In this chapter the concept of quality in product, as well as, quality of service, particularly, with regard to, quality of education is elaborated and an attempt has been made to bring to light the characteristics of Total Quality Management (TQM) and its evolution from the basic inspection process to its present systematized form and also to discuss the prospects of the application of the concept of TQM in the field of education.

Irrespective of any ideological stigmas, TQM, by its origin and growth is purely a management concept with a broader vision of welfare state. The desirable outcome of the application of the salient features of TQM in public, private or joint sector or autonomous bodies are one and the same. The basic features of TQM, such as, customer satisfaction, quality control, continuous improvement, team work, target orientation etc are squarely applicable, irrespective of whether the organization comes under any of the aforesaid sectors. Hence TQM can be considered as a concept having universal application without any border barriers.

The orientation of the business, these days, is centered on the most valuable element - the customer. This is because, the customers choose products and companies that satisfy their needs, intensely (Kotler, Kartajaya, & Setiawan, 2010). This fact is recognised by the world, all over, especially by leading companies, who realize that they must reach these highly
conscious, technology enabled customers and that the traditional marketing rules are useless. Instead, products, services and corporate cultures that inspire, include and reflect their customer’s values should be evolved. As a result, over the past 60 years, marketing has moved from being product centric to being customer centric (Kotler, 2003; Kotler, Kartajaya, & Setiawan, 2010). Drucker reminded that, the single most important thing about any enterprise is, there are no results inside its walls, the results of a business is a satisfied customer (Drucker, 1993; Watson, 2002). It is also interesting to note how Sam Walton described the significance of a customer; he said “there is only one boss, the customer. And he can fire everybody in the company, from the chairman on down, simply by spending his money somewhere else” (Walton & Huey, 1992). Such quotes are innumerable. As the world’s famous entertainer Walt Disney puts in “Do what you do so well that they will want to see it again and bring their friends”. The customers are intolerant of the poor quality of the goods and services and hopefully, the business organizations have increased consciousness about the potential of ‘quality’, as a new competitive weapon. The reality today is that, the organizations are thinking one step ahead and consider quality only as an entry level requirement to the market place (Dale, 2003). All these excerpts quoted, stress on the fact that everywhere around the world, the business community has recognized that customer satisfaction is indispensible for its success. Corollary to this, it is also true that each one of the business concerns has its own share of customer disapproval and dissatisfaction.

Organizations have started realizing that there is nothing like the reality, where you think you have acquired ‘quality’; it is like a mirage or an illusion which takes one along a never ending journey. The dynamism of the environment compels organizations to continuously search for improvements.
Organizations that engage in a relentless pursuit of delivering high quality products and services outperform those who do not (Juran & Feo, 2010). This is possible because two kinds of impact are created by delivering the right quality of goods and services. One such effect arises by delivering products, services and processes that are superior to those of the competitors, resulting in improved profitability and consequently the products become more saleable, and start securing premium prices and thus a large chunk of market is captured (Juran & Feo, 2010). The second effect is that the relentless pursuit for higher quality transforms the culture of the organization, which, ultimately leads to sustainability (Juran & Godfrey, 1999; Juran & Feo, 2010). Thus, recognition of ‘quality’ leads a firm to sustainable development.

The Concept of Quality

Quality is a concept with varied interpretations and may be measured through different parameters taken either singly or in combination. When people focus on the different dimensions of quality, there emerge a diverse set of definitions (Ishikawa, 1985, 1986; Taguchi, 1986; Deming, 1982; Juran & M.Gryna, 1988; Shields, 1999). In a linguistic sense, quality originates from the latin word ‘qualis’ which means ‘such as the thing really is’. Quality is something, which is perceived and recognized but is difficult to be defined (Pirsig, 1974). It is important for a firm to define ‘quality’ or understand its meaning, so that, the firm would know how to manage it. If one can define it, one can manage it, and if one can manage it, one can deliver it to the satisfaction of customers and other stakeholders (Juran & Feo, 2010). As Marmar suggests quality is something that stares at you, something you do not fail to recognize but find difficult to define (Mukhopadhyay, 2001).

The concept of quality was quite narrow in earlier thinking and referred only to product specifications. A product is said to have quality, if it can
satisfy the stated or implied needs. The British Standards Institution, 1991 refers to quality as the totality of features or characteristics of a product/service that bear on its ability to satisfy the stated or implied needs. Similarly, the functional and technical aspects of quality have also been highlighted by Juran as ‘quality is fitness of use’ (Juran & Godfrey, 1999; Oakland, 1993). Crosby opined that quality can be achieved by “conformance to requirements” (Crosby, 1980). Yet another way of identifying quality of a product is, by checking the presence of defects. Quality product was considered as, a product which was free from deficiencies. Crosby focused on ‘zero defect’, by trying to achieve quality through a system of prevention (Crosby, 1980). Berry, Parasuraman, and Zeithaml support the view of Crosby’s definition of quality as ‘conformance to requirements’, but, they added that it should be slightly rephrased as ‘conformance to customer specifications’ (Berry, Parasuraman, & Zeithaml, 1988).

However, Deming, way ahead of others in defining quality, put forth an interesting argument that, checking for defects is a negative way of looking at quality and the absence of defects does not necessarily excite and satisfy a customer fully (Mukhopadhyay, 2001). Deming agrees that quality is a non-faulty system, but, rightly pointed out that the quality effort should be directed at present and future needs of the customer. He encourages looking at quality in a positive way and says that if the product/service is valuable to the customer, then, it sure does possess quality (Deming, 1982; Corrigan, 1995). This was indeed a turning point, which encouraged firms to realize that in order to provide quality goods and services; it is indispensible to have a customer focus. Unless an institution puts its customers first, the preconditions for developing quality will not exist (Sallis, 2002).
Quality is not something that happens out of the blue, but, is deliberately achieved (Shejwalkar, 1999). Quality is not an accident, but, a design; it is not a chance, but, a choice. Therefore, quality is achieved through deliberate efforts by the management through intensive investment of capital, talent and hard work and is not a by-product. Once a quality product is designed, it is equally important to continuously innovate it. Quality was considered as the making of a product/service to meet the expectation of the customer, not merely satisfying them but also delighting them by new innovations and creations (Macdonald & Piggott, 1993). Here, in this definition, the aspect of continuous improvement in quality is stressed. The continuous delivery of good products was believed to create trust in the customer (Crosby, 1980). Harvey and Green says that quality is transformative, implying the process of continuous improvement (Harvey & Green, 1993). It is important for an organisation to adopt a pragmatic system of continual improvement, a way to successfully organize men and machines, so that there is an unyielding and continuing effort by everyone in the organization to understand, meet and exceed the needs of its customers (Hoyle, 2007). Quality is not a destination, but a continuous journey (Shejwalkar, 1999). It requires, a systematic approach of designing and improving the processes, products and services continuously, through an independent system of planning, implementing, evaluating and decision making, and this process should be moving at a pace, faster than that of competition (Juran & Feo, 2010; Navaratnam, 1997).

General Electric task force which studied consumer perception of the quality of various GE Product Lines in 1970 opined that, quality is not to be viewed solely as a technical discipline but rather as a managerial discipline. This, in fact, points towards the realization that in order to achieve quality the
organization should not be compartmentalized. The system of ‘total quality’ emerged with this recognition that there should be no barriers and quality should flow effortlessly, throughout the organization in all directions (Ratnam, Rajkumar, & Maheshwari, 2012). Now, quality issues permeate all aspects of business enterprise: design, marketing, manufacturing, human resources management, supplier relations and financial management, embracing the entire organization - its systems, strengths and ability to deliver cost effective and consistently good products or services. Quality is omnipresent in successful organizations.

**Dimensions of Quality**

There are considerable differences in the opinion of different authors on the dimensions of service quality, referred to as properties and characteristics, which are the general requirements, that customers look for in a product or service, of which some are measurable while some are not (Kumar, 2009; Bhat, 2002). The most sought after dimensions, like consistency of performance and dependability of service commonly referred to as, the reliability aspect of a service/product, have been proposed by Zeithaml, Berry & Parasuraman (1991), others being, responsiveness, competence, access, courtesy and communication. The credibility or trustworthiness, which refers to instilling ‘belief of having the customer’s best interest at heart’ in the mind of the customer (Berry, Parasuraman, & Zeithaml, 1988) and making an effort to understand the customer’s needs by providing individualized attention (Berry, Parasuraman, & Zeithaml, 1988) also amounts to the properties of quality and it also involves giving ‘extras’, which are genuine extras, which means, it is not easily available from competitors which ultimately result in customer loyalty (Berry, 2002). The feeling of security, like freedom from danger is also another important dimension of quality (Parasuraman and Berry,
All dimensions of quality have far reaching consequences on the reputation, profit and sustainable growth of the organisation (Bhat, 2002).

Some researchers have classified service quality under two broad categories, as functional and technical (Gronroos, 1984; Parasuraman, Zeithaml, & Berry, 1988). Technical characteristics includes features like, the durability of material, ease of repair, conformance to the specifications, ‘performance’ referring to the primary product functions, such as, clarity of voice and the psychological characteristics like, ‘response’, such as, courtesy of service personnel are the functional aspects (Parasuraman, Zeithaml, & Berry, 1988). Technical quality are comparatively quantifiable and this can be easily measured by both the customer as well as the supplier, making technical quality as one of the important basis for judging service quality and includes aesthetics (Palmer, 1998). Gronroos is of the opinion that the technical aspects of a service can be easily copied, so that, there is all possibilities for the firm to lose the market position and he opines that by focusing on the more personal aspects of the process of service provision, i.e the functional quality, the competitive edge can be won over (Gronroos, 1988; 1990). He is of the opinion that for higher levels of service quality, functional quality is likely to be more important than technical quality more so, if the latter is at least of a sufficient standard (Gronroos, 1984).

The quality of an industrial product can be assessed as to the conformance to its specification; durability etc, but, the parameters of quality of service is significantly different. Defective products can be repaired or sold for a cheaper price, but, a poor service once given cannot be taken back. Service is here and now, you can look for better quality only next time (Mukhopadhyay, 2001). One of the important dimensions of service quality is empathy. Empathy is the degree of caring and individual attention, the firm
Chapter 2

provides its customers (Parasuraman, Zeithaml, & Berry, 1988). According to Watkins (1998), the companies which wins are those which treat the consumer as an individual; this statement alone shows the importance of empathy in service sector (Watkins, 1998). Another important aspect associated with the provision of quality service is timeliness (Watkins, 1998). A product may be excellent in one dimension and poor in another. Very few products excel in all dimensions, but, it is not necessary for all the dimensions to be present for deciding the quality of the product/service (Garvin, 1988; Srinivasa & Valarmathi, 2006; Kumar, 2009; Bhat, 2002). Service quality concept is still unresolved and far from conclusive (Jain, Sinha, & De, 2010).

Moreover, quality of service is perceptual, because, quality lies in the eyes of the customer (Sallis, 2002; Harvey & Green, 1993; Cook, 1997). Service quality is a customer issue, because, it is not enough to supply good service; it is the customer who decides whether they have received it. Things are important to different people for different reasons and as such are perceived in different ways. The same factor affects people depending upon the time of day, mood and attitude and so on. Unlike industrial product, the service providers are in direct contact with the user and the quality of service thus depends on the interpersonal relationship skills of the provider (Mukhopadhyay, 2001). Several such parameters like, punctuality, attitude of the person who delivers the service, accuracy etc are considered in assessing the quality of service and each of these parameters has varied impact on the client, the values put high by some, would be negated by others, something like a smile which is important for a particular customer would be nonsense for another. Consumer thus prevails as the supreme judge of quality (Mukhopadhyay, 2001; Sallis, 2002). Zemke and Schaaf (1990), as quoted by Kandampully, Mok, & Sparks (2001), emphazises that successful
Total Quality Management– A Theoretical Review

organizations are able to diagnose their customer expectations fully and satisfy them completely during each and every service encounter and that they have a bird’s eye view in designing customer services. Gronroos (1984), as quoted by Williams & Buswell, highlights the importance of interpersonal relations, that competitive edge is only possible, where distinctions occur in staff-customer interactions (Williams & Buswell, 2003). Service leaders have the uncanny ability of understanding implicit and even latent customer requirements (Kandampully, Mok, & Sparks, 2001).

Quality of Education

It is easier to define the quality of industrial products, but, quite difficult to define quality of services and when the subject matter turns to quality of education, there is little possibility for the consumers to arrive at a common consensus (Sallis, 2002; Mukhopadhyay, 2001). The term educational quality means different things to different people and there is no universally accepted definition.

Peters and Waterman called quality as the goodness or excellence of educational delivery (Peters & Waterman, 2004; Pirsig, 1974). Excellence could be achieved in the modes of teaching, organizing activities and experiences, so that, effective learning takes place. Quality in education can be understood in the point of view of, value received from education. A value based definition defines the quality of education in terms of costs and prices. Quality in education is one that provides education at an acceptable price or cost. If the course is overpriced it cannot gain students’ or stakeholder’s satisfaction (Feignbaum, 1983). Educational quality is also conformance to curriculum. Quality in education is achieved when education output conforms to the planned goals, specifications and requirements (Crosby, 1980; Juran and
Gryna, 1988; Gilmore, 1974). But, according to Deming, there is an absurdity to such a definition, which focuses on ‘meeting of specifications’. He says it does not result in constant improvement of quality but only ensures the statuesque.

Yet another viewpoint is that educational quality is student and stakeholder satisfaction. Accordingly, meeting or exceeding customer’s expectations of education is tantamount to quality (Berry, Zeithaml, & Parasuraman, 1985; Juran, 1988; Mukhopadhyay, 2001; Clarkson, 1995). Students are the key beneficiaries of educational services. In education, the term stakeholders include, not only students, but, all other groups that are or might be affected by an educational organization’s actions and success, like community, employers, faculty and staff (Deming,1982; Edwards, 1991; Sallis, 2002; Mahadevappa, 2006). Henderikx (1992) also follows suit opining that the assessment of quality cannot be only student oriented, because, it is the society that pays for the system and the views of the society should also be considered (Henderikx,1992). In education, the student plays an important role in the quality of their own learning. An important criterion for fully realizing the potential of total quality management in education is the total involvement of students in learning (Schwartzman, 1995).

(Khodayari & Khodayari, 2011; Owlia and Aspinwalls, 1996) have provided a theoretical framework of quality dimensions for education, with an emphasis on teaching aspects of education like, ‘sufficiency of academic resources’, like laboratories, workshops, ease of access to books, journals, software and networks’; ‘competence’ referring to the theoretical and practical knowledge of academic staff, expertise in teaching and communication’, ‘attitude’ comprising of the ability of the academic staff in understanding the academic needs of students, their willingness to help, guide and advise’;
‘content’ referring to the extent to which students learn communication and team working skills and the relevance of the curriculum for the future jobs of the students. Waugh (2001) has also provided a model of service quality under two heads, such as, ‘reliability and responsiveness’, and ‘assurance and empathy’. The former refers to dependability and confidence students put on the administration and the latter refers to the courteous, caring, and personal contact of the staff (Owlia & Aspinwall, 1996; Waugh, 2001).

According to Sallis (2002), the source of quality in education are outstanding teachers, high moral values, excellent examination results, the support of parents, business and local community, plentiful resources, the application of latest technology, strong and purposeful leadership, the care and concern for pupils and students, and a well-balanced and challenging curriculum. The educational institutions have to develop their own approaches to quality and demonstrate in public that they can deliver consistent quality (Sallis, 2002). A number of criteria for accomplishing quality in education relate to physical policies, focusing on the infrastructure, human policies focusing on faculty, administration and staff development, and intellectual policies for improving research and curriculum. The institution should provide adequate resources comprising of physical facilities like building, labs, furniture, equipment, books, research journals etc; human resources, comprising of faculty, administrative and other support staff; financial resources, comprising of funds available to carry on different projects or even the availability of petty cash to run day to day affairs (Zaki, 2008). According to Wragg (2001), a good quality school has purposeful leadership of the staff by the Head master, the involvement of all teachers in planning, consistency amongst teachers in developing policies, structured lessons for pupils, intellectually challenging teaching,
work centered environment with a high level of pupil industry, limited focus within lessons, maximum communication between teachers and pupils, record keeping, parental involvement and a positive climate. Chakravartty & Gupta (2006), enlisted the major prerequisites for the quality in education, as reforms in teachers training, improvement in facilities and infrastructure and support services in schools, teacher motivation and innovation, curriculum and teaching aids, pupil evaluation (feedback and corrective measures), change in style of teaching to make it attractive to students, satisfaction of other stake holders, such as, government and other agencies and most importantly parents of children, monitoring and supervision, encouraging the achievement of cognitive and non-cognitive competency of the students and introduction of participatory management in education with community support.

One of the ways to look at quality in education is to base on the goals of education. Many give importance to the inculcation of moral values and desire that the qualities of character is built into a student, rather than, making him academically efficient but some equate academic performance with quality (UNESCO,1996). In a micro sense, educational quality is perceived to be good or bad, depending upon, what is radiated from a student, his social and moral behavior and the usefulness of his educational outcome. International Commission on Education in the 21st century called for holistic development of the individual optimizing potentialities. Human learning has as much to do with learning to know and do as much to learning to be and live together (UNESCO,1996). In a macro sense, world over, governments and citizens alike, seem to agree that good quality education (rather than mere school attendance) is powerfully related to individual outcomes in the labour market, enhancing economic growth of a nation and reducing inequality in
society (Hanushek and Woesmann 2007; Vegas & Petrow, 2008). The attributes of quality in education can be described in terms of cognitive, emotive, physical skills and abilities and value systems and it ultimately is the degree to which schooling fosters cognitive skills and facilitates the acquisition of professional skills, which matters for development of the individual as well as the nation (Hanushek & Woesmann, 2007; Mukhopadhyay, 2001).

**Total Quality Management - Meaning**

Total Quality Management (TQM) is an approach of dealing with quality that encompasses the entire organization. Although it is given varied nomenclature by organizations, like “Six Sigma” at Motorola, ‘leadership through quality’ at Xerox, ‘perfect design quality’ at Intel, ‘total quality control’ at Hewlett-Packard, the concept applied in all these types of organization, irrespective of, whether their output is a physical product or service, remains the same (Mukhopadhyay, 2001). It embraces the whole organization, horizontally and vertically across functions and departments, involving all employees, top to bottom and extends backward and forward to include the supply chain and the customer chain, in its efforts in the provision of quality goods and services (Sallis, 2002). TQM is a philosophy that has to be inculcated into the minds of the people to effect a change in attitude towards work life, which permeates the satisfaction of one’s own self on to others. A change in attitude is a time consuming affair which religiously include educating the workforce and motivating them, through, good leadership, therefore it anticipates the whole-hearted involvement of the human resources in the organization. TQM can succeed, only if, it has the support of Total Quality People (TQP). TQM without TQP does not work as processes do not work unless people work, thus it is primarily a people
focused management system (Mukhopadhyay, 2001; Deming, 1982; Crosby, 1980; Caplan, 1990).

**Tenets of TQM**

The major tenets of total quality management as described in majority of the literature of quality management, quality assessment and quality systems, by a number of pioneers, such as, William Edwards Deming (1986), Joseph M. Juran (1980), Philip B. Crosby (1980), K. Ishikawa, (1985), Armand V. Feigenbaum (1991), to mention a few could be summarized as:

1. Quality is directed at Customer Satisfaction
2. Quality means “Meet Requirements”
3. Quality applies to every product (physical, information, and service product)
4. Quality is a profitable long-term investment
5. Quality requires changing an organization’s culture
6. Quality requires top management leadership
7. Quality is everybody’s job
8. Quality equates to “good business practice and system”
9. Quality requires a focus on people
10. Quality is achieved through process improvement
11. Quality improvement is forever
12. Quality must be a fundamental long-term goal of the organization (Shawyun, 2003; Neves & Nakhai, 1993; Seymour, 1992).

In order to achieve all the above tenets, it calls for the development of a seamless “total”, “quality” and “management”, big picture integration that
identifies the cause and effect system to measure and manage the quality of the institution (Shawyun, 2003). However to summarize, the distinctiveness of TQM lies in three major features;

1. Commitment to continuous improvement,

2. Constantly and purposively meeting or exceed in meeting customer satisfaction,

3. Achieved through a process of integrating everybody in the organization through participatory management, teamwork and top management commitment. (Oakland, 1993; Saylor, 1996; Sallis, 2002).

Continuous Improvement

One of the key philosophies in TQM is the constancy of purpose referred to as continuous improvement or ‘Kaizen’. Continuous improvement is the systematic process of planning, implementing, evaluating and re-implementing processes, continuously, for the purpose of, improving the products, services and processes, for efficiency and customer satisfaction. Kaizen is the Japanese word for continuous improvement which involves small scale incremental projects leading to substantial changes (Sallis, 2002). Kaizen literally means ‘change’ (kai) to become ‘good’ (zen). Drastic intervention is not the means of change in TQM, since a change of culture consumes time. Culture change is not only about changing the behavior of the staff, it requires a change in the way in which institutions are managed and led (Rao, 2007). The philosophy of TQM is large scale, inspirational and all embracing, but, its practical implementation is small scale, highly practical and incremental (Sallis, 2002). Kaizen, unlike innovation, is not dramatic, but, is subtle. Thus, TQM embraces the concept of small changes for positive progress in the long run. Improvement is done either by enhancing the value to
Total quality Management in Higher Secondary School Education in Kerala

Chapter 2

the customer or by offering new and improved products and services or by reducing errors, defects, waste and related costs. Solutions also lie in increasing productivity and effectiveness in the use of all resources and improving responsiveness and cycle time performance. There is always room for improvement (Mukhopadhyay, 2001). The terms, ‘quality’ as well as ‘management’ being dynamic concepts, make it inevitable for the organization to continuously improve, in order to, meet the requirements of customer and also to make use of new technology. The quality standards also have to be modified and changed, like the ISO: 9000 standards, having a provision for revision, modification and deletion, after every 5 years (Karthä, 2010). Thus continuous improvement in TQM involves a strategic approach, which provides the best to customers through continuous innovation and improvements in products, services and processes.

Teamwork

The word Kaizen also implies improvement that involves everyone – both managers and workers (Ishikawa, 1986; Madan, 2006). TQM philosophy stresses on a systematic, integrated and consistent organisation-wide perspective, involving every one and every thing (Saylor, 1996), through suggestion systems. As a result, organizational improvement is brought about, through identification and solution of problems by groups of employees at various levels in the structure, by developing multifunctional teams, which are trained to have focus on corporate goals (Hill & Taylor, 1991; Saylor, 1996). Team work envisages the involvement of total work force in attacking systemic problems, particularly those that cross, functional boundaries. The teams identify with relevant problems in their own functional areas and engender a sense of involvement in organizational affairs. It is built in an organization, by setting communication net works that include employees,
Total Quality Management—A Theoretical Review

developing open and supportive supervisors, building high employee morale, moving responsibility from top to bottom and creating formal organization structures, such as, teams and quality circles. It is a holistic paradigm which recognizes that the employees together as a team can make an impact upon the quality of goods and services (Hill & Taylor, 1991). The TQM system also provides recognition of team and individual accomplishment, share success stories throughout the organization, encourage risk taking by removing fear of failure and provide financial and technical support to develop ideas. TQM concept takes on a humanistic paradigm and therefore, rules and coercion is not part of TQM, instead, there should be total involvement by the people concerned, by creating a change in the way of thinking and doing (Scrabec, 2000), focusing on the process of team interaction and empowerment of people within the organization to take part in developments (Sherr and Lozier, 1991). Teamwork, thus, becomes a part of work culture in a TQM organization.

Customer Focus

TQM is a management philosophy that builds a customer-driven, learning organization, dedicated to total customer satisfaction, through continuous improvement in the effectiveness and efficiency of the organization and its processes (Corrigan, 1995; Deming, 1982; Crosby, 1980; Caplan, 1990). Customer focus means meeting or exceeding customer expectation. Customer is the principal judge of quality (Sashkin & Kiser, 1993; Oakland, 2000; Amsden, Ferratt, & Amsden, 1996; Kaufman, 1992). From a total quality perspective, all strategic decision a company makes are customer driven. It finds out what the customer wants, how the customer uses its products and anticipates the needs that the customer may not even be able to express, and continually develops new techniques to obtain customer feed
back. Thus, in TQM, the central issue is customer focus, when applied to education; the customer has to be defined. Discussions on whether students, parents, society, government or all of them are customers are still in vogue. TQM approach recognizes two groups of customers, both internal and external. It is important to recognize the internal customers because employees who view themselves as both customers of, and suppliers to, other employees understand how their work links to the final product. The TQM concept stresses that only a satisfied internal customer can make an external customer contended (Saylor, 1996; Mukhopadhyay, 2001; Schwartzman, 1995). The relevance of continuously upgrading the quality of educational service starts with designing of the standards of education to be achieved and the blueprint for this is the school curriculum. The curriculum, which encompasses the totality of all experiences that a child gets from the school, is the torchbearer for the institution to attain stakeholder satisfaction. It gives the school a clear customer focused mission statement.

**Evolution of Total Quality Management**

**Quality Management as an Inspection Process**

The foundation of quality management was laid centuries ago, but, it developed along different strands. Initially, it focused on inspection. The quality of products was checked to see whether it conforms to standards. It was also helpful to eliminate product failure. The emphasis here was on detection and correction of defects in the course of production. In the case of inspection, the review is in the post-production period, therefore, the waste produced due to re-work, damaged products, rejection and such other quality costs were numerous (Dale & Plunkett, 1999). This approach is applied, suitably, to physical products.
Quality Management limited to Quality control

In the early 1930s, quality control was the technique that was adopted for quality management, in organizations, wherein specific methods were developed which guarantee the industrial product to possess a desired level of quality, provided the strategies are strictly adhered to. As defined by the International Encyclopedia of the Social Science, 1979, quality control in its broadest sense, refers to a spectrum of managerial methods for attempting to maintain the quality of manufactured articles at a desired level. It is the procedure of establishing acceptable standards with defined limits of variation in quality of material, size, weight, finish or other characteristics for goods or services, and maintaining these standards (Johannsen & Robertson, 1968; Johannsen & Page, 1986). A typical process of quality control in industrial production involves picking up sample products from the conveyor belt and scrutinizing to conform to the product definition. As quality control occurs after the production process (Fidler & Others, 1996) it results in quality costs like damage, wastage, spoilage, rework, customer complaints and sales returns (Dale & Plunkett, 1999; Mukhopadhyay, 2001; Srinivasa & Valarmathi, 2006).

Quality Control through Statistics

Walter A. Shewhart of the Bell Telephone Laboratories was the first to apply statistical methods to the problem of quality control, by developing the concept of Statistical Process Control (SPC), in manufacturing and propagated the concept through his book "Economic Control of Quality of Manufactured Product", in 1931. Quality control techniques began to make use of statistical control charts and acceptance sampling techniques. During the period of World War II, statistical quality control concepts were widely used and were
Chapter 2

considered necessary to control quality and improve product quality in manufacturing industries (Montgomery, 2002; 2009). Following Shewhart two other Bell Lab statisticians, Harold. F. Dodge and Harry. G. Romig took great efforts in applying statistical theory to sampling inspection and developed statistically based acceptance sampling as an alternative to hundred per cent inspection. The work of these three constitutes much of the theory of statistical quality and control that exists today (Montgomery, 2002; 2009).

Quality Assurance

Inspection evolved into quality control, which in turn, evolved into quality assurance. In quality assurance, a system is built which ensures that quality is inbuilt before the delivery of product (Fidler & Others, 1996; Tovey, 1994). Oakland as quoted by Mukhopadhyay (2001) maintains that quality assurance have five attributes, consisting of, quality planning, provision of quality advice and expertise, training of personnel, providing inward goods, process and finished products appraisal methodology and analysing customer’s complaints, warranty claims and product liability cases. In quality assurance, the focus of quality management is still on the provision of zero defect product (Dale & Plunkett, 1999; Crosby, 1980).

It was then realised that the method of process control, involving detection of defects and subsequent correction during production involves some wastage and additional cost. However, the control of a process essentially do not prevent the defects, inherent in product design, therefore the Japanese organisations started concentrating on product improvement.

Quality Management through TQM

At the end of the 1970s and in the beginning of the 1980s, the contributions of a number of American writers together with the pressure
arising from the success of Japanese industries encouraged the American
managements to turn to and focus on the quality management. Although TQM
is an extension which is built upon quality assurance approach, the emphasis is
not only on managing quality at the input and process points but in developing
a quality culture among all employees. TQM believes in continuous internal
evaluation so that the product/service is constantly improving and believes in
the participation of everyone involved in the organisation as a team for
delivering maximum customer satisfaction. The philosophy of TQM
incorporates the concept of product quality, process control, quality assurance
and quality improvement (Oakland, 2000).

Sallis (2002) retraces four steps in the development of quality
management. Quality management was first started as an inspection
procedure, which gradually met periodical transformation into one of quality
control, then to quality assurance and thereafter, to total quality management.
Dale and Plunkett (1990) pictured the hierarchic model of quality management
as quality inspection, quality control, quality assurance and total quality
management. Tuttle (1994) says that there are four stages in the development
of TQM, the first being the period of awareness about total quality
management and early experiments, second a period of blind following,
characterized by frenzied activity, later in the third stage there could prevail
negative skepticism, arising out of failures of over enthusiasm in stage two,
and lastly in the fourth stage of maturity there could be a more efficient
application of TQM. Various countries, including India, in their post-colonial
period have adopted the western concepts, by following the historical
sequences of inspection, quality control, quality assurance and is at present,
experimenting on the principles of total quality management.
Chapter 2

Total Quality Management in Education

The question of effectiveness and efficiency with which educational institutions are being run, irrespective of the country in which they situate, whether they are privately owned or are cradled by the government of the state, are significantly disturbing thoughts, especially when the attitude of these institutions reflect the ‘take it or leave it policy’. From such a perspective, various root causes of quality system failure in education have been identified and reported. These include poor inputs, poor delivery services, lack of attention paid to performance standards and measurements, unmotivated staff and neglect of students’ skills (Ali & Zairi, 2005; Pour & Yeshodhara, 2009). The need of the hour thus happens to be, quality upgradation in education. The educational institutions have turned to total quality management for the same reason that the business organizations have instituted quality programmes.

Although TQM was first designed for the industry, many educators maintained that TQM could also be applied to education, especially, for bringing educational reforms (Dheeraj, 2004) and for reducing waste of school resources and for increasing productivity (Cunningham, 2007). Deming (1982) in his book, Out of the crisis mentioned that TQM can be equally well applied in service sectors, government, education and the mail. Literature, on the application of TQM in education, includes a number of descriptive studies and case studies, which points out, several reasons, why the application is relevant at all (Motwani & Kumar, 1997; Bonser, 1992; Edwards, 1991; Hansen, 1993; Doraiswamy, 2005; Sharples, 1996; Madhu, 1994; Matthews, 1993). A case study conducted in the Management School of Lancaster University, showed
that successful academic innovation is compatible with TQM principles (Bolton, 1995). Fitzgerald points out that, application of TQM in a school or college could provide better service to its primary customers, the students and employers, because of the improvement in learning (Fitzgerald, 2004). On examining Deming’s fourteen principles, to study the implications for education, it reveals that institutions have to improve on a continuing basis because of the explosion of knowledge and the changing styles in learning. Quality can be achieved only through a continuous effort; therefore, it has to be made part of institutional mission for the holistic development of students. Deming advised to replace external inspection by continuous internal mechanism of quality assurance; this is made possible by evaluating the students continuously throughout the year and not by a single examination at the end of the academic year. He also advised to select the best available teachers and instructional resources for affordable price and not for the lowest price. Constant effort, in improving instruction, student assessment and management, would improve quality and reduce the cost by reducing wastage (Mukhopadhay, 2001).

The application of TQM is also warranted due to the pressure from industry for continuously upgrading the academic standards with changing technology; increasing competition between various private and government academic institutions, reduction in the pool of funds for research and teaching and its allocation, restricted to only those of quality, which implies that only reputable institutions will have a likely chance of gaining access to various funds (Thakkar, Deshmukh, & Shastree, 2006; Temponi, 2005). TQM, if properly applied, could create a complete transformation in education, but,
Chapter 2

will not bring results overnight; neither is it a panacea for all the problems that beset education. On the other hand, it provides an important set of tools that can be employed, in the management of educational institution (Kanji, Malek, & Tambi, 1999; Sherr and Lozier, 1991; Bonser, 1992; Kwan, 1996; Pourrajab, Basri, Daud, & Asimiran, 2011; Sallis, 2002).

The application of total quality management in educational institutions could be possible, by creating a conducive environment to achieve the quality processes, through, human capital (knowledge, skills, capabilities, competence), information capital (database, information and communication technology (ICT), systems and networks) and organization capital (culture, values, teamwork, alignment) (Basha, 2010). The TQM framework, includes leadership and quality culture; continuous improvement and innovation in educational processes; employee participation and development; customer-driven quality, appreciation and reward, human resource development and coordinated teamwork (Pour & Yeshodhara, 2011; Seymour, 1992; Sherr and Lozier 1991). Systematic efforts are to be taken from the part of educational authorities; to think in terms of the students, their needs, and usefulness of, what is taught or learned for the labour market. The immediate providers, the teachers, should also think, in terms of, inspiring the students to involve in the teaching–learning process for excellent results. The institution must, thus, set up a total teaching-learning and research oriented environment, which leads to quality deployment resulting in proactive and positive learner centered outcomes, including guidance and counseling system (Shawyun, 2003).

Management concepts and practices have been applied in education from years back, as evidenced by the formal chain of command, generation of
Total Quality Management and its application in education, especially in higher secondary school education in Kerala, have been extensively studied. Quality management involves the use of various tools and systems to ensure high-quality output. These tools include forms, reports and data, multiple checks and inspection, at different levels of authority and the use of formal evaluation in the administration of educational institutions. Nowadays, educational institutions also make use of catchy advertising slogans in order to lure student population and they try to build up their own brand. Research suggests, it both practical and common to use the marketing concepts related to business for the purpose of marketing educational institutions with the student as the potential customer (Sherr & Lozier, 1991). Many of the objectives of TQM have, consciously or unconsciously, been applied to the operations of higher educational institutions, in response to, external quality assessment or audit, but, still many think that TQM is inappropriate for the culture of these institutions (Bolton, 1995). However, there are several instances which assert the suitability of total quality management in education, and TQM as an alternative management strategy for improving the effectiveness of educational institutions, have been empirically proved.

TQM in education surfaced in 1988 at Mt. Edgecombe High school in Sitka, Alaska, where, David Langford, the school’s technology teacher/coordination, applied successfully the total quality concepts in his classes (Pour & Yeshodhara, 2011). In support of the TQM initiatives in education, Crawford and Shutler (1999) applied Crosby (1984) model to suggest a practical strategy, for using TQM principles in education. Their strategy focused on the quality of the teaching system, rather than on students’ examination results. They argued that examinations are only diagnostic tools, for assuring the quality of the teaching system, but to satisfy the educational needs of students, continuous improvement efforts need to be directed to
curriculum and delivery services. The possibility of adopting TQM in self-financed technical institutions was explored through a model, HOQ – House of Quality, an extension to the basic model of Quality Function Deployment (QFD) and the study recognized the need for continuous improvement, cultural change and effective use of financial resources to improve the value addition at each level (Thakkar, Deshmukh, & Shastree, 2006).

Hansen and Jackson applied TQM in classroom and called it as ‘Total Quality Improvement’. They applied the principles of customer focus (students), team process (student involvement) and continuous improvement. Their study revealed the effectiveness of TQM and they commented that the teacher became a manager of resources, rather than, an oracle on the podium and that time is a scarce resource, with students’ involvement through TQM, the valuable time of the students could be managed effectively (Hansen & Jackson, 1996). Tuttle (1994) University of Maryland developed Strategic Performance Measurement Methodologies (SPMM), through identification of key result areas, for determining whether TQM is working in universities or colleges.

Educational institutions adopt TQM for several reasons of which some are linked with professional responsibility, some others result from the competition inherent in educational market or from the need to demonstrate accountability. It is of little dissent that the customers and clients of the education service (students, parents and the community) deserve the best possible quality of education. It is the duty of educational professionals and administrators to have an overriding concern to provide the very best possible educational opportunities (Sallis, 2002). As John West-Burnham (1997) has
put it, 'it is difficult to conceptualize a situation, where, anything less than total quality is perceived, as being appropriate or acceptable for the education of children. The severity of competition that the business world faces, in the field of physical products and services, are now being faced by educational institutions also. The public educational institutions are trailing way behind private institutions and are confronted with the problems of rising drop-out rates, falling enrollment rates and declining quality of the teaching and learning environment. Falling enrollment and staff redundancies have ultimately raised the question of viability of these institutions. Educationalists will have to improve their curriculum-delivery mechanism and quality of their service, in order to, escape from its death knell, if not for competition (Sallis, 2002; Crawford & Shutler, 1999). The schools are accountable to the community and should publically demonstrate high standards (Dheeraj, 2004).

In this arena of killer competition, organizations delivering all kinds of goodies, whether tangible or intangible, are all in a state of renaissance, focusing on their ‘customer’, in order to provide for sustainable growth in business. The truth in this statement applies to educational organizations also. The field of education is now throbbing with severe competition; therefore, the application of TQM in the management of educational institutions is indispensable. Education is no longer a seller’s market and the realization that the customer is critical, is indeed dawning upon the institutions of learning. The educational institutions have to be competitive, since, nowadays; students as well as parents are willing to pay more for good quality education. Above all, it is important for educational institutions in the country to enable the nation to combat the most pertinent problems of poverty, unemployment,
Chapter 2

competitiveness, inadequate public education etc to mention a few by building up the quality of education and this issue is relevant to educational institutions at all levels (Sherr & Lozier, 1991).

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