QUALITY -
MOVEMENT
CONCEPT
& EDUCATION

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NOTE :-

Education today is in search of quality. The concept of quality is known to us in a traditional way. But during the last 50 years, the industrial revolution accompanied by mass production has impelled us to perceive quality in totally a new way. The concepts of quality, quality by inspection, quality assurance and total quality have come up.

Industry has been compelled to go in for quality & excellence due to global market, open economy & privatisation. It is now the turn of Engineering Education to follow in the footsteps of Industry. Hence the need for those involved in Education, particularly in Higher and Tech Education to understand quality & adopt / adapt it.

Hence, an effort has been made in this article to deliberate on three aspects namely (i) the quality moment (ii) the quality concept and (iii) Educational perception of quality.

This article will prepare necessary background for understanding the topics of ISO 9000, Accreditation of Academic Program and the philosophy of TQM which over-rides the earlier two concepts of ISO 9000 & Accreditation.

1. THE QUALITY MOVEMENT

1.1 Introduction :

Quality is at the top of most agendas, be it an educational institute or a business enterprises and improving Quality is probably the most difficult task facing an institute or an enterprise. Yet, many people find quality an enigmatic concept, perplexing to define and difficult to measure. In our daily life, we usually take quality for granted, specially when it is regularly provided, we acutely become aware when it is lacking or absent.

Quality has become a buzzword with everyone. It is on every ones lips. It is not a fad nor a mere initiative for which one takes fancy for some time and discards it very soon. Quality has become an obsession and many developed countries have taken concrete steps to promote Quality by instituting National Awards and Charters in their respective countries during the last decade. In U.K., we have Citizens Charter and the Investors in Public standards, while in U.S.A. it is the Malcolm Baldrige Award. In Europe, they have European Quality Award, while on the international scenario, we have ISO 9000. Many of the Industrial houses, Manufacturers and Service Industries have already gone in for ISO 9000

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certification. Quality concept is now knocking at the gates of Educational Institutions and now it is their turn to demonstrate publicly that they can deliver quality services consistently.

1.2 How Quality Originated :

To look to the origins of quality, we have to go to industry where the quality came up as a movement. There has always been a need to ensure that products confirm to the specifications and give consumer satisfaction and value for the money he spends for it. A consumer will develop confidence about a product and its manufacturers only if they can produce goods with quality, consistently, over a period of time.

Before the advent of industrialization and mass production, quality was the concern of an individual craftsman, be a carpenter, a Goldsmith a silver smith who set and maintained their own standards on which their reputation and livelihood depended. With the advent of industrialization and mass production came the breaking down of a jobwork into narrow repetitive tasks, which took away from the worker the possibility of self-checking for quality. The responsibility for quality no more rested with a single individual.

In a factory today, the job passes through different hands in different shops and quality does not remain the concern of any single individual. This situation created the necessity of quality inspection and quality control. The idea of quality control through inspections and discarding substandard jobs, came up. These are necessary processes under mass production but they are often wasteful and expensive, involving considerable amount of scrap and reworking. Quality imspection were seen an un-economic. Concepts of Quality Assurance and continuous Quality

Improvement that seek to build quality into production came up and the responsibility for quality was again delegated to the worker. Table 1 dipicts chronological developments of quality.

Table 1	THE CHRONOLOGY OF QUALITY DEVELOPMENT
pre - 1900	Quality as an intergral element of craftsman.
1900-1920	Quality control by foreman
1920-1940	Inspection-based quality control
1940-1960	Statistical process control
1960-1980	Quality assurance/total quality control (the quality department)
1980-1990	Total Quality management
1990 -	TQM, the culture of continuous improvement organization wide quality management.

1.3 The Quality Gurus :

One of the most influncial management theoretician was Edward Deming, an American statistican, born in 1900. Deming began formulating his theories as he worked on methods of removing variability and waste from industrial processes. Later on Mayo and his team recongised the importance of the formal structures within the organisation to industrial output and productivity and their impact on working practices. Walter Shewhart, another statistician, developed techniques to bring industrial processes, under what he called "stastical control". These are series of techniques for removing the sources of variability from industrial processes so that these become more predictable and controlable. The statistical process control combined with the insights

of the human relations movement associated with Mayo and his team, are today the basis of Total Quality Management.

1.4 Quality And Education :

There has been traditional reluctance on the part of education to adopt industrial management methodologies and language. This is the reason why the Quality Movement had a late entry into the educational field. Educationists dislike the anology between educational process involving human beings and the manufacturing of industrial products involving inert material. However, growing willingness by educationists in the west, has been noticed since 1990 and willingness to explore lessons from industry as well as efforts and initiative for Industry Institution Partnership have made industrial concepts of managements more acceptable to education and the earlier resistance seems to be waning.

1.5 Increasing Interest In Quality:

In 1950-1960 period, immediately after second world war, American Industry had a sellers market for the world, hungry for manufactured goods. The aims and objects of the industry was to maximise the output and profit. In a sellers market, quality has low priority. When in late 1970s, USA lost market and market share to the Japanese, they began to take quality seriously. They started thinking why consumers preferred Japanese products in U.S.A. The turning point came in 1980, with a nation wide NBC documentary called "If Japan can, why cannot We" This documentary highlighted the dominance of Japanese goods in the U.S.A. market. This documentary further presents Deming and his contribution to Japanese economic success. Since then, the message of Deming and Juran together with other experts like Philips Crosby and Armand

Feigenblum caught the imagination of industries and business houses both in USA and Europe. This resulted in their obsession with quality   with a view to displace Japanese from their home market. Still only a few companies had gone in for TQM by this time.

1.6 The TQM :

The quest for answer to Japanese competition was presented in "In search of Excellence" by Peters and Waterman in 1980 or so. They analysed essential features of the "Excellent" company based on the best practise then existing in USA. They concluded that :-

1. Companies that have excellent relationship with their customers are often most competitive and profitable.

2. Excellence goes hand in hand with simple but crucial notions, of being close to the customers   and an obsession with Quality.

3. Excellent organisations have simple non-bureaucratic structure based on active and enthusiasm teams.

These features that Japanese had embraced are the key to their success. This, in short, is the basis of the TQM which comprehends Quality in totality. It is time, now, for Educationists to study relevance of Industrial Management Methods to education, adapt/adopt them for educational institutes and demonstrate publicly that what is good for Industry is equally good and relevant to education. Education has to consider ISO 9000 standards; Accreditation process initiated by AICTE and the Total Quality Management approach and study their fitness and relevance for education; be it at school, college or university level. It is a challenging job indeed. Industry which has already gone in for Quality now demands Technical manpower with Quality education. It is for Engineering Education

to accept this challenge as it enters the 21st century.

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2. THE CONCEPT OF QUALITY

2.1 Introduction :

Quality is a "slippery" term, meaning different things to different people. It is a dynamic idea. It has emotional and dynamic force which makes it difficult to define and all the more difficult to measure. Inspite of all this, attempts must be made to understand what quality is and what it means.

2.2 Absolute and Relative Notions of Quality :

In our conversation, we use the term quality in the absolute sense. As an absolute quality, it is similar in nature to goodness, truth and beauty. It is an ideal with which there can be no compramise. It is considered as a part of the thing itself. Quality cannot be ascribed nor imparted to a thing. It has to be integral part of a thing. To cite example, it is the Taj Mahal, the furniture in the Ashoka Hall of the Rashtrapati Bhavan, the Kohinoor Diamond etc. These are the things of highest quality standard which cannot be surpassed. These are things of perfection, made with no concern for money and labour involved. They are most invaluable and bring pride and prestige to the owner. They impart status and the ownership of such quality objects and set their owners apart from those who cannot afford these. Most of us admire it, many of us want it and few can have it. It is an elitest - concept. This absolute concept of quality is not relevant to education. The only lesson to be learnt or inference to be drawn from this absolute concept of Quality is to promote ideas of Quality. It tells us that persuing Quality is all about performing to the highest standard.

2.3 Quality - A Relative Notion :

Here Quality is viewed not as an attribute of a product or service but as something which can be ascribed to it. Quality in this sense is measuring against a norm, standard or specification. Quality products in the relative sense need not be expersive nor exclusive. They may be beautiful but not necessarily so. They do not have it be special; they can be ordinary, common place and familar objects. This relative notion is potentially egalterian whereas an absolute notion of quality is eliest. What allows the quality lable and degree of quality level to be associated with any product and service is that it meets the norms/standards set for it. It must do what is claimed for it and do what customers expect of it. In other words, Quality here can be defined as "Fitness for the purpose" as defined by the British standard and Quality Gurus.

Table 2 Shows comparision between absolute and relative quality.

Table 2 :

QUALITY ABSOLUTE (Goodness, Beauty and Truth)	QUALITY RELATIVE (Things that satisfy the needs/wants)
1. Quality is an integral part.	1. Quality can be ascribed/ imparted.
2. Things of highest possible standard, un-surpass-able.	It is a measure against prescribed norms/stan-dard.
3. Things of perfection, no expenses spared.	An ordinary, common, place thing; need not be expensive.
4. A proud possession, Imparts states & prestige.	A possession that meets the needs & wants. May be beautiful, but not necessarily.

5.	Elitest notion	Egalitaran notion.
6.	Most admire it, Many want it, Few can have it.	It must do what is claimed for it and do what is expected of it; fitness for purpose.
7.	Few can offer, Most cannot afford, Institutions cannot aspire to provide.	Many can offer, provided, they study, the needs/wants and provide the required quality, consistently.
8.	Persuing quality by performing to the highest standard	It is measuring to a standard meeting the needs and wants of customers.

2.4 Two Aspects of Relative Quality :

In the relative sense, quality is about measuring to a predetermined standard and meeting these standards, time and again i.e. consistently, over a period of time. This relative definition of Quality has two aspects. i) proceedural (ii) transformational.

The proceedural aspect is concerned with "measuring up" against predetermined norms/standards. The question to be asked is "Does this product/service do, what is expected of it?" "Is it fit for the purpose or use intended." This, Edward Sallis calls as "Producer defination" or "proceedural concept" of quality. In the industrial context, it can be said that, a manufacturer/producer achieves the quality of his product by meeting pre-determined norms/specifications in a consistent fashion. The producer demonstrates this quality aspect by a system - known as Quality Assurance System." A product exhibits quality so long as it consitently meets the norms, the makers claim for it. This may be described as "Quality in fact." It is the basis of the quality assurance system associated with ISO 9000 and other quality standards.

The proceedural concept lays emphasis on working to defined systems and procedures most likely to produce a standard quality item. Quality can be achieved by putting systems and procedures into operations and ensuring that these systems and proceedures are operated effectively and efficiently. This is in a way PROVING that predetermined norms/specifications are being achieved by following appropriate systems and procedures. It ensures confomance to requirements. For example, in the educational field, examination results are taken as performance indicators.

The second concept, which Edward Sallis prefers to call "The transformational" concept of quality, is less concerned with systems and proceedures and more with organisational transformation. It is based on the need for the organisation to be "customer focussed" rather than the "product focussed" The transformational concept views quality as a complex process which while it can embrace the narrower instrumental definition of quality, has a wider canvas. In addition to embracing the measurable aspects of quality (i.e. conforming to specifications etc.) it also seeks to integrate softer and more intangible aspects of quality. These may include care for customers, customer service and social responsibility. These go to the heart of the difficult and intangible aspects of customer satisfaction. These are the aspects, which bring the customer back, time and agin, and hold their allegiance.

Transformational quality is achieved not through systems and proceedures, but through establishing customer requirements and then building organisational structures which empower employees and workers to meet them. Whereas the proceedural concept is about proving, the transformational approach is

about IMPROVING. It is about "doing things right" not just "doing right things". It is a state of organisational mind that sees continuous improvement as the key to quality process. It is concerned with blending the aspirations of customers with the empowerment of the workers. It concentrates on "excellence" and not just "on fitness of purpose." It puts customers first and then seeks to expand his horizons. In an educational setting, the transformational culture is a function of the staff, motivation and academic leadership in a setting that is student centred. Both the concepts proceedural and transformational of quality, play a key role in understanding quality. The persuit of quality is not merely an exercise in appropriate systems and proceedures but also a customer oriented transformational culture where individuals are given the responsibility for the quality of work in their areas and they contribute fully to its achievements. This aspect assumes great significance in service industry. Here the softer indicators - care and concern - play a predominant role in not merely satisfying the customers but in delighting them.

2.5 Quality Control, Quality Assurance And Total Quality :

These terms are frequently used in connection with quality. Hence, it is very necessary that we understand their meaning and distinction between these.

a) Quality Control :

It involves detection and rejection of final components / products which are found to be sub-standard. It is an event, after the process. This, no doubt, ensures quality of products supplied but involves considerable amount of waste, scrap and re-working. Quality control is usually carried out by Quality Inspectors or Quality Controllers.

b) Quality Assurance :

In this, the aim is to prevent faults. It is a before and during the process. Quality is designed into the processes to ensure that the product produced is according to the required specification. Simply stated, quality assurance is a method for producing defect free/fault free product. In the words of Philips Crosby, the aim is "Zero defect". Quality assurance is about consistently meeting product specification or "getting things right first time, every time". Quality assurance is the responsibility of the workforce. The quality of the product is assured by quality assurance system which lays down exactly how production should take place and to what standards. Fig. 1 shows hierarchy of quality concepts.
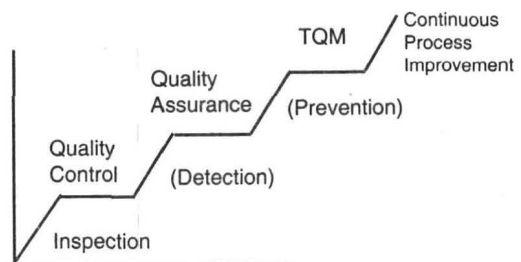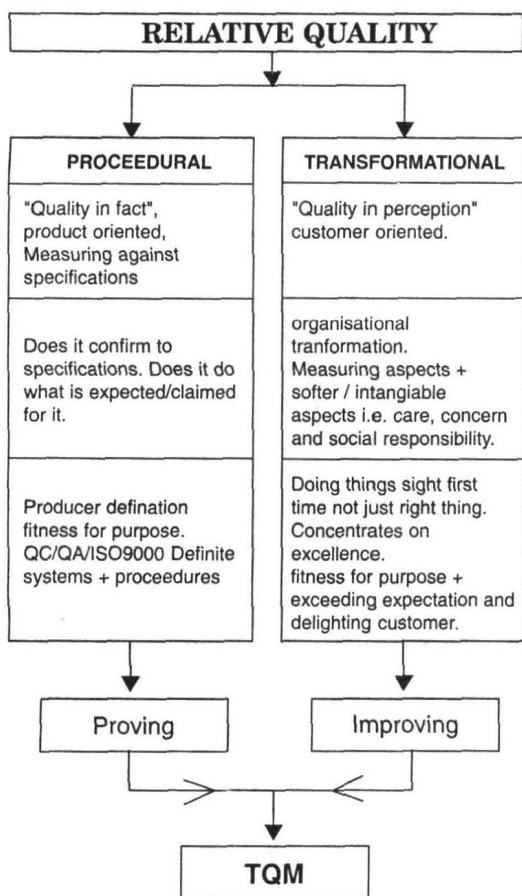
HIERARCHY OF QUALITY CONCEPTS

Fig. 1

c) Total Quality Management :

Total quality management incorporates quality assurance and extends and develops it further. Total quality management is about creating a quality culture where the aim of every member of the organisation is to delight their cusotmers, and where the internal structure of the organisation allows them to do so. It is about providing the customer with what they want, when they want and how they want it. It involves moving with the changing customer

expectation and to design products and services that meet and exceed their expectations. It is only by delighting the customers that they will return to the manufacturer and become almost regular customers. This can be done by continuous improvement. So continuous improvement is a predominant factor associated with total quality management.

Fig 2 : depicts concept of TQM based on two aspects of relative quality.

TQM = Not merely systems and procedures, *but also* Quality Culture where every individual is given the responsibility of quality of work.

TQM = QA + Q Cultural where the aim of everyone is to ***delight*** the customer.

It is providing the customer with
     What they want.
          When they want.
               Where they want.
                    How they want.

3.   EDUCATIONAL PERCEPTION OF QUALITY

3.1 Introduction :

We have noted that the concept of absolute Quality is not relevant to education but can only help us to understand that persuing Quality is persuing to the highest standard. Next, we shall try to understand Educational Quality in terms of relevative notion of quality. For this we shall pose a few questions. Is education a product. Is it a service ? Who are its customers ? and then try to explore the application of Quality , QA and TQM to educational activity.

3.2 Is Education A Product or A Service :

Q, QC, QA are the terms associated with production in industry. Are these relevant and can these be applied to education ?

Is student the product of education ? Terms like "Supply of engineering graduates to Industry", sound like a production line where raw students are the raw material, education is the process which converts the raw students into an engineering graduate as the product/ output. Can a student be treated as an inert material and education as a process, a student has to go through. In industry, the producer specifies and controls the

source of supply. This raw material is subjected to systems and processes so that the output/product meets the predetermined specifications. Such a model does not fit into education. In education, the source of supply i.e. incoming students need to have prescribed qualification i.e. XII standard pass, but amongst them there is great variation. These are to undergo educational process, which has to be controlled in the same way, as is done ina manufacturing process in industry. Can the product of education be of a uniform standard as that of an industry. It is said and rightly so that, "Human beings are notoriously non-standard" and they bring into educational situations, a wide range of experiences, emotions and opinions, which cannot be ignored in the educational processes. The idea of a learner as a product misses the complexities of the teaching-learning process and the uniqueness of each individual learner. Hence, it is difficult to view education as a Manufacturing industry, and hence may be, it can be considered as a "Service" industry. If so, the distinction between a product and service will have to be made, before we consider education as a service rather than a product industry.

3.3 Service Quality Characteristies :

Quality aspects of products can be easily defined by way of specifications, norms and standards. But Quality aspects of service provided are difficult to state, because they are mostly subjective. The causes of poor quality of a product and that of poor quality of service are different. Poor quality of a product may be attributed to faults in raw material and components, faulty design. But quality of service is due to employee behaviour and attitude; lack of care and courtesy; indifference, lack of training or concern. When educational quality is concerned, these aspects will have to be borne in mind. Major differences between delivering service and delivering products are :

i) **Direct contact :** Service involves direct contact between provider and the end user. The service cannot be sepreated from the person who delivers it nor from the person who is being served. Every interaction is different and the quality of interaction is determined by the customer. The consistancy of service can be only within certain limits.

ii) **Time :** Service has to be delivered on time and is consumed by the customer at the moment of delivery; hence the control of quality by inspection is too late. There is ample opportunity in service for feed back and evaluation to make a judgement on the quality of service provided.

iii) Service cannot be mended nor replaced, nor repaired. A poor meal is a poor meal, it cannot be improved. Hence, standard for service should be right first time and every time.

iv) **Services are Offered by Junior Employees :** Senior staff are often remote from the customers. Most customers have often no contact with senior managers. Hence, training of these junior employees and their understanding of the significance of their job is very important, but generally this aspect is not much taken care of.

v) Services are difficult to measure. Services offered are intangiable, cannot be measured. Customer satisfaction in terms of facial expression, verbal expressions are the

only indicators. Hence, self-indicators care, courtesy, concern, friendliness and helpfulness are upper most in the minds of the customer and hence the providers of services should be well aware of these aspects and must be capable of doing the needful.

3.5 Customers of Education :

Students are the direct beneficiaries of education. They undergo the process of education and training and get value added to them in terms of added knowledge, acquired skills, developed attitudes relevant to their occupation/ profession. On account of this, their services are sought after by the employers Govt. Industries and business houses. That is why parents spend for the education of their wards. Thus, if the value added is the product of educational process, the students can be consiered as the primary customers. The parents, who pay for the students and the employers who utilise their services can be considered as secondary customers. The faculty and instructional staff in an Institution can be considered as internal customers.

3.6 Conclusion :

If satisfaction of the needs/wants of an customers is to be the aim of an educational enterprise, it is these customers on whom all their activites should be focussed. Now, having discussed various aspects of quality and their ramificators, it will be worthwhile to think how quality of Education can be explained and if possible defined. Once this is done, we shall be in a position to explore how quality can be built up and improved in educational institutes. We are now in a position to undertake what may be called a Quality Mission under which programms can be drawn up for induction/improvement of Quality in our Educational Institutes. The existing Q.A. agencies like ISO 9000 and accreditation of programs by NBA set up by AICTE along with the new Philosophy TQM or Total Quality Education, will have to be seriously explored. and decide which of these will fit in with the educational ethos and environment.

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