

TOTAL QUALITY MANAGEMENT IN ENGINEERING EDUCATION: AN OPERATIONAL APPROACH

Veeranna.D.K

Associate Professor, Shaikh College of Engineering and Technology, Belgaum-590056

vdkmtech@gmail.com

Dr.Anand.K.Joshi

**Professor, Wellingakar Institute of Management Studies and Research, Bangalore-560100

ABSTRACT

Total Quality Management originally developed for business enterprises needs to be adapted to suit educational institutions. It may however, be concluded that multifaceted “Total Quality Management in education believes in the foundation of an educational institution on a system approach - implying a management system, technical system and social system-all based on principles of quality, to be implemented throughout. It aims at satisfying the needs of the various stakeholders through the design of a system based on certain principles and practices. It includes within its ambit the quality of inputs in the form of students, faculty, support staff and infrastructure, the quality processes in the form of the learning and teaching activity, and the quality of outputs in the form of the enlightened students that move out of the system”.

In this paper an attempt has been made to develop operational frameworks which work for an engineering institution.

Key words: TQM, Quality, Framework, Management, Development

1. INTRODUCTION

The concept of Total Quality Management (TQM) was developed by an American, W. Edwards Deming, after World War II for improving the production quality of goods and services. The concept was not taken seriously by Americans until the Japanese, who adopted it in 1950 to resurrect their postwar business and industry, used it to dominate world markets by 1980. By then most U.S. manufacturers had finally accepted that the nineteenth century assembly line factory model was outdated for the modern global economic markets.

“TOTAL QUALITY MANAGEMENT” in education was adopted in 1980’s to deal with the problems, such as decline in student funding, drop in student performance and graduation, that do not measure up to employers. In the USA, it was the decline of the quality, changing technology, costs that were outstripping inflation, growing mandate for accountability and finally the growing international competition for students, faculty and research, that paved the way for TQM to be adopted in education. So the drivers were the same in both the places. In terms of the growing student population both in number and in diversity inadequate growth of staffing, the demands

to be seen as cost effective, increasing control by funding authorities and staff who are often demoralized, stressed and overworked as they trying to maintain the quality of they do, while the circumstances in which they work change.

The quality of education is becoming important, particularly so in higher education (R. James Marianathan, 2005), where the products/output of the system, can have a direct impact on the quality of their employer organizations. Herein, lays its relevance and need for educational institutions. Quality management originally developed for business enterprises needs to be adapted to suit educational institutions. It may however, be concluded that “Total Quality Management in education is multifaceted believes in the foundation of an educational institution on a system approach, implying a management system, technical system and social system-all based on principles of quality, to be implemented throughout. It aims at satisfying the needs of the various stakeholders through the design of a system based on certain principles and practices. It includes within its ambit the quality of inputs in the form of students, faculty, support staff and infrastructure, the quality processes in the form of the learning and teaching activity, and the quality of outputs in the form of the enlightened students that move out of the system”.

In the future when the question of the recognition of our engineering degrees arises, the degree certificate, even from some of the better institutions, by itself will have only a limited value (M.Anandkrishnan, 2005).The entire process associated with the teaching and learning, inside and outside the formal curriculum will be subjected to scrutiny; in short, educational institutions will have to include approaches to value addition. The approaches in preparing an all-round graduate engineer cannot be prescriptive. These have to evolve as a part of the institutional and teaching culture. The practices followed in some of the better institutions having established a record for producing competent engineers, can be helpful.

Now days, the institutions perform well but they cannot get better results because they do not follow quality strategy, quality of the student is impossible without the quality of the institution process. So they must focus on quality of the process. But excellence in engineering institution is not an easy task. This can be achieved through implementation of TQM concept in educational institution (A. Pal Pandi, 2007) one important aspect of TQM implementation that has been identified is learning and change of attitudes. The learning necessary for a permanent change in the way of working adequately for quality achievements, including both knowledge and ideology, is often referred to as quality learning. The lack of quality learning causes insufficient implementation of quality methods. The implementation of TQM challenges the traditional teaching practices. It involves not only teaching methodology changes but also administrative and cultural changes too; no doubt, we can implement TQM philosophy in engineering education. But before going for TQM, it is mandatory to examine culture, ethics, management style and organization structure of the institution, find out pitfalls of the existing culture and try to remove it. Many institutions are conducting development programme to enhance quality awareness and change the attitudes of their employees. These efforts are towards understanding, adopting and promoting TQM.

2. QUALITY ISSUES

Following are the some issues-

- The way the students learn
- Activities of students beyond the regular time table
- The overall academic climate
- The opportunities and encouragement for innovations and development of research
- The curriculum relevant to the needs of society and industry
- Curriculum monitoring and implementation strategies to develop in students the employable skills
- The reward and recognition system
- The faculty development program
- Innovative teaching -learning practices

The above list is not exhaustive. However, assuming that these imitate the total quality improvement needs of the system, it is necessary to develop methods and strategies to respond to these for Total Quality Management of the system.

3. FLAT FORM FOR TQM IMPLEMENTATION

Implementation of TQM requires paradigm shift in many facets of organization's functioning. The shift has to be bought within system and human component which is shown in Fig.1

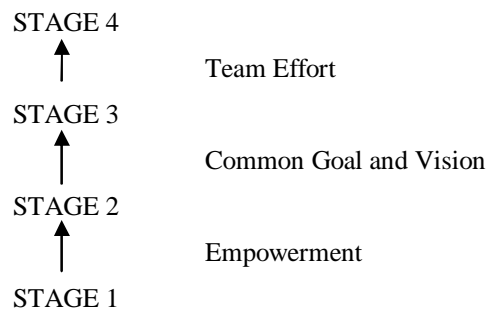


Fig 1: Flat form for TQM implementation

Stage1: In this stage there are few people who work constantantly while others that is more in numbers who relax by doing very minimal work or no work. The promotion from stage 1 to stage 2 will be possible when every individual is motivated to do their best, utilizing all their potentials. Empowerment will be the key factor to achieve this.

Stage 2: In this stage there is no single focus for the organization. Everyone performs but in their own way. It is definitely better than stage 1 but it is very much required that their effort should be directed to single goal to get the synergy effort.

Stage 3: In this stage when the goal/vision is set for the organization then people are motivated to focus on the same vision. Generation of vision statement by democratic means and popularizing the same will motivate people to have common focus and reach stage 3.

Stage 4: In this stage all people are working as a team. When people work as a team, synergic effect as compared to people working as a group. This stage indicates the productivity. In order to reach stage 4 from stage 3, one has to work towards teaming up the people. This is a different job. Unless all the members of organization work as a team, stage 4 cannot be achieved. The implementation of TQM strategies will be effective when the organization is in stage 4.

4. BASIC APPROACH FOR TQM IMPLEMENTATION

Following are the six basic steps for the implementation

Committed and involved management to provide long term top to bottom organization support:

The program cannot start without boss's commitment, conviction and determination. So the top management must be involved in it. The duty of the top management is creating awareness programme about its concepts and individual role in achieving it. The important concepts in the attempt to achieve quality in engineering institution are mission statements, are the guiding principles of the institution, every institution should have very clear mission statement, which has been designed by top management. The objectives stated in the mission statement should be specific, measurable, achievable and realistic and time related.

The top management not only 'talks the talk' but they must 'walk the talk'. They not only talk quality, must also demonstrate it in their management style with following parameters, Leadership for quality; Quality policy; Provision of sufficient resources.

Unwavering focus on the customer / both internal and external:

The customer satisfaction is found to be an important measure of quality. So implementation of TQM requires that great emphasis must be given on customer focus. This requires there should be proper systems to receive and deal with customer's complaint.

- Students: Each institute should have Students Quality Control Circles (SQCC) to shape the attitudes, habits and personalities of the students.

- Faculty both teaching and nonteaching: Sufficient and qualified faculty is must for any technical institution aspiring for quality. Teachers are the facilitators. Teachers may form Teacher-Work-Improvement-Team (TWIT).
- Parents: The parents are indirect customers of an institute, who should also participate in The parents meeting of an institute and give the required inputs to an institute.
- Alumni: The alumni's are the brand ambassadors of an institute. The institute should organize every year one alumni meet at college level to get the required inputs for quality improvement program.
- Employers: Nowadays industries are also interested to open an interaction cell in association with collage for recruitment, training and research and development programmes called as incubation centers.
- Effective involvement and utilization of entire workforce: The duty of management is creating teamwork among employees. The college should form a Quality Council (QC) at college level including the members from different areas. The QC should be proactive in solving problems addressed to it.

Continuous improvement of business and production/service process:

The institution has to adapt proactive approach to continually improve the efficiency of quality management system through the use of quality policy, quality objectives, audit results, analysis of data, corrective actions and preventive actions and management review.

- Culture transformation: It is important factor in implementation of TQM in education. The culture of quality has to be introduced which involves the elements like employee involvement, process management, customer focus, team work etc.
- Delivery of courses: There should be strong emphasis on delivery of course which will have impact upon performance of students.
- System: Effective management should create competitive environment among the small group to make the practice more interesting and enjoyable.
- Training: It is necessary to define the types of training employee's need in order to actively carry out their roles in the quality improvement process.
- Rewards: An appropriate system of recognition and rewards is critical to any educational institution.

Establishing performance measures for the process:

Every engineering college should have an Academic Performance Analysis Cell (APAC) for maintaining excellence in academic performance. The Quality Improvement (QI) team should be made in each department/college level. A QI notice board can be placed at some important location where the details are displaced.

5. SUMMARY

The operational framework presented here is a conceptual one. An attempt is made to develop the detailed formats for assessment of quality and for implementing and evaluating quality. The modus operandi to carry out these activities in a college are also developed and discussed here. It is possible that the formats may vary with the environment of the college, the society. The formats therefore may have to be modified to the particular college while implementing the positive impacts of TQM implementation may be realized only after a year or two, which is a long period for time constrained research projects like this.

REFERENCES

- R.James Marianathan. "Total quality management for higher education", The Indian Journal of Technical Education, Vol.28, No.3, page 53-55, 2005.
- M.Anandkrishnan. "Technical Education in the Era of Global Competition", The Indian Journal of Technical Education, Vol.28, No.1, pp 17-19, 2005.
- A.Pal Pandi and U.Surya Rao. "Implementation of Total Quality Management in Engineering Institution", The Indian Journal of Technical Education, Vol.30, No.2, pp 82-84, 2007.