAGEMENT INSTITUTES IN INDIA

*Source: Report of AICTE for the year 2009
Introduction

This attracted the private sector to invest in educational ventures in this field. The scenario started to change dramatically thereafter as there was a massive surge in the number of B-Schools in the country, almost doubling every five years – a geometrical progression, (Philip, 2008, p.2).

Figure 1.1 explains growth of management education in India. In 1988, the number was 100, by 1993, the number was about 200, by 1998, it was nearly 400, by 2003, the number reached nearly 800. And, then came the real explosion, by 2008 the number reached about 1800.

This number puts India ahead of U.S. and every other country in the world in this field. Thus, starting from a handful of institutes in the middle 1980's, we now have more than 1800 B-schools all over India, of which most are approved by All India Council of Technical Education (AICTE). In Punjab itself, from just 4 B-schools in 1990 it now have over 70 B-schools in 2009, a large majority of them in private sector (AICTE, 2009).

Quality and Supply in Management Education

In recent years, quality has become a vital part of business strategy in many organisations across the world. Implementation of Total Quality Management (TQM) is the ultimate goal in many such organisations. Most of them have implemented a quality system in accordance with a standard such as ISO 9001. The term quality refers to the ability of a product or service to meet the needs of the customer at a reasonable price with low cost of production over a longer period of time and to offer the customer something better in future. Thus, the term quality includes customer satisfaction, affordable price, prudent use of resources, reliability and continuous improvement (Laha, 2002, p. 2). It is well known that the perception of quality is relative and is dependent on the law of supply & demand. In times of shortage, quality is of secondary importance to mere availability. As supply becomes more ample for a short period of time price becomes the benchmark and it gives rise to competition based on price alone between the various suppliers. Since, the price wars are very costly to support, a price stabilization takes place in the market quickly. From then onwards, quality becomes the primary determinant of business success. In the context of management education till the middle of 1990’s, there
were only a few institutions imparting management education. Hence, there was acute scarcity of seats and to get an opportunity to study at one of these institutions required one to go through a series of tough tests. Most of the students passing out of these institutions got jobs with high salaries. Thus, the study of management at one of these institutions became a craze among the students. With the opening of the education sector to the private players in the last decade a large number of institutes have been set-up for the purpose of imparting management education. With so many institutes offering management education, the problem of getting a seat has been largely solved. But today, we know that a degree in MBA is not a sufficient criterion for getting jobs with desired salary. The institute from where a person has obtained his/her degree also plays a significant role. There is large amount of variation in job-opportunities and the remuneration offered to graduates of different B-schools. The corporate houses seem to prefer some B-schools to others because of "superior quality" of the business education offered. As a natural consequence, the students are drawn to these select B-schools and many seats in the other management institutes remain vacant. Thus, it appears that the competition between B-schools is based on "quality of management education" offered by them (Laha A.K. 2002, p. 3).

Going back to the ‘originals’, it will be interesting to examine the implications of each of the cardinal principles proposed by Deming, Juran and Crosby for education. For brevity, let us examine Deming’s principles. Table 1.2 lists the implications of deming’s propositions regarding TQM in education. Such educational application and implications of each one of the 14 principles proposed by Deming are borne out by the analysis by Crawford and Shutler (1999, pp. 67-72). Similarly, Juran and Crosby propounded the 85/15 and ‘Zero-defect product’ theories or quality at no cost. They imply that 85 per cent of the variance of quality in education can be explained by the system (structure and processes) while 15 per cent can be explained by individual skills, competence and commitment. The equivalent of 85/15 in education is ‘Bloom’s Mastery Learning’ which proves that by adjusting instructional processes (modifying systems), 80 per cent of the students are capable of securing 80 per cent of the marks. In other words, it is the system that is responsible for low performance in education, not necessarily the students.
TABLE - 1.2
APPLICATION OF DEMING’S PROPOSITIONS IN EDUCATION

<table>
<thead>
<tr>
<th>Deming’s Propositions</th>
<th>Educational Implications</th>
</tr>
</thead>
<tbody>
<tr>
<td>Create constancy of purpose for improvement of product and service with the aim of becoming competitive and staying in business and providing jobs.</td>
<td>Even if the institutions do not need to become competitive and stay in the business since it is a seller’s market, institutions ought to improve on a continuing basis because of explosion of knowledge and changing styles in learning. Institutions need to develop long and medium term perspectives for development and move towards those.</td>
</tr>
<tr>
<td>Adopt a new philosophy.</td>
<td>Quality is a continuous journey. Make it a part of the institutional mission. Educational implications are the adoption of a new philosophy and consequent approach for the holistic development of the students, for instance, building education on the four pillars of learning.</td>
</tr>
<tr>
<td>Cease dependence on mass inspection to achieve quality.</td>
<td>Replace external inspection by a continuous internal mechanism of quality assurance.</td>
</tr>
<tr>
<td>Terminate the awarding of business on the basis of price.</td>
<td>Opt for the best available teachers and instructional resources at affordable prices, not the lowest prices.</td>
</tr>
<tr>
<td>Improve constantly and forever, the system of production and service to improve quality and productivity, and thus to constantly decrease costs.</td>
<td>Constantly improve instruction, student assessment and management to improve quality and reduce cost by checking wastage.</td>
</tr>
<tr>
<td>Initiate training on-the-job.</td>
<td>Initiate institution-based on-the-job training for teachers and staff.</td>
</tr>
</tbody>
</table>

Contd...
Drive out fear so that everyone may work effectively for the company  

Create structures with subject-discipline as departments and cross-departmental activities to form interdisciplinary task forces.

Eliminate slogans, exhortations and targets asking for new levels of productivity without providing the workforce with the methods to do the job better.  

Replace sermons and slogans for quality with the on-the-job training for quality improvement in whatever one does in the institution, thus helping them do a little better than before.

Eliminate work standards that prescribe numerical quotas.  

Underplay numerical quota of classes and student-assessment. Build quality consciousness in each activity.

Remove the barriers that rob people of their right to pride of workmanship.  

Encourage and recognize innovation and uniqueness on the job. Remove roadblocks and facilitate experimentation.

Institute a vigorous programme of education and self-improvement.  

Develop an institutional mechanism whereby every staff member charts out his/her own development path and methods to achieve his/her goals.

Put everyone in the company to work to accomplish the transformation.  

Involve every staff in visualizing and setting out the mission and goals. Involve everyone in institutional diagnosis, planning and execution of improvement plans.

‘Quality is free’ is the landmark idea contributed by Crosby. In reality too, quality-oriented management does not necessarily cost more money. On the contrary, quality management should lead to reduction in costs, ‘although it can be achieved at higher costs through mismanagement’. The sustainability of quality management in education is directly linked to and dependent upon effective management of cost.

1.5 TQM ENTRY INTO HIGHER EDUCATION

The background of the increasing interest in TQM more generally is the relative failure of the American and British economies over several years, particularly in comparison with that of Japan. Numerous study groups visited Japan during the 1980’s to try to find the secret of its success and they brought back the message of quality. In passing, it may be remarked that, as Japanese commentators have pointed out, messages about job-security, employers’ developing their existing workforce from recruitment to retirement rather than hiring and firing on an impersonal labour market, and relative equality of earnings amongst different levels of staff right up to the boardroom level have found less resonance in individualistic Western business culture. However, it is clear that the emphasis on quality, and in particular, guaranteed quality in high technology industry where local repairs cannot easily make good initial product deficiencies have clearly had much to do with the high reputation enjoyed by Japanese electronic goods and automobiles (BSI/DTI, 1991).

It is not possible to state precisely when and where the term Total Quality Management or TQM was first applied to higher education. It seems to have occurred spontaneously in a number of organisations in the United States and the United Kingdom in response to the growing financial pressures on the higher education institutions that, during the 1980s, increasingly found themselves being required to behave like commercial enterprises in a fiercely competitive market. Commercial competition and its partner, value for money, involve a combination of quality and price. Market pressures for quality-enhancement and price-reduction, and a perceived need for collective action to prevent exaggerated claims about quality misleading customers and damaging public perceptions of the sector as a whole provided the content for rapid
growth of interest in the possible application of TQM in the management of universities. In Britain, another factor has been the pressure from government to increase the number of students without a corresponding increase in resources combined with the long overdue realization that a mass higher education system is something different from a greatly expanded elite system (Williams, 1993, pp. 229-237).

TQM’s entry into higher education seems to have followed four main routes. First, by way of the membership of university governing bodies by business people who themselves had seen the benefits TQM concepts were bringing to their own businesses. This seems to have played an important part in Aston University, Oregon State University and the University of Wolverhampton decisions to undertake TQM in the case-studies discussed in the present research.

The second route by which TQM became a part of higher education vocabulary is via Business Studies and Engineering Departments of universities which have been teaching TQM in industry to their students. Their academic staff quickly saw potential benefits from introducing it into the management of their own institutions. This was the case with Virginia Commonwealth University, and it was also the starting point of the British Engineering Professors’ Conference Advocacy Approach (Tannock and Burge 1992, p. 47).

Third, in Britain, there has been explicit pressure from the government, which has shown increasing concern with quality and quality assurance, as funding methodologies have been developed which have encouraged higher education institutions to make transition to mass higher education without corresponding increase in resources. While the British government has not explicitly advocated TQM or similar approaches in higher education, its emphasis is on quality and its stated aim of giving preference in funding to those institutions which can both show the greatest efficiency (i.e. lower cost per student) and the greatest attention to teaching, have put a premium on management approaches, which not only deliver high quality teaching and learning, but which can also readily be shown to do so. There appears to have been similar pressure from the several State Post-Secondary Education Commissions in the United States. At the very minimum, TQM generates the kind of documentation which shows that
something is being done about quality.

Finally, there has been rapid diversification of functions of many universities during the 1980s (William 1993, p.231). Quality assurance procedures through informal peer review that may have been adequate for regular award bearing course and conventional academic research were often unable to cope in the fiercely competitive, explicitly market-driven world of contract teaching and research. Sallis (2002 pp 2-3) notified the following sources of quality in education:

- Outstanding teachers
- High moral values
- Excellent examination results
- The support of parents, business and local community
- Plentiful resources
- Application of latest technology
- Strong and powerful leadership
- The care and concern for pupils and students
- A well-balanced and challenging curriculum

1.6 CONCEPT OF CUSTOMER IN HIGHER EDUCATION

Institutes have a variety of customers. One definition of customer is that of “A buyer of a product or service.” Students take classes, consume meals, sleep in residence halls, buy books and use many services for which they pay. The student certainly fits this definition of the word customer (Sytsma, 2000, p.6). The businesses and professions that employ the graduates are also the customers, as is the general public.

Institutes have an almost infinite variety of customers as well. As we know, internal customers of a service are those individuals or entities whose product or service depends on that service. For example, the payroll department is a customer of the computer centre because without the computer and the computer center, the payroll does not get produced. The dean’s office is a customer of the accounting department because the dean’s office needs timely, accurate financial information to make appropriate decisions.
Most frequently, external customers have the freedom to choose their supplier, and in-fact do so. This is, for the most part, not true for internal customers. They are stuck. They must use their service provider, because it is their only option. This lack of competition frequently breeds contempt for internal customers.

When one begins to treat a person or entity as an external customer, one’s attitude towards that person or entity changes. A customer is important. A customer can choose another supplier if the quality of the service or the product is inferior or deteriorates.

One of the most important aspects of the TQM/CQI-focused organisation is that departments begin to treat other departments as important customers trying to meet the customer’s need and time-schedules. This simple concept has an absolutely revolutionary effect on the relationships that exist within a traditional organisation.

The idea of the student being the customer of a professor is a concept that takes many faculty members a while to absorb. Certainly, the student/faculty relationship is obviously far more complex than that of a simple customer-supplier relationship. Yet clearly one dimension of this relationship involves the student as customer. The student is buying the professor’s course and has the unmistakable right to expect certain things for his/her money including relevant course content, fairness, access, expertise, and a reasonable learning situation. If a faculty member views the student as a customer, it is likely that the faculty member will become more tolerant, more interested in implementing ways to improve the learning process, more accessible, and more student-friendly.

Many faculty members say that the student is not a customer, but the product. However, upon closer review, it becomes evident that the student is not the product; the product is the learning of the student. Learning is a team-effort between the professor and the student. Jointly, they produce a product—the learning of the student. Both parties are responsible participants in that process.

1.7 QUALITY IMPERATIVE IN EDUCATION IN INDIA

Education is the key to the resurgence of India. Literacy and education is the nucleus of social and national development. India's literacy percentage rose from
18.33% in 1947 to 64.8% in 2005 with 53.7 % of females and 75.3 % of males (Dogra & Gulati, 2006, p.1). At the present juncture, India need technical education of the highest order. What made USA what it is today - the most powerful nation in the world? It is education combined with hard work to translate that education into development that made USA undisputedly the king of all the nations. The root of national wealth of USA is traceable to the excellent technological knowledge that was disseminated in the most admirable manner. “There is a strong correlation between country’s competitiveness and the quality of higher education provided within the country”, say Boraham and Ziarati (2002, p. 920). If India wants to raise the standard of its economy to the level that of the economy of developed nations, such as USA, UK, France, Germany and Japan etc, it should move forward.

“In order to move forward and attain a higher level of quality in technical education, the concept of Total Quality Management (TQM) must be applied” (Jaraiedi and Ritz, 1994, p. 38). Because TQM is universal and proven by many successful firms, it should be used to formulate the mission statement for the services provided by higher education institutions; a generic mission statement could be: “To provide quality education, research and related services to continuously satisfy stakeholders’ needs and achieve excellence through TQM” (Ho and Wear, 1996, p. 35).

Zairi (1995, p. 30) stressed that the students who are the recipients of the service (acquiring knowledge/information) are the ones who should measure the quality of the output; if one considers the student to be a customer then, similarly to the industrial context, the customer is the ultimate judge of quality, and that has to apply in the academic context also.

Never before in education there has been such an intense emphasis and deliberations on the issues of “Quality”. The proliferation of the self-financed institutions coupled with the need for quality and competitiveness have combined to put the educational sector at the top of the national agenda for reforms.

Real quality-service starts with a personal and professional commitment by the top management and should be ingrained in the organisation’s culture to the point where every teacher feels a strong sense of commitment. An educational institution that is not keeping its eyes on the customers, external and internal is slowly endorsing a
prescription for failure. Today, educational organisational culture is driven by the notion that the management knows the best. The truth is that the customer knows the best and should be a part of the process and service design.

With changing patterns of education delivery from face to face to online, the course content, nature of the learner, and the organisational structures, the concept of quality has become an inherent component of the educational process for its success. Globally, various bodies have been established to develop guidelines for quality products and services and their maintenance. The globalization of education, migration of students from one community to other, one country to another, provides adequate causes for concerns to the educationalists and administrators.

1.8 ORGANIZATION OF THE STUDY

The present study consists of 6 chapters including the present one.

Chapter I provides the introduction.

In Chapter II, the empirical studies conducted in the area of quality in education have been reviewed.

Chapter III explains the methodology used for the study as well as the objectives of the present study. This chapter describes the nature of data collected as well as the statistical techniques used for data analysis.

Chapter IV has been designed to evaluate the perception of faculty members regarding implementation of TQM practices in management institutes in Punjab.

Chapter V examines the students’ viewpoint concerning implementation of TQM practices in management institutes in Punjab. It also studies variations in students’ expectations and actual state of affairs so far as quality in management education is concerned.

Chapter VI presents the summary, conclusions and recommendations of the study.