CHAPTER-2
REVIEW OF LITERATURE

2.1 Introduction:

The review of literature helps to understand the importance, background and present situation related to the subject selected for the research work. It helps researcher to organize his research work properly. Therefore it is necessary to review relevant and latest literature related to the subject. The researcher has reviewed various books on the subject, articles in journals of National and International repute, articles published and circulated on websites, various committee reports, University Grant Commission Act, Maharashtra Universities Act 1994, University Rules & Regulation Statutes, AICTE rules and regulations, published & unpublished Ph.D. thesis. Application of TQM to all levels of education has advanced in developed countries, but in India it is still in its initial state. The TQM application to educational sector in India is very low and to management education is rare, though some institutes have obtained ISO 9000 certification, NACC/NBA accreditation. Therefore there are no established procedures or strategies to implement TQM practices in Management Institutes in India. A brief review of the recent studies in this field is presented here.

2.2 Total Quality Management (TQM) historical and conceptual review:

The study of Total Quality Management is not new. The concept of quality and quality control has their origin in the industrial sector. Quality management has been evolving since the 1800's.

Garvin (1988) has identified four main eras of quality: inspection era introduced in 1800’s after industrial revolution, and then followed by Statistical Quality Control in 1930’s by Shewart for mass production. His work was later developed by Deming and the early work of Shewhart, Deming, Dodge and Romig constitutes 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. 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 become a major theme in Japanese management philosophy, such that, by 1960, quality control and management had become a national preoccupation. By the late 1960’s/early 1970’s Japan’s imports into the USA and Europe increased significantly, due to its cheaper, higher quality products, compared to the Western counterparts. The Quality Assurance era in 1950’s saw the growth of quality from its production focus to the need to co-ordinate the activities that surrounded production such as design, engineering, planning, marketing and customer services. 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. The Strategic Quality Management era started in 1980’s sees quality rise to the attention of top management. Strategic quality management builds on all the previous eras by conferring on them a strategic level of importance of which TQM is perhaps the most obvious paradigm. Total quality management (TQM) became the centre of these drives in most cases.

2.2.1 The Concept of Quality:

The concept of quality is complex, and therefore individuals and groups may, and indeed they do, about the quality of a product, program or service. Moreover, the very perception of reality, the own scale of values, context and needs, among other factors; influence the demand for quality with various companies, institutions and individuals. Quality is a significant element of production or services in keeping the customers satisfied.

The concept of quality is broadly accepted and used in different fields such as manufacturing, marketing, and services such as health and education. In the field of education, it is about working with human beings, and customers are no longer individuals but society at large. Quality is a goal set repeatedly in the education policies of all countries, however, each country and each society has a different concept of education, and therefore of the concept of "quality education."

After looking up the term “quality” in a dictionary for a more precise definition, it is found that the term is described as sets of attributes or properties relating to something or someone. Therefore, quality is defined as, "An essential and
distinguishing attribute of something or someone”, or “a degree or grade of excellence or worth”, or “a characteristic apparent individual nature of something” (Webster’s, 2009).

Crosby, (1979) defined quality as the conformance to requirements or specifications and also suggested that to manage quality adequately; it must be able to be measured.

Garvin (1988) identifies five approaches to defining quality: transcendent (innate excellence); product-based (some attribute); user-based (needs); manufacturing-based (conformance to requirements; and, value-based (costs and prices). His classification mainly applied to industry, it has been widely used in relation to higher education.

Ishikawa (1985, p.45) has this to say about quality: Narrowly interpreted, quality means quality of product. Broadly interpreted, quality means quality of work, quality of service, quality of information, quality of process, quality of division, quality of people, including workers, engineers, managers and executives, quality of system, quality of company, quality of objectives etc.

Townshend (1990, p. 4-6) talks about the “dual nature of quality” namely, there are two sub-concepts: “quality in fact” and “quality in perception”. He explains “quality in fact” as “the provider of goods and services who through dint of hard work and capital expenditures performs up to its own specifications achieves quality in fact.” “Quality in perception” is defined as the “subjective quality as the customer sees it. A product or service achieves quality in perception when meets the customer’s expectations”.

Four stages of quality management was treated by Dale et al (1994), this include inspection, quality control (QC), quality assurance (QA) and total quality management (TQM).

Juran, (1997, 1999) defined quality as “the totality of characteristics of a product that meets customer needs and thus make it satisfying.” The characteristics of the product may take different forms such as agility, ease of maintenance, courtesy of service, etc.
Kondo, (1997), defined quality as a source of employee’s empowerment. To him, a major aim of a company is to make itself attractive to its employees and customers while making profits for its shareholders.

Peters, (1999) defined quality as a ‘magic bullet’ which provides lower cost, higher customer service, better products and higher margins. He also explained that ‘quality is in the eyes of the beholder’, this mean it is what the customer say it is.

Foster (2001, p.101), is of the opinion that, "quality is strategic", and as a result of being reactive rather than proactive, organisations fail to plan effectively. Designing and assuring quality in organisations requires strategic quality planning, which is very important for sustainability. Strategic planning consists of the dimensions 'content' and 'process'. Strategic content answers the question of 'what is to be contained in the strategic plan'.

American Society for Quality (ASQ), leader as a professional society providing several resources such as books, journals, training, certification networking, among other services. These institutions often view quality as the set of properties and characteristics of a product or service that bear on its ability to satisfy stated or implied needs (ISO, 2008).

Starting with quality, there is an association of knowledge that has been built, beginning with Inspection, then to Quality control, Quality Assurance, Quality Management, Total Quality and currently Total Quality Management.

2.2.2 Inspection:

According to (ISO 8402, 1986) inspection can be defined as ‘activities such as measuring, examining, testing, gauging one or more characteristics of a product or service and comparing these with specified requirements to determine conformity’. It involves the examination, measurement and testing of the characteristics of a product or service and the comparison to specified requirement and to access if the characteristics conform to specified requirement (Dale et al. 1994). Inspection is an efficient and effective way of discovering defects in services and products in the organizations.
According to Deming (1986), ‘inspection with the aim of finding bad product and throwing them out is too late, ineffective and costly’. Quality to him comes from the improvement in the process rather than inspection.

2.2.3 Quality Control:

Quality control is a conventional way that businesses have used to manage quality. Quality control is concerned with checking and reviewing work that has been done. This is mainly done by inspection of products and services take place during and at the end of the operations process.

Juran (1988) defined quality control as the regulatory process through which we measure that actual quality performance, compare it with standards, and act on the difference. It is a more sophisticated management tool aims at preventing goods and services which do not conform to basic requirements from getting to the final consumer.

Dale et. al. (1994), noted that the solving of a problem after a non conformance issue has been created is not an effective route towards eliminating the root cause of a problem.

Quality controls are operational techniques and activities that are used to fulfill quality requirement. As a measure of quality, quality control however is costly when viewed in terms of tangible and intangible variable cost. It could also result in the production of substandard goods and services when conducted late in the process of production. Due to the problems associated with quality control, businesses now focus on other avenues or means through which quality could be managed effectively (ISO 8402, 1994).

2.2.4 Quality Assurance:

This is a principle based on the designing of the business process of production with a view of minimising the chances of producing substandard goods.

According to Dale et al, (1994), quality assurance is a prevention based system, which improves product and service quality with increased productivity by placing the emphasis on product, service and process design. Quality assurance emphasis on defect prevention, unlike quality control that focuses on defect detection
once the item is produced. The quality assurance philosophy opined that quality is created in the design stage and not the control stage and that problems associated with quality are caused by poor process design.

Oakland (1995) defined quality assurance as broadly prevention of quality problems through planned and systematic activities, which include documentation.

According to Lockwood et al, (1996), quality assurance must involve the development of a new operating philosophy and approach that looks to be proactive rather than reactive, that includes motivating and involving people in the process across normal departmental barriers.

2.2.5 Total Quality (TQ):

During the 1990’s it has entered the business world a new concept of "quality” called "total quality.” This concept emerged in the postwar period as a requirement to raise quality standards governing the production of goods and services in the 1930s, with the objective of satisfying increased demand from consumers. Armand V. Feigenbaum was the one who originally used the term “Total Quality” (Huggins, 1998), and it was afterwards promoted by Walter Edwards Deming. During the fifties, Deming went to Japan and observed the development of Japanese companies in the implementation of innovations for the management of production processes, with wide participation of staff and ensuring customer satisfaction.

Feigenbaum (1983) aggregated these ideas by introducing the term 'total quality' and defining quality as "the total composite product and service characteristics of marketing, engineering, manufacture and maintenance through which the product or service in use will meet the expectations by the customer”.

2.2.6 Total Quality Management (TQM):

This is the highest level of quality management. From that experience of Total Quality, Deming coined the term Total Quality that was first adopted by Americans and Japanese, and then from the 1980s, by the Europeans. Today the term used by Americans to refer to Total Quality is "Total Quality Management” (TQM), while the Japanese use the name Total Quality Control (TQC) to denote the same concept.
Total Quality Management has many definitions. Gurus of the total quality management discipline like Deming, Juran, Crosby, Ishikawa and Feigenbaum defined the concept in different ways but still the essence and spirit remained the same.

Deming (1986) recommended 14 principles for effectively managing quality. He suggests that congruent objectives in quality management will drive out the fear of uncertainty in people, and that this is the best way to create a quality environment. According to Deming, quality is a continuous quality improvement process towards predictable degree of uniformity and dependability.

Juran (1988), the basic goal of quality management is the elimination of failure; both in the concept and in the reality of products, services and processes. This does not only mean that product, services and processes will fail in fulfilling their function but that their function was not what the customer desire. Failure must be prevented in quality management and to handle this there should be planning, organizing and controlling. Juran defined quality as “fitness for use.” According to him, every person in the organization must be involved in the effort to make products or services that are fit for use.

Crosby (1984, p. 97) maintained, “Nothing happens unless somebody actively does something, quality improvement requires that action be taken to actually change the culture and management style of the company.” He identified 14 action points that have become linked with his philosophy, and also provided administrators with an approach for implementing them. These 14 action points are;

1. Management Commitment
2. Quality Improvement Team
3. Measurement
4. Cost of Quality
5. Quality Awareness
6. Corrective Action
7. Zero Defects Planning
8. Employee Education
9. Zero Defects Day
10. Goal Setting
Oakland (1989, p. 14–15) defined TQM in a general perspective as: An approach to improving the effectiveness and flexibility of business as a whole. It is essentially a way of organising and involving the whole organization; every department, every activity, every single person at every level. For an organization to be truly effective, each part of it must work properly together, recognising that every person and every activity affects and in turn is affected by others. According to Strickland and Wither (1989), give the most comprehensive definitions. Strickland defines it as: TQM is both a philosophy and set of guiding principles that represent the foundation of continuously improving organisation. TQM is the application of quantitative method and human resources to improve the materialising services supplied to an organisation, all the process in an organisation, and the degree to which the needs of the consumer are met, now and in the future.

Juran (1991) stressed upon planning, improvement and control as essentials of quality management.

Saylor (1992), noted that, TQM is both a philosophy and a set of guiding principles that are the foundation of a continuously improving organization. The four essential elements of all definitions of TQM are continuous process improvement, people orientation, quantitative methods, and customer focus. Total in this context means the involvement of everyone and everything in the organization in a continuous improvement effort. Quality is total customer satisfaction.

Dale et al, (1994) cites BS.4778; part 2 (1991) where ‘TQM is defined as a philosophy embracing all activities through which the needs and expectations of the customer and the community, and the objectives of the organisation are satisfied in most efficient and cost effective way by maximising the potentials of all employees in a continuing drive for improvement.’
Samuel et al. (1995), argued that, Total Quality Management is a way of managing a business. The broad goal of TQM is continuous improvement by improving effectiveness, efficiency, cohesiveness, flexibility and competitiveness. TQM is an evolving concept that changes as new concepts and methods are developed, so there are many definitions of TQM. For example, Lord Tobin defines TQM as “the totally integrated effort for gaining competitive advantage by continuously improving every facet of organizational culture”.

Zairi and Youssef (1995) argue, “TQM must be viewed holistically by examining management factors such as institutional goal statements, long-range plans, and assessment techniques”.

Hill & Wilkinson (1995), who suggested that TQM is defined through three dimensions: (1) customer orientation, (2) process orientation and (3) continuous improvement. Through customer orientation, the organization assumes that quality means meeting external and internal customer requirements. Process orientation implies that basic processes in the organization can be linked to form extended processes. From this viewpoint, the organization is composed of quality chains that cut across conventional internal boundaries. Finally, customer satisfaction can only be achieved if organizational members direct their efforts towards the continuous improvement of products and processes.

Youssef et al. (1996), defined TQM as: “An overall philosophy whose objectives is to meet or exceed the needs of the internal and the external customer by creating an organizational culture in which everyone at every stage of creating the product as well as every level of management is committed to quality and clearly understands its strategic importance”.

Dahlgaard, et.al., (1999), noted, TQM as a corporate culture that is characterised by increased customer satisfaction through continuous improvement involving all employees in the organisation.

Philip Kotler (2000), in his book Marketing Management, defines TQM as organization wide approach to continuously improving the quality of all the organization’s processes, products and services.
Selladurai Raj, (2000), mentioned, TQM interventions or activities must be guided by four change principles, namely work processes, variability, analysis, and continuous improvement. Product design and production processes must be improved; variance must be controlled to ensure high quality; data must be systematically collected and analyzed in a problem-solving cycle; and commitment made to continuous learning by the employees about their work.

Owen (2001) states that “Total and continuous quality improvement is seen as a journey not as destination and as such has no real beginning or ending”. Thus, it is a continuous effort for the management to maintain a standard in the institutions.

Sureshchandar et al. (2001) suggested that TQM has been widely accepted as a management model if the approach is implemented successfully.

Vorley and Tickle (2001), defined TQM as the synthesis of the organisational, technical and cultural elements of a company. They opined that TQM is a heart and mind philosophy which recognises that company culture affects behaviour which in turn affects quality.

Besterfield et al. (2003) defined the three words comprising the abbreviation TQM: “total” refers to made up of the whole; “quality” refers to the degree of excellence of a product or service; and “management” refers to an act, art or manner of handling, controlling, leading and planning.

Demirbag et al. (2006) on the other hand, defined TQM as: “A holistic management philosophy aimed at continuous improvement in all functions of an organization to deliver services in line with customer’s needs or requirements under the leadership of top-management”.

2.3 Major Principles of TQM:
Before an organisation can reap the benefits from TQM implementation, some principle would have to be enshrined into the organisation’s culture. This section of the literature reviews these principles in relation to TQM implementation. The principles are discussed below:
2.3.1 Top Management Commitment and Leadership:

Crosby (1979) stresses top management commitment as the essential element for safeguarding TQM implementation. In order to communicate quality strategy across the organization, top management should create an organizational environment that focuses on continuous improvement. Their commitment promotes the creation of clear and visible quality values, along with a management system to guide all activities of the company towards quality excellence.

According to Oakland (1993), 'to be successful in promoting business efficiency and effectiveness, TQM must start at the top with the chief executive'.

Cooper and Ellram (1993), identified leadership as being critical in effecting organisational change most especially in the areas of building effecting relationship with suppliers and others involved in the process of value delivery. The commitment of leadership to the TQM strategy as shown in their daily disposition to work will go a long way in motivating employees to deliver quality services that exceeds the expectation of customers.

Andrle (1994), noted that 'the implementation of TQM requires a clear long term leadership commitment'. To him, long term relationship with satisfied customers is an asset to the organisation, thus, management must be committed to it. Andrle also stressed the importance of management in providing a 'customer focused support system’ such as measurements, rewards and recognition for satisfying customers with the aim of building a positive relationship with customers.

According to Kaynak (2003), TQM requires effective change in organisational culture and this can only be made possible with the deep involvement/commitment of management to the organisation’s strategy of continuous improvement, open communication and cooperation throughout the organisation. TQM implementation improves the organisational performance by influencing other TQM dimensions.

2.3.2 Culture Change:

According to Dale et al. (1994), ‘culture influences what the executive groups attend to, how it interprets information and the response it makes to changes in the
external environments’ - it is exceedingly crucial in the drawing up of the strategic position of the firm as it dictates how members of staff approach their day to day activities. Culture is said to help an organisation in planning and implementing their strategy.

Dale, et al (1994), defined quality culture as ‘the culture which nurtures high social relationship, and respects for individual, a sense of membership or the organisation and a belief that continuous improvement is for common good’. The total quality culture implies the decentralization of responsibility to the lowest cadre. By so doing, it taps into the intellectual capability of every individual in the organisation in the process of continuous quality improvement. This makes quality central to every employee and management in the organisation. TQM emphasises the need for change from the traditional approach of quality management which is bureaucratic in nature and which gives little or no room for innovation. The process of change is however difficult as most organisations find it very difficult abandoning their traditional approaches (Dale et al, 1994). The nature of change to take place makes it more difficult as it involves change in people’s attitude. Cultural change to Dale et al, (1994) implies an approach to changing the corporate culture of an organisation to be customer centric. The need for cultural change is stressed by the role it plays in the life of an organisation.

2.3.3 Customer Focus:

Jablonski (1992) stated the customer’s needs and expectation serve to drive development of new service offering. This is due to the fact that customers determine the quality level of service delivered.

Oakland (1993), noted that organisations are made up of a series of internal suppliers and customers. To him, this forms the quality chain of the company and it implies that every employee is a potential customer and supplier in the course of production. The process of production is structured in a way where each process have needs and expectation which must be fulfilled by others in the network of production. The effective fulfilment of these needs leads to the production of quality goods and services.
According to Andrle (1994), TQM is an ideology which is focused on the satisfaction of customer’s need. Thus, most organisations try as much as possible to meet or exceed customer’s expectation in their daily activity and also their long term plan. TQM require organisations to develop a customer focused operational processes and at the same time committing the resources that position customers and meeting their expectation as an asset to the financial well being of the organisation.

According to Muffatto and Panizzolo (1995), a high level of customer satisfaction is obtained solely by providing services or products whose features will satisfy customer’s requirements or needs.

Filippini and Forza (1998) explained that it is necessary for organisation to maintain a close link with their customers in order to know their requirements and to measure how it has been successful in meeting up to customers’ requirements.

2.3.4 Total Involvement:

Dale and Cooper (1993), explained in the TQM ideology, the traditional employee involvement is narrow-minded; it is job-centred rather than process-centred. The TQM approach involves ‘achieving broad employee interest, participation and contribution in the process of quality management’

Omachonu and Ross (1994), who noted that intrinsic motivation is at the heart of TQM, where empowerment and involvement in decision making is viewed as essential for sustained result. The main aim for the total involvement of employee is to boost internal and external customer’s satisfaction by developing a flexible environment which allows for innovation.

Harvey and Brown (1996), describes employee involvement was conceived to mean a ‘feeling of psychological ownership among organisational members’ in the traditional sense.

Dimitriades (2000), explained employee involvement concept assumes a companywide quality culture, which gives autonomy or a level of freedom to employees in taking decisions that affect their job. Thus, employees are encouraged to
perform function such as information processing, problem solving and decision making.

2.3.5 Continuous Improvement:

Turney and Anderson (1989) defined continuous improvement as the relentless pursuit of improvement in the delivery of value to customers.

Oakland (1993), argued that, the focus on continuous improvement will lead to the formation of formidable team whose membership is determined by their work on the detailed knowledge of the process, and their ability to take improvement action. TQM is concerned with the continuous improvement in all the process of production, from the levels of planning and decision making to the execution of work by the front line staff. The principle behind the idea of continuous improvement is basically the idea that mistakes can be avoided and defects can be prevented.

Dean and Bowen (1994), who argued that customer satisfaction can be attained only through the relentless improvement of processes that create product or service.

According to Muffatto and Panizzolo (1995), TQM involves the design into the process of production, a system of continuous improvement. This contains regular cycles of planning, execution and evaluation.

According to Stahl (1995), “continuous improvement refers to the constant refinement and improvement of products, services and organisational system to yield improved value to customers”. He further explained that the continuous look for ways in improving quality of product or service in the absence of customers’ complain may prevent a future problem. The continuous improvement process aims to identify and eliminate the cause of a mistake in order to prevent its reoccurrence.

Fuentes-Fuentes et al, (2004) explained that organisations operating in a dynamic environment are liable to carry up continuous improvement in its operation; they explained that the face of competition changes faster in this environment as a result of the changes in customers’ needs, competitors’ activities and service/product
innovation. Continuous improvement means ‘a commitment to constant examination of the technical and administrative process in search of better methods’.

2.3.6 Training:

According to Stahl (1995), training helps in preparing employees towards managing the TQM ideology in the process of production. Training equips people with the necessary skills and techniques of quality improvement. It is argued to be a powerful building block of business in the achievement of its aims and objectives. Through training, employees are able to identify improvement opportunities as it is directed at providing necessary skills and knowledge for all employees to be able to contribute to ongoing quality improvement process of production. It is also argued that training and development programme should not be seen as a onetime event but a lifelong process.

2.3.7 Team Work:

A well structured team will aid the effective production of goods and services through the integration of activities involved in the process of production. The researchers believe it is essential to have a team made of people with right attitudinal disposition to working in groups so as to realise the gains of quality management. Team work is a way of stimulating positive work attitude, which includes loyalty to the organisation and a focus on organisational goals.

Dale et al (1994) noted that team work is a key feature of involvement. To him, team work aids the commitment of the workforce to the organisational goals and objectives.

Some of the benefits of Team work as highlighted by Oakland (1995), are given below;

- Recommendations made by teams are more likely to be accepted and implemented where the team is highly formidable, unlike the individual suggestion which represents just an individual’s opinion.
- A greater variety of complex problem will be tackled i.e. problems beyond the capability of an individual or department can be handled more efficiently through the pooling of resources together.
Working in teams exposes a problem to a great variety of knowledge thus problems beyond departments can be solved more easily.

Team work will boost workers morale and ownership through participation in problem solving and decision making.

Martinez et al, (1999) noted that teamwork contributes to the generation of improvements that are proposed by employees. To them, the proposed improvements have a way of changing the attitudes of employees that are resistance to change.

Besterfield et al. (2003), pursuant there to, teamwork can promote an increase in communication and a co-worker can act as mentors. Teamwork involves face-to-face interactions among members.

2.4 Critical Dimensions of TQM:

Zaire (1991) identified process flexibility, workplace design, user-supplier chain and management control system as the pillars on which the TQM system is built. Although there are always going to be debates about how to define critical dimensions of TQM, it is necessary to decompose it in some way to an analysis.

Oakland (1992) stressed customer focus, management commitment, total participation, statistical quality control and systematic problem solving as the important dimensions for implementing TQM.

Anderson et al. (1994) developed the theoretical foundation of quality management practice by examining Deming’s 14 points. They reduced the number of factors from 37 to seven using the Delphi Method, which consists of visionary leadership, internal and external cooperation, learning, process management, continuous improvement, employee fulfillment and customer satisfaction.

Dean and Bowen (1994), stated that the management’s commitment and leadership in quality must be visible, permanent present at all management levels, since it acts as the guide and promoter of the TQM implementation process. But to be successful one has to move into action. They concluded that three out of six criteria of the MBNQA (Malcolm Baldrige National Quality Award) framework (leadership,
HRM and strategic quality planning) are extensively covered in the management literature. These are elements of soft TQM.

Lakhe and Mohanty (1994), identified some of the major factors, e.g. teamwork and participation, statistical methods and analysis, problem solving management, communication, behavioural and cultural change, customer care, motivation for action, responsibility and accountability, adequate procedure and information system, etc.

Ho and Wearn (1995, p. 25) defined TQM as ‘a way of managing to improve the effectiveness, efficiency, cohesiveness, flexibility, and competitiveness of a business as a whole.’ They further offered a list of principles required for successful TQM implementation, including leadership, commitment, total customer satisfaction, continuous improvement, total involvement, training and education, ownership of problems, reward and recognition, error prevention and teamwork.

Rowley (1995) identifies the key elements necessary for success as: commitment and example from top management; awareness of the cost of quality; knowledge of the tools and techniques; understanding of customers’ specifications and satisfaction; pursuit of continuous improvement; and, belief that everyone has a responsibility for quality.

Ahire et al. (1996) developed 12 integrated quality management constructs, which were labeled as: supplier quality management, supplier performance, customer focus, statistical process control usage, benchmarking, internal quality information usage, employee involvement, employee training, design quality management, employee empowerment, product quality and top management commitment. They find a positive relationship between practices related to people management (empowerment, commitment and training) and other quality strategies (product design, process management or the utilization of internal and external information for quality), demonstrating the importance of this factor for the successful implementation of TQM.

Black and Porter (1996) revealed ten major TQM practices. They are people and customer management, supplier partnerships, communication of improvement information, customer satisfaction orientation, external interface management, and
teamwork structures for improvement, operational quality planning, quality improvement measurement systems, and corporate quality culture.

Oakland and Leslie (1996) explained CSF as a term used to mean the most important sub-goals of a business organization.

Reed et al. (1996) pointed out the process elements and content elements of TQM, in the context of firm strategy, and identify four strategic TQM contents as market advantage, design optimisation, process optimisation and product reliability.

Mohanty and Lakhe (1998) identified the critical factors for TQM implementation in Indian Industry. Meanings and operational measures of such critical factors are articulated and developed by involving the industry managers as the appropriate subjects. The measures are subject to internal consistency and reliability tests. A factor model is evolved which may facilitate the articulation of global perspectives, and understand business imperatives and undertake strategic initiatives to implement TQM programmes across different industry sectors. This paper establishes a framework for subsequent research and for evaluation of TQM programmes by industry practitioners.

Zairi & Ahmed, (1999), reviewed literature on TQM and continuous improvement programs identifies 12 common aspects: committed leadership, adoption of TQM, communication of TQM, closer customer relationships, benchmarking, increased training, open organisation, employee empowerment, zero defects mentality, flexible manufacturing, process improvement and measurement.

Chattopadhyay (2001) has suggested certain practices that will support a quality philosophy, including the involvement of top management as a team, the adoption of a quality philosophy, an emphasis on quality oriented training, a focus on the customer, and a policy of continuous improvement.

Sureshchandar et. al., (2001) discussed 12 dimensions of quality management as critical for the utilization of a TQM environment in service organizations like Banking and non-banking financial institutions, insurance, health care system and education. A conceptual model for Total Quality Control has been proposed demonstrating the relationships among its dimensions.
Antony et al. (2002) described 11 TQM practices: management commitment, role of the quality department, training and education, employee involvement, continuous improvement, supplier partnership, product/service design, quality policies, quality data and reporting, communication to improve quality, and customer satisfaction orientation.

According to Brah, et. al. (2002), a set of seven factors presents critical dimension of TQM, that is, corporate planning, top management leadership, customer focus, human resource focus, process focus, quality focus, and information and analysis.

Sila and Ebrahimpour (2002) identified five major categories of objectives. These objectives were defined as;

1. The identification of the critical factors of TQM,
2. Issues in the implementation of TQM,
3. The links between TQM factors and performance,
4. Human resource management within a TQM context, and
5. Relationship between TQM and ISO 9000.

Sureshchandar et al. (2002) expanded the practices even further and came out with 12 major practices comprising of top management commitment and visionary leadership, human resource management, technical system, information and analysis system, benchmarking, continuous improvement, customer focus, employee satisfaction, union intervention, social responsibility, service-scapes, and service culture.

Rahman and Bullock, (2002), in their working paper stated that, Many empirical studies have demonstrated that only a handful of soft total quality management (TQM) elements contribute to organisational performance while elements of hard TQM have no relationship with performance.

In the research of Montes et al. (2003), the critical dimensions of TQM include five large blocks: managerial leadership and commitment, human resource management, the relationship with customers and suppliers, the internal culture of the organization, and process management.
Lin and Wu (2005), The most widely used example of quality assurance is the ISO 9000 series, which are founded on eight quality management principles: customer focus, leadership, involvement of people, process management, system approach to management, continuous improvement, factual approach to decision making and mutually beneficial supplier relationships.

Samat et al. (2006), explored the relationship between total quality management (TQM) practices and service quality as well as the relationship between TQM practices and market orientation. The results show that employee empowerment, information and communication, customer focus, and continuous improvement had a significant effect on service quality whereas only employee empowerment and customer focus had a significant effect on market orientation.

Ali et al. (2010), provided evidence on the degree of criticality and reliability tests for human resource (HR) related critical success factors (CSFs) in TQM implementation. In higher education (HE) contexts, the CSFs in TQM programmes emphasize more management commitment, HR management and quality working attitudes for customer satisfaction. Therefore, the ‘soft’ or HR aspects in the literature review stand as the fundamental issue of concern for organizational management in quality planning and creating a quality working climate to ensure successful expected performance.

Chang et al. (2010), in their study verified employee satisfaction and loyalty is critical to a service-oriented organization’s survival and success. This study integrates total quality management practices by introducing employee training, employee empowerment, teamwork, employee compensation, and management leadership into a theoretical model for studying employee satisfaction and loyalty within the context of government. The results of this study show that employee empowerment, employee compensation, teamwork and management leadership are significant positive predictors of employee satisfaction; and employee loyalty can be enhanced through employee satisfaction.

Talib et. al. (2010), argued that Total Quality Management (TQM) is an integrated management approach that aim to continuously improve the performance of products, processes, and services to achieve and surpass customer’s expectations.
They identified some key factors that contribute to the success of TQM efforts are often termed as Critical Success factors (CSFs). A quality tool “Pareto analysis” was used to sort and arrange the CSFs according to the order of criticality.

Talib and Rahman (2010a) study on the impact of TQM in different service industries like: health-care, banking; food and distribution industry, education, and IT/IS, contribute the relevance of TQM in these service industries. The other important concerns of TQM include managerial issues, customer issues, implementation framework, TQM barriers, and application of tools and techniques.

Brun (2011), provided contemporary insights about TQM as an integrated practice which joins all departments viz Marketing, Finance, Design, Manufacturing, Purchase, Engineering, Human resources to meet customer requirements and to accomplish organization goals and objectives. Numerous studied on TQM emphasized on various TQM critical success factors, tools & techniques to assure successful implementation.

Idris and Zairi (2012) reviewed TQM critical success factor related to the environmental context of the industrial eras. Having defined TQM sustainability, and traced the quality paradigms along TQM life-path, conditions for sustainability are discussed. The paper also highlights some initial strategies for sustainability, drawing primarily on past empirical and conceptual writing. A set of theoretical enablers and inhibitors for sustaining TQM are discussed, and a research model is proposed. A proposed sustainable model is presented, linking TQM implementation and competitiveness. Hypotheses and research constructs are generated to help further work in solving the growing concern for TQM sustainability.

Maddulety Koilakuntla, et.al. (2012), in their research paper A Research study on Estimation of TQM “Factors ratings” through Analytical Hierarchy Process stated that, a several factors are to be considered for effective deployment of TQM in an organization. Different business excellence models considers slightly different factor with different weights, but a selected business model suggests same factor ratings for all types of Industrial units. The factor weights are very much necessary at two stages, one is for giving required importance while deploying TQM concept in an organization, second stage to understand the degree of business excellence achieved
through TQM deployment. Hence the author has attempted to develop organization
specific factors and factor ratings by considering business specific key performance
indicators (KPIs) along with weighted ratings with the help of Analytical Hierarchy
Process (AHP).

2.5 TQM Tools and Techniques:

As part of the development of TQM, and the ‘TQM Movement’, various tools
and techniques have been generated that have been used by quality practitioners to aid
the quality planning and improvement processes.

2.5.1 Tools for Quality Planning:

Customers’ needs and expectations drive the planning of the products or
services and the systems by which they are produced. Once the customers’
expectations are identified, they are translated into product and service specifications.
In order to meet the specifications, organizations use several tools to help them focus
on external and internal customers.

2.5.1.1 Quality Function Deployment (QFD):

Akao (1990), said that the Quality Function Deployment Technique (QFD),
was initiated by Shigeru Mizuno and Yogi Akao, of the Tokyo Institute of
Technology in the 1960s. Since then it has been successfully used in product and
service design by many organizations and has today been established as an important
quality tool in the design process. Introduced as a specific methodology for a new
product development, QFD has been applied with good results even in the service
industry.

Jaraiedi & Ritz (1994) argued that, QFD, as one of the most powerful TQM
tools, has also been used quite extensively in academia. They applied QFD to analyze
and improve the quality of the advising and teaching process in an engineering school.

Maddux et al. (1991), QFD may be defined as, ‘a system for designing a
product or a service based on customer demands and involving all members of the
organization’.
Dean and Evans (1994, p.68-71) explained QFD is the most famous quality planning tool. It is used to ensure that the customers’ requirements are met. Quality function deployment uses a set of matrices to relate the customers’ expectations to planning. The basic planning document is called the *customer requirement planning matrix*. Because of its structure, it is always referred to as the *House of Quality*. Building the house of quality requires six basic steps:

1. Identify customer attributes.
2. Identify technical features.
3. Relate the customer attributes to the technical features.
4. Conduct an evaluation of competing products.
5. Evaluate technical features and develop targets.
6. Determine which technical features to deploy in the production process.

Motwani et al. (1996) stressed that QFD requires: (1) a cross-functional team; (2) the QFD process itself, and; (3) the visual matrix that guides the process.

### 2.5.1.2 Concurrent reengineering:

Dean and Evans (1994, p.74) explained concurrent engineering is the concept that all major functions that contribute to getting a product or service to market have continuing product-development and responsibility from beginning to end.

### 2.5.1.3 The Seven Management and Planning Tools:

Dean and Evans (1994, p.76) stated that, these tools had their roots in post-World War II operations research development in the U.S., but refined by several Japanese companies. They can be used to address problems faced by managers in making strategic plans and organizing and controlling large complex projects. These tools are:

1. Affinity Diagram.
2. Relations Diagram.
3. Tree Diagram.
4. Matrix Data Analysis.
5. Matrix Diagram.
7. Arrow Diagram.
2.5.2 Tools for quality improvement:

Implementation of process improvements is essential. Managers need systematic tools to drive quality continuous improvement. These tools include the Deming cycle, tools for data analysis and benchmarking.

2.5.2.1 The Deming PDCA Cycle:

Gitlow and Gitlow, (1987, p. 79-80), argued that, Deming also encouraged a systematic approach to problem solving and promoted the widely known Plan, Do, Check, Act (PDCA) cycle. The PDCA cycle is also known as the Deming cycle, although it was developed by a colleague of Deming, Dr Shewhart.

1. **Plan (P):** in this step data is collected to construct a plan for what needs to be accomplished in a given time frame. Then actions for applying the plan are determined.
2. **Do (D):** actions are taken.
3. **Check (C):** results of the actions are studied and checked by collecting data to make sure the plan is achieved.
4. **Act (A):** changes are made to the plan that is needed to better achieve customer satisfaction and to continue the successful actions.

2.5.2.2 Tools for data collection and analysis:

Gitlow and Gitlow, (1987, p. 79-80), discussed the multitude of techniques which support the problem solving process, it is the seven statistical tools, which are also referred to as QC (Quality Control) tools that have become the most firmly established. There are seven tools used extensively to gather, analyze and interpret data to facilitate the solution of quality problems for continuous improvement. These tools are: Flow chart, Check sheets, Control chart, Histograms, Pareto analysis, Cause and effect diagram (Fishbone Diagram) and Scatter Diagram (Correlation diagram).

2.5.2.3 Benchmarking: Benchmarking is a critical facet in TQM.

Godfrey and Godfrey (1999, p.40) define benchmarking as a tool or technique for finding and implementing best practices.
Liston (1999, p.98) agrees with Godfrey and Godfrey and highlights a main objective behind benchmarking which is customer satisfaction. He defines benchmarking as: “A tool used to improve products, services or management processes by analyzing the best practices of other companies or institutions to determine standards or performance, and how to achieve them to increase customer satisfaction”.

Foster (2001, p.168), explains that in order to embark on 'best-in-class' benchmarking, an organisation firstly need to decide on 'who' it wishes to benchmark, and it is often frightening due to the 'dog-eat-dog' nature of the competition. The purpose of 'best-in-class' benchmarking is to provide a foundation for continual improvement, it involves the following process, firstly the initiator organisation need to choose to benchmark the best-in-class organisation, and secondly the initiator organisation will observe the processes of the best-in-class organisation, thus generating ideas for improvement. Finally this will then assist the initiator organisation to learn and even become best in class too.

The benchmarking process has been described by many authors in five steps. These are summarized by Beckforde (2002, p.239-241) as follows:

1. Determine which functions to benchmark.
2. Identify key performance indicators to measure.
3. Identify the best-in-class organizations.
4. Measure the performance of the best-in-class organizations and compare it to the results of the desired organization performance.
5. Implement change to meet or exceed the performance of the best.

2.5.3 Other TQM tools & techniques:

According to Bhuiyan and Baghel (2005, p.762), the best known continuous improvement methodologies, are Lean Manufacturing, Six Sigma, The Balance Scorecard, Lean Six Sigma, Kaizen: more commonly referred to as 'continual improvement', Zero Defect Program: created by the NEC Corporation of Japan, based upon Statistical Process Control and one of the inputs from the formulators of Six Sigma.
Schroeder (2007) outlines the commonly accepted Six Sigma steps as: Define process; Measure quality variables valued by customer – set improvement goals; Analyse root causes of current defect levels – consider process change alternatives; Improve process – check and improve; and Control – monitor over time. The Six Sigma process requires a trained quality improvement specialist, or ‘Black Belt’ to lead a cross-functional improvement team.

2.6 Quality Management Systems and Improvement Awards:

Sallis (1993, p.66) stated, The Quality Management Systems and Improvement Awards are developed in the commercial environment where the market place is seen as determining standards and value for money. In education, the case is a bit different as introducing a quality system is an expensive and time consuming affair, and may be beyond the budget of educational organizations. Moreover, gaining a quality mark or standard does not guarantee quality.

Beckford (2002, p.221), explained quality management systems comprise formal records of organizations’ methods of managing the quality of products and services. Systems enable the organizations to reveal to themselves, their customers and more importantly to independent certification bodies that they have established effective systems for managing the quality of their products and services.

2.6.1 ISO 9000:


The revisions of ISO 9000:2000 are based on the following eight principles that reflect best quality management practices (ISO, 2000): (1) customer focus, (2) leadership, (3) involvement of people, (4) process approach, (5) system approach to management, (6) continual improvement, (7) factual approach to decision making, and (8) mutually beneficial supplier relationships.
Beckford (2002, p.221) explained ISO9000 is one of a series of quality management system standards developed over a long period of time beginning in the defense industry. For example, in the late 1940s, NATO began developing quality standards to build harmonization between co-operating military forces. Then, these standards were revised and consolidating in Defense Standards between 1951 and 1973.

Chan et al. (2002), believed that ISO 9000:2000 is closer to TQM concepts because this new version adopts the TQM philosophy with stronger emphasis on customer satisfaction and effective connection of quality management system to organizational processes. The aim is towards improved organizational performance in all aspects.

2.6.2 BS5750:

Sallis (1993, p.60) stated BS5750 is the British Standards version of the international equivalent ISO9000. BS5750 was first published in 1979 under the title “Quality Systems”. Similar to ISO9000, it has its origins in the Ministry of Defence and NATO systems. It consists of four parts. Part one is applicable to organizations for whom the design and development of products or processes is important for their business. Part two applies to most organizations as it considers production or installation. Part three is for organizations involved in inspecting or testing products. The last part, part four is a guide for the other three parts.

Sallis (1993, p.65) stated that, although the Quality Management Systems provide discipline and external assessment which lead to a third party accreditation and a quality mark, TQM is a larger enterprise than establishing a quality system and does not necessarily require the application of external standards.

2.6.3 Deming Prize:

Sallis (1993, p.72) stated that, The Deming Prize is not available in the United Kingdom as it is the Japanese national prize for quality. It is applied annually to find the foremost quality company in Japan. The checklist for the Deming Prize covers many areas such as the organization’s policy and objectives, its organizational structure, the use of information and education.
Izadi et al (1996, p.61) said unlike to the Quality Management Systems, the Improvement Awards such as Deming Prize, the Malcolm Baldridge National Award and The European Quality Award are competitions not standards. They aim to encourage the simulation of excellence exhibited by the award winners. The oldest Prestigious Award is the Deming Application prize (Deming Prize) of the union of Japanese Scientists and Engineers (JUSE). Initiated in 1951 and named after Edwards Deming. The Deming Prize has long been recognized as an indicator of excellence in business.

2.6.4 The Malcolm Baldridge National Award:

Izadi et al, (1996, p.63) describes, The Malcolm Baldridge National Award is the American equivalent of the prestigious Japanese Deming Prize. The Malcolm Baldridge National Award recognizes quality improvement among manufacturing, service and business. The main goal of the Malcolm Baldridge National Award is customer satisfaction. The award criteria reflect the following seven categories: leadership, information analysis, strategic quality planning, human resource development and management, management of process quality, quality and operational results, and customer focus and satisfaction.

2.6.5 The European Quality Award:

Sallis (1993, p.74-75) stated, The European Quality Award was launched during the 1991 European Quality Management Forum’s meeting in Paris. The Award aims to recognize organizations that are paying exceptional attention to total quality, and to encourage others to follow their example. The organization which seeks the Award is assessed on the following four criteria: customer satisfaction, employee satisfaction, business performance, and the organization’s impact on society.

2.7 TQM Implementation:

How to implement TQM? Each organization must tailor its approach to exploit their strengths and concentrate on improving their weaknesses.

Chin and Pun (2002) have developed a 22-step implementation guideline of TQM adoption is;
1. Increase organization's awareness of TQM
2. Review organization's status of TQM adoption
3. Confirm management commitment to TQM
4. Create corporate TQM vision
5. Form TQM steering committee
6. Formulate TQM objectives and strategies
7. Communicate TQM campaign
8. Promote TQM education and training
9. Identify advocates and resistors
10. Plan for implementation
11. Determine improvement projects
12. Compose project teams
13. Provide team training
14. Activate team efforts
15. Obtain teams' feedback
16. Obtain users'/customers' feedback
17. Obtain employees' feedback
18. Assess internal business performance
19. Conduct competitive benchmarking
20. Benchmark world-class performance
21. Modify organizational infrastructure
22. Refine project scope, objectives and methodologies

LeTarte (1993) suggested a seven-step program for establishing the necessary conditions to implement TQM:

1. Understand the concepts.
2. Convince CEO of its utility.
3. Build a core of committed, knowledgeable people.
4. Plan to establish TQM principles early.
5. Build on past strengths.
6. Be prepared to think and act differently.
7. Use systems thinking.
2.7.1 Stages of TQM Implementation:

Dale et al, (1994) identified six different levels of TQM implementation, these includes uncommitted, drifters, tool pushers, improvers’ award winners and world class. According to them, these stages do not necessarily represent the stages through which organisations pass on their TQM journey. These levels according to Dale et. al. are to help organisation in identifying their weaknesses and proffering solutions to them through the use of continuous improvement.

Chin et al. (2000), discussed the phases of TQM implementation include five levels: (1) unaware, (2) uncommitted, (3) initiator, (4) improver, and (5) achiever.

2.7.2 Benefits of TQM Implementation:

The work by Jablonski (1991) and Hasan and Kerr (2003) on the relevance and impact of TQM, asserted that those implementing TQM will realize increased productivity, increased customer satisfaction, reduced costs, enchanted quality of work, and increased competitive advantage.

Omachonu and Ross (1994), stated that, the effective implementation of TQM will increase customer satisfaction with the service offerings. Quality enhances customer loyalty through satisfaction; this in turn can generate repeat business and lead to the attraction of new customers through positive word of mouth. The word of mouth communication will help in cost reduction. They noted TQM implementation will provide competitive edge to the company. The improvement in quality will result in increased Market share and profitability.

Tuttle (1994, p. 22) asserted that the TQM process includes not only the elimination of undesirable output, but also the improvement of acceptable products and services, thus resulting in customer satisfaction or delight. Management in this context is not administrative personnel directing or controlling the work of others. Rather, it is the actions involved in applying TQM principles and techniques to all activities. It can be said that TQM’s sum is greater than its individual parts, and can be seen as a scientific management method that relies on older, proven management principles and methods as well as new ones.
Andrle (1994), asserted that the total quality approach creates an integrated method of analysing operation by focusing the processes of production on customer satisfaction. Thus, it requires that quality be built into all the processes so as to be efficient in the overall operation.

Evans (1995), states that since customer service and demand timing constitute important considerations of total quality management, business firms implementing TQM focus on the continuous improvement of its products and services, eliminate defects, prevent mistakes, and place due importance on the role of front line employees.

Hackman and Wageman (1995) advocated that, total quality management (TQM), if properly implemented, can enable organizations to dynamically provide cope with their ever changing environments in a sustainable manner.

Powell, (1995), TQM produces a variety of benefits such as understanding of customer, improved customer satisfaction and improved internal communication. He found only three of his 12 soft TQM factors (executive commitment, open organisation, and employee empowerment) to be significantly correlated with overall corporate performance.

Porter (1996), asserted that, implementation of TQM further ensures that organisations change how they perform activities so as to eliminate inefficiency, improve customer satisfaction and achieve the best practice. Porter noted that constant improvement in the effectiveness of operation is essential but not a sufficient factor for organisation to be profitable.

Dimitrades (2000), stated that, the motive behind the intrinsic reward is to provide the employee with some autonomy which empowers him to take decisions that affects his job, thus making him responsible and accountable. This is said to increase the employee’s level of job satisfaction. The implementation of TQM ensures that every worker in the organisation does his work with quality the first time, thus improving the efficiency of operation and avoiding some cost associated with waste. This in turn will offer more value to customers in terms of price and service quality, thus making them satisfied.
Behara and Gundersen (2001) find that TQM practices emphasise teamwork and cross-functional relationships that provide many opportunities for social interaction and social reinforcement. These show that the spirit of team working is one of the main features of TQM culture.

Shaw et al. (2001) verified that the congruence between rewards and TQM significantly enhances organizational results. In this research, incentives and skill-based pay interact with TQM to influence customer satisfaction and perceptual performance.

Antony et al., (2002), stated that the success of TQM will result in improved employee involvement, improved communication, increased productivity, improved quality and less reworks, improved customer satisfaction, reduced costs of poor quality and improved competitive advantage.

Kaynak (2003), suggested that the effectiveness of TQM organisations should be measured by the degree of integration with their supplier bases because supplier quality management is a critical component of TQM. Operational effectiveness is then a function of how well the various units of an organisation carry out their functions with quality.

Bou and Beltran, (2005), argued that the influence of TQM on organizational results will be greater when its implementation is supported by a high commitment strategy. He assessed the links between TQM and human resource strategy by posing the research question: will organizational performance increase when a TQM strategy is reinforced with the use of high-commitment strategy? In other words: do TQM and a high-commitment strategy exert an interaction influence on the organizational results? He examined the social dimensions of TQM strategy and reviews the recommendations made by TQM experts for human resource activities.

According to Sila (2007), TQM helps in improving the quality of products and also reduces the scrap, rework and the need for buffer stock by establishing a stable production process. TQM can minimize the total cost of production through ‘sole sourcing’. The cost in this case is reduced by limiting the number of suppliers used by the firm and providing them with necessary training and technology. Continuous improvement which is a feature of TQM is said to reduce the product cycle time thus
improving productivity. The efficient functioning of an operation will then depend on how well the suppliers meet up with the expectations of the organisation. This is why the TQM principle emphasises the totality of quality in all facets which includes the suppliers. TQM endorses the total quality approach in creating customer satisfaction.

2.7.3 Limitations to the implementation of TQM:

Deming (1986), who argued that, rewards needs to be tied to team work or department rather than individual. The failure of organisations to implement the rewards to group might lead to internal competition amongst employee and this will have a negative impact on team performance which TQM promotes. High cost of providing quality service is a major hindrance to the implementation of TQM, in organisations.

Andrle, (1994) on his own assessment, claims that the adoption of incompatible quality approach by organisations results in the failure of TQM implementation, he further stressed that the delegation of quality leadership by managers might lead to the development of TQM bureaucracies that are ineffective like other functional departments.

Oakland, (1995) identified factors that hinder the implementation of TQM. These include the thought that its implementation can be time consuming, bureaucratic, formalistic, rigid and impersonal.

Fry (1995) found a major obstacle to the implementation of TQM measures in the lack of ownership by individuals, and institutions, of the changes brought about by the quality movement. In addition, she noted an attitude of cynicism with regard to the motives behind the introduction of TQM.

Asher (1996) observes that there is a need for management to drive the ideology of TQM process in order to encourage employees to follow and also to prove to them about management’s commitment to quality.

Porter (1996) noted that TQM is essential for an organisation’s productivity and effectiveness but will not necessarily give an organisation competitive advantage
over her competitors. TQM does not address strategic business issues like differentiation and positioning strategies.

McCabe and Wilkinson (1998) noted that the failure of TQM can be attributed to the inappropriate implementation method adopted by the firms employed and not because of the principles of TQM itself. They believed TQM could be successful if it is adequately planned for and implemented according to plan. Another reason for the failure of TQM is the emphasis given to individual rewards for TQM effort.

According to Wilkinson et al (1998) the lack of commitment from any particular group within the organisation can be a serious barrier in management of quality. Most especially the non commitment by management to quality management is a major hindrance to the successful implementation of TQM.

Ugboro and Obeng, (2000) in their research they found out that the half hearted implementation of TQM is a major reason for its failure in most organisations. According to them, organisations are only willing to implement just those aspects of TQM which is supported by existing organisational culture. Their findings revealed that employees did not feel as part of the decision making process and their ability to make contributions to quality improvement were restricted due to the limited authority granted them to carry out their activities.

Smith, (2004) explained that quality management programs have failed because they were ‘programs of the month’. According to him, implementing quality throughout an organisation is not the result of a formalised programme but requires a cultural change in the way activities is conducted.

2.8 Total Quality Management in Higher Education:

Since World War II, developed countries had a good educational infrastructure for the entire population, and a movement to promote a qualitative improvement in education considering the new challenges of society was started. This made possible to achieve “quality in education” as pedagogical literature and in scientific policies called it. However, although the term had been coined, it lacked a unifying concept. What is understood by quality in education? This question identifies the main problem, a situation that is discussed even today.
The concept of TQM is adapted to the education and higher education environment. Research shows that by adapting aspects of the TQM to fit their own needs, education organizations experienced a better ability to manage the process of quality, and maintain and enhance development.

Quality in higher education, how to enhance it and how to evaluate it, has been placed high on the contemporary agenda in higher education. The literature from the late 1980s onward suggests a continuing interest in the higher education sector, and factors explaining this increased political interest in quality are identified. For example, Dill (1992, 1995), Frazer (1997), Brennan and Shah (2000), Newton (2002) and Billing (2004) have shown that public policies for managing and improving quality had objectives linked to:

- Informing and providing accountability to stakeholders
- Making institutional use of public funds more accountable
- Governmental budget reductions (‘do more with less’)
- The deregulation of higher education systems
- Improving the quality of higher education provision
- Assisting the mobility of students (within and across national borders)
- Demands for tighter linkages between universities and economic development
- Emerging international competition among higher education institutions.

Karapetrovic and Willborn (1997, p. 287) defined quality of education as ‘the ability of student’s knowledge to satisfy stated requirements’ – those requirements being set by employers, accrediting bodies, professional societies, etc. However, the diverse product/service mix that a university provides to internal and external ‘customers’ requires a broader definition.

Hammersley and Pinnington (1999) suggested TQM to be a systematic and rationalized philosophy for quality management as well as change management in higher education.

Giertz (2000) states that since institutions of higher education have not seen the need to define quality, there is no specific definition that encompasses objectives within these institutions. However, it is argued that there exist many different
perceptions on what defines quality in higher education. He identified two reasons for this. Firstly, quality has many aspects and is often based on values. Those values are shared by a group of stakeholders, namely, academics, students, parents, future employers, the government and funding bodies. Secondly, higher education in general has undergone significant change and there exists many different forms and as a result if quality is seen as “fitness for purpose” then what counts for quality will be different.

Campell and Rozsnayi (2002), have defined the concept of quality of professional education in several ways related to industry:

- Quality as excellence
- Quality as fitness for purposes
- Quality as transformation
- Quality as threshold
- Quality as value for money
- Quality as enhancement or improvement

Cruickshank (2003), reviewed the literature which focused on higher education institutions in the US, UK and Australia to identify current quality management practices. The adoption of TQM practices into universities continues to be slow and controversial among the academic community. Some academics view TQM as a new management fad that does not have universal application, while others see it as a major paradigm shift.

DeShields et al., (2005), stated that Higher education institutions are increasingly recognizing that higher education is a service industry, and are placing greater emphasis on meeting the expectations and needs of their participating customers, that is, the students.

2.8.1 Differences between Business and Higher Education:

Several sources (Sherr & Tector, 1991; Lewis & Smith, 1994; Yudof & Busch-Vishniac, 1996) suggested important differences between business and higher education when implementing TQM-type models. These differences include some of the following considerations.
1. Some key words or phrases associated with total quality management, such as TQM; do not always translate effectively in a higher education setting, as it is difficult for academics to embrace anything with the word “management” in its title. Another troubling area involves referring to students as *customers*.

2. A dual organizational structure generally exists between administrative and academic functions. This can often lead to a structural division that focuses on two separate outcomes rather than one common outcome.

3. Faculty members understandably have a loyalty to their discipline and/or department before the institution, and thus they can be inclined to put the immediate needs of their department before the greater needs of the institution.

4. An educational culture exists that encompasses various values, practices, and policies that could hinder the implementation of quality measures. For example, the emphasis on individualism may inhibit the teamwork required for TQM to be effective.

5. An inherent conservatism persists in higher education. People are reluctant to change something that has worked well in the past.

6. Higher education’s investment in human resources is much more complex than the bottom line profitability in business.

7. The effectiveness of higher education administration can become compromised when they seek improvements to or new initiatives in teaching and learning, especially given the level of individual autonomy that faculty generally enjoy. Although faculty members can be key players for these kinds of changes, the administration must rely on persuasion and leadership, more so than in a business setting.

Tribus (1994), believes that we must keep in mind some differences between education and businesses, which are as follows:

- The school is not a factory.
- The student is not a "product". The education of the student is the product. Successful completion of the product requires the student to participate as a worker, co-managing the learning process.
He believes that the objectives of every school, or university, should be to give each student opportunities to improve in knowledge, know how, wisdom and character. The first concept enables students to understand and the second one facilitates them to do accordingly, the third one enables students to set priorities and finally the character provides the "possibility for them to cooperate, to persevere and to become respected and trusted members of society.

2.8.2 Benefits of TQM for Higher Education:

The literature review of TQM in education shows that many writers have encouraged the use of TQM in education.

Murgatroyd and Morgan (1993, p.155) highlight the benefit of holistic organization in applying TQM. They mention that TQM is not concerned just with the outcome of schooling, but with the whole nature of schooling as a process for all stakeholders.

Sallis (1993, p.119-120) argues that an educational organization could benefit from applying the TQM approach both in human and financial terms. Sallis points out that some concepts of TQM like ‘right first time’ cannot be directly implemented in educational organizations but educational organizations can still benefit from such a notion. He indicates that if an education organization applied TQM, mistakes will be minimized with clear systems and procedures, and good team work through careful and thoughtful planning. In this point, one can notice that although TQM originally started in manufacturing and it has somehow acquired business language, but it is still flexible enough to be adapted by education.

Howard (1996, p.18-24) states the following ways in which higher education can benefit from implementing TQM:

1. Stakeholder value through customer focus.
2. Employee commitment and development through involvement.
3. Goal achievement through strategic planning.
4. Services improvement through continuous process improvement.
5. Cost reduction through elimination of unnecessary tasks.
Vazzana et al (2000 p.74), in their study about TQM in business colleges found that most institutions benefit from their attempt at using TQM to improve the quality of their institutions.

Weller (2000, p.39) in his study of using the TQM tools to identify root causes of school attendance problems concluded that the application of TQM’s tools and techniques to solve nonacademic problems is as highly promising as it is in academic areas.

Tulsi,( 2001), stated that, TQM in higher education implies improving the quality of courses, input instructional process, resource management processes and structures, student support service output and linkages with the world of work and other organizations.

Ali and Shastri (2010), addressed various issues of TQM in higher education. Benefits of TQM include heightened employee morale, better teamwork among departments, bridging faculty-staff functions, increased quality from customer viewpoint and continuous development of everyone who is part of higher education institution.

2.8.3 TQM application in Higher Education:

In the growing body of TQM literature, there still exists only a small body of literature devoted to how educational organizations have implemented TQM, the hurdles encountered, and how they respond and adapt its principles to their existing culture. This shortfall in the literature has made its implementation and application in colleges and universities difficult. As higher education specialists attempt to acquaint themselves with the principles and techniques of TQM, confusion continues to exist about the system’s ultimate utility to their institutions.

Coats (1990a) offered several ideas for helping collegiate institutions establish TQM Programs:

- Provide leadership
- Focus on customers
- Do things right the first time
- Go for results
- Simplify
- Reduce costs
- Develop teamwork

Cornesky et al. (1991) listed five conditions for establishing a TQM culture in colleges and universities: (a) education and administrative commitment, (b) education and commitment of faculty and staff, (c) the establishment of trusting relationships, (d) establishment of pride in workmanship, and (e) the changing of the institutional culture. These challenges provide opportunities for collegiate administrators as they prepare to take their institutions through critical times of economic and social change.

DeCosmo et al. (1991) argued that the assumptions underlying the style of management required by this new paradigm differs from those underlying the present style of management of most organizations.

Ewell (1991) acknowledged that while people are intrigued by TQM, they could also be put off by its linguistic and methodological links to business and industrial processes that have little to do with teaching and learning.

Montgomery and Porter (1991) found that academia traditionally has trailed business in its grasp of trends. It must be and remain aware of trends—not fads—in business so that it continues to be relevant in its "production" of graduates who will be seeking employment after finishing their degrees & leaving the institution.

Cornesky et al., (1992) argued that, in implementing Total Quality Management in Higher Education, cite quality-related problems in higher education ranging from “outmoded instructional techniques to teacher education.” These problems, they assert, can be directly attributed to the lack of vision, the lack of insight, and the lack of skill of many administrators who do not have any formal, or even informal, management training. The trouble with higher education is, by far and large, not with the preparation, ability, and commitment of the professors. Rather, the trouble is more directly attributable to the lack of administrative leadership from school presidents, vice presidents, deans, and to some extent, the chairpersons and governing boards. Major responsibility must be placed first on these administrators, since many have yielded to the pressure of the present rather than making a commitment to quality, while looking toward and preparing for the future.
Ramsden (1992) advises that high quality teaching is fundamentally about high quality learning, which is context-related, uncertain and continuously improvable.

Schmidt and Finnigan (1992) noted that installing TQM in educational organizations is often more complicated than transforming a clearly focused private enterprise.

Seymour (1992) also described some frustrations associated with implementing TQM in higher education:

a. the process is highly time-consuming because training, decision-making, and planning all require more time than before;
b. leadership from the top is sometimes inconsistent with its stated support for TQM;
c. managers and supervisors were resistant to change and afraid to “let go” of decision making power;
d. superficial efforts at adopting TQM without accepting its underlying philosophy resulted in ineffective application;
e. although many efforts did not appear to produce definite, tangible results, they were perceived as sufficient, and
f. middle management and supervisors were resistant to change, and perceived a loss of control that was difficult to accept. Although frustration and caution are both evident in many of these findings, none of the responding institutions suggested abandoning TQM.

Brown et al. (1993), article reports on the experience of gathering feedback from former students to implement TQM strategies in a collegiate business school. Research found that these customers want educators to consider their opinions about the overall educational experience, not just individual classes; the former students especially want us to consider what happens to students after they graduate, and they have great concern about students' professional preparation. Through the process of working with TQM, the faculty has found that it is useful for discovering quality improvement needs, focusing on improvement, and providing a useful set of tools to implement improvements.
Harvey & Green (1993) discuss the nature of quality in the context of a university and identify five discrete but interrelated ways of thinking about quality in higher education: exceptional (quality as something special); perfection or consistency (processing and setting specifications); fitness for purpose (relates quality to the purpose of product or service and its relationship to that purpose); value for money (you get what you pay for); and, transformation (issues of added value and empowering the participants).

Marchese (1993) expressed some common concerns, as well as common misunderstandings, about the application of TQM in a higher education setting. His list includes the assertions that (a) students are not customers, (b) faculty already interact with students, (c) the application of the technological aspects of TQM is fine for corporations but not for education, (d) TQM is no different than good management, (e) the language does not fit higher education.

Sallis (1993), stated that educational institutions are perceived as organizations designed to transform teaching, curriculum, organizational and management processes in a way which serves customer and stakeholder interests. Substantial interest in TQM in education has begun to emerge, and this interest has been focused primarily on higher education institutions.

Storey and Doherty (1993) accept the view that there are multiple customers of higher education and that these customers all have a part to play in determining the outcome of the ‘product’. They suggest that, while the institution may respond to the student’s desire for a ‘qualification’, it may also have to take into account the standards of its validation committee, the requirements of a professional body, the needs of employers, and the expectations of society as to what constitutes ‘graduateness’.

Williams (1993) supports the view that one of the most persuasive features of TQM lies in its emphasis on the individual’s contribution to the success of the entire organisation. He accepts that academic staff may have divided loyalties — to the institution, their students and fellow scholars- and that these need to be borne in mind when implementing a TQM approach. However, Williams decries the use of the principle of ‘academic freedom’ as a means of denying such an approach and of
escaping from a measure of accountability for the method or content of what is taught or researched.

Harris (1994), there are three generic approaches to TQM in higher education, firstly there is a customer focus where the idea of service to students is fostered through staff training and development, which promotes student’s choice and autonomy. The second approach has a staff focus and is concerned to value and enhance the contribution of all members of staffs to the effectiveness of an institution’s operation, to the setting of policies and priorities. The third approach focuses on service agreements stance and seeks to ensure conformity to specification at certain key measureable points of the educational processes.

Helms and Key (1994) noted that students could be classified as a raw material, customer, or even as employees. As a raw material, students move through a process and become the end product. As customers, students purchase the service of education. Helms and Key noted that students must be engaged in their studies, must be motivated to perform, and are evaluated – making them much like employees. In addition, quality of student performance is important to a university in much the same way that quality of employee performance is important in the business setting. Further analysing the differing roles of students, Helms and Key pointed out that different educational settings provide different roles for students. In large, introductory classes the students are very much like customers; however, in specialised graduate research settings students are more like employees.

Harvey (1995) considers that some TQM aspects can be adapted to higher education institutions and defends a new collegialism that emphasises professional accountability and cooperation, reflecting two quality management key elements: delegation of responsibility for quality and teamwork. The new collegialism emphasises the continuous improvement within the existent academic framework.

Bailey & Bennett (1996) article proposes that higher education institutions should accept the model that students are products and employers are customers. Faculty and administrators need to listen to the concerns of employers and consider their concerns when designing new courses. The article criticizes the higher education institutions for being more ‘product’ oriented rather than being process oriented, that
is, inspection versus prevention. If the major purpose of the institution is to produce graduates with certain abilities and traits then a process should be in place to ensure such results.

Harvey and Knight (1996), stated that, Quality in higher education is generally accepted as having at least five distinct meanings: exceptional, consistency (or perfection), value for money, fitness for purpose, and transformative. The exceptional meaning of quality sees it as something special. The second meaning of quality sees it in terms of consistency. This focuses on processes and sets specifications that it aims to meet perfectly, encapsulated in two interrelated dictums: ‘zero defects’ and ‘getting things right’. The third meaning of quality equates quality with value for money. Quality at an affordable price implies a ‘high standard’ specification at reasonable cost. The fourth meaning of quality argues that quality only has meaning in relation to the purpose of the product or service. Every product and service has the potential to fit its purpose and thus be a quality product or service. The fifth meaning of quality focuses on the extent to which the education system transforms the conceptual ability and self-awareness of the student. It assumes that higher education must concern itself with transforming students’ life experiences by enhancing or empowering these learners.

Owlia and Aspinwall (1996), in their survey examined the views of different professionals and practitioners on the quality in higher education and concluded that customer-orientation in higher education is a generally accepted principle. They construed that from the different customers of higher education, students were given the highest rank. The marketing principle, which suggests that corporate strategy should flow from consumer needs, has not been given much credence in the discussions of accountability in the tertiary education sector. Student experience in a tertiary education institution should be a key issue of which performance indicators need to address.

Sivanci (1996) has put particular emphasis on the role students play in quality higher education. He believes that, to improve quality, the right customer focus is essential. He has argued that there is a similarity between a manufacturing organization and the flow of students through colleges and universities. The argument put forward by Sivanci is of particular value here, namely, that there is a similarity
between manufacturing (where standard quality systems such as ISO 9000 originated) and the students admission and progression through the Higher Education Institutions (HEIs).

Jauch et al. (1997), argued that the assumptions underlying Total Quality Management (TQM) suggest that implementation of TQM into the academic function of teaching in higher education is problematical at best. The authors examine the assumptions of continuous improvement, customer focus and management systems needed to implement TQM. It's concluded that those assumptions do not fit the higher education context or culture.

Motwani and Kumar (1997), paper will look at the applicability of TQM in education and some of the concerns addressed in the literature. We will also explore the techniques used by some of the leading institutions and propose a process for implementing TQM at an institution. The suggested five-step model is applicable to any university that plans to implement TQM.

Owlia and Aspinwall (1997), stated that Higher education is currently being steered towards a market-oriented environment in which delighting the customer plays an important role. Philosophies like total quality management (TQM), which have been successfully adopted in commercial organizations, are generally seen as the way forward. This paper reports on the findings of a survey which was launched to examine the different views on the application of industrial quality management principles to higher education.

Reavill (1997) defines stakeholders as individuals or groups that pay or contribute to an organisation, or benefit from it, or both. Reavill has identified 10 stakeholders or stakeholder groups of higher education institutions: the student; the employer; the family and dependants of the student; universities and their employees; the suppliers of goods and services to the universities; the secondary education sector; other universities; commerce and industry; the nation, as represented by the government; and taxpayers, national and local. Reavill adds that it is important for an institution to determine the extent of stakeholders’ contributions and benefits they received.
UNESCO (1998) declared: The ultimate goal of management should be to enhance the institutional mission by ensuring high-quality teaching, training and research, and services to the community. This objective requires governance that combines social vision, including understanding of global issues, with efficient managerial skills. Leadership in higher education is thus a major social responsibility and can be significantly strengthened through dialogue with all stakeholders, especially teachers and students, in higher education.

Wills et al. (1999), explores the question of how business employers perceive the quality of today's college graduate. Sample survey data obtained from business organizations are presented. In general, a significant proportion of businesses do not perceive a difference in the quality of schools based on employee performance. A ranking of required skills is presented and the implications for colleges and universities are discussed.

Birnbaum (2000) the most relevant barrier to quality management implementation in higher education has to do with the need for a compromise between it and the traditions, values and purposes of higher education institutions. According to the author, total quality management has probably been the first management tool capable of provoking a serious discussion not just about its technical merits and demerits, but also about its educational and social implications.

Pansak Phonsarum (2000) mentioned that strategies in applying the TQM needed to be applicable according to the organization’s condition and culture because the TQM’s concept was not so instant that it could be used in every problem and organization. He also proposed a concept to use the TQM in educational institutions that is the institutions’ administrators must understand the TQM and how to apply it. The use of the TQM must be definitely determined. It needed to use gradually, not all at once. There must be heads or leaders of a curtain team established to operate plans, motivation to staff in the educational institutions to realize a necessity of changes, and human resource preparation. The administrators should realize that “making it right at the first and every time.”

Vazzana et al. (2000), assess the use of total quality management process and identify trends in their adoption at colleges in the United states. Their research
involved a longitudinal, empirical investigation that identified the types of issues on which quality processes are used, the techniques used to implement quality improvement. They identify three main areas to implement TQM in higher education: curriculum, non-academic functions and academic administration.

Naik (2001) has strongly suggested that bringing quality movement through application of TQM in Indian higher education will result in global recognition. He further suggested that a law should be made to have quality assurance cell in every academic institutions like in UK.

Avdjeva and Wilson (2002) suggest that HEIs are now also required to become learning organisations, where internal stakeholders also interpret and assess the quality of HE provision. The emphasis for internal stakeholders is not only on quality assurance, but also on quality enhancement which aims for an overall increase in the actual quality of teaching and learning, often through more innovative practices.

Grant et al., (2002), said that since the 1980s, higher education institutions have begun to adopt and apply quality management to the academic domain owing to its success in industry and they have also benefited from the application of TQM. They dealt with measuring the three quality dimensions (QD, QC and QP) in higher education. The study indicated the paucity of research in examining the QP issues.

Bush, (2003), stated that, Effective leadership and efficient management practices are essential if HEIs are to achieve their overall purpose of providing the skilled manpower required for economic and social development in the twenty-first century. Managing the systems, processes and people in HEIs is a challenging task. HEIs signify multiple customers, chain of hierarchical processes and nominal degrees to freedom to the management/leadership to work towards achieving effectiveness.

Hannan (2003) recommended that faculty-student ratio should be close to 1:10, frequent revision of syllabus in consultation with the industry and institutions should create the professionals with global mind set so that they can adjust in different cultural & social settings.

Rajan (2003), in his conference paper argued that, to improve the competency of the industry, the technical human resource which is absorbed from the institute
must cope up with the industry’s growth. Technical institutions are no longer remain in ruminating the traditional system of training the students as their responsibility in supplying quality-oriented engineers to the stakeholders. The institution have to implement TQM concept and monitor for continuous improvement of the factors attributing TQM using different tools such as QC for the effective performance.

Chua (2004), proposed to look at the quality issue in higher education from the marketing perspective; that is, to first understand the customers’ needs via their perception of quality. The aim of our paper is to assess the quality attributes of higher education from various perspectives, namely from parents, students, faculty members and employers. We then classified these quality attributes using the Input–Process–Output framework. With the information obtained from our study, we suggest an integrated approach that will encompass a variety of quality practices to manage quality issues in higher education. The bottom line is to improve quality in education.

Becket and Brookes, (2006) they argued that, the emphasis of quality maintenance in higher education has increased as the numbers of students are increasing and at the same time, their expectations are increasing, as they have to pay the tuition fee, so they look for an appropriate outcome.

Mizikaci (2006), quality systems adapted from business and industry operations need to be reoriented and reinstalled for professional education conditions to turn the focus from the management-based to the education-based practices.

Staiou (2006), reviewed the main principles of TQM in higher education, defines the different roles of interested parties in a TQM program and comments on the models and the do’s and don’ts when implementing TQM in higher education. Finally, the paper outlines the unique challenges of implementing TQM in engineering education. TQM can help institutions that wish to increase their efficiency and their commitment to their customers, by creating a quality culture engaging all stakeholders involved.

Ghosh et al (2007) discovered that at present, there are several mechanisms operational in India, with 'Academia-Industry interaction,' as a fulcrum of technical education. He focussed that by involving the industries right from the stage of drafting syllabi to absorbing the trained students, they are allowed to shape the CORE into a
highly productive Human Resource Centre. This also enables them to reduce the time required to orient a fresh graduate before s/he could be inducted into shop floor and to upgrade/ re-skill their existing employees at a very competitive cost.

Quinn et al. (2009), their paper focuses on identifying and evaluating techniques used to take on the challenges of quality improvement in higher education. This paper also examines two primary difficulties. First, definition of the customer; and second, measuring customer quality perceptions. An examination of representative historical applications of quality techniques was conducted as well as identification of the differences and similarities surrounding quality improvement efforts in each of three service areas typically found in higher education: academic, administrative, and auxiliary functions.

Nadiri et al. (2009), paper aimed to diagnose the applicability of the perceived service quality measurement scale to students; and to diagnose the student satisfaction level in higher education. It attempts to diagnose the perceived service quality of administrative units such as services provided by the registrar, library, faculty/ school offices, rector office, dormitories, sports and health centre. Descriptive and causal analysis is employed. Reliability and dimensionality of the scale is tested. Results indicate that the nature of perceived service quality measurement instrument is found to be two-dimensional: tangibles and intangibles for higher education services.

Paliwal (2009) has focussed on coordination among the efforts of academia, industry and the government. He emphasized on instilling the traits which are expected by the prospective employers.

Rajsekaran and Rajasingh (2009) have concluded that the perception gap between industry and faculty must be bridged to improve the employability of students and enhance the quality of higher education. Industry leaders presume that only 15% of people coming out of Indian colleges are employable. Green defined the quality of higher education as "producing graduates to meet the human resources needs of an organization in the business, industrial and service sectors."

Ramachandran et al (2009) stated that how can we expect the most poorly equipped teacher to deal with the most challenging of situations.
Sarbu et al. (2009), concluded that in order to have real quality in higher education, it is important to introduce a quality management system and to constantly improve it, using as feedback the satisfaction of clients and other interested parties, with the intention of attaining performance and excellence.

Bhatia and Dash (2010), concluded that, at the bottom of “knowledge pyramid” the challenge is one of improving access to the primary education. At the top of the pyramid” there is need to make our institutions of high education and research world class. there is an additional problem at the top of the pyramid, namely, that of quality. India’s Universities and centers of excellence are falling behind the best in the world both in terms of human capital and in terms of physical infrastructure.

Sarrico et al. (2010) consider that quality can have multiple meanings in higher education and that this variety has had important consequences in the development of methods and instruments of assessing quality. According to the authors, “one of the most important issues refers to the multidimensionality of higher education institutions, which perform multiple and very different missions. Thus, higher education institutions face multiple stakeholders that have different expectations and different priorities regarding higher education. The development of several models of institutional evaluation has often been an attempt to reflect those differences and nuances into an integrated evaluative framework.

Agarwal et al. (2011), stated that, Principles of Total Quality Management (TQM) have been successfully adopted and applied in the field of professional education by developed countries such as Japan, USA and UK. In India, TQM has been successfully implemented in some Professional Education Institutions (HEIs) and it has improved the quality of professional education in those institutions. TQM has become the most important concept because the quality of the student makes the difference between success and failure of any institution. TQM can serve as a paradigm for improving every aspect of collegiate functioning from fiscal administration to classroom instruction.

Mangnale and Potluri (2011), explored the perceptions of both the higher education institutions and students on the various quality deliverables in the Indian
higher education system along with careful observation of the role of Internal Quality Assurance Cell (IQAC) in sustaining quality delivery of education service. The findings of the analysis confirmed that institutions were confidently provided academic activity reflecting their goals and objectives with highly qualified faculty through an eclectic approach with the support of research with ample focus on library and community services. Both institutions and students insisted for more constructive role from the Internal Quality Assurance Cell (IQAC) in protecting the quality of higher education.

Mani (2011), stated in paper that, system approach and quality education has not risen in the proportion in which the institutions have sprung up. The agencies responsible for this situation are identified in this paper. Based on proven concepts, the author has suggested certain models to apply towards remedial measures and ultimately succeed in the single minded goal of producing students who can contribute to the national development.

Gulbarga et al. (2012), studied the perception of staff and students of three different institutions namely self financed autonomous institution, and self financed deemed to be status institute, and self financed private technical institution. Questionnaires based on Malcolm Baldrige frame work as laid out in Brent. D. Ruben’s excellence in higher education, which is a Baldrige based guide to organizational assessment, planning and improvement which are considered as the indicators of the quality.

Singal Rahul (2012), explained how the quality principles work in the context of higher education. The quality principles are essential and compatible with the value of higher education. He also identified the techniques of TQM in professional education and checked the gap between the demand of students and facilities provided by management.

Shetty and Gujrathi (2012), stated that most of the higher educational institutes throughout the country are suffering from acute shortage of faculty. The effect of high faculty attrition is borne by students for no fault of theirs. Teaching has also become an unattractive profession today for which young talents prefer other hefty paid salaried jobs and career options. They identified factors of faculty job satisfaction and
student’s overall satisfaction in this knowledge economy. Also, examined the role of faculty job satisfaction in generating student satisfaction. The findings of this research paper also propagate the concept of Human Sigma within educational context, stating that a contented faculty is a source of students’ satisfaction, but for this faculties need to be retained and satisfied.

Shivani and Khurana (2012), described the concept of technical education system and some useful insights on the underlying philosophy, policies, choices and rationale, which have helped to shape the systems of technical education and training in India. They also done the SWSOT analysis of Indian technical education system.

2.8.4 TQM Practices and Critical Success Factors in Higher Education:

The applicability of TQM in higher education has been the debate for many years. While Total Quality Management has been adopted by many organizations world-wide, its implementation in non-profit organizations, such as higher education institutions, presents more challenges and difficulties than those encountered in business organizations.

Ferguson and Dickinson (1982) define Critical Success Factors (CSFs) as those internal and external factors that must be identified and reckoned with, as they are capable of supporting or threatening the achievement of a company’s objectives. In other words, they should be seen as opportunities or treats in the organization’s strategic planning process. Therefore, CSFs are the key areas that need to be carefully identified where ‘things must go right’ for a programme or business to succeed.

Garvin (1986) conducted a systematic study on real life quality improvement projects in USA and Japan, and came out with a set of critical factors.

Klein and Carter (1988) say that performance indicators can be used as ‘dials’ and ‘tin openers’. If they are to be used as dials (for example, direct use in determining funding allocations), then they must be able to accurately measure inputs, outputs and processes of higher education. If they are to be used as ‘tin openers’ then there is less requirement for extreme accuracy as their purpose is to identify issues requiring further examination or to provide feedback to an organisation. There are many caveats about the difficulty in measuring performance indicators, their use and
interpretation; thus, supporting the notion that they should be used as tin openers’ rather than ‘dials’

Saraph et al. (1989) introduced and operationalized the critical success factors (CSFs) of TQM first time. The survey approach by him set a new direction for TQM practitioners and researchers interested in identifying CSFs of TQM. He made the most remarkable attempt to develop an instrument for measuring the critical factors of quality management. He developed 78 items related to TQM practices, which were classified into eight critical factors to measure the performance of TQM in an organisation. They labelled these critical factors as: role of divisional top management and quality policy, role of the quality department, training, product and service design, supplier quality management, process management, quality data and reporting and employee relations.

Miller (1990, p. 6) asserted, “institutional quality is a composite of interdependent elements,” which includes (1) goals and objectives, (2) students’ learning, (3) faculty performance, (4) academic programs, (5) institutional support services, (6) administrative leadership, (7) financial management, (8) governing board, (9) external relations, and (10) institutional self-improvement.

Madu and Kuei (1993) discussed the dimensions of quality teaching in higher educational institutions. They discussed the difference between Total Quality Assurance and Total Quality Management, and recommended changes to be made in colleges and universities in order to improve the quality of teaching.

Ashworth and Harvey (1994), say that performance indicators should be used to isolate areas of concern to decision makers on the deployment of resources in institutions, such as, university professors, laboratory equipment, books and buildings, which are limited and costly. Throughout the world, many groups of performance indicators have been developed by governments, universities, professional bodies and the media. The reason for developing performance indicators, is somewhat equivalent to the need to audit the financial accounts of a business organisation. Whilst business organisations prepare financial statements for internal use (i.e. for top management) and accounting reports for external use (i.e. shareholders, registrar of society and
public), higher education institutions use performance indicators for quality improvement and prepare a self-evaluation report and external auditors.

Aspin and Chapman (1994) state it is important to recognise that it is not possible to have one single criterion of quality but rather several characteristics that, when viewed in total, can convey to the assessor a complete picture of the level of quality available in a particular product or service, in this case higher education. Several sites where quality may be discerned have been identified as: outcomes; curriculum, teaching and learning; resources, facilities and amenities; organization and administration of education institutions; and, character, tone and ethos.

Flynn et al. (1994) developed another instrument in which they identified seven quality factors of TQM. These are top management support, quality information, process management, product design, workforce management, supplier involvement and customer involvement.

Adoption of best practices is known as benchmarking, which was defined by Zairi (1994), Fram and Camp (1995), Cook (1995) and Murphy (1995) as a systematic and continuous process to identify, determine, measure, compare, learn, adopt and implement the best practice obtained through internal and external evaluation of an organization so that performance of a higher standard can be achieved and improved. Benchmarking helps Institutions of Higher Education’s (IHEs) to understand their strengths and weaknesses so that quality improvement can be implemented effectively.

Donaldson and Runciman (1995), examines key issues in service quality as they apply in one particular education sector, further education (FE) colleges. The results suggest that service quality issues are highly relevant to the FE sector, but service quality is not clearly understood, is not well managed and some radical managerial action is required for the service to meet the requirements of its different customers.

Ermer (1995), in his study of mechanical engineering department, requirements of customers students, academic staff and industry were analyzed separately. In the case of students, their requirements regarding curriculum and teaching processes were compared with measurable specifications of the programme.
The QFD matrix for staff, however, was quite different, since their own requirements were correlated with the responsibilities of the department management.

Elmuti et al. (1996) assessed the status of TQM practices in HEIs in the US. Almost one third of respondents failed to achieve their targets on improving quality of teaching and research.

Mazur (1996) provided a brief history of QFD efforts in higher education, beginning with what is believed to be one of the first applications – the Mechanical Engineering Department at the University of Wisconsin-Madison in 1991. Mazur also described various other QFD implementations (mostly in academic/curriculum settings) both in the United States and abroad.

Voss (1997), say that, the use of benchmarking will help speed up the improvement of best practices and performance of IHEs.

Kanji and Tambi (1998), identified critical success factors for implementing TQM in higher educational institutions are leadership, continuous improvement, prevention, measurement of resources, process improvement, internal customer satisfaction, external customer satisfaction, people management and teamwork.

Koch & Fisher (1998) examine the efforts of several universities to implement TQM. They conclude that most of the successes of TQM in the university environment are in areas tangential to the primary mission of institutions of higher education. They report the areas of admissions, financial aid, physical plant, work and class scheduling, food service, and copy centre operations benefited from TQM. However, there were few successes in areas that were central to the mission of the university. These included curriculum, use of faculty time, the restraint of cost and price increases, distance learning, and cooperation with business and industry. They believed the lack of success in these areas results directly from the strength of faculty (tenure, academic freedom, political nature of curriculum committees).

Endut et al. (2001), in their paper stated that, Critical Success Factors (CSFs) and best practices speeds up institutions of higher education (IHEs) in achieving excellence. The existence of similarities between IHEs in implementing its missions and objectives through CSFs and best practices would enable them to produce the best
performance. This paper explores the existence of similarities and attempts to compare similarities between IHEs through their missions, objectives, CSFs and best practices as measurement dimensions. The similarity measures will result in, as well as encourage, the practice of benchmarking in IHEs.

Borahan and Ziarati (2002), attempted to propose a quality criteria checklist for private academic institutions of higher education in Turkey. The checklist is expected to form the basis for a management strategy that harnesses the human and material resources of these organizations in the most effective way to achieve academic objectives.

Sahney et al. (2004), education system as a transformation process comprising of inputs of students, teachers, administrative staff, physical facilities and process. The processes include teaching, learning and administration. Whereby the output is includes examination results, employment, earnings and satisfaction. They asserted that TQM is all permeating, covering the various aspects (e.g. quality of inputs in the form of students, faculty, staff and infrastructure) of academic life. Sahney et al. advised that in education there are human, physical and financial resource inputs that undergo processes including teaching, learning, research, administration and knowledge transformation. The quality of teaching and learning therefore becomes central in a systems perspective.

Punia and Kundu (2005), presented outcomes of intensive field study and comprehensive views of stakeholders in management education in India. The various aspects encompassing the quality dimensions have been studied

Telford and Masson (2005) achieve a comparative analysis of the quality dimensions for 3 categories of the stakeholders of the higher education system. The main dimensions identified by the 3 stakeholders relate to: the achievements of the objectives of the courses, teaching techniques and commitment of those involved. If all three stakeholders agree that teachers’ commitment is important, neither students nor employers mentioned students’ commitment as important. Whereas the vocational character and educational resources are more important for students, employers deem as important the teachers’ treatment of students as adults.
Mahapatra and Khan (2006) identified and analyzed the critical factors for the successful implementation of Total Quality Management and they considered 256 articles from journals and identified 20 critical factors for successful implementation of TQM in any organization. Management Leadership is a key factor in the success of TQM in higher education institutions.

Bayraktar et al. (2008), identified 11 critical areas of in an HEI. Operational measures of the critical factors are developed that can be used individually or in concert to produce a profile of institution-wide quality management. These measures are tested for reliability and validity using perceptual data collected from a sample of 144 academics from 22 HEIs in Istanbul, Turkey. Decision makers will be able to use this instrument to identify the extent of TQM implementation in their institutions.

Kaur and Bhalla (2009) concluded that colleges ranked higher for three factors, such as teaching environment, research environment and educational material.

Chakka and Kulkarni (2010), stress on improvement of teaching quality and learning process through TQM. The paper describes the methods to achieve teaching quality, evaluation of teaching quality by peer-reviewing, student feedback and evaluation of learning process. The authors propose a new concept of ‘teacher-accreditation’, which may be more important over the other accreditations.

Sayeda et al. (2010), paper aimed to explore the adoption of quality management practices in engineering educational institutions (EEIs) in India from management’s perspective. Findings highlight 27 critical factors/dimensions of quality management, which analyzed the relationship between TQM dimensions and institutional performance, which has been formulated using five dimensions. Positive and significant relationships among the TQM dimensions and institutional performance have been observed. The paper proposes a model for achieving institutional excellence from the macro perspective of the management. Two critical factors, i.e. healthy innovative practices and feeder institution partnership have been identified as key enablers in the paper.

Zakun et al. (2012), in their research paper determines the research area of critical success factors of total quality management (TQM) implementation in higher education institutions which has potential to be explored and generate new
knowledge, to improve the total quality management practices and outcome especially in higher education institutions.

2.8.5 TQM Models and Frameworks in Higher Education:

Parasuraman et al. (1985; 1988; 1991; 1994a; 1994b) developed SERVQUAL (and its modified versions), a multiple-item survey instrument that supports qualitative analysis with quantitative information, is still popular among researchers as far as assessment of service quality is concerned, and has been applied to different service sectors.

Benson et al. (1991) proposed a system-structural model of quality management, and in fact first used the organization theory to explain the fundamentals of quality management.

Cronin and Taylor (1992) claim that there is little evidence, either theoretical or empirical, to support the notion of the ‘expectations minus performance’ gap as a basis for measuring service quality. They refute the framework of SERVQUAL and propose a ‘performance only’ measure of service quality called SERVPERF. In their empirical work, they claim that SERVPERF scale (performance-only) performs better than any other measure of service quality.

Teas (1993) discussed the conceptual and operational difficulties of using the ‘expectations minus performance’ approach, with a particular emphasis on expectations. His empirical test subsequently produces two alternatives of perceived service quality measures, namely, Evaluated Performance (EP) and Normed Quality (NQ). He concludes that the EP instrument, which measures the gap between perceived performance and the ideal amount of a feature rather than the customer’s expectations, outperforms both SERVQUAL and NQ.

Lewis and Smith (1994) argue that TQM’s emphasis on quality-based systems and processes provides a positive framework for integrated institutional decision-making and problem-solving. Their view is that student learning is the core functions of universities and that all discussions on quality and quality assurance should be based round this.
Owlia and Aspinwall (1996) first developed a new framework, in which quality dimension and its corresponding characteristics were identified. In this framework for measuring quality in engineering institutions, six dimensions comprising of 28 items were used as basis for different questionnaires for students, staff and industry people.

Cheng & Tam (1997) propound the following seven models and point out that the total quality management concept is an integration of these models to a great extent: the system resource model, the process model, the goals and specification model, the satisfaction model, the legitimate model, the absence of problems model and the organizational learning model. They quote, ‘the applicability of the seven models is not universal in all situations and their usefulness is often limited by contextual conditions; one model may be applicable in some specific contexts but not in others. Many people tend to use these models separately to ensure quality in education. Attention should be paid to their interrelationship and use the comprehensive approach to apply them in managing education quality.’

Kanji (1998) has developed a Business Excellence model that is made up of four principles, each principle divided into two core concepts: delight the customer (customer satisfaction, internal customers are real); management by fact (all work is process, measurement), people-based management (teamwork, people make quality); and continuous improvement (continuous improvement cycle, prevention).

Lam & Zhao (1998) suggested the use of the QFD and the Analytic Hierarchy Process (AHP) to identify appropriate teaching techniques and to evaluate their effectiveness in achieving an education objective.

Reavill (1998) outlined a product/process model where education of undergraduates is a process that produces a product: graduates. This model suggested that the customers of higher education are the future employers of the students. An alternative is the service/process model that assumes education is a service and the students are customers who wish to improve their level of education.

Kanji & Malek (1999) reported in 1996 that there had been little progress in linking the TQM process to an ISO-based quality system. They stated that the issue of
whether ISO 9000 standards or derivatives are suitable for application in educational establishments must be clarified first before any further progress is made.

Kanji & Tambi (1999) quote, TQM models are aimed at representing interrelationships between quality dimensions; believe that TQM can be used to achieve continuous improvement in educational institutions regardless of whether or not the institutions encounter specific problems; it is difficult to apply some models because they do not clearly isolate the principles and assumptions that make up TQM; some models are developed by institutions to serve their particular needs and may not be suitable for use by other institutions; the models also may not incorporate the critical success factors that affect TQM outcomes.

Beattie and Collins, (2000), their paper deals with issues and concepts involved in defining and measuring quality in higher education. It is a complex and multidimensional concept, for which it is difficult to develop objective proxy measures. The purpose of this paper is to examine the quality framework used in the total quality assessment (TQA) assessment exercise and provide a textual analysis of the published assessment reports. The results of a content analysis of the resulting 11 published TQA assessments, scoring each comment as either positive or negative are presented. Based on this analysis, an objective quality index (QI) is derived and compared to the quality grades awarded. The ranking of universities based on the QI index is in line with the quality grades actually awarded, providing a degree of external validation of the research method adopted. Suggestions for improving the TQA framework are made.

Mergen et al. (2000) proposed a model of quality management that has three components: quality of design (QD), quality of conformance (QC) and quality of performance (QP). The model is applied to Rochester Institute of Technology’s College of Business, USA. It provided a framework to identify opportunities for improvement in research, teaching and operations.

Oldfield and Baron (2000), student perceptions of service quality in higher education, particularly of the elements not directly involved with content and delivery of course units, are researched using a performance-only adaptation of the SERVQUAL research instrument.
I-Huei Ho et al. (2001) investigated the management and performance of engineering educational systems. The study established a performance evaluation model for engineering educational systems. The concept of balanced scorecard was explored to construct a performance evaluation model.

Srithanan & Dalrymple (2002) quote, ‘it is possible to undertake a synthesis of the features of different models for academic quality from recent research literature in order to develop a generic model addressing educational processes. A further attempt could be made to develop a composite model by combining the TQM model with the educational one. In such a model, the TQM approach to service areas should be meshed seamlessly with the model addressing the core areas of education. Such a synthesis, when appropriately implemented, would then become a holistic model for quality management in higher education.’ They propose the following generic model addressing Quality Management in Education (QME): a clear focus on ‘transformation’ of the learners; enhancing them through adding value to their capability and ultimately ‘empowering’ them; a synergistic collaboration at the learning interface which transcends not only the traditional power relationships (for example, teacher-student, between academic units) but breaks the barriers among institutions and reaches out into developing new external partnerships with community; and there is a significant role for senior management in higher education institutions to ‘encourage and ensure’ such a ‘collegial culture’.

Calhoun (2003) employed DEA to compare relative efficiencies of private and public Institutions of Higher Learning (IHL) using a sample of 1323 four-year old institutions and introduced a new way for clustering institutions based on revenue management.

The MBNQA defines innovation in the 2003 Education Criteria Version (NIST, 2003) as: making meaningful change to improve programmes, services, and processes, and create new value for students and stakeholders. It involves the adoption of ideas, processes, technology, or product that is new or new to its proposition. Malcolm Baldrige National Quality Awards (MBNQA) define visionary leadership as: The organization’s senior leaders who should set directions and create a student-focused, learning-oriented climate, clear and visible values and high expectations, which should balance the needs of all stakeholders.
Rosa et al. (2003), they have developed an excellence model for the Portuguese higher education institutions, based upon nine criteria. They argued that, the model provide a management and assessment tool for each higher education institution, supporting its self-analysis (including the identification of strong points and areas for improvement), and simultaneously providing a source for quality improvement opportunities.


Chen & Yang (2004) explored the possibility to use Internet technology by developing a Web-QFD model. They gave a real-world example of an education system in Taiwan and argued that the Web-QFD may not only provide a more efficient way of using the QFD in terms of cost, time and territory, but also may facilitate a better group decision making process.

Cheng et al. (2004), described the experiences of introducing ISO 9000 into Taiwan's higher education systems. Based on an empirical investigation and a case study, the authors argue that the implementation of ISO 9000 quality systems has a positive impact on the education quality. The benefits of ISO 9000 certification are further depicted for those interested in complying with the Standard. They also justify the current progress of the ISO 9000 implementation in Taiwan with recommendations for improvement.

Sahney et al. (2004) suggested, an integrated approach of SERVQUAL and QFD model is applied to identify the gaps existing in quality education and customer requirements in today’s modern education system. QFD is a method used to translate customer requirements and expectations into product or service attributes and quality.

Abdullah (2005), in his paper describes the methodological development of HEdPERF (Higher Education PERFormance only), a new measuring instrument of service quality that captures the authentic determinants of service quality within the higher education sector. The proposed 41-item instrument has been empirically tested for uni-dimensionality, reliability and validity using both exploratory and confirmatory factor analysis (CFA). Such valid and reliable measuring scale would be
a tool that tertiary institutions could use to improve service performance in the light of increased competition with the development of global education markets.

Emiliani (2005), illustrated the applicability of kaizen in higher education. Kaizen was found to be an effective process for improving graduate business school courses and the value proposition for students. Kaizen can help higher education institutions compete more effectively against both traditional non-profit and newer for-profit sources of higher education.

European Foundation for Quality Management Model (EFQM, 2005) by Europe are the most comprehensive models of quality in education. The EFQM excellence model comprises nine elements grouped under five “enabler” criteria (leadership, policy and strategy, people, partnerships and resources and processes) and four “result” criteria (customer results, people results, key performance results and society results)

Sakthivel et al. (2005) have conceptualized the following five TQM variables and developed a 5-C TQM model of academic excellence: Commitment of top management (top management, through their first-hand supervision of all the processes, should ensure non-dilution of the stated objective at any strata of the hierarchy); Course delivery (expert knowledge must be matched with expert skill to transmit that knowledge – the fervour to acquire knowledge must be matched with fervour to transmit it); Campus facilities (utmost attention is to be shown in providing excellent infrastructure and physical facilities in the campus for student learning, co-curricular and extra-curricular activities – equal attention is to be shown in their upkeep); Courtesy (this emotive and positive attitude towards students will lead to congenial learning environment) and Customer feedback and improvement (constant feedback from the students leading to continuous improvement in the process is the key to achieving excellence). They have concluded from the perceptions of students’ that the ISO 9001:2000 certified engineering institutions are moving towards the path of TQM offering better quality of service than the non-ISO certified institutions.

Telford and Masson (2005) suggested a framework of quality values in higher education which included, course design, course marketing, student recruitment,
Badri et al. (2006) developed a comprehensive measurement model grounded in the Baldrige Performance Excellence in Education Criteria. The study underlined the significance of leadership as a driver for all components. It reported the existence of a significant relationship between the leadership, systems, and processes of higher education organizations and the consequent outcomes. The study also added that the Baldrige framework proved to be a useful tool for developing and managing quality systems in institutions of higher education.

Deshmukh (2006) has explained the usefulness of TQM concept for technical education and also the six-sigma approach (DMAIC methodology) in evolving error free processes within the gamut of various activities of technical institutes.

Kaushik and Khanduja (2006) have explained the role of six-sigma (DMAIC methodology) in technical institutions for the continual improvement of the student results.

P. Kousalya et al. (2006) applied Analytical Hierarchy Process (AHP) to a decision making problem related to an educational arena. Through survey on the expert options, the criteria that cause student absenteeism were identified and the criteria hierarchy was developed. The relative importance of those criteria for Indian environment was obtained through the opinion survey.

Parri J. (2006), paper investigates various models of measuring quality in higher education, considers their value and discusses both their shortcomings and contributions to the assessment of higher education institutions. Quality in higher education is affected by tightly interrelated factors and in order to give potentially the most adequate assessment to quality, one has to research as many factors as possible and necessary.

Sahney et al. (2006) stated that there is need for identifying and applying the relevant concepts of Quality Management to Education. The paper is aimed at identifying the design characteristics of a system that would meet the customer requirements of the student as an external customer. The various customer
requirements and design characteristics were identified and thereby, the variables conceptualized. The SERVQUAL was applied to identify the gap and determine the level of service quality. Following this, Quality Function Deployment, Interpretive Structural Modeling and Path Analysis were used to identify the set of minimum design characteristics/quality components that meet the requirements of the students as an important customer.

Sakthivel and Raju, (2006), reviewed the literature to find out who the customer is in education and emphasize the need for development of a new educational excellence model, ‘TQM 9-C EDEX Model’, in the field of engineering education in India. The study, extensively reviews the existing educational models and analyses the multifarious ills presently confronting engineering education in India. The new model can be effectively used in the engineering institutions to enhance the quality of education offered by them.

Bandyopadhyay and Lichtman (2007), concluded that, Six Sigma approach to program design focuses on improved design of educational programs which will not only meet but also exceed all stakeholders/customers' expectations. Six Sigma approach to processes improvement involves process capability analysis to determine the capability of the process for offering good quality educational programs conforming to the needs and expectations of the stake holders. Six Sigma approach to processes improvement focuses on achieving higher standard for quality of faculty and staff, and delivery facilities such as class rooms, libraries, and educational technology. Six Sigma approach to program design and process improvement may be successfully implemented for continuous quality and productivity improvement by institution of higher educations.

Mahapatra and Khan (2007), in their study addressed the issue about diverse nature of requirements of stakeholders in a Technical Education System which makes extremely difficult to decide the quality. Hence, identification of common minimum quality items suitable to all stakeholders will help to design the system and thereby improve customer satisfaction. Therefore, they developed a measuring instrument EduQUAL and an integrative approach using neural networks for evaluating service quality is proposed. Four neural network models based on back-propagation algorithm are employed to predict quality in education for different stakeholders.
Raharjo et al. (2007), discussed quality function deployment (QFD) to improve higher education quality. The paper describe the existing problems in its use and then propose a better way to improve it. In this paper, the customers are divided into two major parties, namely, the internal and the external customer. The internal customer comprises of the lecturers and the students, while the external customer is the employers of the graduates. The result inputs were used for formulating strategies or Quality Characteristics (QCs) to meet the Demanded Qualities (DQs) using QFD. A sensitivity analysis was also conducted to anticipate the changes in the DQs that will affect the output of the QFD. This is useful for providing a better strategic planning for the education institution to meet the future needs of its customers.

The Confederation of Indian Industry (CII) Institute of Quality released its excellence model in September 2008. The CII excellence framework in education is based on nine criteria, five are grouped under “enablers” (leadership, policy and strategy, staff, resource management and partnership and processes) and four are considered as “results” (student results, staff results, society results and key performance results). These quality models emphasises on the leadership parameter to drive performance-based results.

Khan et al. (2008), argued that, in the present emerging global economy, the focus has been shifted from manufacturing to service sector necessitating the quality assessment in service sector as an important issue. Education sector, especially Technical Education System (TES), is characterised as highly process oriented, intangibility and multi-stakeholder situations. Therefore, difficulty arises in evaluating quality of education being imparted aggregating the inputs and outputs of the system. This paper proposes an alternative method viz. Data Envelopment Analysis (DEA) which can aggregate the input and output components in such situations for obtaining an overall performance measure. Selected technical institutions are assessed for their service quality using DEA and suggestion is put forward for the non-performing institutions. The result shows significant difference between the conventional system of evaluation and DEA methods.

Singh et al. (2008), stated that, Quality Function Deployment (QFD) is one of the Total Quality Management (TQM) techniques which can be applied for process and design improvement. This paper develops a framework for quality in an
educational institute on the basis of literature review. A relationship matrix is developed between five identified groups of ‘Dimensions of Quality’ and twelve sets of ‘Enablers’ in an educational institute. It further outlines a QFD model based on interrelationship and intra relationship among dimensions of Quality, Enablers and customers. The indices developed based on the QFD matrix are utilized for quality planning and monitoring. The procedure is equally important for different types of technical institutes for self analysis, enhancing effectiveness and generating Competitiveness.

Pandi et al. (2009), studied the Integrated Total Quality Management (ITQM) practices in selected technical institutions in Tamilnadu, India and also to investigate the performance level of the institutions through students’ perceptions. ITQM is a bundle of global management practices such as ISO 9001:2000 Quality Management System, Six-Sigma (DMAIC), TQM, Knowledge Management and Lean Thinking.

Rajasekhar et al. (2009), stressed that, GAP model analysis of Quality, developed by Zeithaml, Bitner, and Parasuraman of USA, can be better utilized in order to have introspection and diagnose the syndrome that the Indian Higher education system has suffering from, and to suggest remedial measures and strategies for preventing or minimizing specific syndromes, and for revamping the various strategic elements of system.

Chaudhari et al. (2010), described the development of a Total Quality Management model in Higher Education service sector Identified, critical enablers and their drivers for the success of quality improvement and a modeling framework is proposed.

Kaushik and Khanduja (2010), reviews the implications of applying Six Sigma methodology over a technical institute to increase the passing rate of students. It was found that application of Six Sigma project recommendation increased the sigma level of the technical institute to 4.17 from 2.28 and significantly resulted in increasing the passing rate of students.

Singh and Khanduja (2010), SERVQUAL methodology was applied for faculty as a customer to identify the gap between customer expectations and perceptions of the actual service received taking higher education as a service
industry. Outcomes of the study outlined the major gaps of expectations and perceptions of the faculty of higher education and therefore give a framework for prioritizing critical factors to close the gap.

Dado et al. (2011), addresses the issue of higher education service quality measurement and stresses the need of devising psychometrically as well as diagnostically sound measurement instruments, suitable to the context being investigated. The study builds upon the SERVQUAL scale, the inventory successfully tried and tested across a broad spectrum of service industries. Notwithstanding significant resemblance with the original five dimensions of service quality, research findings indicate six-dimensional structure of the construct of higher education service quality. Study performed on a sample of Engineering Management students reveals perceptions falling short of expectations across all of the determinants of service quality.

Manjula and Vaideeswaran (2011), proposed a maturity model for computing education which is inspired by the Capability Maturity Model (CMM) used in software engineering. Similar to CMM, the Capability Maturity Model for Engineering Education System (E2-CMM) can be used to rate educational sector according to their capability to deliver high quality education on a five level scale. Furthermore, E2-CMM can be used in order to improve an institution’s capability by implementing the best practices and organizational changes it describes. They explore a maturity model suitable for educational sector to improve the standard and quality of an educational system. For this purpose they have selected SEI-CMM as base model for developing E2-CMM framework, which can be used for continuous process and quality assessment in education sector.

Narayanamoorthy et al. (2012), stated that, Six Sigma is applied widely in both manufacturing and service sectors. Six Sigma has been proved to be a demanding concept in reducing the process variation and defect rate in all critical business processes to realize breakthrough improvements in process performance that yields significant savings to both service and manufacturing organisations. Though Six Sigma is applied in plenty of Service sectors, the Educational Service Sector has shown a slow progress in adopting this concept. This paper reports case study that
illustrates the successful deployment of Six Sigma to enhance the academic performance of the students in University Examinations.

2.9 TQM and Management Education:

Dholakia and Dholakia (1984), have suggested certain strategies to reshape Indian Management Education to be competitive in international perspective. They have viewed that India has quite a few world class MBA programmes. Indian Management education system to the MBA model of US has certain shortcomings. Therefore, the management institutes have become more innovative in designing, executing and evaluating programmes of research and teaching.

Hamlen Jr. and Southwick Jr. (1989), uses several measures of the quality of MBA programs to compare with student capability measures and the salary of graduates. A high correlation among all these measures is found. Because these do not measure the true product of the institution which is the value added, another measure is sought. The measure proposed for determining the value added is shown to be uncorrelated with the standard quality measures.

Sharma et al. (1996) pointed out that internationalization of management has been promoted along several dimensions such as curricula challenge, research activities with both contents and outlet being relevant and executive development programs. It seems that educational institutions and supplementary providers of management education have no choice but to rise to the challenge of global competition.

Stephen and Whitfield (1999), reviewed about benchmarking for business schools/ colleges, choosing performance indicators, in higher education. They reiterated that, benchmarking is an alternative, partnership approach. A key characteristic of the approach is reliance on a facilitator in the process through which institutional representative select particular benchmarks, as well as in the gathering and reporting of benchmarks, test practices, and American College Testing Program (ACT) business student satisfaction scores.

Gill and Lashine (2003) emphasized due to globalization and advancement in information technology the role played by management education in enhancing
country knowledge base has been placed under a sharper focus thus it has become imperative to look at management education from the market oriented perspective and take a strategic view to better align business education with the requirement of the global market.

Garretson (2004) confirms the importance of the expectation of key stakeholders in the educational process while exploring the meaning of quality through students’ evaluation of an MBA programme using a combination of qualitative and quantitative approaches.

Grant et al. (2004), compares the implementation of quality management programmes of higher education in US and international academic institutions. The comparison is based on the use of formal quality models such as ISO 9000 and Malcolm Baldrige Criteria, Quality-of-Design, Quality-of-Conformance, and Quality-of-Performance. An interesting outcome was the absence of Quality-of-Performance among US universities.

Sohail and Shaikh (2004) explored students’ expectations of quality in business education and identified six factors, such as contact with personnel, physical environment, reputation, responsiveness, access of facilities and curriculum, which contributed to their expectations towards quality business education.

Mustafa and Chiang (2006) identified four key factors that reflect quality in business education, namely, teacher abilities, teacher attitude, course materials and course load.

Arain and Tipu (2007), stated that, due to the increasingly complex nature of organizations and businesses, there is a need that the business schools impart relevant, current, and cutting edge knowledge to the students. He reviewed 946 courses to identify common courses. The research also identifies some of the emerging areas in the business and management education. A comparison of the core courses along with the areas of concentrations/ majors is also presented. This research will help the business schools particularly in the developing world to understand the emerging trends in management education and update their MBA curricula to come at par with the international standards of business education.
Podonly (2009) stated that the time has also come for business schools to develop codes of conduct for MBAs and to withdraw the degrees of those who break the manager's code.

Kang and Sharma (2010), identified 11 factors for poor quality of management education, they are ‘ineffective admission criterion and training’, ‘lack of emphasis on extracurricular activities’, ‘lack of objective and transparent internal assessment system’, Less Practical Orientation in Management Education, Overburdened and Inadequate Permanent Faculty, Focus on Classroom Teaching Only, Pursuing MBA for Its Cosmetic Value, Theory-Oriented Course Curriculum, Limited Specializations Offered, Inactive Alumni Associations, Lack of Managerial Aptitude Among Students. The quality of management education in Punjab is found to be significantly negative. Partial correlations reveal ‘lack of emphasis on extracurricular activities’ as the most significant factor influencing the quality of management education, followed by ‘ineffective admission criterion and training’ and ‘overburdened and inadequate permanent faculty’. Regression analysis predicts that ‘lack of emphasis on extracurricular activities’, ‘ineffective admission criterion and training’ and ‘overburdened and inadequate permanent faculty’ explain certain amount of variance.

Meghe (2010), in his research paper, tried to study what are business schools and their present conditions in India. In India one finds different types of b schools offering types of course content with diverse degree programs and awesome education environment. These business schools are facing the double challenge in India the challenge of meeting the demands of students as well as industry and sustain its growth. students are looking into various factors like the quality of the school, the brand name it has in the marketplace, the rank it holds, an active placement cell, quality faculty, good infrastructure, the accreditations and recognition held by the institute.

Archana Krishanan (2011), explored the various variables that are essential in improving the quality of a business management school. Parameters essential for improving quality are correlated with each other. T test on variables shows how important certain variables are in building a institutional brand through quality initiative. In particular by improving the quality in higher education, Indian business management schools may make themselves competitive in the long run.
Kaul (2011), paper examined the issues that need to be addressed and a possible direction so that management education can be rejuvenated. This paper attempts to explore a mechanism to stimulate development of new curricular elements and methods in management education. It also describes the emerging strategy to make teaching methodology in management education more vibrant and in sync with the changes in the business and economic environment.

Noronha (2011), studied the evolution of management education in India and critically examines the quality of business education in India on different parameters such as quality of students, accreditation, pedagogy, consistency in placement, infrastructure, values, corporate integration, faculty, student involvement and management. It also makes a comparative analysis of MBA curricular of selected Universities in Gujarat. It also suggests ways for quality improvement of business management education in India. Business schools must meet the challenge to deliver management education and knowledge that is relevant in both global and local settings.

Oza and Parab (2011), identified the characteristics, challenges and elements which are required to deliver the quality management education in India to find out the ways for total quality management in the present management education system.

Vanniarajan et al. (2011), stated that, The management education in India in the midst of a major change especially after globalization. The management institutions are trying to shape their courses according to the need of their students and also to bring their student up to the global expectations. It is inevitable to measure the students’ perception on the service quality of the institutes for their future enrichment. Hence, the present study uses the ‘SERVQUAL’ scale to measure the service quality of institutes especially among the urban and rural students.

Sharma Kapil Dev (2012), attempted to understand the changing need of management expertise to face the contemporary challenges of management and the roles of business school in this concern. The business has to know the implications of the changes and accordingly has to prepare the people by their capabilities required to implement the strategies. Today, the corporations want to give a clear message to the business school about their role to play in this regard, means to put all necessary
efforts to come with proper set of management skills of the challenges to be faced by the corporations.

Nangia et al. (2012), in their conference paper suggested the application of a novice research approach for rationalizing management education in India. He observed that majority of the institutions do not seem to focus on the quality of academic program.

Sanchita and Goel (2012), they have examined present status of management education in India. The key issues have been identified for bringing efficiency, sufficiency and equity in the overall system of higher education including management education. Abilities of head and heart, skills and knowledge (ASK) are the engines of economic growth and human development of any economy like India. In reality we are responding more effectively and promptly to challenges and opportunities of globalization which means internationalization of Institutions for all of us. It has created avenues for jobs for skilled professional in management

Shah (2012), argued that Benchmarking is now overwhelmingly seen as an effective tool to faster continuous quality improvement in business education through the process of following “best in class” Practices.

In summation, review of literature discussed above, lays solid foundation for the research. The chapter started with brief overview of quality concepts, its applications, and benefits for various sectors. The chapter focused on total quality management (TQM) concepts and principles applicable to the higher education in general and management education in particular. Views and findings about TQM in higher education and management education of many authors and researchers have been also been discusses in length. Extensive relevant literature has been reviewed on all the dimensions of TQM in management education.