

# A Study on Adaptability of Total Quality Management in Engineering Education Sector

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## ABSTRACT

*Quality management is an approach to management which requires establishing quality policies, procedures and practices on regular basis. Engineering education is a process of developing techno human resources, which are to be used later as input to industry which in turn produces goods and services for the societal use. Having considered the current situation of the engineering educational system and the quality of all its individual components it can be noticed that the awareness of the importance of education as a foundation for the growth and development of the country, such as India, is not strong enough. Engineering graduates passing out from educational institutions have to fulfill modern and high standard requirements that are needed by industry. Therefore, there is a greater need to instill quality in engineering education to produce technically skilled and creative man-power in India. The continuous assessment of quality is of paramount importance for educational institution. Education efficiency and success does not depend just on quantity but as well on quality. This paper has discussed key points for the improvement in the quality of engineering education with a case study undertaken at various engineering colleges in India. The study was conducted in two phase; first phase is the critical investigation of the literature and the second phase is a study on the quality of engineering education provided by the educational institutions in Visakhapatnam city. A simple random sampling technique was adopted for the study. A research study described in this paper identifies and analyses the quality of engineering education at the educational institutions which adopt the total quality management system to increase the quality and meet the industrial requirements and then suggests some ingredients to improve the quality.*

**Keywords:** Adoption, Engineering Education, Experts, Industry, Institution, Quality, Students, Total Quality Management (TQM)

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## INTRODUCTION

Total Quality Management is a management approach that originated in the 1950's and has steadily become more popular since the early 1980's. The concept of total quality was

introduced by Professor W. Edwards Deming in the 1950s which can be applied to almost every organization up to a certain level (Vlasic et al., 2009). TQM approach in education involves not only achieving high quality but also influencing all segments of the educational

DOI: 10.4018/ijqaete.2012100103

process: organization, management, interpersonal relations, faculty, students, etc. For an educational institution, TQM can be defined as the process the educational institution undergoes to disseminate knowledge and develop skills to the students that are needed to be productive or gainfully employed in the discipline one is trained for. The end result should be the total customer satisfaction. Education quality is a key factor for improving the business quality, and therefore strengthening competitive advantage. Lack of education is a basic cause of poverty.

The introduction of Total Quality Management requires a number of changes in educational institutions. The first change have to occur in the attitudes and activities of the management, in the organization and monitoring of the educational process, in the evaluation of its results, in the culture of communication, in the college atmosphere, and especially in the area of interpersonal relations. Global competitiveness, technological progress and improvement in quality of living in India depend to a great extent on the engineers. They can apply their knowledge creatively and innovatively to solve real life problems. It is therefore necessary for the institutions to imbibe the principles of Total Quality Management (TQM) for producing engineering graduates to fulfill modern and high standard requirements needed by industry, government and other sectors from society. Quality in education can be primarily achieved by developing creativity, civic and democratic values, as well as by knowledge, abilities and skills needed for everyday and professional life.

Total Quality Management (TQM) has been recognized and used during the last decades by many organizations to develop a quality focus and improve the organizational performance. Efficient Total Quality Management system in the organization can facilitate quickly, challenges in world market. The areas of quality improvement are scientific and technological development, social changes and organizational changes. The TQM framework should be built upon a set of core values and concepts. These values and concepts provide foundation for integrating the key performance requirements

within the quality framework. The success of Total Quality Management depends on its eight components: ethics, integrity, trust, education, teamwork, leadership, recognizability and communication. Total Quality Management realizes the target and mission in education of young generation. Quality engineering education is the development of intellectual skills and knowledge that will equip graduates to contribute to society through productive and satisfying engineering careers as innovators, decision makers and leaders in the global economy of the 21<sup>st</sup> century (Natarajan, 2002).

## REVIEW OF LITERATURE

TQM is a general philosophy of management that attempts to maximize the competitiveness of an organization through the continual improvement of the quality of its products, services, people, processes and environments. There are many definitions of TQM; interestingly, no single definition can express the whole picture (Eriksson & Hansson, 2003). However, no TQM discussion is complete without acknowledging the work of the five best known TQM experts, or 'quality gurus': W. Edwards Deming, Joseph Juran, Philip B Crosby, Tom Peters and Kaoru Ishikawa have had an enormous influence on the development of TQM and pointed out the shared similarities on TQM elements (Hoang, Igel & Laosirihongthong, 2010). They all concentrated on quality issues in industrial settings; although all claim that their ideas are equally applicable to service industries. None of them, except Peters, has given much consideration to quality issues in education.

This review revealed that they all agreed on the importance of the following six key elements: customer satisfaction, cost reduction, leadership and top management commitment, training and education, teamwork and organizational culture. Juran was the first management guru to deal with the broader management issues of quality (Sallis, 2002). He believed, like Deming, that most quality problems are traceable back to management decisions. He

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