CHAPTER - I

INTRODUCTION
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QUALITY - RETROSPECT AND PROSPECT

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1.01. INTRODUCTION

The National Knowledge Commission (2007) focused its theme on three main aspects of education, namely Expansion, Excellence and Inclusion. The questions addressed include strategy for increasing the enrolment in Higher Education, ensuring quality at global standard and providing equitable access to the socially underprivileged and weaker section (Thangamuthu, C (2007)). The most important challenge is not just to guarantee the expansion of education, but to improve the quality and link education to society's needs and development goals. It is not guaranteed that our students' population meet the opportunity to access with higher education, as they desired. In fact, it is estimated that a student population of 9.60 million would be provided access to higher education at the end of 2004-05, which is estimated to go upto 12.9 millions by the year 2007-08. Out of this, the formal education system is expected to cater to the needs of 83% of the aspirants with a non-formal distance education providing access to 17%. When compared with the developed countries, the rate of enrolment Higher Education in India still lay behind around 10%.

Does our nation possess sufficient number of universities to match the needs of aspirants of higher education? Unfortunately, the statistics reveals different perception on the establishment of Higher Education institutions. Japan with a population of 12.7 crores has as many as 726 Universities, Germany with a population of 8.2 crores has 350 Universities, UK with a population of 5.98 crores has 350 Universities and USA with a population of 27.6 crores is reported to have 2465 Universities, whereas in India, with a population of 100 crores, has nearly 18,000 colleges, 240 Universities and Institutions of National Importance and nearly 115 deemed Universities. In developed countries the rate of expansion has
crossed 50% while in India, we are lagging behind. In our nation, higher education itself has expanded tremendously from 19 Universities in 1917 to 355 in 2005 and similar type of numerical expansion of college from 27 to 18,000. On an average, we are adding five universities and 268 colleges annually.

In spite of the tremendous expansion in higher education in terms of infrastructure and manpower with a financial allocation of 55 crores to 78000 crores during the period from 1947 – 2001, and still more in the recent years, the quality of education is not, still, on par with other countries. Many Higher Education Institutions in India have excellent infrastructure, resources, faculty, programme of teaching and research as good as the best in the advanced countries. But the quality of education still remains to be as that it prevails in the average institution of higher education in developed countries.

This vast gap in standards and facilities has been a serious matter of concern to the policy planners of higher education of our country. In order to impart quality education, our education system itself has to acquire the following: Quality syllabus, Quality faculty, Quality teaching and evaluation and Quality research works.

Quality is the prime focus in all spheres of education. What is quality? What is quality pursuit in education? How does it dominate in higher education? What ensures quality education delivery?

Quality is one of the elusive words, which every one seems to understand but few are able to articulate. For the same reason, it is necessary to specify the concepts of quality before proceeding further.
1.02. QUALITY – A CONCEPTUAL FRAMEWORK

Quality is an elusive attribute, an attribute of value, which is very difficult to measure easily. Human society has depended on quality, since the dawn of history. In primitive societies, the dependence was on quality of natural goods and services. Human life can exist only within rather narrow limits of climatic temperature, air quality, food quality, etc. Malnutrition, disease, natural disasters, etc., were the threatening forces to the human life in the primitive societies. To protect themselves against these risks, primitive societies created artificial aids to their mental and physical capabilities, aids such as division of labour, community forms, artificial shelters, processing of natural materials to produce artificial goods, tools and weapons.

The subsequent growth of commerce, science and technology greatly expanded the extent and variety of these artificial goods and services. As and when the needs of human society got accelerated in diversity, it led to a corresponding proliferation of product features and quality characteristics. By and large, the quality refers to congruence between expectation and execution. It includes satisfaction over the goods, services and fitness of purpose and it varies from product to product and from time to time. The search for universal concepts and principles in the quality function is relatively a recent phenomenon.

1.03. QUALITY - MEANING

Quality refers to:

a. a specific characteristic of an object (the qualities of ice i.e. properties)

b. the achievement of excellence of an object (good quality ice)

c. the essence of an object (the quality of ice i.e. iceness)

d. the meaning of excellence itself
The first meaning is technical, the second is practical, the third is artistic and the fourth is metaphysical. All the four meanings of quality are synonymous with goodness.

Precisely, the meaning of the term ‘quality’ has developed and incorporated many factors over time. To explain the term further, seven distinctive characteristics of quality are given below:

1. ‘degree to which a set of inherent characteristic fulfill requirements’
   (ISO 9000)

2. ‘conformance to specifications’ (Phil Crosby, 1980)

3. ‘fitness for use’ (Joseph M. Juran, 1986). Fitness is defined by the customer

4. The two dimensional model of quality (Noriaki Kano and Others, 1986). The quality has two dimensions: ‘must be quality’ and ‘attractive quantity’. The former is nearer to the ‘fitness for use’ and the latter is ‘what the customer would love’, but has not yet thought about.

5. ‘value to some person’ (Gerald M. Wienberg, 1988)

6. ‘costs go down and productivity goes up, as improvement of quality is accomplished by better management of design, engineering, testing and by improvement of processes. Better quality at lower price has a chance to capture the market.

7. ‘The loss a product imposes on society after it is shipped’ (Genich Taguchi, 1986). Taguchi’s definition of quality is based on a more comprehensive view of the production system.

MEANING OF QUALITY IN ENGINEERING AND MANUFACTURING

The quality of a product or service refers to the perception of the degree to which the product or service meets the customers’ expectations.
Quality has no specific meaning unless related to a specific function and/or object. It is a perceptual, conditional and somewhat a subjective attribute.

In the manufacturing industry it is commonly stated that ‘quality drives productivity’. Improved productivity is a source of great revenues, employment opportunities and technological advancements.

MEANING OF QUALITY IN MUSIC
In music, quality refers primarily to the timbre, but also dynamics and musical texture of a section or piece.

MEANING OF QUALITY IN PHONETICS
In phonetics, quality refers to the articulatory features that distinguish vowels and to their acoustic correspondent. Vowel quality is opposed to visual quantity.

MEANING OF QUALITY IN PHILOSOPHY
Robert M. Phrsig (1864) in ‘Zen and the Art of Motorcycle Maintenance’ examines the distinctions and relationship between classical and romantic quality, seeking to reconcile the two views and understand how they stand in relationship to each other. Two aspects of quality are object-oriented and romantic subject-oriented quality roughly parallel aesthetic quality and functional quality.

1.04. QUALITY - CONCEPTS
Quality is a much debated term and it has a variety of contradictory meanings. To say, it is like ‘beauty’ that lies in the age of the beholder. Those who believe in this are ‘relativists’ whereas those who believe in
specific attributes are ‘objectivists’. The word ‘quality’ is derived from the Latin word ‘qualis’ meaning ‘what kind of’. Naomi Pfeffer (1991) and Anna Coote (1991) have observed in their discussion of quality in the welfare services thus: ‘Quality is a slippery concept’. It implies different things to different people.

ABSOLUTE CONCEPT

Quality in everyday conversation is mainly used as an absolute term. As an absolute, quality is similar to nature, goodness, beauty and truth, ideals with which there can not be compromise. Quality products are things of perfection made with no expense spared. They are valuable and convey prestige to their owners. Rarity and expense are two of the features of quality in this definition. Quality, in this sense, is used to convey status and positional advantage. It is synonymous with ‘high quality or top quality’. To use the words of Pfeffer and Coote again, ‘most of us admire it, many of us want it, and few of us can have it’. Used in the educational context, this concept of quality is essentially elitist. By definition, only a few institutions are able to offer such a ‘high quality’ educational experience to their learners.

RELATIVE CONCEPT

Quality can also be employed as a relative concept. The relative definition views quality not as an attribute of a product or service, but as something which is ascribed to it. Quality can be judged to exist, when goods or services meet the specification that has been laid down for it. Quality is not the end in itself, but a means by which the end product is judged. Quality products or services, in this relative or ascribed definition need not be expensive and exclusive. They do not have to be special. They must do what they claim to do, and do what their customers
expect of them. In other words, it must be ‘fit for their purpose’. The relative definitions of quality has two aspects to it. The first is measuring upto specification. The second is meeting customer requirements.

PROCESS CONCEPT

It suggests that in order to achieve quality of a product or service, it must undergo certain processes and conform to the procedural requirements. Thus quality is the outcome of systems and procedures laid down for the purpose.

CULTURE CONCEPT

Quality recognizes the importance of organizational view of quality as a process of transformation, where each entity is concerned and acknowledges the importance of quality. In educational institutions, we are particularly concerned with the concept of culture, though all other ideas of quality have their due weightage. From the above, it could be perceived that the concept of quality is amorphous and contextual. It ranges from the meaning ‘standard’ to ‘excellence’.

In this context, quality is assessment in terms of a set of norms and referenced standards that are built around what is expected at the minimum and beyond. At the other end of the continuum is the consideration of quality as excellence. Excellence is a performance stage of exclusiveness, which is distinct from many others and stands out as demonstration of ‘zero defects’ and the highest level of satisfaction of the stakeholders. In higher education, our objective is to achieve the ‘standard’ and move towards ‘excellence’.
1.05. QUALITY - DEFINITIONS

The concept of quality has evolved from the manufacturing sector, whereas, quality was used to minimize variances by ensuring the manufactured products conformed to clear specification. Their concern was to minimize variability and perform reliably by adopting quality control practices and statistical process control.

The British Standard Institutions (BSI, 1991) defines quality as ‘the totality of features and characteristics of a product or service that bear on its ability to satisfy stated or implied needs’.

Quality gurus and experts have given many interpretations on ‘quality’. The following are the selected few:

Philip B. Crosby (1979) defined quality as “conformance to requirement”, which described that any product or service that constantly reproduced its design specifications was of high quality.

Joseph Juran (1980) defined quality as “fitness for use” which described that users of a product or service should be able to count on it for what they needed or wanted to do with it. Here, fitness for use consists of dimensions of quality of design, quality of dominance, availability, safety and field use.

Agarwal et al (1995) state that quality 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 things right are key values of quality.
Soviet encyclopedia defines quality as “quality of products, the aggregate of properties of a product determining its ability to satisfy the needs it was built to satisfy”.

Deming (1993) defines quality in terms of a product or a service possessing quality if they help somebody and enjoy a good and sustainable market.

The ISO (1986) defines, “quality as the totality of characteristics of an entity that bears on its ability to satisfy the stated and implied needs”. Here, the term entity is something that can be individually described and considered as for example a product, an entity, a process, an organization, a system, a person or any combination thereof.

Quality is ‘the totality of features and characteristics of a product or service that bear on its ability to satisfy stated or implied needs (BSI 1991). Green and Harvey (1993) identified five different approaches to defining quality:

- In terms of exceptional (exceeding high standards and passing a required standard)
- In terms of consistency (exhibited through zero defects and getting right the first time)
- As fitness for purpose (meaning the product or service meets the stated purpose, customer specifications)
- As value for money (through efficiency and effectiveness)
- As Transformative (in terms of qualitative change)
Quality can be defined as that which best satisfies and exceeds customer needs and wants. It is the customers who make the judgment on quality: they do so by reference to the best comparable performer. Peters (1992) argues that quality, as defined by the customer, is more important than price in determining the demand for majority of goods and services. Customer will always pay more for the best quality.

OPERATIONAL DEFINITIONS OF QUALITY

Though the concept of quality has been drawn from industry, still it is not easy to be precisely stated. The first ancestor of excellence is standard that originated industrial revolution. Standards are fixed in advance by the external and internal authorities and the products manufactured are being compared with the prescribed standards. When the product did not conform to the standard norms it was rejected as a sub-standard one. The standard ensures the same inputs, the same throughout the output everywhere, every time.

Among the various interpretations on quality, the thrust of quality rests only on confirmation and fitness to requirement. According to Crosby (1979) quality is defined as 'conformance to requirements', which reveals that any product or service that consistently reproduced its design specification was a high quality. Juran (1980) viewed quality as "fitness for use" which means that the user of a product or service should be able to count on it for what they needed or wanted to do with it. Very specifically, how the fitness is assessed and determined when the multi-dimensional requirements prevail?
From the definition of quality discussed hitherto, it is clear that there is no room for a minimal consensus on what is meant by quality. Quality has become a multi-dimensional and multi-level phenomenon with various features depending on where one stands and how one looked into.

From the definitions of quality and various philosophers' views on quality, it is clear that the quality experts fail to agree on a single definition on quality that satisfies everyone. Freud (1982) observed that confusion about the meaning of the word "quality" is one possible reason that quality slipped as management priority. Hence there is no single all-encompassing definition of quality.

Garvin (1988) classified the various definitions of quality into five major groups:

i) Transcendent definitions
ii) Product based definitions
iii) User-based definitions
iv) Manufacturing-based definitions
v) Value based definitions

The specific definition of quality used in a particular context is discrete integration of the following elements and functions:

- The guaranteed achievement of minimal standard and benchmarks
- The capacity to set objectives in a diversifying context and to achieve them with the given input and context variables
- The ability to satisfy the demands and expectations of direct and indirect consumers and stakeholders
- The drive to excellence
1.06. QUALITY - APPROACHES

Sometimes, quality is labelled as the value for money approach because of its concentration on the effective use of input and context indicators by the processes involved. The fitness for purpose approach has great attractiveness because of its ability to cope with the increasing diversity and change in higher education systems and its concerns for the achievements of objective with the most effective use of resources. It is also closely linked to an improvement-oriented approach to quality assurance. The fitness for purpose, approach consists of two alternative approaches on its effective implications. They are basic standard approaches and consumer satisfaction approaches, which are discussed below:

DAVID GARVIN’S APPROACH TO QUALITY

David Garvin of Harvard Business School in his book “Managing Quality carries several approaches to Quality, each with different implications for quality control and improvement” stated that multiple definitions of quality are a function of different purposes, stage of product development, type of product development, type of product or process, and company strategy. Garvin presents five approaches to quality and relates them to eight dimensions of quality.

Garvin’s Five Approaches to Quality:

1. **Transcendent Approach** — Quality is recognized through learning and experience defined in terms of innate excellence.

2. **Product-Based Approach** — Quality is precise and measurable; it can be ranked on various attributes and is an inherent part of the product.
3. **User-Based Approach** – Quality reflects personal, idiosyncratic view, reflected in consumer demand curves; in marketing, quality is the ideal combination of attributes for maximizing consumer satisfaction.

4. **Manufacturing-Based Approach** – Focus on engineering and manufacturing practices; quality defined as conformance to specifications; reduce cost by reducing the number of deviations.

5. **Value-Based Approach** – Quality is defined as performance or conformance at an acceptable cost; this is the notion of “affordable excellence”.

**GARVIN’S EIGHT DIMENSIONS OF QUALITY**

1. **Performance** – Primary-operating characteristics combine product and user-based approach relationship between performance and quality reflects individual reactions to objective characteristics.

2. **Features** – The “Bells and Whistles” of the product; secondary to basic functioning and less central to users.

3. **Reliability** – Probability of the product failing within a given time, more relevant to durable goods.

4. **Conformance** – Degree designs and operating characteristics match specification; related to reliability; in the factory measured by frequency of defects (rework and repair) and in the field by service calls and repair under warranty.

5. **Durability** – Measure of product life; technically, as the amount of use before it deteriorates, and economically, in
terms of repair cost; trade-off between repair and replacement
(both personal and economic cost).

6. **Serviceability** – Speed, courtesy, and competence of repair;
subjective and objective aspects; most consumers equate
rapid repair with higher quality.

7. **Aesthetics** – Subjective assignments of look, feel, or sound of
the product; reflects individual preferences.

8. **Perceived Quality** – Indirect measures of quality such as
brand name, image; often used when other information is not
available.

**Garvin** (1987) suggests that multiple definitions of quality could
produce conflict and continuous communication breakdown. So, he
recommends cultivating different quality perspectives by actively shifting
the approach that is taken as product moves from design to manufacturing
to marketplace.

To avoid any confusion, he suggested that the three-step process be
followed to address quality from its own perspective, using the measure
and method appropriate to its needs. The steps of this process are:

1. Use market research to identify the product characteristics, which
connote quality to consumer.

2. Translate these user-based characteristics into identifiable product
attributes.

3. Organize the manufacturing process to ensure products are made to
certain specification.
DETERMINANTS OF SERVICE QUALITY

Lev Berry, Parasuraman and Valerie Zeithami (1985) have provided a strong foundation for understanding the attributes of service quality. Through interviews with business executives and customer focus group, Berry et al have identified the ten determinants of service quality as mentioned below:

1. **Reliability** – Consistency of performance and dependability; performing the right service, right the first time; honouring promises; accuracy.

2. **Responsiveness** – Willingness or readiness of employees to provide service; timeliness.

3. **Competence** – Possession of the skills and the knowledge required to perform the service.

4. **Access** – Approachability and ease of access; waiting time; hours of operation.

5. **Courtesy** – Politeness, respect, consideration and friendliness of contact personnel.

6. **Communication** – Keeping customers informed in language they can understand; listening to customers; adjusting language to different needs of different customers; explaining the service itself, how much it will cost and how problems will be handled.

7. **Credibility** – Trustworthiness, believability, honesty, company reputation; personal characteristics of personnel.

8. **Security** – Freedom from danger, risk, or doubt; physical safety; financial security; confidentiality.
9. **Understanding the customer** – Making the effort to understand the customer's needs; learning the customer's specific requirements; providing individualized attention; recognizing the regular customer.

10. **Tangibles** – Physical evidence of the service; physical facilities; appearance of personnel; tools or equipment used to provide service; physical representation of the service, such as a plastic credit card or a bank statement; other customers in the service facility.

As an outgrowth of their work, Berry et al outlined their list to five broader characteristics and named as 'RATER' derived and assembled the first letter of the characteristics. They are:

1. **Reliability** – Ability to perform the promised service dependably and accurately.
2. **Assurance** – Knowledge and courtesy of employees and their ability to inspire trust and confidence.
3. **Tangibles** – Physical facilities, equipment and appearance of personnel.
4. **Empathy** – Caring, individualized attention the firm provides its customers.
5. **Responsiveness** – Willingness to help customers and provide prompt service.

1.07. **QUALITY - TYPES**

To produce goods and services of consistent quality at low costs, three types of quality are recognized. They are:

1. Quality of Design.
2. Quality of Conformance
3. Quality of Performance.
QUALITY OF DESIGN

Here the focus is to develop products and services that are suited to the customer's needs at a given cost. Quality of design begin with the consumer research, sales call analysis; and leads to the determination of products that meet customer requirements. This is followed by development of adequate specification.

This process of developing product demands effective cross-culmination of ideas among marketing, sales, service, manufacturing, research and development. Consumer research, and service call analysis are the heart of this process. Consumer research provides the customer needs, present and future. Sales call analysis determines the customer needs people provide during purchase if goods and services, and service call analysis investigates the problems users have with the product's performance.

QUALITY OF CONFORMANCE

Quality of conformance refers to the extent to which a firm and its suppliers can produce products with a predictable degree of uniformity and dependability, at a given cost, in keeping with the quality requirement determined in the quality-of-design study. Once the specifications are determined via a quality-of-design study, the organizations must continuously strive to improve these specifications.

QUALITY OF PERFORMANCE

Quality of performance studies focus on determining how the quality characteristics are determined in quality-of-design improved and innovated in quality-of-conformance studies is performing in the marketplace. The
major tools used here are the study of after-sales service and service-call analysis. These tools evaluate why consumers like or dislike a product.

1.08. QUALITY - PHILOSOPHIES

Quality has emerged as a dominant theme in management thinking over the past fifty years. The initial approach arose from American theorists and practitioners but it was predominantly Japanese who undertook the early commercial applications. The need for enhanced quality was largely initially ignored or rejected in the West. More recently, organizations throughout the world have begun to embrace the theories and practices of quality. Quality has achieved its pre-eminence because of its economic, social and environmental imperatives.

SOME MAJOR PHILOSOPHIES

W. EDWARDS DEMING (1986)

W. EDWARDS DEMING emphasized that the key to quality problem is in management's hand-85% of quality problems are due to the system and only 15% are due to employees. The heart of quality strategy is statistical variation. Statistical tools provide a common language for employees throughout a company and permit quality control efforts to be widely diffused. Each employee assumes considerable responsibility for the quality of his or her work.

Deming's 14 points serve as the basis of his quality philosophy. He also described 'seven deadly diseases' of the workplace, including emphasis on short-term profits, use of personnel performance evaluation, which he labeled 'management by fear", and mobility of management (i.e.
management as a profession independent of the product/service or commitment to the organization).

Deming believed in a systematic, methodical approach contrasting sharply with the adhoc and random approach found in many quality initiatives. He also believed in the need for continuous quality improvement action.

Deming's later work focused on Western style, and particularly US, management. Here Deming elaborated seven fundamental believes (also called 'Seven Deadly Sins') about the bad management practices that he considered must be eliminated before Western styles of management could be transformed to support the implementation of a successful quality initiative.

The seven deadly diseases are given below.

1. Lack of constancy of purpose.

2. Emphasis on short-term profits.

3. Evaluation of performance, merit rating or annual review.

4. Mobility of management.

5. Management by use of visible figures.

6. Excessive medical costs.

7. Excessive costs of liability.
One of the major contributions of Deming in the field of quality is his fourteen principles for transformation. These are essentially straightforward and rely on a combination of statistical and human, or cultural aspects. These fourteen principles are:

1. Create and publish to all employees a statement of the aims and purposes of the company or other organizations. The management must demonstrate constantly their commitment to this statement.

2. Learn the new philosophy, top management and everybody.

3. Understand the purpose of inspection for improvement of processes and reduction of cost.

4. End the practice of awarding business on the basis of price tag alone.

5. Improve constantly and continue forever the system of production and service.

6. Institute training (for skills).

7. Teach and institute leadership.

8. Drive out fear. Create trust. Create a climate for innovation.

9. Optimize towards the aims and purposes of the company, the efforts of teams, group, stag areas, too.
10. Eliminate exhortations for the workforce.
   a) Eliminate numerical quotas for production. Instead, learn and institute methods for improvement.
   b) Eliminate M.B.O. (Management By Objectives). Instead, learn capabilities of processes and how to improve them.

11. Remove barriers that rob people of pride of workmanship.

12. Encourage education and self-improvement for everyone

13. Take action to accomplish the transformation

JOSEPH M. JURAN (1989)

JOSEPH M. JURAN primarily introduced the quality management element, whereas Deming introduced the statistical quality-control element to the Japanese industry in the 1950s. He defines quality as “fitness for use of customer”. He emphasized the necessity of full management commitment to the quality effort, not only in a leadership role, but also with hands-on involvement. His “universal process for quality improvement” requires studying symptoms, diagnosis causes, and applying remedies.

The central focus of his work is the Juran triology as mentioned below:

1) Quality Planning

A process that identifies the customers, their requirements, the product and service features, the customers expectation and the process
that will deliver those products and services with the correct attributes and then facilitates the transfer of this knowledge to the producing arm of the organization.

II) QUALITY CONTROL

A process in which the product is actually examined and evaluated against the original requirements expressed by the customer. Problems detected are then corrected.

III) QUALITY IMPROVEMENT

A process in which the sustaining mechanisms are put in place so that quality can be achieved on a continuous basis. This includes allocating resources, assigning people to pursue quality projects, training those involved in pursuing projects, and in general establishing a permanent structure to pursue quality and maintain the gains secured.

JURAN recommends project-by-project improvements, in which projects are selected on the basis of their projected return on investment.

PHILIP B. CROSBY (1984)

PHILIP B. CROSBY developed a compelling case for quality arguing that quality reduces costs because “doing it right first time” is less expensive than the costs of detecting and correcting defects. He developed the “Quality Management Maturity Grid” that traces corporate quality awareness and quality maturation from a level of uncertainty to one of certainty.
His approach to quality is based on four “absolutes of quality management”. They are:

1. Quality is defined as conformance to requirements
2. The system for causing quality is prevention, not appraisal
3. The performance standard is zero defects
4. The measure of quality is price of non-conformance, not indexes

Crosby has developed his own quality architecture, which is represented by the following 14-step programme:

1. Management commitment
2. Quality improvement team
3. Quality measurement
4. Cost-of-quality evaluation
5. Quality awareness
6. Corrective action
7. Zero defects planning
8. Employee education
9. Zero defects day
10. Goal setting
11. Error - cause removal
12. Recognition
13. Quality controls
14. Do it over again
ARMAND V. FEIGENBAUM (1961)

ARMAND V. FEIGENBAUM'S approach is that quality responsibility extends beyond the manufacturing department. He developed the concept that quality in manufacturing could not be achieved if the products were poorly designed, inefficiently distributed, incorrectly marketed, and improperly supported at the customer's site. Thus, Feigenbaum's idea that every function within the organization is responsible for quality was developed and it came to be known as 'Total Quality Control'.

Feigenbaum talks about the following "9M8" of quality:

1. Markets
2. Money
3. Management
4. Men
5. Motivation
6. Materials
7. Machines and mechanization
8. Modern information methods
9. Meeting product requirements

Feigenbaum further lists the following ten principles to quality:

1. Genuine management involvement
2. Serious consideration of employees' ideas
3. Long-term continuity
4. Involvement of both office and factory
5. Clear, simple programme organization
6. Careful initial preparation
7. Purposeful involvement session
8. Fresh, relevant ideas
9. Line operation leadership
10. Company wide quality control

Feigenbaum also originated the concept known as the "cost of quality" as a means of quantifying benefits of adopting a total quality management approach. He has further proclaimed that successful managers are those who emphasize that cost and quality are complimentary, not conflicting objectives.

KAORU ISHIKAWA (1986)

Ishikawa developed the concept of "true and substitute quality characteristics". The true quality characteristics refer to the customer's view of the product performance, while the substitute quality characteristics are the producer's view of product performance.

His concept of quality control contains the following six fundamental principles:

1. Quality first
2. Consumer orientation
3. Breaking down the barrier of sectionalism
4. Utilization of statistical methods
5. Participatory management
6. Cross-functional management
Ishikawa has been associated with the development of the following tools:

1. Cause-effect diagram
2. Stratification
3. Check sheet
4. Histogram
5. Scatter diagram
6. Pareto charts
7. Graphs and statistical control charts

Ishikawa (1985) also developed "the quality circle concept" in the early 1960s on the premise that neither the worker nor the manager knows the correct solution to a problem, but by working together, they will be better able to find a solution.

GENICHI TAGUCHI (1986)

GENICHI TAGUCHI developed on the engineering approach to quality. He emphasized producing to target goals or requirements with minimal performance variation in the customer's environment. He termed it as variation noise. His objective is to minimize noise through on-line and off-line quality activities. Taguchi proposes the use of optimization theory and techniques, along with experimental design, with the ultimate focus on minimizing loss to society.

Taguchi targets on design for quality by defining three design-levels:

1. **System Design** (primary): functional design focused on pertinent technology.

3. **Tolerance Design** (tertiary): a means of reducing variation by controlling caused, but at an increased cost.

The **Taguchi approach** to both parameter design and tolerance design makes use of cost-performance optimization and experimental design technology. Taguchi's loss functions (loss to society) and signal-to-noise ratios are critical parts of his optimization procedures.

**SHIGEO SHINGO (1984)**

Shingo says that statistics based quality control is not conducive to zero defects. He proposes the poka-yoka (mistake proofing) system to totally eliminate defects.

The mistake-proofing concept is a human or machine based series of 100 percent source inspection, self-checks or successive checks to detect abnormalities when or as they occur and correct them on the current unit of production as well as the entire system. His **Zero Quality Control System** comprises the following principles:

1. Use source inspection
2. Always use 100% source inspection
3. Minimize the time required to carry out corrective action
4. Set up poka-yoka devices

As is seen that the work of the quality gurus relies principally on the 'machine' view of organization, with some writers moving towards 'human relations' theory but failing to take full advantage of the substantial body of work in that area. For example, **Ishikawa** emphasizes participation and provides a potentially useful tool for achieving it, but says nothing of the aspects of human behaviour, which enable or inhibit meaningful
participation. Similarly, the value of holistic or systemic thinking about organizational issues in achieving increasing prominence in other areas of problem solving, but is largely ignored in the quality literature.

1.09. QUALITY - HISTORY OF MOVEMENT

Quality as a concept is a 20th century phenomenon that has its roots in the industry and management. Quality became an issue with the advent of industrialization and adoption of new scientific approaches to management based on strict division of labour as propounded by F.W. Taylor. With mass production and breaking down of work into smaller and repetitive tasks handled by machines, the role of workers for self-checking of quality was reduced. In the days of craftsmanship, the responsibility of quality remained with the worker. The later stage necessitated the need for inspection of the products to ensure that they met specification before they left the factory.

In the initial days of quality movement in the United States and in Japan statistical approaches were dominant. Waller A. shewhart (1931) of Bell laboratories used statistical process control to study variation in the performance of systems. Later on, M. Edwards Deming, a student of Shewhart using SPC helped engineers during the Second World War to produce bullets. In the Post World War, Deming focused on his theory of management based on quality principles. He became a pioneer both in Japan and America and the Japanese Union of Scientists and Engineers established the Deming Prize in 1951 in recognition of his work. Many scholars have contributed significantly to what we know today in the field of quality. Some of them are W. Edwards Deming, Joseph Juran, Philip B. Crosby, Kauru Ishikawa and Genichi Taguchi. The chronology of quality movement and hierarchy of quality management are shown below:
Chronology of Quality Movement

Pre 1900 : Quality as an integral element of craftsmanship
1900 – 1920 : Quality control
1920 – 1940 : Inspection based quality control
1940 – 1960 : Statistical process control
1960 – 1980 : Quality assurance / total quality control
1980 – 1990 : Total quality management
1990- Till date : TQM, the culture of continuous improvement, organization-wide quality management
(Source : Salis (1996))

Hierarchy of Quality Management

- Involves supplier and customers
- Aims of continuous improvements
- Concerns products and processes
- Responsibility of all workers
- Delivered through team work

Total Quality Management

- Use of statistical process control
- Emphasis on prevention
- External accreditation
- Delegated involvements
- Audit of quality systems
- Cause and effect analysis

Quality Assurance

- Concerned with product testing
- Responsibility with supervisors
- Limited quality criteria
- Some self inspection
- Paper based system

Quality Control

- Post production review
- Re-working
- Rejection
- Control of workforce
- Limited to physical products

(Source : Dale and Plunkett (1980))
1.10. QUALITY - DIMENSIONS

Different quality dimensions need to be studied to arrive at a reliable quality framework. Each dimension focuses on one particular area of quality, and hence all dimensions of quality are equally important so as to arrive at a comprehensive view of quality. Hence, a brief note on various quality dimensions are presented below:

QUALITY MANAGEMENT

Only with the help of quality management, the assurance of quality product or services would be ensured. In order to give adequate focus on the customer, quality management has to describe institutions' effective approach towards meeting the customer expectations, responding to enquiries and dealing with problems in the best possible way. Further, to ensure quality management in any institution, it is indispensable to develop and employ a quality system, which comprises the organizational structure, procedures, processes and resources to achieve and maintain a desired level of quality.

QUALITY OBJECTIVES

Quality objectives are the practical outline of the quality policy. These are under scrutiny to meet certain requirements like zero defects for a certain product or a response time below a specified time for certain service. Quality objectives are measurable.

QUALITY CONTROL

It is historically the oldest quality concept. It involves the detection and elimination of components or final products, which are not upto the standard. It is an after-the-event process concerned with detecting and
rejecting defective items. Standards are to be maintained. They should not go down. There needs to be a check, a control over falling down of standard of quality. What is needed is quality control. Allow only quality or standard product into the market. Discard the sub standard, low quality products. Quality control resulted in wastage and thereby in the rise of the unit cost of approved products.

QUALITY AUDIT

Quality audit is a powerful tool for any business to measure the effectiveness of the Quality management system. It is also used to review processes and identify weaknesses, risks and areas of improvement. During audit it is required to see evidence that the processes are being done in accordance with the procedures and policies.

QUALITY ASSURANCE

The next step to quality control is quality assurance. The quality or standard of every unit of production is assured. This involves necessary changes in the process. Now the focus is not on the end but the means. At every stage in the production process, quality is ensured. Process-focus promoted quality management. Management gurus developed Total Quality Management techniques. A series of ISO awards started in procession in sequence. Though Total Quality Management implied quality improvement, it is concerned more with quality assurance.

Quality assurance is different from quality control. It is a before and during the event process. Its concern is to prevent faulty assurance is a means of producing defect and fault free products. The aim is “Zero defects”. Quality assurance is about consistently meeting product specification or getting things “right first time, every time”. Quality
assurance is made the responsibility of the workforce, usually working in
cells of teams, rather than the inspectors, although inspector can have a
role to play in the quality assurance.

QUALITY CIRCLE

A quality circle is a volunteer group of workers who meet together to
discuss workplace improvements and make presentations to this
management with their ideas. Typical topics are – improving safety,
 improving product and improvement in product design and improvement in
manufacturing process.

Quality circle was started in Japan in 1962 as another method of
improving quality. The movement in Japan was co-ordinated by the
Japanese Union of Scientists and Engineers. Prof. Ishikawa (1986) who
believed in tapping the creative potential of workers, innovated quality
circle movement to give Japanese industry that extra edge in creativity.

A quality circle is a small group of employees from the same work
area who voluntarily meet at regular intervals to identify, analyze and
revolve work related problems. This is not only means to improve the
performance of any organization; it also motivates and enriches the work-
life of employees.

QUALITY IMPROVEMENT

Quality improvement encompasses both improving fitness for use
and reducing the level of defects or errors. Quality improvement ensures
better quality for the users, higher market share for the manufacturer,
premium price for seller, status in the market place and reducing the levels
of defects would provide multiple benefits such as lower costs, improved
productivity with same resources.
1.11. QUALITY - PARADIGMS

Across the world there are five distinct ways and means of quality activities. They are called ‘the quality paradigms’ and have emanated due to changes in technology, society and customer demands. All these have been affected by development and changes in science. As time passes by, more paradigms shall probably be arrived at.

CUSTOMER – CRAFT PARADIGM

In this paradigm, there is a clear communication between the craftsman and customer, resulting in focus on the product and product performance relative to the demands. The product is made exactly the way the buyer wants. Examples of this pattern are found in tailor shop, coffee shop, furniture mart, bank loans etc.

MASS PRODUCTION PARADIGM

This paradigm developed post-mechanization. Here, the focus is on production rates, and the direct involvement of the customer is not there, although the product is defined with customer in mind. Product performance is relatively low here and there is generation of rework and scrap. The delivery time is typically low as the sales executed from stocks being held. Service organizations in this paradigm are labour intensive. Examples of this pattern are found in automobile parts, readymade buildings for shops etc.

STATISTICAL QUALITY CONTROL PARADIGM

This is similar to the mass production paradigm except that the focus is more on the process. Together with mechanized production, statistical
process control is applied in the process due to which there is less generation of scrap and rework, and the production cost goes down. Here the products are designed and built, statistical techniques are used and then the customers are created. Examples of this pattern are found in automobile parts, electronic components etc.

TOTAL QUALITY MANAGEMENT PARADIGM

Together with mass production and statistical techniques, this paradigm focuses on the customer and the supplier. Here the production lines are the same as for mass production paradigm but the customer plays a part in product definition, creation and performance evaluation. Employee involvement and empowerment, customer-focus, continuous improvement, top management commitment, training, teamwork are its key tenets. The result is high quality product, low cost and fast delivery. Rework and scrap are reduced substantially. In short, customers tell this requirement and the product is delivered, using proactive and reactive quality strategies. Examples can be found in products/services from TQM companies.

TECHNO-CRAFT PARADIGM

This paradigm is a new frontier of quality that seeks to emulate the customer-craft paradigm in performance, while reducing the cost and delivery time. This paradigm requires high level of product and process flexibility. Customers get exactly what they want. The requirement here is of integration of machine, men and automation. Computer-aided designs and manufacturing would be of great help here. Each unit is designed and built the way the customer wants it to be built. This paradigm is being tried out in apparel and software industries.
1.12. QUALITY – FUNCTIONAL FRAMEWORK

Though the meaning for the term quality has developed over time, the following functions of quality under different dimensions ensure the very purpose of having quality in the functional process.

Functional framework of quality is exhibited in the model designed by the investigator.
1.13. QUALITY IN EDUCATION

Quality education is essential to educate learners, the teachers and educational service providers in developing competencies to seek relevant information and knowledge.

Green and Harray (1993) defined quality in education as:
- Quality in terms of exceptionally high standard
- Quality in terms of consistency and zero defects
- Fitness for the defined purpose
- More value for money, time and space
- Transformative in respect of participants

Further, quality in education is determined by the kind of human it produces and also where shaping of a person takes place. Quality in education is precisely stated thus:
- Measuring against the norms
- Standard or specification of educational standards

The demand for quality in education is received from all those concerned. Naudeau (1992) says, "call for quality and excellence originated within the institution whether coming from students, faculty, administrators or service personnel. They also come from alumni, interest groups, the community, the media and Government bodies, in many ways, shapes and forms".

PARAMETERS OF QUALITY IN EDUCATION

Quality institution should ensure the following parameters of quality education through:

- **Reliability** - Imparting knowledge dependably and accurately
- **Responsiveness** - Willingness to help students and provide prompt Guidance
- **Tangible** - Physical facilities, laboratory requirements
Assurance - Knowledge and courtesy of faculty and their ability to convey trust and confidence
Empathy - caring, individualized attention to students

AREAS OF CONCERN THAT AFFECT THE QUALITY EDUCATION

Following are the areas, which attract deterioration in quality education:

- Identification of lacuna in Teaching-Learning Process
- Standard of Infrastructure facilities
- Quality of experimentation in laboratories
- Communication skill development
- Evaluation methods
- Student - Teacher relationship

1.14. QUALITY IN HIGHER EDUCATION

Higher Education is generally understood to include teaching-Learning, research and extension. If the different concepts of higher education are critically analyzed, the various roles played by higher education in the society can be listed. Higher education is the source or feeder system in all walks of life and therefore supplies the much-needed human resources in management, planning, design, teaching and research. Scientific and technological advancement and economic growth of a country are dependent on the higher education system as they are the basis for the development of the working class. Development of indigenous technology and capabilities in agriculture, food security and other industrial areas are possible because of our world-class higher education infrastructure. Higher education also provides opportunities for life long learning, allowing people to upgrade their knowledge and skills
from time to time based on the societal needs. The Secondary Education commission (1966) highlighted the following roles of the Universities:

- To seek and cultivate new knowledge, to engage vigorously and fearlessly in the pursuit of truth, and to interpret old knowledge and beliefs in the light of new needs and discoveries
- To provide the right kind of leadership in all walks of life, to identify gifted youth and help them develop their potential to the full by cultivating physical fitness, developing the powers of the mind and cultivating right interests, attitudes and moral and intellectual values
- To provide the society with competent men and women trained in agriculture, arts, medicine, science and technology and various other professions, who will also be cultivated as the individuals imbibed with a sense of social purpose
- To strive to promote quality and social justice and to reduce social and cultural differences through diffusion of education
- To foster in the teachers and students and through them in the society generally, the attitudes and values needed for developing the 'good life' in individuals and society

The report of the UNESCO International Commission on Education in the 21st century entitled “Learning: The Treasure Within” (popularly known as Delors Commission) emphasized the four pillars of education: learning to know, learning to do, learning to live together and learning to be. While, higher education intends to inculcate all these four in individuals and the society, the report highlighted the following specific functions of higher education:
• To prepare students for research and teaching
• To provide highly specialized training courses adapted to the needs of economic and social life
• To be open to all, so as to cater to the many aspects of lifelong education in the widest sense and
• To promote international co-operation through internationalization of research, technology, networking and free movement of persons and scientific ideas (UNESCO, 1996).

Jorgen Moltoft (1997) defined quality in the context of higher education as follows:

A higher education has quality:

• if the students experience the same as a meaningful, developing and interesting exercise
• if the students have acquired knowledge and characteristics which enable them to make a living as professional academics within their subject area in their working life.

PREDOMINANT CONCEPTS OF HIGHER EDUCATION

According to Ronald Barnett (1992), there are four predominant concepts of higher education:

1. Higher education as a production of qualified human resources
2. Higher education as Training for a research career
3. Higher education as the efficient management of teaching provision
4. Higher education as a matter of extending life chances
1.15. QUALITY IN HIGHER EDUCATION - NEED

Quality in Higher education has become prime agenda of countries worldwide. In the changing context marked by expansion of higher education and globalization of economic activities, education has become a notional concern with an international dimension. To cope with this changing context, countries have been pressurized to ensure and assure quality of higher education at a nationally comparable and internationally acceptable standard. Consequently, many countries initiated ‘national quality assessment and assurance mechanism’ and many more are in the process of evolving a suitable strategy.

For meeting the challenges in the global competition in the field of higher education, the higher education should be:

- Qualitative (globally competitive)
- Relevant (contributing to personal, societal, national and international development in intellectual, economic, political and spiritual dimensions)
- Accessible (to every one, every time and everywhere)
- Affordable (through liberal concessions, subsidies, free-ship)
- Innovative (in process and products)
- Continuously value additive
- Pursuing with perseverance excellence
- Progressively improving every time
- Excelling the past performance

Hence, Higher Education Institution must inculcate:

- Practical application of knowledge
• Ability to innovate among the students
• Inculcate value systems among students
• Enable them to be self-reliant, competitive and value based

In these lines, Higher Education Institutions are marching towards:
• Resolving contradiction between Modernity and Tradition in education
• Balancing information load
• Using technological mass media in educational principles and practices
• Enhancing quality of life by stressing moral values
• Dismantling artificial boundaries between work and academic education
• Laying stress on knowing rather than known, how to know rather than what to know

1.16. QUALITY IN HIGHER EDUCATION - DIMENSIONS

Quality, as it is known hitherto, was originally developed in the manufacturing industry. In the area of higher education, the adoption of quality control has been superficial and diluted by the exercise of academic freedom (Largosen, et al 2004). Further, the prevailing culture of universities is often based on individual autonomy, which is zealously guarded (Colling and Harvey, 1995). This is usually difficult to apply the features of quality to higher education considering the fact that quality requires teamwork (Boaden and Date, 1992). However, the quality of higher education is very important for its stakeholders. Notably, students, staff and employers of graduates are important (Srikanthan and Dalrymple, 2003). Quality from the perspective of three groups and arrives at a common framework for the dimensions of quality in higher education based on Owlia and Aspinwall (1996).
PRODUCT QUALITY DIMENSIONS

Garvin (1987) proposed eight dimensions for quality for both product and service quality, such as Performance, Features, Reliability, Conformance, Durability, Serviceability, Aesthetics, and Perceived quality. Owlia and Aspinwall (1996) interpreted the dimensions of quality of product and service and applied it to the quality in higher education.

<table>
<thead>
<tr>
<th>Dimensions</th>
<th>Definition in Higher Education</th>
</tr>
</thead>
<tbody>
<tr>
<td>Performance</td>
<td>Primary knowledge / skills required for graduates</td>
</tr>
<tr>
<td>Features</td>
<td>Secondary / supplementary knowledge and skills</td>
</tr>
<tr>
<td>Reliability</td>
<td>The extent to which knowledge / skills learnt is correct, accurate and up to date</td>
</tr>
<tr>
<td>Conformance</td>
<td>The degree to which an institutional programme / course meets established standards, plans and promises</td>
</tr>
<tr>
<td>Durability</td>
<td>Depth of learning</td>
</tr>
<tr>
<td>Serviceability</td>
<td>How well an institution handles customers’ complaints?</td>
</tr>
</tbody>
</table>

SOFTWARE QUALITY DIMENSIONS

Watts, 1987, narrated the software quality dimensions widely used in software engineering are: correctness, reliability, efficiency, integrity, usability, maintainability, testability, expandability and reusability. Owlia and Aspinwall (1996) applied these quality dimensions to higher education as detailed below:
<table>
<thead>
<tr>
<th>Dimensions</th>
<th>Definition in Higher Education</th>
</tr>
</thead>
<tbody>
<tr>
<td>Correctness</td>
<td>The extent to which a programme / course complies with the specified requirements</td>
</tr>
<tr>
<td>Reliability</td>
<td>The degree to which knowledge / skills learned is correct, accurate and up-to-date</td>
</tr>
<tr>
<td>Efficiency</td>
<td>The extent to which knowledge/skills learned is applicable to the future career of graduates</td>
</tr>
<tr>
<td>Integrity</td>
<td>The extent to which personal information is secure from unauthorized access</td>
</tr>
<tr>
<td>Usability</td>
<td>The ease of learning and the degree of communicativeness in the classroom</td>
</tr>
<tr>
<td>Maintainability</td>
<td>How well an institution handles customers' complaints?</td>
</tr>
<tr>
<td>Testability</td>
<td>How fair examinations test a subject of study?</td>
</tr>
<tr>
<td>Expandability</td>
<td>Flexibility</td>
</tr>
<tr>
<td>Portability and reusability</td>
<td>The degree to which knowledge / skills learned is applicable to other fields</td>
</tr>
</tbody>
</table>

**SERVICE QUALITY DIMENSIONS**

The service dimension of quality is probably more akin to the educational processes. Unlike physical goods, services are ephemeral to the extent that they can be consumed only as long as the activity or the process continues. Thus, there is inseparability of production and consumption. The consumer is also an integral part of the service process. Thus, in higher education, this framework is more applicable as the teaching-learning situations are more like a service. *Parasuraman et*
al (1985) identified the dimensions of service quality such as Reliability, Responsiveness, Competence, Access, Courtesy, Communication, Credibility, Security, Understanding the customer and Tangible. Owlia and Aspinwall (1996) presented a comprehensive interpretation of higher education as follows:

<table>
<thead>
<tr>
<th>Dimensions</th>
<th>Definition in Higher Education</th>
</tr>
</thead>
<tbody>
<tr>
<td>Reliability</td>
<td>The degree to which education is correct, accurate and up to date. How well an institution keeps its promises? The degree of consistency in educational process</td>
</tr>
<tr>
<td>Responsiveness</td>
<td>Willingness and readiness of staff to help students</td>
</tr>
<tr>
<td>Understanding</td>
<td>Understanding students and their needs</td>
</tr>
<tr>
<td>customers</td>
<td></td>
</tr>
<tr>
<td>Access</td>
<td>The extent to which staff are available for guidance and advice</td>
</tr>
<tr>
<td>Competence</td>
<td>The theoretical and practical knowledge of staff as well as other presentation skills</td>
</tr>
<tr>
<td>Courtesy</td>
<td>Emotive and positive attitude towards students</td>
</tr>
<tr>
<td>Communication</td>
<td>How well lecturers and students communicate in the classroom?</td>
</tr>
<tr>
<td>Credibility</td>
<td>The degree of trustworthiness of the institution</td>
</tr>
<tr>
<td>Security</td>
<td>Confidentiality of information</td>
</tr>
<tr>
<td>Tangible</td>
<td>State, sufficiency and availability of equipment and facilities</td>
</tr>
</tbody>
</table>
CONCEPTUAL FRAMEWORK OF QUALITY DIMENSION IN HIGHER EDUCATION

Based on the review of literature on the above different approaches to quality in higher education, Owlia and Aspinwall (1996) presented a conceptual framework that covers six criteria to depict quality dimensions. These are tangibles, competence, attitude, content, delivery and reliability. These dimensions are indicative of the areas that should be of concern to ensure quality in higher education.

<table>
<thead>
<tr>
<th>Dimensions</th>
<th>Characteristics</th>
</tr>
</thead>
</table>
| Tangibles    | Sufficient equipment / facilities  
Modern equipment / facilities  
Ease of access  
Visually appealing environment  
Support services |
| Competence   | Sufficient staff  
Theoretical knowledge qualifications  
Practical knowledge  
Up to date  
Teaching expertise, communications |
| Attitude | Understanding students’ needs  
Willingness to help  
Availability for guidance and advice  
Giving personal attention  
Emotional, courtesy |
|---|---|
| Content | Relevance of curriculum to the future jobs of students  
Effectiveness  
Containing primary knowledge / skills  
Completeness, use of computers  
Communication skills and team working  
Flexibility of knowledge being cross-disciplinary |
| Delivery | Effective presentation  
Sequencing timeliness  
Consistency Fairness of examinations  
Feedback from students  
Encouraging students |
| Reliability | Trustworthiness  
Giving valid award  
Keeping promises, match to the goals  
Handling complaints, solving problems |

1.17. QUALITY IN HIGHER EDUCATION - MOVEMENT

The following quality principles developed by Deming, Juran and Crosby (1989) are most suitably applicable to quality management and also a great deal to higher education:

- Leadership and commitment of top management plays a significant role in quality improvement
- Creating an environment for learning and staff development is crucial to do tasks right every time
- Adopt new philosophies and technologies that can improve quality
- Encourage teamwork and participatory management
• Develop a communication strategy to report progress and results
• Recognize the efforts of staff without creating a competitive environment
• Encourage quality circles and a culture of quality

Higher education in India, just as in all other developing countries in the world, serves as a driving force of economic development as well as an organizer of learning in the society. The universities perform all the traditional functions related to the advancement and transmission of knowledge, such as teaching, training, research, innovations, continuing education, etc.,

Different Committees and Commission on Education and Educational Policy declaration in 1968 and 1986 along with Programmes of Action effected salutary changes in the structure, governance, curriculum, examinations, etc., in the Indian University system.

PERSPECTIVE PLAN FOR EDUCATIONAL DEVELOPMENT

In the independence period, Sargent Report of 1944 provided a perspective plan for the educational development in India. Just after independence, First Education Commission (1948-49) recommended among other proposals to boost research in Indian Universities as well as formation of University Grants Commission. Later, the Education Commission (1964-66) laid due emphasis on quality and standard as well as expansion of higher education for manpower needs in the developmental programmes of the independent India.

On the basis of report of this Commission, the First National Policy on education was declared in the year 1968, which contained important
recommendations for Higher education. Based on the analytical report, 'the Challenge of Education', the second National Policy on Education was declared in 1986 along with the Plan of Action. There have been quite a few committees to deliberate on the problems and prospects of higher education in India. Significant of them are:


Promoting quality in education has been the focus of almost all the committees and commissions constituted at different stages of development of higher education systems.

1.18. QUALITY IN HIGHER EDUCATION – ASSURANCE MECHANISMS

Quality control involves the detection and elimination of components or final products that are not of the expected standard. In education, it indicates an operation process concerned with the organization, imparting and evaluation of teaching activities in order to ensure 'fitness for purpose', optimal utilization of resources and attainment of identified goals. 'Quality control' has been used to describe internal procedures for quality maintenance and enhancement (Green 1994).

Quality Audit is concerned with processes and procedures. It is the systematic and independent examination to determine whether quality activities and related results comply with planned arrangements and
whether these arrangements are implemented effectively and are suitable to achieve objectives (Bureau of Indian Standards 1988; British Standard Institution 1989).

Quality policy refers to ‘the overall policy intentions and direction of an organization as regards quality’, as formally expressed by top management and quality management is ‘that aspect of the overall management function, that determines and implements quality policy’.

*From the detailed analysis on quality construct, it is generally assumed that tradition is the defining element of ancient society; religion is the defining element of the middle age; reason is the defining element of the modern society and quality is the defining element of knowledge society i.e. 21st Century.*

In today’s knowledge society, both developed and developing countries are equally concerned with quality and relevance of higher education. Quality in terms of fitness for purpose, excellence, perfection, standards, value for money, consistency, transformation and relevance defines different ways on all the activities of knowledge society.

1.18.1. QUALITY IN HIGHER EDUCATION - ASSESSMENT

According to Frederiksen (1984) an assessment means “any standardized procedure for eliciting the kind of behaviour we want to observe and measure”.

The assessment lies in the interpretation of the inferences, combined with informal observations, to make an evaluative statement.
Quality assessment is an evaluation of teaching and research quality in a specific subject (Calder, 1994). It is often used for the evaluation of an institution or part of it, for overall performance using both internal and external procedures.

TYPES OF ASSESSMENT

Traditional Assessment tests include objective and selected response items

Alternative Assessment is an alternative form of assessment gives greater emphasis to the quality of answer content and process in interpreting results of assessment tasks

Authentic Assessment is when test problems resemble the kind of tasks undertaken by professionals, that is, when test questions are authentic to real world contexts

Direct Assessment tasks are aimed to demonstrate the skill of interest

Performance Assessment is when test takers are asked to perform or demonstrate to perform or demonstrate skills either by doing something that is observed and evaluated as it occurs.

PURPOSE OF ASSESSMENT

The purpose of assessment can be explained in terms of its functional role in the classroom. Some categories of assessment purposes that are likely to be used are as follows:

Placement Assessment: To determine student performance at the beginning of instruction

Formative Assessment: To monitor learning progressed during instruction
Diagnostic Assessment: To diagnose learning difficulties during instruction

Summative Assessment: To assess achievements at the end of instruction

INTERNAL QUALITY ASSESSMENT

Many academics, placing stress on academic freedom and autonomy of institutions, believe that assessment of quality should be done through self-evaluation. As every institution has its own goals and objectives and the ethos of an institution is best understood by its constituents. Brown (2000) emphasized that only those who design and deliver programmes and assess and examine students are in a position through quality control, to assure the quality of what they do and no one else can do it for them. Successful internal assessment is mainly required to make the minds open and receptive to ideas and involves the contribution of all stakeholders. Self-assessment is fruitful only in an institution that has a culture in which continuous quality enhancement occupies a central place.

INTERNAL QUALITY ASSURANCE CELL

To cope with the expanding number of students and institutions and diversification of programmes, Internal Quality monitoring is implemented in the name of Internal Quality Assurance Cell (IQAC). The principal functions of the cell are to:

a) draw up institutional profile exhibiting strength of faculty, supportive staff, infrastructure facilities, learning amenities and activities, inputs and outputs

b) undertake SWOT analysis and identify areas of performance shortfalls followed by action taken on addressing the defects
c) identify common strength and weaknesses which could be looked into by the management

d) monitor all academic activities like teaching, internal evaluation, examination, curricular and co curricular activities

e) promote harmonious interaction between staff, student and management

f) disseminate information related to quality assurance and quality enhancement measures

EXTERNAL QUALITY ASSESSMENT

As Harvey and Knight (1995) point out EQA covers number of quality monitoring activities:

a) Accreditation of programmes or institutions as in the USA

b) External evaluation of institutional performance undertaken by NAAC

c) Validation and accreditation of programme of study, especially technical education, by National Board of Accreditation

d) Evaluation of students by external examiners as undertaken in the Universities of India and other countries of the commonwealth

e) External evaluation of potential teachers and potential researchers, as undertaken by the UGC and CSIR in India, in the form of National Evaluation test

A survey of literature on External Quality Assessment Agencies shows that the reasons for their establishment are diverse:

Woodhouse (2001) points out that the United States established an EQA primarily to affirm to students that all American institutions were of adequate quality.
In the United Kingdom, a need was felt to ensure that some newly established non-university institutions adhered to the same standards as the traditional universities.

In the Australia, External Quality Assessment was used as a basis for funding and later on for demonstrating to overseas customers that quality is taken seriously in the country.

In India, it is a concern for quality, generated because of a loss of confidence in many newly established institutions.

Quality assessment through external review is a standard practice adopted in developed and developing countries. In all countries, assessment of institution is carried out periodically through well laid down policies and formalized procedures. This generally involves an inspection of infrastructure, facilities and programmes of the institution by peer team that essentially validates the self-study report submitted by an institution. The Peer Team report on the status of an institution or program usually highlights the positive aspects, points out deficiencies and makes recommendations for improvement. Successful validation results in a certification commonly referred to as accreditation.

External review is often viewed as a mechanism by which the Government attempts to control functioning of higher education institution by making it the basis for allocation of funds. Meade (2001) points out that the focus on external audit has engendered in institutions of culture of compliance rather than one of continuance quality enhancement. Further the external audit have a significant positive impact on higher education, as they have prompted higher education institutions to develop better quality review and quality enhancement processes.
1.18.2 QUALITY IN HIGHER EDUCATION - ACCREDITATION

GENESIS

From the inception of this concept, already two generation of accreditation has gone. The first generation began in many countries in 1989-90. It was intended to maintain the quality of higher education systems and to retain some kind of central control after many higher education institutions had been accorded autonomy.

The second generation of accreditation began during 1990's when certain countries of Western Europe started to develop their national systems of accreditation. The beginning of this process started in Germany in 1998. Austria came second and in 2002, the Netherlands and Norway started their own accreditation developments.

Furthermore, certain proprietary professional bodies like European Foundation for Management Development / European Quality Improvement system and the European Association for Public Administration and Accreditation began to develop accreditation. In this contemporary period, many American Accreditation Agencies have emerged and in many countries higher education institutions are free to choose the accreditation services that they prefer and which they think are useful for their own purpose.

MEANING

Accreditation is “a process of assessing and enhancing academic and educational quality through voluntary peer review. It informs the public that the accredited institution or programme operates at an acceptable
level of quality and integrity”. It further indicates that the accredited institution has accepted the responsibility for periodic self-examination to improve quality.

It demonstrates the institutions' willingness to accept responsibility for attaining and continually improving quality of its educational programmes.

Accreditation ensures accountability and efficiency with reference to both intrinsic and extrinsic functions of the educational institutions.

DEFINITIONS

i) According to Zook and Haggerty (1936) accreditation is “the recognition accorded to an educational institution by some agency or organization which sets up standards or requirements that must be complied with in order to secure approval”.

ii) Selden (1960) describes it as “the process whereby an organization or agency recognizes a college or university or programme of study as having met certain predetermined qualification and standards”.

iii) According to Middle States Commission on Higher Education

“Accreditation is a means of self regulation and peer review adopted by the educational community. The accrediting process is intended to strengthen and sustain the quality and integrity of higher education making it worthy of public confidence”.

iv) According to Council for Higher Education Accreditation

“Accreditation in Higher education is a collegial process of self review and peer review for improvement of academic quality and public accountability of institution and program”.

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v) According to **Western Association of Schools and College**

"Accreditation aids institutions in developing and sustaining effective educational program and assures the educational community, the general public and other organizations that an accredited institution has met high standards of quality and effectiveness".

Accreditation is defined as quality certification given by the accrediting agency to an institution or a programme after carrying out appropriate criteria based assessment.

**OBJECTIVES OF ACCREDITATION**

- To improve the quality of education, to provide public information and to ensure that education is of approved quality

- To examine whether or not the requirement of the institutions are fulfilled and whether or not a certain level of quality is met

- To facilitate international recognition, benchmarking and transparency

- To assure quality, provide efficient curricular design, offer diversity and avoid window-dressing.

**BENEFITS OF ACCREDITATION**

The benefits of accreditation process are:

a) **Quality education**: Because of the process of accreditation, new students, returning students and families of students can trust that the education they are paying for is valuable and worth their time, money, and effort. It ensures to meet the standards of quality set in terms of faculty, curriculum, administration, libraries, financial well being and student services.
b) Financial aid opportunities: Priorities will be given to accredited institutions on providing financial aids to students as well as the institutions on review for sanction.

c) Credit Transfer: Accreditation is an important factor when a college or university is deciding whether to accept transfer credit from a student's previous institution in the context of student mobility and transnational delivery.

**STEPS IN ACCREDITATION PROCESS**

The following list discusses each step of the accreditation process:

a) Preparation and Self examination

The college, university or other institutions seeking accreditation status prepares materials that effectively display the institution's accomplishments. The institution must also create a written report of its accomplishment according to the standards set by the accreditation organizations.

b) Peer Review

Administrative and faculty peers conduct an intensive review of the prepared materials, written report and the general working of the institution seeking accreditation status. Teams of peer-reviewers visit the institution.

c) Visit and Examination

Besides the visits of peer-reviewers, peers and members of the public who volunteer their time because of a strong interest in the quality standards of higher education institutions.
d) Judgment action made by accreditation organization

After the previous steps are completed, the accreditation organization calls upon their commission to review the steps and affirm/deny accreditation status for the college.

e) Continuous Review

By accepting accreditation status, the institution agrees to undergo a review on rotation basis every few years. The purpose of continuous accreditation review is to ensure that accredited institution continues to maintain the required accreditation standards.

EXPECTATIONS FROM ACCREDITATION

Accreditation is expected to fulfill the following needs, demands and ambitions:

a) To guarantee that certain agreed upon basic quality standards are met and to ascertain that programmes and degrees correspond to generally accepted basic quality descriptions.

b) To sharpen quality assurance arrangements by making them more independent, by focusing on more absolute and externally benchmarked standards and by making them arrive at clearer statements.

c) To allow international benchmarking of standards and criteria and allowing them in a context of student mobility, credit transfer and accumulation and transnational delivery

d) To strengthen the capacities of quality assurance arrangements to inform the students and general public and to demonstrate the accountability of higher education institution

e) To make possible the linking of quality statement to other forms of regulation, including funding, financial aid to students, recognition of institutions programmes or qualifications, entry to professional practice, etc.
1.18.3. QUALITY ASSESSMENT AND ACCREDITATION IN HIGHER EDUCATION INSTITUTIONS - NECESSITY

For most of the higher education institutions, teaching, holding examinations at regular intervals and maintenance of infrastructure are the major activities. Maintenance of academic calendar thus itself is an achievement. From these preoccupations, there is little time or thought left for enhancing the standards of learning process, research accomplishments and knowledge improvements.

Unlike our earlier efforts on revamping the administrative processes and financial allocations, in the today's society, information and technology shapes and drives objectives of Higher Education. There is an imperative need on redesigning and overhauling of structures, processes and procedures of higher education.

The introduction of quality assessment and accreditation systems in higher education in almost all countries is determined by the culmination of several factors as mentioned below:

CIRCUMSTANTIAL FACTORS

- Rapid expansion of Educational Institutions in the absence of basic resources.
- Emergence of large number of private universities in the absence of a legal framework regulating their organization and functioning.
- The introduction of certain higher education reform programmes compelling both traditional and newly established universities to make significant changes, so far as their organization and functioning were concerned.
LONG TERM FACTORS

The generalization of efficient and competitive mechanisms at the level of the whole of society, higher education included:

- The need to increase the accountability of universities to their sponsors
- The need to assist the Higher education Institutions in identifying their weak points and in improving the quality of their services
- The need to render the use of public funds more efficient, given the rising demand for funds and their limited availability

Qualitative performance is considered by setting objective criteria distribution of public funds. The students undertake overseas employment and employment in multinational companies, their certificates and academic credentials are subjected to thorough scrutiny by external agencies. Naturally, the quality of education and institution form the basis for their employment.

In the first stage of implementation of assessment and accreditation mechanisms, circumstantial factors were mainly focused trying to distinguish between reliable and unreliable institutions, faculties and course programmes. After 1998, which is during second stage, the assessment activity mainly focused on long-term needs.

FUNCTIONS OF QUALITY ASSESSMENT AND ACCREDITATION

The academic assessment and accreditation system has the following functions:

- To assist higher education institutions in clearly defining their missions and goals
- To assist higher education Institutions in correctly evaluating the
resources and capabilities necessary for meeting the goals they have set for themselves

- To boost performance among higher education institutions by means of periodic assessment
- To provide objective principles for financing higher education institutions and to set objective criteria so that funds are distributed according to achievement
- To protect the community from institutions unable to achieve their missions and to respect their commitments
- To establish the legal framework under which the State can validate and recognize the degrees and education certificates awarded by public and private institutions
- To assist higher education institutions in improving their activities and structures

Though the academic assessment and accreditation systems vary a great deal from one country to another, despite their differences, these systems meet the demands and needs of several types of agents.

QUALITY ASSESSMENT AND ACCREDITATION PROCEDURES

All higher education institutions and course programmes are subjected to quality assessment procedures. Normally, the assessment and accreditation procedures used by the countries in the region entail several stages, as detailed below:

- Provisional Authorization
- Accreditation
- Periodic evaluation
IMPACT OF ACCREDITATION PROCESS

In general, the accreditation process has to facilitate the institutions to show their accountability to stakeholders, demonstrate effectiveness and thus justify their existence. This process is to help and guide the institutions and increase the stakeholders' participation in managing the higher education institutions.

PARAMETERS AND STANDARDS FOR ASSESSMENT AND ACCREDITATION OF HIGHER EDUCATION INSTITUTIONS

The information requested in the Self-evaluation reports are grouped into several categories which includes the groups of criteria by which the quality assessment is made. The list of standards varies from country to country. However, certain criteria are common to all National accreditation mechanisms and are frequently employed in the accreditation procedures in Western Europe, United States, Canada and Australia.

BASIC QUALITY STANDARDS

1. Assumed Mission and Objectives
   a. Mission: Mission of Institution, Faculty, Department including course programme
   b. Objectives: Possibility to carry out the course programme
   c. Strategies: starting point, long term strategies aimed at accomplishing the mission and objectives
   d. Correlation of course programmes with attainable objectives

2. The Students
   a. Admission of candidates: clearly defined procedure of admission
   b. Conditions and criteria of admission must be made public before the entrance examination is conducted
c. Only candidates able to complete a university course programme should be admitted
d. Minimum qualification for admission is the high school graduation
e. Selection must highlight the skills and motivations of candidates
f. Selection must be based on competition

3. The content of the Educational Process

a. The curriculum
   • Consistent with the declared mission and objectives
   • Choice of subjects in the educational plan should facilitate the fulfillment of the assumed objectives and missions
   • The subjects should complement each other
   • Subject complexity should increase gradually
   • Opportunities to specialize should be offered to students
   • Theoretical and practical training should be distributed evenly
   • There should be recognized methods to place for keeping curriculum up-to-date

b. The analytical Programmes
   • Correlation should exist between the analytic programmes and the declared mission and curriculum
   • Nature of analytic programmes should be appropriately scientific
   • Methods of evaluating student knowledge should be adequate

c. Teaching and Learning Activities
   • Learning methods used for each course should be compatible
   • Means for constant evaluation of the learning and teaching methods
   • Tutorials should be available and used
   • Information and communication technology should be widely used in the learning and research activities
   • Educational support should be offered to students
   • Students capable of high performance should be identified, encouraged and stimulated.
d. Teaching Aids

- Lectures, handbooks, and other manuals should be viewed as effective teaching aids and should have appropriate scientific content

e. Student Evaluation

- The evaluation methods should be adequate
- The results of constant evaluations should be combined with those of final evaluations.
- Evaluation should create an objective hierarchy based on real performance
- Ways to stimulate self evaluation should be identified
- The extent to which evaluation boosts student performance and learning motivation should be known

f. Use of Credit transfer system

- A number of credits should be assigned to each subject
- The success of credit transfer among faculties and departments of a university should be known
- The procedures for transferring credits at European and international levels should be in place

4. Teaching Staff

- Structure of teaching staff
- Compliance with the laws in force regarding teaching positions
- Coordinating the qualifications of the teaching staff with their positions
- Systems of periodic evaluation of the performance of the teaching staff
- Evaluation methods
- Evaluators
- Frequency of evaluation
- Consequences of evaluation
- Staff, students ratio
5. Research

- Research activities are organized within the University
- Adequate human resources are involved in research
- The funding of research is adequate
- Outcome of research including significant achievements, quality publications, etc.
- National and International recognition of research results

6. The Infrastructure

- The infrastructure includes teaching and research locations
- Appropriate and adequate equipments in Lecture, seminar halls, laboratory, library and computer centers, etc.,
- Social services and facilities for students should include hostels, canteens, sports centers, cultural services, etc.
- Social services and facilities should also be provided for the teaching staff

7. Financial and Managerial Activities

- Funding
- Earning
- Investing for development
- Assurance of financial accountability
- The managerial skills of the senior staff
- Methods used with a view to implementing course programmes and administering faculties / universities
- The relationship of the University with the local community

The above basic quality standards are common throughout the world for the assessment of quality in Higher Education. Keeping these standards quality assessment pattern is framed and the quality of the Institution and the education are assessed. In order to maintain quality of Higher Education in our country, it is necessary to juxtapose the assessment pattern in our country and that of the other developed
countries. The following section deals with the quality assessment practices followed in India and abroad.

1.19. QUALITY ASSESSMENT AND ACCREDITATION OF HIGHER EDUCATION INSTITUTIONS – AN INTERNATIONAL PERSPECTIVE

As the scenario in international higher education is on the rapid expansion of privatization, it is imperative to frame improved means of national regulatory frameworks and quality assurance systems at international level. The procedures adopted for evaluation or assessment of institutions and programmes vary from country to country.

UNITED KINGDOM

Higher Education Quality Control (HEQC) was set up in 1992 and it has been functioning as a quality audit unit in United Kingdom. The measures they enforce are:

- Adequate monitoring including regular visit of staff of awarding institutions to the partner institutions

- Clear and properly supported administrative system

- External examining procedures

- Sufficient exchange of academic and administrative streams

- Complaints procedure and provision for student appeals to the awarding institutions

The process of institutional assessment is a detailed and comprehensive scrutiny of the internal quality assurance systems of the institution, study of the self-evaluation document prepared by the institution and audit visits. The whole exercise is based on the code of practice for
the assurance of academic quality and standards in higher education (QAAHE, 2003). The code consists of the following ten sections:

- Postgraduate research programmes
- Collaborative provision
- Students with disabilities
- External examining
- Academic appeals and student complaints
- Assessment of students
- Programme approval, monitoring and review
- Career education, information and guidance
- Placement learning
- Recruitment and admissions

The system of quality assessment and accreditation in the United Kingdom is similar to India in philosophy, though in practice the reporting mechanisms and details in the criteria differ significantly, which may be the result of contextual difference of both the countries.

UNITED STATES

The accreditation work is co-ordinated by the Council for Higher Education Accreditation (CHEA). There are six regional associations of schools and colleges, which grant accreditation to Higher education. Besides, there is also a National Committee on Accrediting which is an educational association established by the colleges and universities of the United States to improve, co ordinate and monitor accreditation. The accrediting agencies are responsible for maintaining quality of education provided by their member institutions.
The Commission on Accreditation (COA) founded in 1949 was the first national organization in the USA to develop criteria and recognize accrediting bodies. In 1974, the Commission on Accreditation and the Federation of Regional Accrediting commission of Higher education merged to form the Council on Post Secondary Accreditation, which served until December 1993 to promote and ensure quality of American Post secondary education. The Council for Higher education Accreditation (CHEA) was created in 1997 and now it carries out the recognition function.

The method of accreditation in the USA is similar to what is done in India by the National Assessment and Accreditation Council with two differences:

i) The accreditation of a programme or institution is either given or denied. There is no grading / ranking / score attached

ii) There are many accrediting bodies, regional / national / subject specific, for accreditation. But these bodies should seek regular recognition from the Council for Higher Education Accreditation.

AUSTRALIA AND NEW ZEALAND

Realizing the need to have an independent agency to monitor and report on quality assurance in Australian Higher education, an Australian Universities Quality Agency was established in 2001. The agency is responsible for

- Conducting quality audits of self accrediting institutions and State and Territory accreditation authorities on a five year basis
- Providing public reports revealing the outcomes of these audits
- Reporting on the criteria for the accreditations of new Universities and Non university higher education awards
- Reporting on the relative standards and international standings of the Australian higher education system and its quality assurance processes

The system of quality assurance and accreditation in Australia is quite different from what is practiced in USA, UK or in India. In Australia, External quality monitoring or quality audit is performed by AUQA and also by the State and Territorial accreditation bodies. There are no specific criteria for quality and the reporting process of the audit review includes 'commendable practice' and 'areas for improvement'.

New Zealand Universities Academic Audit unit has been set up to carry out course approval and accreditation function. Audit by this unit is more effective than the self-audit exercises of the Universities (Meade & Woodhouse, 2000 and Meade 2001). Further the following three agencies are responsible for external assessment of quality assurance of tertiary education and training in New Zealand.

- New Zealand Quality Agency (NZQA)
- New Zealand Polytechnic Programme Committee (NZPPC)
- Association of colleges of education in New Zealand (Grinsted and Scanlan 2001).

EUROPE

The idea of establishing European Accreditation Agency was discussed in many circles, but did not receive much support as it violates the responsibilities of member countries. However, agencies and assessment and accreditation mechanism already exist in some countries are continued indefinitely.
In Netherland, Department of Quality Assessment was found in 1990 for the development, co-ordination and implementation of the external assessment systems. The Ministry of Education decided to implement a natural system of accreditation for higher education (De Haas and Fredericks, 2001).

In Germany, the Akkreditierungsrat, which is responsible for implementing quality standards, and for supervising and co-ordinating the work of accrediting agencies, started functioning in 1999. Accreditation is a pre-requisite for approving degree courses and programmes (Schele, 2003).

In Finland, the Finnish Higher Education Evaluation Council carries out both institutional and programme evaluations. Finnish Higher education Evaluation council carried out the evaluation process in three types. First, assessing the individual universities from their own viewpoint. Second, undertaking case studies of a several institution in a region and evaluating from the regional view point. Third, nation wide evaluation with policy implications and assessment of impact of universities in different regions having different development histories. (Hamalainen and Lindquist, 2001).

RUSSIA AND EAST EUROPE

The Russian Federation adopted, in 1992, law on education that laid down procedures for licensing, attestation and accreditation, for the control of evaluation of educational institutions. It provides for accreditation to be undertaken by various Russian and International non-governmental, educational, scientific and industrial structures. (Prokopchuk, 1973).
In Hungary, the Hungary Accreditation Committee, established in 1993, accredits institutions after the validation of a self-study report with respect to defined standards and laws. (Balog and Filep, 2001).

In Poland, accreditation is done by a University Accreditation Committee, set up in 1998 under the Polish Universities Agreement on Quality education. Still majority of private higher education institutions established between 1990 and 1997 are still outside the academic and legal system (Wojcicka and Chemielecka, 2001).

Japan and China

In the year 1980, decisions were taken by the University Council, to undertake the processes of self monitoring and self evaluation in order to maintain and develop quality education. The National Institution for Academic Degrees (NIAD) defines the quality assurance programmes for all higher education institutions. The new third party evaluation programmes are of three types, i.e. thematic evaluation, evaluation of academic activities by academic fields and evaluation of research activities by academic experts. (Tachi and Yonezawa, 2001).

In China, the Academic Degree committee examines through specialized sub groups, curriculum structure, faculty, and research activity to determine the disciplines in which Universities have a right to offer degrees. (Peace Lenn, 1993).

In Hong Kong University Grants Commission conducts a Teaching and Learning quality process review that evaluates Education Quality work covering the activities of faculty, academic leaders, and oversight bodies are aimed at improving quality.
SOUTH AFRICA

In Argentina, the Commission of National Evaluation and Accreditation of Universities (CONEAU) is responsible for evaluation and accreditation. This process is done on the basis of self-study reports and peer visitations. The standards developed have been approved by the Ministry of Education with agreement of the Council of Universities (Farinott et al 2001: Caillon et al 2001).

In Brazil, the government started for each major undergraduate programme a test, named Provao, which was mandatory for every student. Based on the mean performance of students in every programme, the institutions are graded and ranked. Provao has been well received by the public and has become the ultimate gauge of the quality of a course of studies. (Castro, 2004).

1.20. QUALITY ASSESSMENT AND ACCREDITATION OF HIGHER EDUCATION INSTITUTIONS – NATIONAL PERSPECTIVE

During the 70's and 80's of the last century, the need to monitor the teaching and research processes in the Higher Education Institutions was realized and there was a series of discussion in India regarding the formation of an appropriate mechanism for accreditation.

The “Programme of Action” relating to The National Policy on Education (1986) called for the development of 'a mechanism for accreditation and assessment for maintaining and raising the quality of institutions of higher education'.
As a result, the following assessment agencies were established in India.

I. National Assessment and Accreditation Council (NAAC) - 1994 (under University Grants Commission)

II. National Board of Accreditation (NBA) – 1994 (under All India council for Technical Education)

III. Accreditation Board (ICAR) - 1996 (under Indian Council for Agricultural Research)

IV. Distance Education Council (DEC) – 1985 (under Indira Gandhi National Open University Act)

I. NATIONAL ASSESSMENT AND ACCREDITATION COUNCIL (NAAC)

NAAC is responsible for accreditation of Universities and colleges in India. The principal objectives of this council are to:

- Grade institution of higher education and their programmes
- Stimulate academic environment in these institutions
- Help the institutions in realizing their academic objectives
- Promote changes, innovations and reforms necessary for the above purposes and encourage innovations, self-evaluation and accountability in higher education

With a view to overcome some of the limitations of its earlier methodology and to enhance its region, reliability and validity, the NAAC has designed a quality assessment pattern of higher education.

ASSESSMENT METHODOLOGY

The new instrument has been designed to bring into operation seven assessment criteria into criterion-wise key aspects. Each key aspect is further differentiated into Assessment indicators to be used as guidelines by assessors to capture the micro-level quality pointers.
In order to cater to the large number of institutions in this category and the widely varying quality level of such institutions, the NAAC has introduced two-step process for these institutions with effect from 1st April 2007.

First Step: Institutional Eligibility for Quality Assessment (IEQA)

Second Step: Assessment and Accreditation of affiliated / Constituent Colleges

QUALITY ASSESSMENT CRITERIA

Seven criteria are specified for quality assessment and accreditation of Higher Education Institutions by NAAC in India. These are: Curricular aspects, Teaching Learning and Evaluation, Research Consultancy and Extension, Infrastructure and Learning resources, Organization and Management and Students Support Services.

IMPACT ANALYSIS DONE BY NAAC INDICATORS

NAAC’s process aims at promoting self improvement by institutions and at the same time facilitates decision making to other beneficiaries. Assessment report highlights the strengths and weaknesses and thereby enables the institutions to plan further quality enhancement strategies. Many assessed and accredited institutions expressed their perception that NAAC process has resulted in bringing about many desirable changes in their functioning.

Following are the significant aspects in which NAAC’s impact has been felt by institutions in their functioning – pedagogical, managerial and administrative:
Ownership on Quality matters: NAAC process made the institutions realize that quality is the responsibility of the institutions themselves. Quality management procedures were introduced and as a result, institutions introduced peer appraisal and student evaluation of teachers, issues that still continue to be the bone of contention in many institutions.

Impact on Curricular Aspects and Research: Many institutions have been motivated to provide more programme options by means of introducing skill oriented certificate and diploma programmes to fulfill the growing demand from students. They also know very well about the effective ways of doing it, such as involving employers and peers.

Research initiatives and supporting efforts to publish have improved. Community oriented activities, extending expertise to the development of the immediate neighbourhood, initiating research with a view to solve the problems of the neighbourhood, student and faculty participation.

Improved learning resources and support services: Students support like open access and extended working hours of the library, getting latest books and quality journals, establishing inter library linkage, centralized computer center with an access to it, placement cell, campus interviews, on the job training, guidance and counseling and financial assistance were improved. Through the application of Information Technology and computer access in the administrative process, improved documentation and retrieval is possible for teacher appraisal, student progression, alumni profiles and placement services.

The Synergy: Inter departmental initiatives, intimacy and new synergy were developed bypassing the differences and the departments
started sharing their experiences and expertise. Quality assessment triggered new healthy practices. Collecting feedback from parents, alumni and students for improving the educational experiences and consultations with peers to overcome the weak links were initiated.

Change in the policies and practices of the Management: The perception of the management on issues of faculty workload, supporting the research culture and encouraging faculty development changed. There was a development of inter-personal relations and change towards a more transparent style of management.

Greater value of Accreditation: Institutions started thinking beyond routine teaching-learning and chalked out future plan. They felt that the process of assessment had done a lot to revive and stimulate the quality culture of the institution.

Impact on Providers: The UGC has already taken a decision to use the assessment outcome for funding decisions for certain grants without affecting the basic funding to the institutions. The outcome of assessment has been used for other decision making as well. Some major research funding agencies also look for the accreditation status of an institution even if the project proposals from the individuals or groups are found acceptable.

II. NATIONAL BOARD OF ACCREDITATION (NBA)

The National Board of Accreditation was constituted by All India Council for Technical Education as the autonomous body, to periodically conduct evaluation of technical institutions or programmes on the basis of guidelines, norms and standards specified by it and to make
recommendations to AICTE regarding recognition or de-recognition of the institutions or programmes:

OBJECTIVES

The prime objectives of the NBA are to

1. develop a quality conscious system of technical education where there is excellence, relevance to market needs and participation by all stakeholders

2. builds, as vendors of human resources, a technical education system that will make the national goals of growth by competence, contribute to economy through competitiveness and compatibility to societal development

3. provide quality benchmarks targeted at creating a global and National stockpile of human capital in all fields of technical education

Programme accreditation in NBA assessment has also been equally considered. This would help the aspiring students who usually aim at making a career in specific disciplines. Moreover, the programme accreditation provides more meaningful career guidance and decision support for the students after their course of study is completed.

GRADING PERFORMANCE

Unlike in many other countries, the process of accreditation by NBA is a ‘Yes’ or ‘No’ type - two part grading system of accreditation. Individual programmes shall be classified into one of the following categories:

Accredited for Five years: Excellent / Very good. Meeting all accreditation criteria or exceeding them
Accredited for Three years: Good. Meeting the minimum criteria with deficiencies. Being marginal and can be improved within a short time
Non accredited: Not ripe for accreditation due to the seriousness of the deficiencies

QUALITY ASSESSMENT CRITERIA AND KEY ASPECTS

The following are the assessment criteria formulated for assessment: Organization and Governance, Financial resources, allocation and Utilization, Physical resources and central facilities, Human resources (faculty and staff), Human resources (students), Teaching Learning resources, R & D and Interaction effort, supplementary progresses.

III. ACCREDITATION BOARD (ICAR)

Accreditation Board, 1996, was established to enforce and monitor compliance with norms and standards for agricultural education in India (Maurya and Nainawester, 2001).

CRITERIA FOR ACCREDITATION

a) The institution should have clear and publicly stated objectives consistent with its mission and goals

b) The institution should have effectively organized human, financial and physical resources necessary to accomplish its objectives

c) The institution is accomplishing its educational objectives

d) The institution can continue to accomplish its objectives and improve its quality of educational programmes and effectiveness
GRADING SYSTEM

As ICAR accreditation process follows the accreditation status of the institution in USA, which believes that grading an institution or programme does not necessarily lead to improvement. Hence it does not have grading system unlike other accreditation systems in India.

IV. DISTANCE EDUCATION COUNCIL (DEC)

The Distance Education Council was established in 1991 under section 5(2) of the Indira Gandhi National Open University Act 1985. It has a mandate to function as an apex body for promotion, determination and maintenance of standards and co-ordination of Open and Distance education in India. It aims to provide academic guidelines to promote excellence, encourage use of innovative technologies and approaches, enable convergence of all system and sharing of resources through collaborative networking for access to sustainable education, skill upgradation and training to all.

CRITERIA ON ASSESSMENT

1. Curricular Aspects - 14 indicators
2. Teaching, Learning and Evaluation - 29 indicators
3. Research, Consultancy and Extension - 12 indicators
4. Infrastructure and Learning resources - 20 indicators
5. Students Support Services - 20 indicators
6. Organization and Management - 21 indicators
7. Healthy Practices - 18 indicators
1.21. QUALITY ASSESSMENT AND ACCREDITATION OF HIGHER EDUCATION INSTITUTIONS - SWOT ANALYSIS ON PERFORMANCE

The SWOT analysis on the assessment and accreditation process described the impact of assessment practices on Indian Higher Education and the growth and development of Indian Higher Education (Srinivas G. (2004)). In India, the NAAC’s role is to safeguard the quality. During the last twelve years of its existence, it has moved not only from apprehension to appreciation suite but also carved out a niche for itself among the academia.

STRENGTH

- Enable the institutions to review and document its strengths and weaknesses
- Self Study Report (SSR) preparation enables the institution self analysis and self introspection and serves as mirror image analysis
- Motivational factors to expose the institutions to the outside world
- Firing in various suggestions and models for further growth and development of the institution through peer review
- Triggers new practices and innovative strategies within the institution
- Provokes the institution towards initiating new academic programmes and research activities
- As the whole process is development oriented, helps the institutions in strengthening the strengths and weakening their weaknesses
- Compels the institutions for infrastructure improvement
- Institutions focus on faculty development programmes
- Widely appreciated and adopted by the academia as a useful process for institutional development
- Triggered the institutions to establish Alumni association PTA, students feedback system, Human right cell Grievance Redressal, development of mission, vision statements
- Makes the quality enhancement a participative and continuous process rather than a one time administrative action
- It improves the governance of Higher Education institutions
- Promote effective linkages between various systems of the institutions
- It shows the correct path and helps the institutions to understand the direction in which they should move forward.

WEAKNESSES
- Institutions are sensitive to grade awarded by the accrediting agency
- Institutions pose more attention on grade than the peer team report which is really a helpful road map for institutional growth and development
- Inter team variation in awarding grade often embarrasses NAAC and the Institutions.
- Mismatch between the peer team report and grade
- Peer team reports are sometimes superficial and they are not sync with the ground realities of the Institution
- A process is greatly dependent on the credentials and quality of the people in the peer team
- Effective presentation and professional management in some institutions masks their academic weakness
• Institutions are more bothered about the grade differences rather score differences.

OPPORTUNITIES

• Private /self financing institutions may also undergo assessment and accreditation to legitimize their operations and activities

• Accreditation outcomes can be integrated into policy planning of apex bodies.
• Proved as different from regulatory inspections. Totally academic and facilitative process

• Networking of accredited institutions will consolidate the gains of accreditation

• Peer team visit triggers many new activities and developments in the institutions

THREATS

• Lack of quantitative or objective model of evaluation. It gives scope for inter team variations in award of grade

• Lack of effective grievance redressal mechanism

• Follow up action on the recommendations made by the peer teams is inadequate isolated process. Yet to be taken seriously by the regulatory bodies

• No continuous quality sustenance programmes after accreditation

• Academically superior people in the peer teams will enhance the credibility of the process.

• People with impeccable integrity and academic credentials will further strengthen the process
1.22. QUALITY ASSESSMENT AND ACCREDITATION OF HIGHER EDUCATION INSTITUTIONS – REVISITING ON ASSESSMENT

NAAC’s performance as an External assessment agency has been accepted wide spread and also many developing countries are looking forward to learn from NAAC’s experiences. Even if the NAAC in its assessment practices earned many credentials and many external assessment agencies in almost every country are having their own system of assessment procedures and assessing criteria, educationists who are much acquainted with the subtle differences and variations in the assessment elements raised their tone for evolving a result-oriented and free from the influence of subjectivity - based model. Further, some of the comments recorded are listed below:

- Outcome based assessment would be more objective, whereas NAAC’s process Heavily depends on inputs only

- Assessment exercises focuses more on form than on substance

- Current assessment criteria are disproportionately oriented towards institutional and management than educational aspects

- The assessment protocols follow on aggregate approach, which conceals more than what it reveals

- The assessment should present the department wise grading also

- The public opinion of an institution is ignored in the process
• The assessment exercise does not focus on the substantive aspects of education like quality of curriculum content

• The process focuses more on the cognitive than on the social aspects of education

• The indicators of quality applied by the NAAC are probably not derived from an informed vision of education

• The assessment outcome is not linked properly to any direct incentives

• There are many mission elements in the process

In view of giving vital importance to the elements playing pivotal role in the process of assessment of higher education Institutions, a new assessment criteria with the indicators in stabilizing and strengthening the criteria needs to be identified. The performance indicators to be utilized in this process should strengthen the bondages exist on the informed criteria with the systems. To provide more realistic and free from subjectivity, the operational indicators have to be identified in such a way as to state clearly the performance of the institution in numeric data.
1.23. NEED AND SIGNIFICANCE OF THE STUDY

Higher Education is the backbone of any society. It is the quality of higher education that decides the quality of human resources in a country. Higher education, at present, is a complex system facilitating teaching, research, extension and international co-operation and understanding. In higher education, the quality movement was initiated in the eighties of the last century, but gained momentum during the nineties till today and view it is made as an integral component of all higher education systems. As the higher education transcends National as well as International barriers, there is a growing concern over quality, standards and recognition.

It is essential to emphasize that quality of an educational institution should be assessed primarily in terms of quality of education and only secondarily in terms of quality of institutional inputs. In the quality pursuit, each constituent of higher education should make a common start to accomplish the attainment i.e. Teachers, Students, Policy planners, Academic institutions are jointly and collectively responsible for the deepening crisis in the system of higher education in the country.

Quality is an issue in many higher education systems throughout the world. The Government is keen to safeguard the standard when higher education resources are under demand and has understood the important role that quality management system can play. The Indian Higher education system, which has grown enormously in the last fifty years, is facing the problem of quality.

As Amartya Sen (2005) remarked, “Excellence in higher education must include equity”. A properly developed higher education system that accords due importance to access, equity and quality can be viewed as a
right-angled triangle, which is reported as 'elusive triangle' in the Indian education scenario. Higher education cannot guarantee quality by mere expansion in numbers and by creating access to large number of students, massive expansion without consideration of quality is a dangerous situation, which will result in crisis management of quality in higher education institutions. A strategic plan has to be evolved for achieving quality and excellence (Mariamma A Vargheese (2006)).

For ensuring quality awareness in any country, it is necessary that the need for quality assurance be nationally recognized, quality related policies to be introduced, monitoring agencies to be established and quality assurance procedures to be standardized. The quality performance in transaction or delivery would be determined only in assessment.

During the process of assessment, institutions are encouraged to examine their functioning, evaluate themselves and promote accountability in higher education. Assessment has an added rule to facilitate enhancement of quality in teaching and research and also stimulate the academic environment for the attainment of the institutional objectives.

In India, the National Assessment and Accreditation Council (NAAC) has been assigned to undertake assessment of Higher education institutions. During the period of past ten years, NAAC has given accreditation to 3,492 colleges and 148 universities. Further, it is exposed from the experiences of NAAC in their ten years services on assessment and accreditation process that quality gap is seen in the approaches to curriculum development, teaching learning, Research and consultancy, Infrastructure and Learning resources, Students Support Services and Organization and Development.
Though the insufficiencies and rectifications suggested during the NAAC’s assessment, it is reported by the NAAC that the insights and experiences gained through the exercise has been very rewarding for the accrediting agency in terms of being able to trigger quality initiatives in institutions and to strengthen its own evaluative process. Similarly the reported impact on institutions has been largely positive. However, one issue that has remained in the arena of debate all through is the ‘grade’ given to the institutions. The institutions which have undergone the assessment process expressed their displeasure over the grading for the two reasoning, viz. the text of the Peer Team report is highly positive vis a vis the scoring and the comparison of facilities, faculties, infrastructure with other colleges which is rated higher (Madhukar B.S. and Latha Pillai (2005)).

To overcome the concerns and comments, it is suggested to have a common yardstick of measurement and evaluation for all types of institutions as the faculty members in a college are not less in caliber than those in the University departments, both in teaching and research. In this process, it is an imperative need to conceptualize a comprehensive quality assessment model suitable to the present scenario. Considering the need and necessity in this area, the researcher has made an attempt to evolve a New Assessment Model providing suitable indicators and grading system in its assessment.

1.24. CONCLUSION

In this chapter, the researcher has presented the different dimensions of quality and an objective pattern of assessment of quality in Higher Education. In the present science and technological scenario,
quality must be ensured to cater to the needs of the employment market. The National Assessment and Accreditation Council (NAAC) has formulated an assessment pattern in which there is a lot of scope for subjectivity. So, the researcher is motivated to prepare a New Assessment Pattern, which could assess the quality of Higher Educations scientifically and objectively. Having chosen the area of study, a critical review and assessment of the research work already done in this area follows suit.

A consolidated assessment of relevant research works is presented in the following chapter.