CHAPTER 2
REVIEW OF LITERATURE

Quality is one of the most important issues in education. It is recognized that there are problems with to-day’s education system regarding the issue of quality. Students are graduating from educational institutes as semi finished products of an education system that does not focus on quality. They are not prepared to meet the future needs and most importantly they become citizens who feel alienated from society.

The chapter presents the following section

2.1. Customers of education industry
2.2. Defining quality in education
2.3. Defining quality assurance
2.4. ISO: 9000 in educational institutions
2.5. Teaching - learning process
2.6. TQM in educational institutions

2.1. CUSTOMERS OF EDUCATION INDUSTRY

The primary participant in the service of education is the student; there is also a strong underlying fact that the “customer” of education includes industry, parents, Government, and even society as a whole. The link between satisfaction, and payment, is much less direct in education industry, and the simple approach of only considering the bottom line is not available even if it were acceptable.

Griffin (1996)\textsuperscript{6} in his book “Management” defined a customer as anyone who pays money to acquire an organization’s products or services. Stanton, et al.(1994)\textsuperscript{7} in the book
“Fundamental of Marketing” suggested that customer is the individual or organization that actually makes a purchase decision, while a consumer is the individual or organizational unit that uses or consumes a product. In education, students are consumers who come in contact with service providers of an educational institution for the purpose of acquiring knowledge. Hill (1995)\textsuperscript{8} in his article “Managing service quality in higher education: the role of the student as primary consumer” mentioned that as a primary customer of higher education services, the student should focus on expectations. Waugh(2002)\textsuperscript{9} in the Journal of Educational Administration, paper titled “Academic staff perceptions of administrative quality at universities”, suggested that viewing students as customers created some tensions in universities by making universities seem to be too aligned with businesses. Some researchers also view academic faculties as customers of university administration.

Sahney., et al.,(2004)\textsuperscript{10} had conducted an empirical study on selected higher educational institutions of India to assess the importance assigned to various customer groups and they found that “Delighting Customers”, is one of the core elements of Total Quality Management. This emphasizes the service relationship between an institution and its customers which was presented in the paper. “Conceptualizing Total Quality Management in Indian Higher Education”

Downy, et al.,(1994)\textsuperscript{11} in the book “The Quality Education Challenge”, remarks that the primary customer in an education system is the student; who is both an internal and external customer, while in the system the student is an external customer, participating in the learning process; he/she becomes an external customer, functioning effectively in the society. The external customers include business, Industry and society. All employees are internal customers to one another; each is a supplier and customer to someone else either within or outside the organization.
Madhu (1994)\textsuperscript{12} in the article “TQM in Industry a Quality Code of Honour” refers to different customers and classified them into input customers, transformation customers and output customers. While parents and students are included as input customers, the faculty is the transformation customer and the industry and society are the output customers.

Blom & Meyers (2003)\textsuperscript{13} proposed that in considering the quality approach system intent to adopt, it is necessary for the stakeholders in the quality process to be identified. This is because their values will largely determine how quality is defined and measured. These values, they say, will in turn influence the approach or approaches that these stakeholders take on quality. The inclusion of many stakeholders in defining quality can also create more useful benchmarks.

Summers (2005)\textsuperscript{14} in his book titled “Quality Management, Creating and Sustaining Organizational Effectiveness.” remarks that Quality must be defined ‘in terms of customer satisfaction and determination. Due to the changing needs of customers quality is multidimensional and dynamic’. His definition of quality is based on a customer’s actual experience with the product or service.

Dr. Joseph M., Juran (1988),\textsuperscript{15} in “Quality Control Handbook” defines quality as “fitness for use”. Quality is ensured by making sure that each individual has the building blocks necessary to do his or her job properly. With the proper tools, workers will produce products and services that consistently meet customer expectations.

2.2. DEFINING QUALITY IN EDUCATION

According to Harman’s report (1996)\textsuperscript{16} “Quality assurance for higher education: Developing and managing quality assurance for higher education systems and institution in Asia and Pacific” UNESCO, reveals considerable difficulties and ambiguities in the definition of a
number of key terms. This, according to Harman, is not surprising as quality deals with a number of complex notions and only in the widest sense is there broad agreement about what quality is. Apart from this lack of agreement, authors interested in researching quality issues differ significantly in their views about the way a number of key concepts used in the current debate about quality were defined.

Green (1994)\(^{17}\) in his book ‘What is quality in higher education?’ concluded that it is not possible to talk about quality as a unitary concept. Quality, according to him must be defined in terms of a range of qualities, for example, the criteria that each stakeholder uses when judging quality, and for these views, whether they are similar or different, to be taken into account when assessments of quality are undertaken.

Harvey & Knight (1996)\(^{18}\) in defining quality in education where they identified five ways of thinking about quality, they are (i) Quality as exceptional, (ii) Quality as perfection or consistency, (iii) Quality as fitness for purpose, (iv) Quality as value for money, and (v) Quality as transformative. Quality as excellence is a comparative attribute determined in relation to similar qualifications, providers or activities. Quality as consistency focused on the right every time approach, on process and sets specifications that it aims to meet perfectly. If consistency can be achieved then quality can be attained by all. Fitness for purpose definition of quality assesses the performance of a qualification, programme or activity against its stated outcomes or intentions and it is usually based on the ability of an institution to fulfill its mission or a programme of study to fulfill its aims. Value for money definitions of quality focus on customer and stakeholder perceptions of whether a programme meets or exceeds expectations in relation to the time and money invested. A fifth view of quality sees quality as transformative. Education is not a service for a customer but an ongoing process of
transformation of the learner.

Harvey(1999)\(^{19}\), in his paper presented at the Swedish Quality Conference, on ‘Quality in higher education’, has warned that it is important that any procedure and approach fit well within the culture of the particular system or institution. The five main methods used in the quality assurance system, highlighting their strengths and their weaknesses are accreditation, self-assessment/self-evaluation, peer review, inspection/monitoring and report and follow up

Harman (1996)\(^{16}\) indicated that many see quality as a relative concept, meaningful only from the perspective of particular people at particular points of time, measured against some either explicit or implicit standard or purpose. Aspin & Chapman (1994)\(^{20}\) stated that the concept of quality does not necessarily lend itself to a straightforward interpretation. While quality is a widely used concept in industry where clearly definable products exist, the concept of quality is more difficult to define in education. Hager(1994)\(^{21}\) states that ‘there is no one universally applicable answer to the question ‘what is quality?’ since quality is a function of many factors which vary with the nature of the organization, its particular purposes, its overall philosophy, the nature of its client.

Depending on the social, political, economic or educational context in which discussion on quality is conducted, it will look different, mean different things and will lead to different practical proposals of how to bring it about or to maintain it. In a similar tone, Van den Berghe\(^{22}\) in his article “Indicators in perspective: The use of quality indicators in vocational education and training” stated that the issue of quality in education needs to be considered from pedagogical, economic, sociological, customer and management perspectives.

Romesh Verma (2004)\(^{23}\) in the article “Quality and relevance In Education” emphasizes that the term quality has several meanings. In simple terms it conveys the meaning” doing the
right thing, right the first time and every time” Determining what is right and having a system that allows doing what is right are the keys to achieve quality results. In this way quality in education is based on the parameters (i). Reliability: The ability to perform the promised service (impacting Knowledge) dependably and accurately, (ii). Responsiveness: Willingness to help students and provide prompt guidance, (iii). Tangibles: Physical facilities, laboratory equipment and their use, (iv). Assurance: Knowledge and courtesy of faculty and their ability to convey trust and confidence and (v). Empathy: Caring, individualized attention to students.

In his words, quality in education means: (i). Quality in terms of exceptional high standards, (ii). Quality in terms of consistency of having zero defects, (iii). Fitness for the defined purpose, (iv). More value for money, time and space, and; (v). Transformative in respect of participants etc., Precisely, quality in education is viewed as measuring against the norm, standard or specification of educational standard. Quality as accepted by educationalists is transformational value system. Quality in education means specifying worthwhile learning goals and enabling students to achieve them.

In defining quality, Garvin (1988) in “Managing quality: The strategic and competitive edge” identifies five approaches. They are transcendent (innate excellence), product-based (some attribute), user-based (needs), manufacturing based (conformance to requirements), and value-based (cost and prices). Garvin's classification mainly applies to industry, and appears to have little relevance to education. However, it has been widely applied in the education sector in the absence of a more suitable approach.

Other authors Baker (1997), Green (1994), Harvey & Green (1993), Harvey & Knight (1996) discussed the nature of quality in the context of education and
identified five ways of thinking about quality: Quality as 'exceptional', Quality as 'perfection' or 'consistency', Quality as 'fitness for purpose', Quality as 'value for money', and Quality as 'transformative'. These groups of definition will be discussed in turn.

2.2.1. Quality as 'Exceptional'

According to the Oxford English Dictionary quality is defined as 'general excellence' or 'the degree of excellence of something as measured against other similar things'. The exceptional notion of quality takes it as given that quality is distinctive, exclusive or excellence. Garvin (1988) in his book “Managing quality: The strategic and competitive edge” in defining quality described it as being 'both absolute and universally recognizable, a mark of uncompromising standards and high achievement, often quality cannot be defined precisely'. In line with other authors' definition of quality relating to this approach, Baker (1997) emphasized that quality means something that exceeds a particular standard, which mainly focus upon high quality inputs: the best students, the best academics, and the level of its resources and the reputation of the educational institutions. The standards conception of quality in Baker's view refers to the absolute benchmark against which an outcome or product is checked at any given time. This approach assumes that standards are objective and relatively static and that quality will be improved if the standards are raised.

2.2.2. Quality as 'Consistency'

The consistent view of quality is similar to traditional notions of excellence in some respects. This notion focuses on process and sets specifications that it aims to meet perfectly. The perfection approach or the right every time approach defined quality as the absence of errors, where once the design or a specification has been established by the producer, any deviation from it, means a reduction in quality. According to the 'conformance to
specifications' approach or view of quality is a manufacturing-based outlook.

2.2.3. Quality as 'Fit for purpose'

Fitness for purpose was the definition of quality proposed by Ball (1985)\textsuperscript{29} in his book “Fitness for purpose” and Guaspari (1985)\textsuperscript{30} in “I know when I see it: A modern fable about quality” and Yong & Wilkinson (2002)\textsuperscript{31} in their book “The Long and Winding Road: The Evolution of Quality Management” claim that the extent to which a product or service is meeting and/or exceeding the expectations of customers is currently the most widely used definition of quality. This approach implies that quality is relative to a particular activity, product or service. The judgment as to whether an activity, a product or a service is of quality depends on whether it successfully meets or serves the purpose of the user or for which it is carried out is expressed by Baker(1997)\textsuperscript{25} in his paper “Conflicting conceptions of quality - Policy implications for tertiary education”. The addition of 'customer', 'user' or 'market' to the definitions of quality

The fitness for purpose definition of quality brought up the issue of who should determine the purpose, and whether the purpose is of value itself. There are two approaches to this issue. The first is to see fitness for purpose as determined by meeting the customer's specifications. However, this approach of fitness for purpose has been less prevalent, mainly because the students as the customers, in this case, do not generally specify their needs very well. The second approach, which has been the focus in education, is based around meeting or achieving a given mission of an organization or activity. This approach has the support of several other authors such as Harvey(1999)\textsuperscript{32} in his paper “Quality in higher education” stated that in education, fitness for purpose is usually based on the ability of an institution to fulfill its mission or a programme of study to fulfill its aim. A course of study in an educational institution is of satisfactory quality when it satisfies requirements of particular standards or
levels of achievement for the purpose it was designed.

Van Berkel & Wolfhagen (2002)\textsuperscript{33} in his article “Evaluation: The Dutch system of external quality assessment” while supporting this view stated that the attractive notion of this view of quality is that it implies relative autonomy for educational institutions to define their purpose in the institution's objectives and missions. This, according to the authors will encourage diversity and variability, as opposed to uniformity in quality.

2.2.4. Quality as 'Value for money'

Yong & Wilkinson\textsuperscript{31} in their book “The Long and Winding Road: The Evolution of Quality Management” have referred to the Value-based definition of quality describe quality in terms of costs and prices. Based on this definition, a quality product is one that provides performance, requirements and conformance at an acceptable price or cost. This definition is closely related to the customer specification approach to fitness for purpose, in that customers are specifying what is of value to them. Baker (1997)\textsuperscript{25} in his paper “Conflicting conceptions of quality - Policy implications for tertiary education.” suggests an alternative view of what is meant by value as seeing value from the perspective of society and the community, rather than the individual, and also emphasizes that the notion of quality as something which is valuable is linked to concepts such as accountability where students, government and the community wish to ensure that what they paid for meets their needs. It is also linked to concepts such as effectiveness and efficiency in the use of resources and management.

Green\textsuperscript{26} in his writing on “What is quality in higher education?” emphasizes that the definition of quality as ‘Value for Money’ sees quality in terms of return on investment. If the same outcome can be achieved at a lower cost, or a better outcome can be achieved at the same cost, then the customer has a quality product or service.
2.2.5. Quality as 'Transformative'

The fifth way of thinking about quality is quality as 'transformative'. The transformative notion of quality involves consideration of fundamental changes in form, including cognitive change or transcendence. Baker (1997) in his paper “Conflicting conceptions of quality-Policy implications for tertiary education.”, feels that the notion of 'transformative' quality appears to be 'very apt for education: as education is not a service where something is done for the consumer, but where something is to do, to and with, the student'.

This notion of quality stresses the value added, a measure of the extent to which the educational experience enhances the participants' knowledge, skills, abilities and indicated that this notion of quality also underpins concepts such as student centered learning.

Harvey(1998) in his article “An assessment of past and current approaches to quality in higher education., in explaining transformation as a definition of quality in education states that 'Transformative education is about 'adding value' to the students by enhancing their attributes but it is also about empowering them as critical, reflective, transformative, lifelong learning, Education is not a service for a customer - but an ongoing transformation of the participant Education is a participative process. Students are not customers or consumers, they are participants.

2.3. DEFINING QUALITY ASSURANCE

Harman (1998) in his paper ‘The management of quality assurance: A review of international practice.’ by comparing the present and the past approaches to quality assurance noted that the new concept of quality assurance is a more systematic and far reaching approach ensuring that institutions and systems have in place mechanisms for review and assessment, and for renewal and improvement. The new mechanisms, according to him, also put much more
emphasis on external scrutiny, seeking the views of employers and graduates and, in various ways, making the results of assessment more widely available to the stakeholders and their view on quality assurance in terms of institutional processes. Juran & Summary (1995)\textsuperscript{36} in his book “Trends and Prognosis” opined that the quality assurance professional’s tool also expanded beyond the statistical methods of the quality control era, as the main aim of quality assurance was seen as serving the people who were not directly responsible for the operations, but those who need to know and to be informed.

Warren Piper (1995)\textsuperscript{37} in “Quality management in University”, has defined by associating quality assurance with processes or procedures more than outcomes. Some of the definitions capture the dual nature of quality assurance, that is, fitness for purpose and continuous enhancement. However, according to Hodson & Harold (2003)\textsuperscript{38} in their article, “Quality assurance in higher education: Fit for the new millennium or simply year 2000 compliant?” have opinioned that pressures at the end of the second millennium tended to focus more attention to those elements of the definition that emphasized fitness for purpose rather than continuous enhancement.

Gilmour & Hunt (1995)\textsuperscript{39} in their book “Total Quality Management, Integrating Quality into Design, Operations and Strategy” had a view that since quality is described as a concept rather than a technique, its implementation is very much dependent on the type of organization or process at hand. Identifying processes and predicting the consequences of changes are important steps towards improving quality, the key to ensuring quality outcomes and the quality of the finished product is the direct result of the quality throughout the process used to create it. In designing process maps, according to Deming (1994)\textsuperscript{40} in “The new economics for industry, government, and education” is of the opinion that all aspects of the service including
suppliers, clients, design, production, and delivery need to be considered. Craft (1995) in his paper “International developments in assuring quality in higher education” emphasized that the quality and quality assurance have become key issues internationally and managers of education systems and institutions are concerned about quality and how to put in place appropriate quality assurance mechanisms. There exist many approaches to quality assurance which are applied at the organizational level.

2.3.1. The Importance of Quality Assurance

Authors like Harman, Gibb, Neave, and Van Damme, referred to a number of interrelated factors in explaining the increased importance and strengths of the quality assurance movement of the past decade.

Van Damme (1994) in his paper “Internationalization and quality assurance: Towards worldwide accreditation?” highlighted that there is the concern of a potential decline in academic standards due to massification in education and Neave (1997) in the paper “The rise of the evaluative state: The state of the art” opined that key stakeholders especially employers, have lost some confidence in the traditional academic quality management capacities of educational institutions and their ability, both quantitatively and qualitatively, to match the output of their operations with the needs of modern workplaces and labour markets in an increasingly competitive economy. Harman (2001) in “Quality assurance in higher education”, Proceeding of the International Conference on Quality Assurance in Higher Education: Standards, mechanisms and mutual recognition.” argued that budget restrictions and fiscal crises has led to declining government funding, along with increased pressure for efficiency in public expenditure and the possibility of using quality assurance and academic standards as levers to achieve increased public and private funding.
Gibb (2003) in his paper on “What impact is implementing a quality system having on the vocational education and training classroom?” concluded that increased demands placed on educational institutions for greater accountability in the use of public funds, an outcome from the emergence of the ‘evaluative state’. An increase in competition and diversity of the education environment itself, nationally and internationally, this is supplemented by the rapid erosion of traditional student recruitment networks, the growing mobility of students, professionals and academics, the pressure and expansion of private institutions, the increased use of distance education and open learning and expansion of trans-national education.

Rajavaara (1997) in his contribution “Professionals and quality initiatives in health and social services” insisted on the typology of four different types of quality assurance which have been developed by include: political-administrative, citizen-based, business-oriented and professional. Under Rajavaara's political-administrative type, the main approaches used are legislation, service standards and quality indicators. In the citizen-based type, the main approaches are action groups concerned with quality and the introduction of alternative social models. In the business-oriented type, the main approaches used are Total Quality Management, ISO 9000, quality awards and benchmarking, while the professional type depends on professional training and professional ethics, professional audits, peer review and self-assessment/evaluation.

The key issue in designing and implementing a quality assurance system is the ability of the quality concept to facilitate the perspectives of a range of stakeholders who have differing conceptions of quality in education. As stated by Tam (2001) in “Measuring quality and performance in higher education” that there is concern regarding the relationship between the conception of education, the definitions of quality being used, and the performance indicators
chosen to measure quality. It is important in overcoming these concerns and in producing a performance evaluation framework, he says, the equal expression of stakeholders' voices, even though they may conflict or compete with each other, must be allowed and encouraged. Tam also stressed that designing and implementing a quality assurance system that embraces all levels of the system from national to school level, is a huge undertaking.

While the methodologies in various quality assurance reviews and assessments vary considerably, most depend on one or a combination of a limited number of key methodologies. There has been a convergence towards systems that focus on accreditation, self-study or self-evaluation, peer review and the review by panels of experts, usually involving at least some 'external' members and visits leading to a published report. The following authors have expressed their concerns about quality assurance in their paper presentations: Adivisoin(2002) in the paper “Challenges, policy directions and strategy developments in technical and vocational education in the Colombo plan region”; Harman(1998) in “The management of quality assurance: A review of international practice; Harman & Meek(2000) Repositioning quality assurance and accreditation in Australian higher education; Van Vught & Westerheijden(1993) Quality management and quality assurance in European higher education”.

2.4. ISO: 9000 IN EDUCATIONAL INSTITUTIONS

The quality system was originally created for manufacturing industry. Now service industry is also making lots of effort to improve their service quality. These ISO 9000 international quality standards are being implemented in many service organizations such as educational institutions, banking services, postal services, etc. Globalization of market, heightened quality requirements through tough competition and mushrooming of educational
Many vocational educational institutes have thrust to the quality management system of ISO 9000 in order to establish consistency and control over the quality of such education. Nair and Gonzales (2004)\textsuperscript{51} investigated the strengths and weakness of ISO9000 quality management systems in vocational education.

ISO 9000 is a set of quality standards that assist an organization to identify, correct and prevent error, and promote continual improvement. Educational institutions are implementing ISO 9000, as they have to face stiff global competition. ISO 9000 standards were revised in 1994 and then 2000. The latest standard of ISO 9001:2000 is designed to meet the needs of service sector including education sector.

Elmuti (1996)\textsuperscript{52} stated that the ISO 9000 improves operational efficiency and communication within the organization. It provides uniform products with competitive edge and hence results in greater customer loyalty and market share. Webster (1997)\textsuperscript{53} suggests that the ISO 9000 system enables a company to look closely at its management practices and identify areas of improvement.

Karapetrovic et al., (1998)\textsuperscript{54} in article on ‘Quality management in the academic environment’, expressed that quality of an educational institute is expected to be perfect by various stakeholders such as parents, students, industry and society. Student and their parents are rightfully questioning the quality of curriculum, instructional delivery, the learning environment and improvement of knowledge. The competitive environment demands students to have in depth and practical knowledge, understanding of their specific area along with interpersonal and communication skills. As a society we want that institution must ensure quality of education to provide able professionals for continuous growth and development.
The main purpose of ISO 9000 in education is to provide confidence to the professionals, students and their parents, employees and various other stakeholders. There are only a limited number of articles concerns quality standard, implementation and TQM adoption in educational institution. Authors such as Peters John (1999) support ISO 9000 as a global quality system for educational institution and assure that education providers are keeping their promises to the students. Karapetrovic (2001) addressed the issues of why and how engineering schools could implement the ISO 9001:2000 standard. A seven-step approach to implement ISO 9001:2000 was proposed. Mittal (2002) come across some quality issues in schools where implementation of ISO 9000 provided a framework to improve existing resources and processes. (Chin et al.,(1994) in the article ‘Quality control in the educational service – a Singapore experience’; Moreland & Clark,(1998) in the article ‘Quality and ISO 9000 in educational organizations’, expressed that scope of application ranges from relatively small laboratories to whole institute.

Harris and Oven (1994) in the article ‘The development of a quality system for higher education’, expressed that educational institutions, wishing to implement ISO 9000 quality management systems, have number of motives behind its implementation. The overall systems of educational institute can be streamlined; quality problems can be identified, corrected and prevented in systematic manner documentation improves understanding among faculty and staff and can be used to train newly hired staff.

Doherty (1995) in the article ‘ISO 9000 series; 1987 and education: do they fit and is it worth it?’ expressed that a educational institution get the market advantage by mentioning in market brochures such as ‘First ISO certified engineering school in country’ and the quality system provides a clearer articulation of the rights and responsibilities of students, faculty and
staff and further identified the amount of time and effort of faculty and staff required for such activity is a major problem. Faculty and staff feel more obligations and more time consumed in such activities.

Berghe (1997)\textsuperscript{62} has placed his findings in the article ‘Application of ISO 9000 standards to education and training, ‘conducted a survey in UK institutions and found that institutions sought the standards to improve market share and for promotional purposes and pointed out that the high cost of implementation; volumes of paperwork were seen as the major problems related to ISO 9000. He expressed that time spent checking paper work is a major obligation felt by employees. The high costs of implementation, shrinking university budget and lack of finance support by the government are main difficulties mentioned by the respondents. So market and government accreditation benefits are generated.

Tsiotras & Gotzamani (1996)\textsuperscript{63} presented their a case study in the article ‘ISO 9000 as an entry key to TQM: the case of the Greek industry’ and found that the standards’ long-term contribution to the organizations may be positive, neutral or negative, depending on the way that companies choose to implement them. ISO 9000 standards have made strong impact on institutions, faculty, staff and students.

Beaver (1994)\textsuperscript{64} in his article “Is TQM appropriate for the classroom?” pointed out that quality management is very essential to reassure that educational institutions perform well and that the customers of education are being well served. In accordance with the classification given in Vloeberghs & Bellens (1996)\textsuperscript{65}, in the article ‘Implementing the ISO 9000 standards in Belgium’, categorized benefits into four groups, namely the operational results, financial results, benefits for the customers and benefits for the workers.

Motwani et al. (1996)\textsuperscript{66} in the article “A roadmap to implement ISO 9000”, These include
improvements in operations and methods, increased efficiency of organization, employee’s motivation and encouragement, increase in consistency of operations, increase in faculty training and development, more awareness regarding roles and responsibilities, a good promotional tool, future customers (students) likely demand. The study conducted by Lipovatze et al., (1999) and put forth in the article “Implementation of ISO 9000 quality systems in Greek enterprises” and results of the study. Huarang et al.,(1999) placed in the article "A Study Of ISO 9000 Process, Motivation And Performance" indicated that organizations are driven by some external forces such as customer pressure, perception of organization, and related factors to obtain ISO registration.

Calingo et al. (1995) in the article ‘Achieving total quality management through ISO 9000: a research note’, presented by them indicated that employee resistance to change and lack of employees’ commitments are the major hurdles in ISO implementation process. The main difficulties in ISO 9000 implementation are constraints on resources that are time, manpower and finance.

Quazi & Padibju (1998) in the paper "A journey toward total quality management through ISO 9000 – certification: a study on small- and medium-sized enterprises in Singapore", recognized that the problems faced by the focus group at the centre’s are due to lack of understanding ISO 9000 standards, and felt ISO 9000 implementation is paper intensive and more time consumption, high project costs and resistance by employees due to more responsibilities.

As quoted by Van den Berghe in his publication “Indicators in perspective: The use of quality indicators in vocational education and training.” The ISO: 9000-2000 certification indicates that the organization is able to meet the needs of its customers in a systematic way. It indicates as far as the educational institutions are concerned, that they are well organized and that the outcomes of programmes and courses meet the intended goals and the needs of the users;
however it does not necessarily guarantee that the content of these courses and programmes meets a particular educational standard. Its primary concern is product quality. Therefore, it focuses on stakeholder expectations and the processes that ensure quality of strategies used to meet them, so far as education is concerned. The following are the parameters of assessment: customer focus, leadership, involvement of people in organizational processes, process approach, continuous improvement, and fact-based decision making and mutually beneficial supplier relationship.

Idrus (2001) in the paper presentation at the conference on “A Model for Assuring the Quality of Higher Education Institutions,” is of the opinion that the successful acceptance and implementation of quality into higher education are often assisted by externalities such as conducive government regulations, economic conditions, confident leaderships and a certain level of stress to initiate a need for a change.

2.4.1. Accreditation models

In order to assure the quality of engineering education, various factors can be analyzed and assessed in an engineering institution. It has been found that several efforts have been made to devise and develop assessment programmes for the accreditation of engineering courses. The three most common actions of the include: Self-assessment/Self-evaluation; Peer review; Inspection/monitoring; and Reporting and follow-Up.

2.4.1.1. Self-assessment/Self-evaluation

Self-assessment has been used as a tool to ensure, develop, assess and evaluate quality at system and provider levels. It may cover one, several or all of the factors that have an impact on the quality of the TE provision, including the organization of the TE system, institutions, mechanisms, resources, pedagogical expertise, as well as relations to external
environments. As emphasized by Stahl (1998) in his article in the European Vocational and Training Journal “Self-assessment: A royal road to quality assurance for continuing training?” it is the people who are directly experiencing training in practice, whether as teachers or students, who are best able to assess its effectiveness in terms of expectations, needs and practical use. He added, it is also their criticism of themselves and others involved in education and training, and proposals for improvement that can be directly built into the training programmes. Self-assessment helps TE providers to analyze their responses to these challenges, and to provide adequate feedback on areas needing change.

In conducting self-assessment/evaluation, Milenkovic(2003) in the article “The Establishment of quality assurance mechanisms at the University of Nis and other systematic changes in Serbian higher education” detailed how self-assessment/self-evaluation can be undertaken. According to him, once the aspects of the work of the educational institution to be assessed are identified, the task proceeds with the preparation of instructions to be used in self-assessment/self-evaluation. These aspects may include the mission (mission, goals, expected results), the input (management, action plan, staff, students, financing, equipment), process (the curricula, research projects, professional services to the community), and the output (the training that graduates have received, scientific production, professional services). Other aspects include quality assurance and improvement plans, details on methods used to monitor and benchmark achievements and the results of monitoring and benchmarking. He goes on to explain that a report will be produced which usually includes an assessment on how much of the mission has been fulfilled, how far the goals have been achieved, and how much the stakeholders in the process are satisfied with the activity of the institution.

In recommending the use of self-assessment, Harman (1998) in “The management of
quality assurance: A review of international practice” and Van Damme (2000)\textsuperscript{42} in “Internationalization and quality assurance: Towards worldwide accreditation?” highlighted a number of its positive features. According to them, self-assessment is effective and cost efficient since it is done internally, with only a few additional resources necessary. Self-assessment, they say, is also used because of the high degree of ownership and acceptance by the academic community itself since key staff is heavily involved and such involvement increases the chances of substantial improvement. The overall process of review or assessment is made less threatening when emphasis is placed on self-assessment. Harvey (2002)\textsuperscript{75}, in his article “The end of quality” in supporting the use of self-assessment argues that 'internal reviews and assessments are more accurate and fruitful than those done by outsiders.

However, Barnett(1990)\textsuperscript{76} in “The idea of higher education” as early as 1990 argued that there were indications of positive achievements that higher education had achieved through self criticism were 'coming under the severest threat.

Gosling and D’ Andrea(2001)\textsuperscript{77} in their paper “Quality development: A new concept for higher education.” stated that since the time of Barnett's observations the quality processes have far exceeded Barnett's fears in terms of their intrusiveness, external control, requirements on reporting, and external accountability and the impact of quality systems on the academic community, has provided an account of the strategies adopted by academics to subvert managerial systems imposed on them with which they do not agree.

Harvey(1995)\textsuperscript{78}, in “Beyond TQM, Quality in Higher Education”, study shows that the respondents agreed that management is at best an irrelevance and distraction from the daily business of teaching and learning , and adversely a threat to the already vulnerable educational institutions. Academics learn to play the system and pass the test rather than aim at improving
teaching.

Harvey (2002) in the article “The end of quality” points out that a distinction should be drawn between self-evaluation for internal use and self-evaluation for external use, which according to him, may lead to two different sets of reports, one prepared for internal consumption and another for external consumption. This lack of openness, he says, is due to fear in revealing weaknesses or problems in self evaluating, especially when resources are used to reward strengths rather than eliminate and reduce weaknesses.

This view was supported by Peters (1994), in the article “Some Sharks are Boojum: Accountability and the Ethos of Higher Education” stated that 'effective assessment requires a diligent search for bad news, which is more useful than good, but accountability encourages the opposite. Educational institutions tend to construct indicators that reflect the ease of capturing data rather than identifying those criteria that will carry valid evidence of performance.

2.4.1.2. Peer review

Self-assessment is an important method in quality assurance, which builds on 'innate' knowledge. However, according to Baker (1997), in the article “Conflicting Conceptions of Quality - Policy Implications for Tertiary Education” felt self-assessment is an introspective procedure and thus biased. In order to strengthen the credibility, legitimacy and recognition of results of self-assessment, Baker suggested that it be combined with an external monitoring system which ensures periodic review by an independent and appropriate third party body at national, regional levels.

External reviews, he says, are important especially to ensure that the self study is taken seriously and to bring in outside perspectives. A combination of self study with external peer
review provides a strong incentive for staff to take the activity more seriously and it is the traditional professional means of assessing and assuring quality. Baker goes on to say that self and peer reviews can be very supportive of quality improvement, are flexible and able to respond to a particular context, and have broad acceptance amongst education providers.

Van Bruggen., et al. (1999) in their article “To be continued synthesis and trends in follow-up of quality assurance, in West European higher education”, In the European Journal for Education Law and Policy, state that in most educational institutions, quality assurance starts with self-assessment. Self-assessment reports are the basis of evaluation by external committees, mostly consisting of peers. These external committees, they say, reflect on the self-assessment reports and investigate the situation through site visits. The external committees write public reports that include recommendations for improvements, and examples of good practice are highlighted. Public reports, according to them, are of vital interest for quality assurance in education and they influence the behaviour of the educational institutions and other parties in the evaluation procedure in a desirable way. Undoubtedly, these public reports can have a stimulating effect on the internal operations of the institution, especially for use in the long term.

Goedegebuure et al. (1990) in the article “Peer Review and Performance Indicators: Quality Assessment in British and Dutch Higher Education” in supporting the use of peer review, claim that, although peer review has low reliability, it has high content validity, is flexible and can be geared to individual situations.

In highlighting some critiques of this approach, the works of Harvey (2000) are given prominent in “An employability performance indicator. Perspectives” review. Harvey argues that although self-assessment is often taken seriously only if peer review follows, peer
reviews themselves are not particularly an effective or efficient means of unraveling what is really going on. He added that during the review process, peer review teams make judgments based on what they are told and tend to look for discrepancies in the story. They attempt to relate what they hear to the self-assessment document. Harvey also stated that the reviewers rarely have detailed documentation nor fully observe what goes on in the educational institution under review. According to him, even if during the short duration of their visit, reviewers have access to appropriate documentation which allows them some form of cross-checking and the opportunity to observe facilities and practices first-hand, they tend to see and assimilate only small aspects of the whole institutional operation.

Harvey also argues that peer groups see relatively little as they spend most time closeted in a room having discussions with groups of 'selected' discussants. He also noted that peer reviewers are rarely trained and some reviewers even conduct the review without any proper training. If they are trained, he says, it is only to help them identify what they should be looking for and not how to interpret what they see. The preconceptions and prejudices of peers are seldom challenged by the staff of the institution under review prior to their visits. Harvey also noted that some reviewers considered themselves learning while conducting the review process. In practice, there tends to be a considerable gap in the perceptions of peers and the authors of self-assessment documents.

Harvey(1999)\textsuperscript{83}, in another paper, “Quality in higher education” citing the findings from the study conducted by Silva, Reich and Gallegos in 1997 on the newly developing private university sector in Chile, highlighted that in 90 per cent of the cases, peer reports were simply confirming what the institutions already knew. Furthermore, the prior experience of peer reviewers tended to influence the outcome of reports. Stensaker (1999)\textsuperscript{84} in “External quality
auditing in Sweden: Are department affected?” in his review of Swedish Audits noted that 'on the whole, the visits appeared to be more geared to the needs of the auditing teams than those of the institution. Grady Bogue (1998)\textsuperscript{85} writing about “Quality assurance in higher education: The evolution of systems and design ideals.” in New Direction for Institutional Research, also mentioned that even though programme reviews featuring self-assessment and external peer review at the discipline, department, or programme level are highly respected instruments of quality assurance in education, staff often viewed them as futile exercises, only serving as busywork to occupy some administrators, having little relationship to resource allocation and other decisions.

2.4.1.3. Inspection/ monitoring

Inspection is an external expert model of quality assessment which ranges from strict control and accounting measures to a more open system where control is also committed to developmental purposes, sometimes combined with voluntary peer review. Monitoring systems, mechanisms and procedures are part of the regulation function in governance and they can be as diverse as the national systems, sub-systems and institutions. According to the Technical Working Group Report (2005)\textsuperscript{86} “Quality in VET’, Fundamentals of a Common Quality Assurance Framework”, noted that current trend towards decentralized governance, supporting and relying on local know-how and creativity, is in line with an increasing strategic complementarily between internal and external procedures. This group also noted that many countries are using inspection as a common external monitoring measure in publicly supported TE systems to complement self-assessment. They say monitoring helps to ensure that internal assessments
are challenged regularly and it provides a clear and comparable analysis of the quality of TE through approaches such as grading systems and published reports. In most countries, in addition to its controlling function, support and counseling of TE providers, part of the work of inspection bodies is towards the improvement of the quality of VTE.

An important feature of the current framework of inspection in educational institutions as highlighted by Brown, R. (2000)\textsuperscript{87} in “The new UK quality framework” is that the intensity of the reviewers' scrutiny during the monitoring process will not be the same for each institution. This will vary depending on the monitoring agency's view of the maturity and reliability of a particular institution's internal quality processes. Franke (2002)\textsuperscript{88} in his research paper published in quality of higher education titled “From audit to assessment: a national perspective on an international issue” has emphasized that if the monitoring agency finds that the quality of a certain programme does not meet sufficient standards, a warning will be issued. The institution, he says, is given time to take action and remedy any problem. If shortcomings remain in the subsequent inspection, the institution will lose its right to award degrees or diplomas in the subject or programme in question. This approach of quality assurance, according to Van Damme (2000)\textsuperscript{42} quoted in the article “Internationalization and quality assurance: Towards worldwide accreditation?” the typical methodology used in countries where the institutions themselves control the quality assurance process. He further explains that the monitoring or audit is a meta-review of the functioning of the quality control mechanisms itself and is often the responsibility of the government.

Some critiques of this approach stressed that inspection often comes under frequent and critical assault due to a range of imperfections. Baker(1997)\textsuperscript{25} emphasized that even though its external nature can increase external confidence in its validity, inspection can suffer from
the difficulties encountered in peer and self-review/assessment, in particular the level of individual acceptance which makes these reviews useful as a tool for quality improvement. An approach to overcome this shortcoming was suggested by Laughlin, cited in Hodson & Harold (2003), where she recommended institutions to actively engage and encourage staff to participate on every audit occasion. The value of these approaches, according to her, can be seen during the preparation stage where staff was exposed to a series of meetings, seminars, awareness-raising sessions, news bulletins and web site news. In this way, she says, a wider range of people in the educational institution can be made aware of the key elements of institutional policy and procedures, areas of performance shortfalls can be identified and can result in the whole staff taking positive action to rectify the shortfalls. The real benefit arising from this measure, according to her, is the experience gained during the preparation for audit rather than the audit itself.

Monitoring also affects educational institutions in many ways. Rustin(2000) in the article “The University in the network society”, highlights that institutions can become scenes of anxiety and persecution and at the same time staff self-confidence and morale are undermined. This concern was also highlighted by Ramsden(1992) in the book “Learning to teach in higher education” stated that the regulatory system can create an atmosphere of distrust, resulting in conservation, and drain staff enthusiasm for innovation.

Another concern of quality monitoring is the time taken in preparing for monitoring events, in particular, the requirement to prepare specific event-related documentation which is considered a burden to academics. Harvey (2002) in “Evaluation for what? Teaching in Higher Education” recommended that monitoring agencies should evaluate on the basis of what institutions already produce rather than asking them for detailed documentation for
monitoring purposes, such as is required in the current British system, which he believes is entirely unacceptable. He noted that such activities could divert scarce resources from the key tasks, namely, the improvement of students learning and experience.

Harvey suggested that if, for example during an evaluation, it was revealed that the institution does not provide adequate materials to students about assessment criteria, then this should be noted for future action during subsequent visits. Other authors such as Harvey & Askling (2003) have also expressed concern that external quality monitoring might inhibit innovation because of the application of conservative or rigid evaluation criteria which leads to uniformity rather than diversity and flexibility. They highlighted the need for a significant connection between internal and external processes, without which the effect of monitoring will only be temporary rather than the permanent nature of review-inspired improvements.

Although Kristensen (1997) in “The impact of quality monitoring on institutions” stated that external monitoring can never stand alone and will never be able to replace valuable internal self-assessment, Smith & Ngoma-Maema (2003) in improving the quality of education in the article “Education for all in South Africa: Developing a national system for quality assurance.” warn that as the pressure to improve quality of education intensifies, there is a danger that external evaluation processes may overshadow educational institutions self-assessment initiatives. The consequence of this, according to them, is that institutions may lose the space to determine what matters to them and end up responding and adhering solely to the recommendations made by external evaluators. The challenge for these institutions is to ensure compatibility between these potentially contradictory roles.

There is also perhaps the fact that quality assurance mechanisms (which put so much pressure
and add workload to staff) have been introduced at the same time as cuts in funding (which also created more work and stress). In combination, these two phenomena have created very stressful work environment and it comes as little surprise that collegiality and loyalty are diminished.

2.4.1.4. Reporting and follow-Up

Reporting and follow-up activities are vital parts of a quality assurance programme. Franke (2002) in discussing this approach stated that the challenge faced by monitoring agencies or reviewers is the way to devise fair and effective methods of follow-up, which will be considered by the different stakeholders and which will lead to improvements, but at the same time are not likely to be damaging to the institutions under review. He recommends that a useful report and subsequent follow up should be explicitly addressed in guidelines, or in discussions prior to the implementation of any review and that the institution or unit being assessed should also be given the opportunity to comment on the draft report. Franke also recommended that following an evaluation, a simplified follow-up along with seminars and other activities in broader discussions with representatives from industry, politicians and others should be carried out to ensure positive development arising from the monitoring activity. In making reports public, Van Bruggen et al. believed that the behaviour of educational institutions and other parties in the evaluation procedure could be influenced towards desirable and to have a stimulating effect on the internal operations of the institutions in the long term.

2.4.2. Students’ assessment

A reliable, relatively cheap way by which individuals can convince others that they possess certain qualities is vital to the efficient operation of labour markets. A qualification is one of these ways, usually conveyed in some form of certificate, to the effect that a person
possesses the qualities which they claim to possess. According to Chipman (1998)\textsuperscript{95} at the conference on the “The changing face of trans-national education: The future of higher education in a global context”, there are a number of stages in the production of a qualification for an individual. The main stages, he says, are design and development, delivery, assessment and certification. In elaborating further, he stated that these stages are frequently coordinated within a vertically integrated organization, are technologically separable and can be and are, at times, performed by independent, separate organizations. Whether performed collectively or individually, he says, it is arguable that both the organizations involved, and their clients, have a significant interest in the credible processes of quality assurance at each of these stages of production. A person may be qualified but may not possess a corresponding qualification.

Harlen, et al. (1992)\textsuperscript{96} in the article “Assessment and the improvement of education.” has conceptualized a comprehensive definition of assessment includes the processes of gathering, interpreting, recording and using information from a student's response to an educational task. A vast range of ways of assessing can be identified by combining different means of getting information (for example, observing actions, listening, reading written work) with various kinds of tasks, for example, written tests, examination papers and practical tasks set internally and externally.

According to Harlen (1994)\textsuperscript{97} in his book “Issues and approaches to quality assurance and quality control in assessment.” enumerates the reason for choosing one rather than another of these many possible ways of assessing relates to the requirements for optimum dependability.

According to Rowntree (1987)\textsuperscript{98} in his compilations in the book “Assessing students.” is
of the view that assessment is essentially an attempt to get to know about student's achievement and to find out the nature and quality of his or her learning, their strengths and weaknesses, interests and aversions, motivation and approaches to learning.

Research has demonstrated that assessment has an enormous impact on both what and how students go about their learning. Assessment methods and requirements probably have a greater influence on how and what students learn than any other single factor. Boud (1985)\textsuperscript{99} in his research article on “Problem- based learning in education for the professions” reasoned that this influence may well be of greater importance than the impact of teaching materials.

Black &William(1998)\textsuperscript{100} in their article “Assessment and classroom learning, Assessment in education: Principles, Policy & Practices,” emphasized that during the last two decades, a great deal of research was conducted to demonstrate the influence of assessment on what is taught and how it is taught, and what and how students learn.


Other studies in quality of assessment in VTE were conducted by Smith(2000)\textsuperscript{102} and presented in “Issues Impacting on the Quality of Assessment in Vocational Education and training in Queensland”, and Booth, et.al,(2002)\textsuperscript{103} who undertook a study to determine the confidence of the practitioners on their assessment practice and their assessment decision-making. The findings of both studies indicated similar problems in the conduct of VTE assessment in both workplaces and institutions. Smith found that assessors were lacing unproportionate emphasis on summative assessment and the quantity of evidence they collected...
rather than on the quality of the evidence and the training itself. In addition, he noted that generally practitioners had not been provided with sufficient assistance on how to deliver quality training and undertake assessment with any degree of quality. Smith's study also highlighted the need for a process of review to enhance the consistency of assessment approaches, the process of assessment as well as the final judgment of student competence. In their study, found that many practitioners were concerned with the lack of consistency in assessment practice and assessment decisions, the new demands that were being placed upon their assessment with the introduction of training packages and the lack of rigorous quality assurance processes.

Clayton, et.al.(2004)\textsuperscript{104} in “Maximizing confidence in assessment decision making: Current approaches and future strategies for quality assurance.” reported that the National Assessment Principles, Standards and Protocols provided under the Australian Recognition Framework were insufficient to ensure the quality or consistency of either the assessment processes or the judgments being made by assessors.

Lester(1999)\textsuperscript{105} in research undertaken in the United Kingdom found that employers and VTE providers were concerned with assessment decision making, in particular, with the decisions about competence. In addition to this, Lester's findings also showed limited confidence was placed on the quality assurance initiative implemented in the system due to the lack of knowledge and consistency shown by the external verifiers.

In support of these findings, Clayton & House (2000)\textsuperscript{106} in the book titled” The Demands of Quality” found that their informants agreed that a lack of currency in either the technical or assessment domains is likely to generate a lack of confidence in the assessment process, which eventually leads to a loss of confidence of employers, industry and other users of the results. Informants in their research also noted their inability to access industries due to the lack of time
and resources to access their industries and to discuss and communicate their assessment issues with other assessors.

2.4.3. Approaches to quality assurance in assessment

Quality assurance, as presented by Maxwell (2001)\textsuperscript{107} in the paper “Moderation of assessment in vocational education and training.” noted that there is a feed forward mechanism in the sense that the application of well defined procedures is expected to deliver the desired outcomes. However, assessment procedures are not well defined since they must be tailored to particular situations and contexts.

The judgment of competence, according to Cresswell (2000)\textsuperscript{108} in “Educational standards” quality assurance itself is not capable of being explicitly defined so that consistency is delivered automatically. Maxwell stated that a quality assurance procedure was adopted to monitor and endorse, and where necessary to adjust or correct, the actual implementation of some activity while it is being implemented and before its completion. Assessment in VTE, with its set of procedures, would still require properly trained and professionally committed assessors and the actual assessment procedures and judgments need to be checked to ensure that the assessment procedures are appropriate and will result in consistent judgments of competence. Maxwell highlights that research on assessment shows that different people interpret written standards differently. The inconsistent and different interpretation of meaning, he warns, will result in problems in the enactment of competency statements.

Wolf(1993)\textsuperscript{109}, Toop et.al.,(1994)\textsuperscript{110} established a framework for an assessment system that includes elements of a comprehensive quality assurance strategy such as screening and training of assessors to ensure assessors' competency, verification of assessment decisions both
internally and externally, appeal mechanisms and process, and a review of the assessment systems.

2.4.3.1. Competent Assessors

To a large extent, attempts to ensure the quality of assessment in VTE around the world have focused on the procedures used in the assessment process. Several studies including those by Schofield (1999) in his studies on “Independent investigation into the quality of training in Queensland's traineeship system.” and Smith (2000) in “Issues impacting on the quality of assessment in vocational education and training” have highlighted the need to address the quality and consistency of the assessors' judgments, in addition to the nature of the procedures they follow. In the TE system, assessors are said to be accountable whenever their assessments are monitored and when there are associated consequences. When assessors take into consideration the possibility of third party verification, they are accountable for their actions.

Siegel et.al (1996) in their study “Effects of procedural and outcome accountability on judgment quality.” have identified two types of accountability in the assessment process: procedural accountability, which requires assessors to justify the procedures used, and outcome accountability, which requires assessors to justify the quality of assessment outcomes. These authors argue that procedural accountability has more beneficial effects on assessment judgment and quality than outcome accountability as it encourages assessors to gather and use more information to improve consistency of judgments and information-processing strategies employed by the assessors.

Siegel-Jacobs and Yates however concluded that outcome accountability was found to be more detrimental, as assessors were in line with expected views of the stakeholders,
which could lead to lower levels of accuracy, resulting in poorer assessment decisions.

The level of expertise required in carrying out assessment in VTE has been well acknowledged. VTE assessment demands a substantial amount of tacit knowledge and judgment on the part of assessors and a considerable degree of responsibility is entailed in making judgments about student's performance was expressed by both Docking(1997)\textsuperscript{113} in the article “Vocational Education Assessor Training Programs”, and Jones(1999)\textsuperscript{114} in the journal article “The Place of Judgment in Competency-based Assessment”. The inconsistencies in assessment practice, limitations in assessors training and the lack of ongoing professional development have an influence upon assessment outcomes.

According to Clayton, et.al, (2004)\textsuperscript{104} these factors when combined with ineffective quality assurance processes, are likely to have a detrimental effect on the confidence of the stakeholders involved in VTE. Poor assessors’ judgment on student competence will have significant consequences towards the credibility of the VTE system. Fechner & Hill (1997)\textsuperscript{115} in “Case studies in workplace assessment systems” and Docking (1997)\textsuperscript{113} in supporting this view suggested that 'the implication of getting the judgments incorrect, however, is also likely to be significant'.

The dangers of incompetent assessors go far beyond the classroom. They can have an impact on a person's whole life and can harm their future clients or employers. Gillis, et.al.,(1998)\textsuperscript{116} noted in their research “Reviewing the competency standards for assessment and workplace trainers “that a major concern of workplace trainers and assessors was the lack of rigour and quality assurance in the training process.

Smith (2000)\textsuperscript{117} confirmed this view with his study of pre-service training programmes, and commented on what he called a 'pervasive and deep concern' in relation to assessor
expertise. Smith also reported that TE 'assessors training is frequently conducted by people who have no expertise in assessment beyond the level of the course they are conducting, and so lack the capacity to significantly lever quality assessment into the system', also found that there was inadequate support for the actual doing of assessment as distinct from the general principles for conducting assessment and that the associated training provided to assessors was of poor quality and with doubtful validity. Smith concluded that the training of assessors and verifiers is an essential component of quality assurance, because assessment and verification are themselves professional processes requiring special expertise.

Clayton (2002)\textsuperscript{117} in the conference paper “Impacting on policy and practice: Implications of assessment research.” recommended that professional development, forums and networking be organized as they are important in supporting and helping assessors conduct valid, reliable, fair, flexible and cost effective assessments. Maxwell (2001)\textsuperscript{107} in the article “Moderation of assessment in vocational education and training.” highlights the importance of improving the quality of assessors and assessments before inadequacies and inconsistencies become more pervasive and more noticeable and perhaps threatening to the integrity of qualifications.

As no specifications of criteria can ever be clear enough to prevent assessors from sometimes being inconsistent in their judgments, Rakkolainen & Ecclestone (2004)\textsuperscript{118} in their study on “The implication of using skills tests as basis for a national evaluation system” recommend the enhancement of transparency of the assessment criteria and processes of quality assurance. At the same time, assessors need to be trained to use them effectively. This approach, they added, will motivate assessors and students and increase the trustworthiness and credibility of any assessment tasks.
In a similar view, Eraut (1994)\textsuperscript{119} in his book titled “Developing professional knowledge and competence” noted that evidence has shown that once training and regular communication has been established, assessors should be able to ensure sufficient standard use of criteria. However, he added that standardization can easily slip if regular training and communication is not maintained.

2.4.3.2. Internal Moderation

Moderation refers to a particular process of quality control involving the monitoring and approval of assessment procedures and judgments to ensure there is consistency in the interpretation and application of the performance standards. Moderation also means social moderation in the sense used by Linn (1996)\textsuperscript{120} in “Linking assessment” while Booth, et.al,(2002)\textsuperscript{103} and Maxwell (2001)\textsuperscript{107} use validation as another term for moderation. In recommending the use of moderation, Smith (2000)\textsuperscript{102} wrote that 'the belief is that a moderation system would not only set, propagate and check assessment standards but would also facilitate the sharing of good practice approaches for assessment across the system'.

In discussing moderation, Booth, et.al,(2002)\textsuperscript{103} mentioned that it is typical for moderation to involve a single person (a moderator) or a group of people (a moderation panel) looking at a sample of evidence of student performance, determining whether they agree with the assessment judgment of the assessor. Feedback to the assessors, they say, may include advice on improving their assessment procedures or evidence gathering and adjusting their assessment standards, that is, modifying their judgment of what constitutes competence. They go on to say that internal moderation ensures that different applications of performance criteria or performance benchmarks remain within acceptable limits and that moderation can be seen generally as a form of quality management with its
collegial orientation of support rather than a managerial orientation of control.

Maxwell (2001) highlights the need for every moderation system to identify the main authority for approval purposes, the appropriate balance of rights and power of all participants and the guidelines on resolving differences of opinion. The implication from moderation, he contends, is the need for some adjustment of those judgments to conform to the common standard. He also remarks that moderation is an active process in which assessment judgments are aligned with each other to create consistency of interpretation and implementation of standards across the whole system and is not a process that simply checks how much agreement there is on the assessor's judgment.

Moderation procedures, as argued by James (1994) in his contribution “Experience of quality assurance at key stage 1” in the book “Enhancing quality in assessment” were devised to reduce sources of error such as variation in the demand or opportunity provided by the tasks undertaken by students, differences in interpretation of performance criteria or marking schemes and the intrusion of irrelevant contextual information in making judgments.

Harlen (1994) in the article “Issues and approaches to quality assurance and quality control in assessment.” has added that the sources of error were seen to be greatest in particular circumstances while at the same time preserving validity of assessment as required for quality in assessment. Moderation, according to her, helps to achieve uniform interpretation and application of standards in a competency based assessment system, and helps to establish comparability in identifying, describing and recording skills and knowledge by allowing for the development and maintenance of standards.

Bloch & Thomson (1994), in “Working towards best practice in assessment;” stated that a verification process achieves uniformity when assessors work towards a common
understanding and use of concepts, terminology and application. Thus verification helps to ensure that assessment activities yield valid results. However, actual implementation of verification/moderation procedures in VTE has found to be relatively scarce, particularly in low accountability situations.

Moderation procedures were categorized into two kinds by Harlen (87). The first category is that related to adjustments of the outcome of assessment in order to improve fairness to groups and individuals. According to her, this takes place after the assessment has been made and is designed to ensure fairness by adjusting results when there seems to be inconsistencies or systematic differences in the way procedures have been followed. The second category is related to the process of arriving at fair assessment for groups and individuals, which will in some cases, extend to opportunities to learn as well as to be assessed. This process takes place before the assessment is completed and is designed to improve the process of assessment in order to ensure that consistency has been achieved, rather than to impose it on an otherwise inconsistent assessment system. Harlen also stressed that the overall purpose of both categories was not just to adjust marks and settle disputes, but to improve the quality of the assessment process.

According to Laxer & Young (2000) (124) “Quality assurance: How much is needed?” Moderation occurs in a continuum, with the teacher being responsible for preparing and grading assessment tools at one end and at the other end there is an imposed quality model with rigorous, formal, sometimes bureaucratic procedures. The first model, they contend, gives professional autonomy to the teacher, while the latter model sees the teacher as a perfectly self monitoring individual. Clear, in explaining this view states that the teacher 'setting the exam could be conceived as the wise, omniscient professional' who clearly 'foresees the way students will
interpret the exam, is able to determine its length and level of difficulty accurately and consistently over each iteration of the course, and can word it with such precision and brevity that ambiguity is a logical impossibility'.

Harlen(1994)\(^{122}\), in the article “Issues and approaches to quality assurance and quality control in assessment.” opinioned that the group moderation is also an effective, and possibly cost efficient, form of professional development and its positive impact is well accepted and documented. Group moderation, according to Kindler(1996)\(^{125}\) in discussion paper “Principles of moderation. Certificates in general education for moderation: What it is and why we have it?” explained that it is used to help teachers arrive at shared understandings of the criteria and of assessment processes which are a prerequisite to the consistency of standards. In a field with a relatively high proportion of seasonal teachers, many of whom move in and out of the field, moderation according to him, serves as enforced professional development allowing teachers to develop professional networks as well as common understanding of the curriculum, including assessment. In her study, Harlen found that inter-school meetings of teachers have a greater impact on reliability at the system level than intra-school meetings. Such meetings result in greater consistency of standards and at the same time, have a positive effect on teaching.

Gipps (1994)\(^{126}\) in the article “Quality in teacher assessment” stresses on the importance of assessment processes and on the assessment product or outcome. Sanguinetti (1995)\(^{127}\) from his study on “Negotiating competence” and the impact on teaching practice noted that group moderation as a whole is regarded positively by most participants. Shared understanding of criteria and the assessment process are referred to as the professional development element of group moderation.
However, the complex role of internal moderators as suggested by Konrad (1999)\textsuperscript{128} is often under-resourced and those carrying out this role have barely adequate initial education and training to undertake the tasks effectively. In a similar view, Bassnett (1996)\textsuperscript{129} in the article “Myth belonging to another age” states that some academics recognized that such a role is time consuming, uninteresting and depressing.

2.4.3.3. External Moderators/Examiners

Achieving quality in the assessment process has always been a struggle between the internal and the external of an educational institution, both in the nature of the assessment and the nature of the control over the assessment. Referring to the context in the United Kingdom, Wilmut & Murphy(2001)\textsuperscript{130} in “Securing quality in assessment: The roles of regulators, awarding bodies and users.” state that the public perceptions of quality tend to focus on the external rather than the internal and it is difficult for the public to envisage systems in which there is no quality control. It is also noted that the external examiner system which is currently in force and used extensively in the United Kingdom has been exported from there to many other regions of the world and the official premise of the whole exercise is merely to 'improve' the 'inviting department' and 'benefit the less experienced internal examiners'. According to him, the external examiner system have been used for verifying coursework assessments in schools, setting and marking assessments in university and checking the validity of vocational assessments, all of which are concerned with the quality of assessment processes and judgments.

Jackson(2004)\textsuperscript{131} in discussing external moderation “Enhancing support for external examining” states that external moderation involves observation, enquiry, evaluation, decision making, forming opinions and providing advice and guidance. On the whole, the task of an
external moderator, according to him, includes examination, checking and evaluating a body of evidence relating to the assessment of students' learning and making judgments about the quality of the assessment process and the standards of learning. From these opinions, he concluded that the overall judgments on the comparability of outcome standards, the fairness to students, and the integrity of the award process can be made. This process, he contends, allows external moderators to share their knowledge of practice, provide advice, guidance and feedback to teachers that will enable them to position and improve their own practice in relation to the practice of others, solve problems and identify strengths and weaknesses in their areas.

The four roles for the external moderators as noted by Jackson are: first, a benchmarking agent who enables departmental standards to be compared with standards and practices in institutions that offer comparable programmes. Second, an auditor of procedures and processes who judges the rigour of the standards setting processes, looking for compliance and offering constructive challenge to improve practice. Third, an external consultant, who confirms that the teaching and assessment practices of a department are in line with what is happening elsewhere. They provide support and enhance confidence by highlighting departmental strength, help in identifying and thinking through particular problems, and contributing new resources. Lastly, external moderators also help in departmental decision making, providing the perspective of an objective outsider in order to advise, arbitrate and help overcome resistance. From his research findings, Jackson confirmed that external moderators remain a valued and useful form of peer review.

In detailing the advantages of external moderators, Maxwell (2001) includes the external moderators' ability to offer authoritative interpretations of competency standards, their ability to carry the standards from site to site and assessor to assessor, their ability to
offer advice on assessment approaches and procedures, to observe actual conduct of assessments, their ability to act as a trouble shooting resource for assessors to draw on and to induct beginners into performing high quality assessment.

The Council for National Academic Awards, 1989, cited in Cuthbert (2003)\textsuperscript{132} in their report on “The external examiner: How did we get here?” identified the external moderators/examiners as being in a unique position in the quality assurance set up, since their appointments are based on their subject specialist expertise and standing, and their capacity to work with internals to inform, develop, and assure the structures and practices of the institution. However, the same report also argues that since they are only subject specialist experts, their judgments and actions are based on the knowledge and experience of the subject with little or no knowledge about examinations and the measurement of human performance. The Council recommended training workshops and regular meetings for external examiners as they believed these activities would make a significant contribution.

2.5. TEACHING - LEARNING PROCESS

The Report of the university education commission 1948-49,Govt.of India submitted by Radhakrishnan (1949)\textsuperscript{133} highlighted the teaching in higher education as: “The real teacher is like the gardener who nurtures the plant and not a carpenter who cuts pieces of wood to fit into certain locations or a painter who covers them with an exterior coat of paints. Unless the tutor stimulates thinking rather than mere memorizing, deeper intellectual interests rather than aversion to thought, better perception of values rather than in appreciation, he serves no useful purpose, but may nourish wrong habits which will be difficult to eradicate”.

“A teacher can never truly teach unless he is still learning himself. A lamp can never light another lamp unless it continues to burn its own flame. The teacher who has come to the end of
his subject, who has no living traffic with his knowledge but merely repeats his lessons to his
students, can only load their minds; he cannot quicken them. Truth not only must inform but also
inspire. If the inspiration dies out, and the information only accumulates, then truth loses its
infinity” from the book “The English writings of Rabindranath Tagore” compiled by Das
(1996)\textsuperscript{134}

Maheshwari & Motilal (2006)\textsuperscript{135} in the article on “Faculty Development in professional
Educational Institutions in India” presented by enumerates on the important elements of teaching
method for effective transmission and imparting of knowledge: Lecture preparation and
planning; Clear statement of the objectives of the lecture; Writing of topic & outline on black
board; Logical sequencing of the lecture; Audibility of voice throughout the spoken sentence;
Modulation of voice; Speed of communication (Fast, Slow, Normal); Language command;
Clarity & separation of spoken words; Poise and overall confidence level; Size and legibility of
written words on the black board; Segmentation of black board area & orderly rubbing; Quality
of graphs and figures drawn; Body position vis-à-vis black board; Practice of speaking while
writing; Pressure on chalk; Size of written letters; Writing speed; Use of colour chalk; Balance
between spoken and written material; Use of standard abbreviations and symbols; Write
technical terms and their definitions; Interaction and eye contact with the class; Posing
appropriate questions; Response to questions; Beginning and ending the lecture promptly;
Creation of interest and enthusiasm; Use of proper examples; Writing material on transparencies;
Choice of use of transparencies; Technique to operate projector; Technique to explain projected
material.

\textbf{2.5.1. Learning}
Even though higher education could be regarded as fulfilling a number of functions, one result which indisputably must be considered as fundamental is learning. One attempt to define learning is given by Fincher(1995)\textsuperscript{136} in “Learning theory and research” as “Learning is a process of acquiring and integrating through a systemized process of instruction or organized experience varying forms of knowledge, skill, and understanding that the learner may use or apply in later situations and under conditions different from those of instruction.”

Learning and teaching are obviously not equivalent. ‘Education’ is defined in Organization for Economic Co-operation and Development (OECD)(1997)\textsuperscript{137} as “organized and sustained communication designed to bring about learning” where the latter is defined as “any change in behaviour, information, knowledge, understanding, attitudes, skills, or capabilities which can be retained and cannot be ascribed to physical growth or to the development of inherited behaviour patterns.”

Teaching is consequently done in order to bring about learning, and people do learn and acquire knowledge about specific subjects, and about how to use their knowledge. As implied by the definition above, this learning includes many components, and Barnett (1992)\textsuperscript{138} in the book “Improving higher education” states in a description of what should take place in higher education that: “Students on courses of higher education should be encouraged to enter into a continuing conversation…, be prepared to take on the point of others and become comfortable in conducting that critical dialogue with themselves. To do that seriously will require the acquisition of high-level concepts and a breadth of frameworks so that critical evaluation can be conducted from a variety of perspectives. In turn, developing the intellectual strength to offer a point of view but modifying it in the light of counter-evidence or argument calls for a range of higher order intellectual abilitiest is, therefore, through a combination of higher order thinking
and higher order cognitive abilities that students acquire the intellectual autonomy that is associated with a genuine higher education.”

Another description of learning is provided by Ramsden in his article “Current challenges to quality in higher education” restates learning, as “taking a deep approach: trying to understand, relating evidence, ideas and data. It means trying to make sense by relating parts of the material to the whole, using previous experience and knowledge to make sense of the new material, and taking a vigorous and active approach to learning the content.” Ramsden (1994)\(^{139}\) also gives a description of what learning is not, contrasting the “deep approach” just mentioned with a “surface approach” which would “imply that students do not remember what they have studied, can’t apply it to the real world, can’t use their knowledge to solve new problems, and don’t enjoy learning.”

2.5.2. Teacher - Student relationship

Analysis of the availability of lecturers, willingness of lecturers to listen to students’ suggestions, open mindedness, and good rapport are done every semester and is used as an indicator for best practice performance of individual lecturers and overall performance of the faculty. Therefore, it is clear here that for the internal customer, the main focus is on the process of teaching and learning.

Dale (1999)\(^{140}\) in his book “Managing Quality” uses British and international standards, for instance, ISO: 8402, when explaining what these four levels are. At the first two levels the activities are measuring, examining and testing characteristics of an entity and comparing with specific requirements. Operational techniques and activities are used to fulfill the requirements. The third level, called Quality Assurance provides confidence that an entity will fulfill the quality requirements. Here quality systems according to, for instance, the international system of
standards, ISO: 9000 are an important ingredient. TQM is the fourth level. It involves the application of quality management principles to all aspects of the organization, including customers and suppliers, and their integration into the business processes. It is a company-wide approach to quality, with a focus on continuous improvements and a commitment by everyone in the organization. The first three levels of Inspection, Quality Control and Quality Assurance are inspection-orientated and preventive, while the fourth level is more progressive and essential for strategic success.

2.5.3. Teacher evaluation

It refers to the periodic evaluation of teacher’s performance. It involves a systematic gathering and analysis of information, on the basis of which decisions are taken regarding the effectiveness, efficiency and competence of the teachers in realizing set professional goals.

Darling & Hammond (1983)\textsuperscript{141} in the research paper “Teacher evaluation in organizational context: A review of Literature” defined teacher evaluation as “collecting and using information to judge”. It serves a variety of purposes which can be classified into two main categories, namely:

a) Formative purpose: when results of such evaluation are used to improve classroom instruction, student learning and foster professional growth of the teacher.

b) Summative purpose: when results of such evaluation are used for administrative/personal decisions like promotion, salary increase, demotion, dismissal, awards etc.

2.5.4. Arguments in support of Student rating

Aleamoni & Lawrence(1981)\textsuperscript{142} in hand book of teachers evaluation in the topic “student ratings of instruction.” offer the following arguments to support the use of Students’ rating of teachers’ performance: Students are the main source of information about the learning
environment, including teachers’ ability to motivate students for continuous learning, rapport or degree of communication between instructor and students. Students are most logical evaluators of the quality, the effectiveness of, and satisfaction with course content, method of instruction, textbooks, and homework and student interest. Students rating encourage communication between students and their instructor. This communication may lead to the kind of students and instructor involvement in teaching-learning process that can raise the level of instruction, and may increase the chances that excellence in instruction will be recognized and rewarded.

2.5.5. Content of teachers’ evaluation by students

According to Arter & Stiggins (1992)\textsuperscript{143} in their paper presentation on “Performance assessment in education” opinioned that classroom management, instruction skills, subject matter knowledge and communication skill of teachers are evaluated. Generally teachers are evaluated for their teaching effectiveness. Millman (1981)\textsuperscript{144} in the book, “Handbook of Teacher Evaluation”, explain the different students rating scale used to rate different components:

a. Content: The first component is the ‘content’. It includes the subject matter of the concerned subject. The students were made to rate them on the basis of adequacy of the content presented in the classroom from the textual material and the additional information and usefulness of the extra information for developing the depth in the subject concerned.

b. Quality: The second component ‘quality’ of the lecture were rated by taking into account the communication of the topics in terms of the expression, styles of teaching, clarity, simplicity, relevance and the vocabulary used in the classroom etc.

c. Explanation: The third component ‘expression’ includes various skills of teaching like systematic and sequential organization and presentation of the lecture, clarity in thought,
appropriate examples relevant anecdotes, situations and aids in promoting and sustaining interest and curiosity of students. It also includes the level of understanding of the students.

d. Illustrations: The fourth component ‘illustration’ includes the appropriateness, relevance, adequacy and usability of factual examples. The relevant examples with special focus on technical terms, difficult concepts and others to enrich the topics.

e. Suggestions: The last component ‘suggestions’ do not expectancy rating but it expects students to give valuable constructive suggestions in the schedule provided at the end of each topic.

2.6. TQM IN EDUCATIONAL INSTITUTIONS

Quality assurance and assessments have become, as has been previously discussed, the most widespread approaches to quality in higher education. However, these approaches have been criticized as being inappropriate. One strand of critique comes from those who seem to conceive higher education as basically sound. Neave(1994) in his article “The politics of quality: developments in higher education in Western Europe” argues that the universities “have nothing to fear from quality evaluation systems but every reason to be skeptical of those who devise them in the full knowledge that such measures will rarely apply to themselves.”

Another basis for critique against the emphasis on quality assurance is expressed by those who advocate a TQM approach. These critics seem to perceive TQM as a means to address necessary improvements, but also that TQM is more or less incompatible with the contemporary emphasis on quality assurance and assessments. There are number of suggested approaches for quality improvement in higher education which have been denominated in different ways as
proposed by Roberts(1995)\textsuperscript{146}, in his work “Academic initiatives in Total Quality for higher education,”

There are authors who criticize TQM as flawed and inappropriate. Besides those who reject TQM on the basis that there is no need for change or improvement in higher education, there are also some authors who advocate alternative approaches. Harvey(1995)\textsuperscript{78} in his book “Beyond TQM, Quality in Higher Education” claims that “In higher education, TQM has nothing new to offer than reminding us of established procedures and responsibilities.” His alternative is to “encourage the development of open, self-reflective colloquialism rather than the importation of expensive, bureaucratic, unwieldy, alienating managerial approaches from industry.”

Holmes & McElwee (1995)\textsuperscript{147} in their article “Total Quality Management in higher education: how to approach human resource management,” state that “the criteria favoured by managerialism represented by TQM is not only inappropriate in higher education but, more importantly, it limits the productive activity of individuals.” Their alternative is “soft” human resource management (HRM) as opposed to “hard” HRM which together with TQM is alleged to focus on “cost effectiveness and market-led goals”.

There might also have been proponents of TQM who have used this concept with the ambition to introduce “managerialist approaches”, so it is not evident that the quoted interpretations are wrong. However, using a sufficiently broad interpretation of TQM makes it possible to avoid such connotations. Furthermore, the proposed non-TQM alternatives seem possible to align in a not so restricted TQM approach.

\section{2.6.1. TQM in teaching and research}

Roberts (1995)\textsuperscript{146} argues that faculty have a self-interest in “Total Quality”, since it could make it possible to root out “the wastes that pervade organizational and individual work
processes, including teaching and research processes”. There are basically three ways in which teaching and learning could be enhanced as a result from adoption of a TQM approach:

a) Reduction of the amount of non-productive time and resources spent by teachers could make it possible to deal with activities such as teaching or research more efficiently, Batson (1992)\(^{148}\) in his book “Quality standards and support systems in successful publication of scholarly research: a process analysis”, Strickland (1992)\(^{149}\) in “Quality quest in the academic process “have given numerous guidelines to improve the productivity of the teacher.

b) The effectiveness of the teaching could be enhanced by addressing issues as customer needs more thoroughly than what is common;

c) An explicit TQM approach in teaching could stimulate students to embrace a self-reflective attitude which is an integral element in continuous improvement and consequently a core aspect of TQM.

The next chapter ‘Engineering Education’ presents the conceptual framework of the concept of quality and relevance in Engineering education, quality assurance, quality Assessment and quality management systems. It also takes into consideration the growth and expansion of professional and engineering education in the country and the state of Andhra Pradesh in general and with special focus on JNTU, Hyderabad region, and presents the SWOT Analysis of Technical Education System.