A Study on Total Quality Management Implementation in Higher Education in India

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I. INTRODUCTION

The importance of education in the development of a nation cannot be underestimated. It is education that develops expertise, excellence and knowledge that lead to the overall development of any economy. This has created a necessity to develop the strategies for the development of Higher Education (HE) in almost all the countries of the world (Ali *et al.*, 2010). Thus the success of higher education institutions (HEIs) depends on how the educational leaders work to implement the strategies. HE, on one hand, can effectively provide the qualified human resource in the form of committed professionals to develop the economy of a country and on the other hand good citizens with great values to balance the economic and cultural development of the nation. However, the quality measures play a vital role in the education provided by the higher education institutes (HEIs). Therefore it becomes important to assure quality with sustainable improvement in HE.

The theory of 'Total Quality Management' (TQM) is well adopted by educational leaders in HE sector to achieve the aim of quality education. Universities and HEIs in India are also adopting quality measures to improve the quality of education. India has the third largest HE sector in the world. However, only few HEIs like Indian Institutes of Technology (IITs) and Indian Institutes of Management (IIMs) are providing world class education (Dukkipati, 2010).

This assignment discusses the importance of quality in HE and the reasons why TQM as a theory of quality management by leadership efforts should be used in HEIs for a sustainable improvement. It also discusses how the leadership quality of management or the head of HEIs facilitate the implementation of TQM as a tool for holistic development of HEIs.

In the **first section** this assignment throws light on the use of TQM in HE in developed countries and highlights the Indian context. It also highlights how TQM might be useful in the improvement of HE and how can the improvement be sustained.

In the **second section** the theory of TQM has been discussed and is critically analysed to explore whether this is a right tool to be used in education sector as it originated from corporate sector.

In the **third section** literature is reviewed to explore how the application of TQM is made in HEIs in India and what are the provisions made by the government for its implementation.

In the **fourth section** the empirical evidence for TQM being used in different contexts in HE are exemplified. It shares the experiences of using TQM for sustainable quality improvement in different universities in different parts of the world including India.

This assignment specifically seeks to find out what is understood by TQM, to what extent TQM is practiced in Indian HEIs and what are its effects? These two objectives are explored in the following three questions.

1. What is Total Quality Management and why should it be implemented in HE?

2. What are the implications for TQM in HE in India in relation to providing high quality educational provision?

3. What is the empirical evidence of TQM being used in different context and how effective they are?

In the last section the findings of the study is analysed to draw the key features of the theory and its application in Indian context.

CONTEXT

'Total Quality Management' (TQM) in HEIs has been an important agenda in many countries for the last several years. Quality management is a necessary strategy for the development of the HEIs because higher education develops the human resources and professionals for future. According to Ali *et al.,* (2010), World Bank recently revealed, after a study in 190 countries, that it is HE that produces quality professionals. Therefore HE is an investment to improve the quality of life. There is a clear link between the education and economy.

Developed countries like USA, UK and Japan have already recognised the importance of TQM in HE and adopted it successfully in their HE system (Pandi *et al.,* 2009). However, the management in HEIs in developing countries like India have not demonstrated the leadership potential which is required to manage total quality in HEIs. Only some well recognised HEIs like IITs and other leading technical institution are practicing TQM philosophy in the proper way (ibid).

India is the third largest HE sector in the world in terms of enrolment after USA and China (Agarwal, No date; Dukkipati, 2010). However, to bring equality and quality in the HE, all across the country is the major challenge before the Indian HE system. Therefore quality must be one of the guiding principles while planning for the higher education development in India in 21st century (UGC, 2003a). As India has one of the largest HE system in the world it is worth knowing that what quality of education is being provided in HEIs in India and how can educational leaders improve it by using TQM as a theory for educational development.

Many authors advocate the use of TQM in HE to improve and sustain the quality of educational provisions provided in HEIs. Tulsi (2001) quoted by Kumar (No date) claims that the meaning of TQM in HE is improvement in the quality of courses, input instructional process and the process of resource management. It also improves the output of student support services as well as the relation with practical world and organisations.

As HE has a variety of stakeholders like students, teaching and non-teaching staffs, employers, government and its funding agencies, accreditors and auditors (Harvey and Burrows, 1992) the concept of quality becomes very complex. Every stakeholder defines the term quality according to his or her own interest. For example, to a student, quality in HE means its ability to provide him with proper facilities to continue the process of advancement of knowledge. For government, it is the production of engineers, doctors, architects and trained scientists (Singh, 2008). Similarly for an industrialist quality in HE means turning out graduates with flexible mind ready to acquire skills and adapt to new methods (Reynolds 1990 quoted by Singh 2008). Therefore it becomes important to understand what do the intellectuals understand by TQM and how do they define it. This will help to understand the implementation of TQM in HE at government agencies level as well as universities or HEIs level. Understanding of TQM also reveals the role of educational leaders in its implementation and opens the way for its successful implementation.

RESEARCH OBJECTIVE

*   The main objective of the study is to understand the implication of TQM

*   To understand the relation of TQM in Higher Education

*   To gather sufficient knowledge from the project for future implementation

RESEARCH METHODOLOGY

The project will be based on both primary data as well as secondary data. Appropriate statistical method will be used if required for the purpose of analysis.

- **Nature Of Research:** Descriptive.

- **Secondary Data Collection :**

    i.   Secondary data will be collect from record books of Vedant Solutions and electronic media like Internet, web-site etc.

LIMITATION

- Duration of the project is too short.

- Respondent in some department gave biased respondent.

II. REVIEW OF LITERATURE

WHAT IS 'TOTAL QUALITY MANAGEMENT?

The concept of quality management first appeared in 1951 (Zink and Vob, 2000). Generally the term 'Quality' is associated with consumer satisfaction. Customers want the best return for the money they pay to buy something. According to Sims and Sims (1995), "Customers would examine products to see if they met their standards prior to purchasing them". Therefore industries and organisations try to ensure that the products launched or marketed by them should be well prepared to satisfy the consumers' need. TQM aims to manage the quality of product and services provided by the organisations to make customers satisfied. Sims and Sims (1995, p 1), define TQM as-

"TQM is the process of continuous improvement using selected tools, techniques, and training to guide decision making and to plan actions. The results are quality processes, products, and services, and thus high level of customer satisfaction."

"According to United Department of Defense:- The Quality Management (TQM) in the department of defense is a strategy for continuously improving performance at every level, and in all areas of responsibility. It combines fundamental management techniques, existing improvement efforts, and specialized technical tools under a disciplined structure focused on continuously improving all processes. Improved performance is directed at satisfying such board goals as cost, quality, schedule, and mission need and suitability. Increasing user satisfaction is the overriding objective. The TQM effort builds on the pioneering work of Dr. W.E. Deming, Dr. J. H. Juran, and others, and benefits from both private and public sector experience with continuous process improvement."

"According to British Standard Institute:- A management philosophy and company practices that aim company practices that aim to harness the human and material resources of an organization in the most effective way to achieve the objective of the organization "

" According to International Organization for standardization:- A management approach of an organization centred on quality, based on the participation of all its members and aiming at long term success through customer satisfaction and benefits to all members of the organization society "

Thus, TQM is a holistic approach that furnishes cognisance of the relationship between customer and supplier by the continuous efforts of improvement in all the departments and functions of an organisation (Smith *et al.,* 1999, p.55).

TQM is not just confined to production or services. It also influences the other components like work culture, employees, employees' attitude and other departments of an organisation. Voehl (1994, p. 28), claims that total quality covers three senses, first 'every process' second 'every job' and third 'every person'. It points out that to ensure total quality each and every

department of an organisation must be responsible for the quality of their work. Similarly Oakland (2003, p. 15) argues that each of the components of an organisation must work properly in order to maintain quality as each part, each activity, each person related to organisation affects others and get affected by them.

To illustrate the contents of TQM, Voehl (1994, p.7) provide a diagram of 'House of Quality' as shown in the figure below. He describes 'The House of Quality' as a well-built house which might collapse if any of its components is weak.
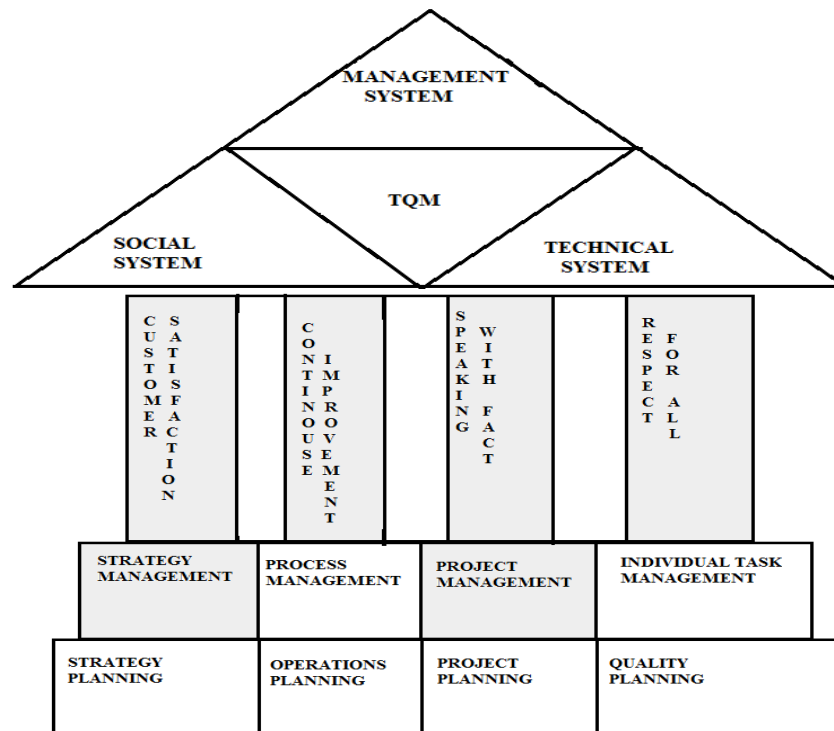

Figure 1: House of Quality. Source: Voehl (1994, p. 7)

The first row (triangular in shape) is the roof of the structure that entails three subsystems: the management system, social system and technical system of the organisation, within which any organisation does its actual work. The roof is supported by four pillars (second row of the diagram) of quality identifying four theories that an organisation must follow to ensure quality of its products or services. For example customer satisfaction is one of the most important strategies for any organisation to retain its business. Continuous improvement adds to the market value of an organisation and speaking with fact increases customer's trust on the organisation. Further, respect for people works within as well as out of the organisation. Respecting the employees increase the productivity of employees of the organisation as well as attract the customers for the organisation.

The third row states the foundation of four managerial levels for better implication of planning made at the top management or leadership level demonstrated in the last row of the diagram.   The connectivity of the planning levels to the implementation levels through managerial process demonstrates the holistic approach to TQM.   Take for example the aim of customer satisfaction. The strategies made at strategic level will be implemented by strategic management level and result into customer satisfaction.   Similarly operations planning, project planning, and quality planning deal with their respective areas and management cells. Thus TQM aims to improve the quality of product and service of an organisation by improving the quality at every level like system, management, planning and leadership. It will be interesting to visualise how TQM with its theory of holistic approach to continuous improvement supports in managing total quality in HE sector.

III. TOTAL QUALITY MANAGEMENT IN HIGHER EDUCATION

"TQM was initially used for the measurement of quality in the HE sector in 1993" (Clayton, 1993). Infect the concept of TQM has come to HE from the business communities. Ideally education should not be related to business as it is to develop values and the personality of a student. HE too is to make students a learned person and a qualified professional and eventually a good citizen. But there is a clear component of business as HEIs charge fees from the students and hence students become

selective in choosing the universities and the course they want to study. Keeping these points in mind the significance of TQM in HE can be discussed in two sub-headings (1) HE as a business and (2) HE as service for human development.

1. HE as a business

Some authors believe that universities should be considered as a business because they have to compete with other universities and their funding resources are limited hence they need to generate money. Arjomandi (2009) claims that in twenty first century universities have to adopt business-like strategies to cope with the increasing market competition and limited funding opportunities. That is why implementation of quality management has become important in HE. Moreover, HEIs are like enterprises as they collect the fees [money] in cash which is the life blood of any enterprise (Warner and Palfreyman, 2000). Tuition fees for overseas students give them a chance to do business as it is a matter of individual institution. Generally the fees of overseas students are higher than those of the natives.

The universities, therefore, need to maintain quality as they have to attract students to fulfil their funding needs. As the students pay fees they examine not only the quality of education provided by a university but also other services like student support services, student leaning resources, student communication and representation and student assessment. In fact they act as consumers. So it becomes important for the universities to assure quality by accreditation and outcome assessment. TQM might support better inputs by focusing on students' achievement, good faculty members and other facilities like library and laboratory to get better output as high quality outputs results if high quality inputs exist (Voehl, 1994, pp. 10-11).

2. HE as a service for human development

HE, in general, is considered to encourage personal growth and social responsibilities in an individual, in addition to his professional training and academic development. It also educates students to become civic responsible and a citizen of global society (CEPES, 2009). HE must lead to ethical development of students while its process of imparting education. The standard of education has its direct impact on the development of the students' understandings.

Gupta (1993) recognises 'teaching' [transfer of knowledge] as one of the most important activities which take place in any educational institute. According to him improvement in the quality of teaching is one of the most important aims of any professor in HEIs. As teaching is a process of transforming knowledge it must have quality in it because without quality the process of teaching could not achieve the desired level of education. Though TQM is accepted as a concept in business organisations still it could be used as a tool to achieve the goal of improving quality in teaching. Voehl's theory (1994, pp. 10-11) of high quality input for high quality output is significant in this case too. If teachers are committed to develop values in students along with their professional training TQM might support to hire teacher with dedication to develop their students as good citizens.

In addition to teaching HE is also considered to be the training for the research works. Barnett (1992), states that the members of academic community believes that to assure quality in education the research profiles of the staff is more important to the achievement of the students as students achieve success if they are in a small group, in the company of recognised researchers. A small group of students discourage business but encourage teaching and learning process.

The above discussion reveals that the quality management in HE is important in either case. HEIs need quality management to enhance the quality of education for better service to mankind as well as to fulfil the expectations of its students in order to keep their position secure. The Twofold Continuous Quality Improvement (CQI) model by Sims and Sims, (1995, p. 141) validates the role of TQM in HE by explaining the approach to TQM.
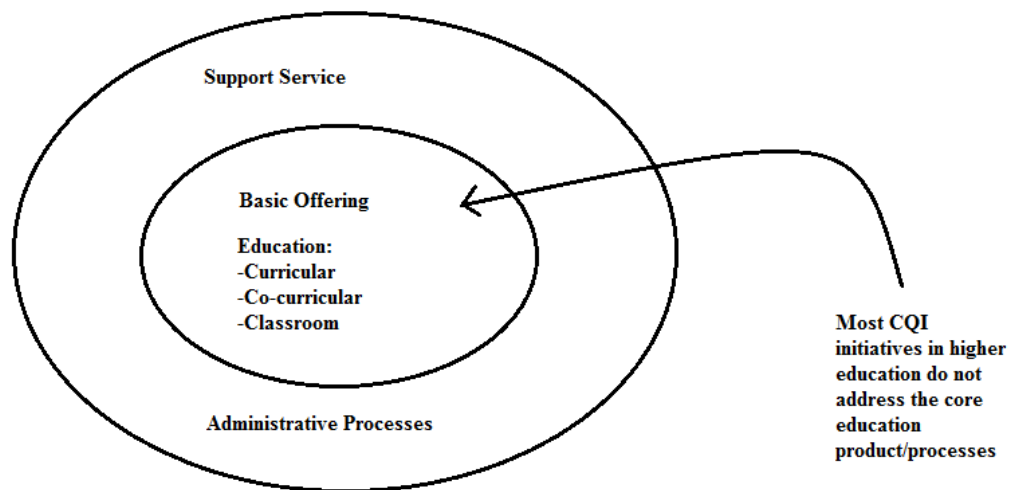
Figure 2: Source: Sims and Sims (1995, p. 142)

The figure above describes the structure of twofold CQI that can help to achieve TQM in HE. Twofold TQM focus addresses administrative processes as well as other basic offerings such as curricular, co-curricular and classroom aspects. CQI in many universities addresses only the administrative processes and support services, however to assure total quality it is crucial that curricular, co-curricular and classroom aspects must be given the proper attention (Sims and Sims, 1995, p. 142).

Thus the theories of Sims and Sims (1995, p. 142) for the acceptance of TQM in HE agree with the theory of three senses given by Voehl (1994). The three senses: 'every process' for example curriculum development, teaching and assessment, 'every job' like role of tutor and student service centre and 'every person' must be covered for a sustainable TQM in HE. Every person must be responsible for his or her own work and should have passion, dedication, vision and eagerness to learn. It also reflects the theory of 'holistic approach for TQM in HE as defined by Smith *et al.,* (1999, p.55) and Oakland (2003, p.15).

IV. IMPLEMENTATION OF TQM IN HE IN INDIA

Application of quality management in HE is not a new phenomenon in India. However like other developing countries it is a primary concern in India also to how to provide quality education to the large number of students at affordable costs (Prasad, 2005). Indian HE will have to maintain quality measures if it wants to become world class. Nike (2001) quoted by Pandi *et al.,* (2009) strongly suggests the application of TQM to bring quality movement in HE in India to be recognised globally.

Though Indian HEIs are trying to ensure quality in education but it seems that they do not have emphasises on the core philosophy of TQM. Different bodies seem to adopt different theory of quality management. For example, certain technical HEIs institutions have adopted ISO 9000, TQM, Six Sigma, Kaizen, 5S and others strategies for quality improvement (Pandi and Rao, 2006).

University Grant Commission (UGC) a statutory body, established in 1956, is the body responsible for the growth of HE in India (Short, 2008). UGC established National Assessment and Accreditation Council (NAAC), a sub-agency, in 1994 to ensure quality in HE by the means of internal and external quality assessment and accreditation (ibid). Apart from UGC and NAAC the All India Council for Technical Education (AICTE), Medical Council of India (MCI), National Council for Teacher Education (NCTE) and Distance Education Council (DEC) are the other bodies working to assure quality and norms and standards in HE in India (AICTE 2009; NCTE 2011; MCI 2010; India Education, No date). As these bodies have their own they use their own pattern to assure quality (ibid).
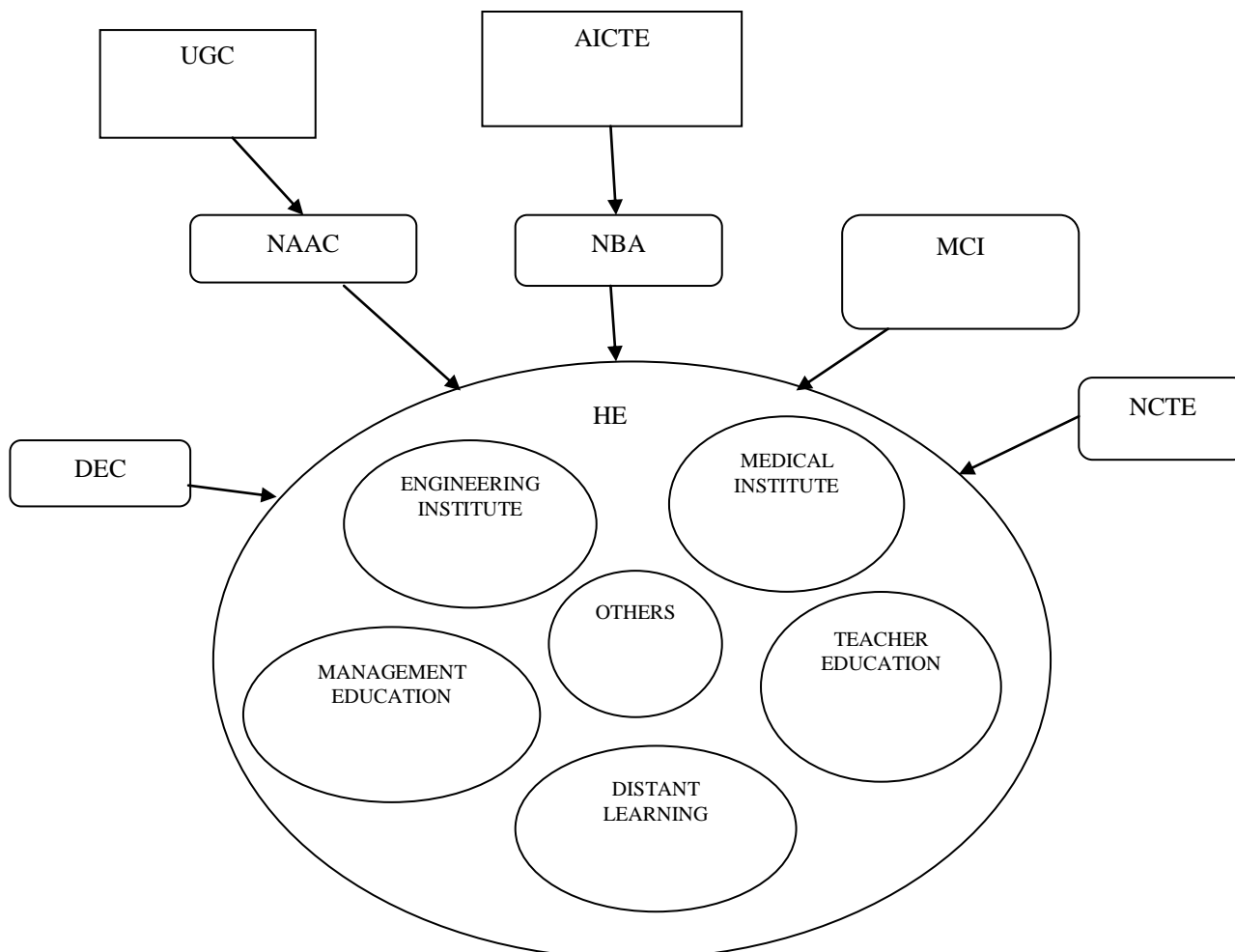
Figure 3. Different bodies to ensure quality and standards in HE in India.

NAAC, for example, is advocating the best practice benchmarking approach for the development of TQM in HE however, it seems that this approach not fully used in Indian HEIs. Prasad (2005) claims that, "Many higher education institutes do not attempt certain practices due to lack of information about the feasibility and adaptability of the best practice". Failure of institutions to attempt practices of tools for quality management, like benchmarking, push them back and they fail to maintain standards and quality. Two third of India's college and universities are below standard and even the top rated Indian institutions have severe limited capacity (Dukkipati, 2010).

Apart from benchmarking practice many Indian educational institutes are adopting ISO 9000 standards in order to improve the quality of educational provisions for last several years (Pandi and Rao, 2006). ISO 9000 is a framework of a quality management system which seeks the improvement of the quality of organisations like universities by systematic methods, defined responsibilities and documented processes. It refers to an institution's overall working which is effectively TQM, as defined by me with the help of Voelh's 'House of Quality'. Considering the link between TQM and other quality management systems Pandi and Rao (2006) propose a model of Integrated Total Quality Management (ITQM) which uses the theory of different quality management systems with a common aim of sustainable TQM in HE system

UGC has made many measures to ensure the quality of HE in India. However, there is much focus on the quality of education in technical educational institutes as it is believed that engineers and managers play a vital role in making a nation competitive to other counteries. Pandi *et al.,* (2009) claim that engineers play a major role in increasing nation's wealth and power by generating employment opportunities. That is why technical educational institutes focus more on quality management.

AICTE, an apex body, set up in 1945 constituted National Board of Accreditation (NBA) in 1987 to periodically evaluate technical institutes on the basic of norms and standards and make recommendations to AICTE (NBA, 2009). For Engineering Institutes, for example, it has set norms for the building area, administrative area, instructional area, tutorial area, laboratories, workshops, computer centres, and library and seminar hall. It has also set the students teacher ratio and the essential qualification for the teachers for the HEIs. However, simply setting the framework does not assure the practice of quality management in any institute. Sengupta (2010) claims that different Institutes in India could not manage to abolish the difference in quality of education due to different reasons like lack of leadership quality, lack of infrastructure, lack of computer skills and lack of faculty. Technical colleges like software engineering colleges are struggling to employ qualified faculty which leads to the poor quality of teaching and hampers the total quality of the institution (Solanki *et al.,* 2009). Moreover if they get the highly qualified teachers even then they fail to manage the quality of teaching as teachers teach the selected topics of their own interest. According to Beeckmanas (quoted by Solanki, 2009). Engineering teachers in general [barring, of course, some notable, exception] prefer to teach what they know and what interests them rather than what is more appropriate for their students' future careers.

Such attitude of teachers reflects the lack of leadership quality in them. It is harmful not only for the future of the students but also for the success of TQM in a HEI. Pandi and Rao (2006), argues that TQM is never happened by accident. It is a process which needs a serious planning. It involves efforts by the involvement of system, people and supporting tools. Thus the problem of qualified faculty recognised by Solanki *et al.,* (2009) and the attitude of teachers in HE recognised by Beeckmanas (quoted by Solanki, 2009) hampers the application of TQM in Indian HE.

V. EMPIRICAL EVIDENCE OF TQM BEING USED IN DIFFERENT CONTEXT AND ITS EFFECT

TQM is being practiced in HE all around the world. Indian HE also has a well-defined system for quality management. There are several evidences of TQM being practiced in HEIs in India. However the majority of them are in technical institutes such as engineering and management colleges.

Koch (2003) quoted by Ali and Shastri (2009) claim that TQM has less impact on HE due to force of organisational inactiveness to change, ignorance to important questions and centripetal nature of academic culture to TQM. However, Mathur (No date) found the implication of TQM to be effective in universities in different parts of the world. He found positive results while he studied the effects of implementation of TQM in Graduate School of Business, University of Chicago, Kellogg School at Northwestern University, Royal Melbourne Institute of Technology (RMIT), Melbourne, University of La Verna, California and The Teaching Laboratory at the Chicago Business School.

Graduate School of Business, University of Chicago is practising TQM since the late 1980's. It uses questionnaires to evaluate student course, with systematic reporting of results by school, publically. They believe that this system have facilitated the quality improvement in their school as course evaluations put up the best information they have about teaching effectiveness. Course evaluation makes all the professors competitive not only in teaching and research but also in number of published course evaluation. This, in turn improves the quality of education in the school.

RMIT, Melbourne has adopted ISO 9001 standards to improve the quality of educational provisions. The practices of strategies of ISO 9001 were welcomed by the professors as they were helpful in locating information related to teaching and learning. Though the electronic system increased the difficulties of management as they used a paper based system yet they claimed of having clear evidences of improvement due to the transparency of the system. The experience at RMIT has attested that ISO standards can be achieved throughout the university and assist in assuring TQM in a university. However, its sustainability is a matter of continuous practice of the strategies (ibid) which depends on the leadership potential of the management of the Institute.

Similarly Kellogg School at Northwestern University, University of La Verna, California and the Teaching Laboratory at the Chicago Business School also demonstrated that the TQM tools are useful for the maintenance of TQM in a HEI.

In the light of the above discussion Mathur (No date) concludes that achievement of TQM in HEIs is possible and it leads to the quick improvement of the things if implemented in a proper way. It is just the leadership quality of the management and staff members which make it effective or ineffective in an institution. Ali and Zairi, (2005) rightly claim that, "The leadership role in HE is not only the quality vision and mission to satisfy customers, but also to motivate institutional staff for continuous improvement and knowledge advancement".

My next point concerns about the empirical evidences of TQM being practiced in HE in India. Take for example the survey conducted by Solanki *et al.,* (2009) in the area of Software Engineering (SE) Education and Research in India. He found that India has some of the best technical institutes in the world such as IITs. However, AICTE is struggling to maintain the standards and quality of education in the average and new engineering colleges. He presents a bar graph to demonstrate the survey result for the factor affecting the quality of SE education in India that demonstrate the poor condition of quality management in HE in India.
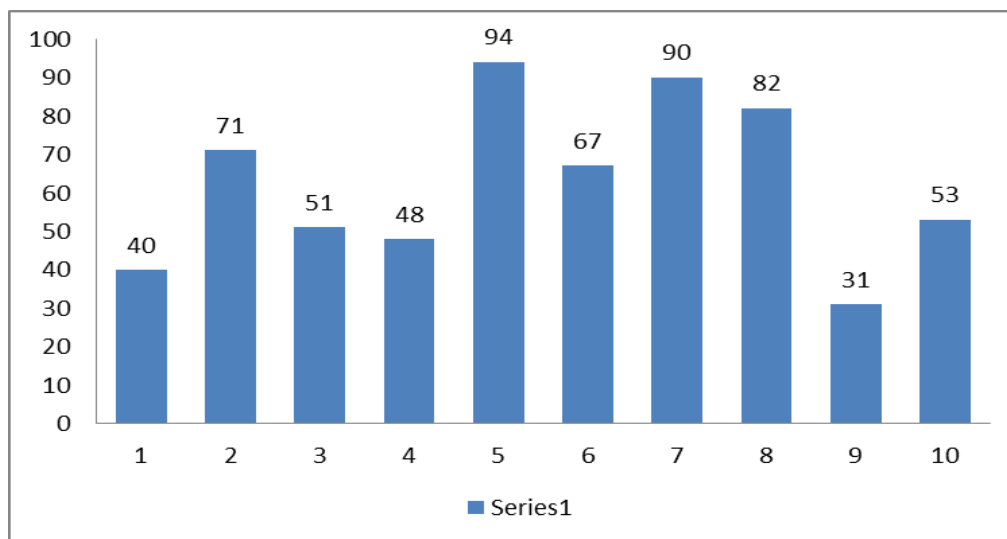

Figure 4: (Survey result for "Factor affecting the Quality of SE Education in India") Source: Solanki *et al.,* (2009)

Series 1 in the above figure is the following 10 characteristics of SE educational institutes in India.

- Poor admission policy

- Unqualified, Inexperience faculty members

- Poor institutional infrastructure

- Improper teaching methodology

- Less emphasis on laboratory work

- Poorly designed and irrelevant SE curriculum

- Lack of interaction and collaboration with industry

- Poor examination system and student evaluation

- Lack of technical teachers training institutes

- Time constrain due to semester system

Sareen and Singh (2006) conducted a survey to know the effectiveness of ISO 9000 standards in educational institutes in India. They found that it has both, positive and negative results when implemented in educational institutes. Though ISO 9000 standards are successful in manufacturing and service industries yet it is a new phenomenon in education sector. ISO 9000 has benefited the system, the students and the faculty members after its implementation in many cases, however its implementation faces the problems like resistance from employees, lack of funds, load of obligations and scarcity of time and commitment as shown in the figure below.
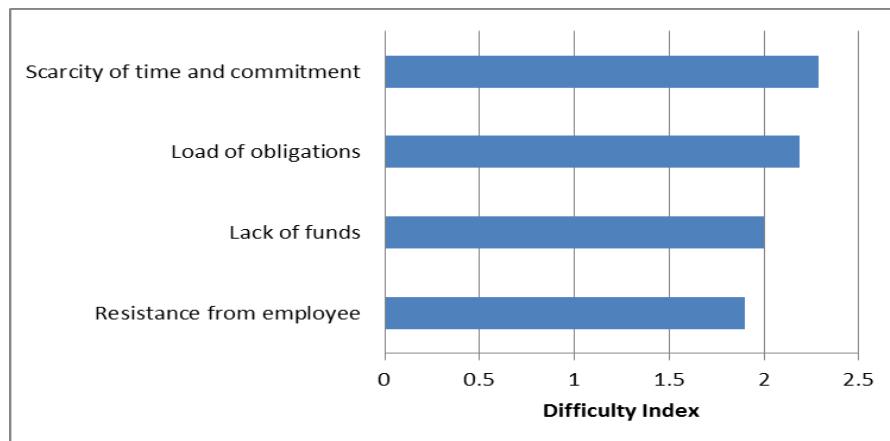

Figure 5: Problem faced in India during ISO 9000 certification Source: Sareen and Singh (2006)

Apart from government funded universities and HEIs, UGC has made strict rules for the establishment and recognition of Private Universities (PU) under separate State Act. It must be according to the provisions made by UGC Act, 1956 and as amended time to time (UGC, 2003b). These rules are made to assure total quality in every department of PU. For example a PU has to fulfil the minimum criteria related to programme, faculty, financial viability and infrastructure facilities as directed by UGC and other responsible bodies like AICTE, the Bar Council of India (BCI), NCTE, DEC, MCI, the Pharmacy council of India, the Dental Council of India (DCI) etc. (UGC, 2003b)

In this connection all the PU and educational institutes running AICTE approved Engineering, Technology and Pharmacy programmes have to provide with the mandatory disclosure about the details of their organisation. These have to be including in their information brochure, displayed on their website and submitted to AICTE along with its URL latest by 30th April of every year. These disclosure includes the name and location of institution, profile of Director, faculty, programmes, infrastructure of the institution, quality management system, name of affiliating university (in case of affiliated college) and other necessary information. A part of this disclosure is given in appendix- 3.

VI. IMPLICATION

Padhi (2005) claims that implementation of TQM in HE has shown quite an encouraging results in India. She argues that the role of top management as leaders is essential for the successful implementation of TQM as a tool for organisational improvement.

However, regulatory bodies like UGC and AICTE and bodies for accreditation like NAAC responsible for educational quality improvement in India does not seems to be very successful in their aims. Only 14000 out of 18064 colleges, at present in India, come under purview of UGC (Planning Commission, 2008) and NAAC has completed accreditation of only 140 out of 378 universities by the end of tenth five year plan (which ran during the period of 2002-2007) (ibid) which is not a good indication for the assurance of quality in Indian HE.

It seems that the regulatory bodies shown in figure 3 are bureaucratic in structure and do not give more chance to the educational leaders to maintain TQM at the university or HEIs level. The rules are made by the bureaucrats and some time they

might ignore the problems at the grassroots level. Moreover, assessment and accreditation by different bodies may result in the formation different norms and standards that might result into differences in the quality of HE in different streams of education.

On the basis of the above discussion it is strongly recommended that universities should be empowered to make them self-governing as in UK (QAA, No date). Only one assessment and accreditation body like NAAC, for example, should check them, identify good practices or the practices which need improvement and give recommendations. The proposed structure of HE system is as under-
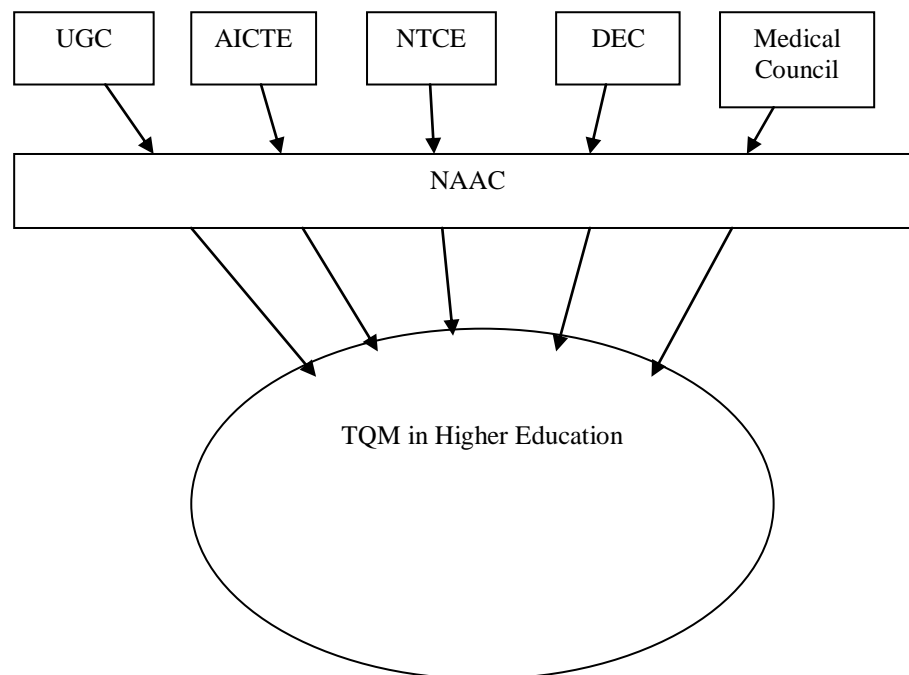

Figure 6:   Different Regulatory Bodies should control quality in HE through one assessment and accreditation Council (i.e. NAAC)

The above structure of HE will give uniformity to the quality enchantment process in HEIs in India. Moreover, if the universities and HEIs are made self-governing in the area of quality management the educational leaders at university level will get more chance to implement TQM tools to improve the quality of education along with other activities in universities and other HEIs.

To move from regulatory bodies to HEIs level, the problems recognized by Solanki *et al.,* (2009) demonstrated in figure 4 can be taken as examples. These problems might occur in any of the institutes, however, they can be sort out if the management of the institute has a good leadership potential and is determined for TQM. Voehl's (1994) house of quality given in figure 1 might be helpful in recognizing the category of the problems and sorting them out.

The problems of poor admission policy and lack of technical teachers' training institute (problems recognized by Solanki *et al.,* 2009) are related to strategy planning as strategies decide policies and establishment of teachers' training institutes. Strategy planning lies in the last row of the first pillar in the house of quality. These problems need attention of both the government and the HEIs. The HEIs should plan their admission policy to ensure that only eligible students should be admitted in the course like SE. Government should make strategy with the help of NCTE to provide appropriate numbers of technical teachers' training institute.

The problem of improper teaching methodology and lack of interaction and collaboration with industry are processes as they are developed in due course of time. They can be improved by process management that lays in the second last row of second pillar in house of quality. Proper teaching methodology can also be implemented by individuals like the teacher of the subject and that is why it also relates to individual task management. However, if the methodology is decided by the top

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management it falls under process management. To manage the process tools of total quality improvement like brain-storming, flowcharting, multi-voting, Pareto chart, graphs and casual diagrams can be used in the direction of capable leader (Voehl, 1994, p.157). These result in a common decision for TQM and give both initial as well as long term benefits as waste, bottlenecks and rework are removed (ibid).

Similarly the house of quality provides the solutions to other education management and planning related problems also by effective leadership. It is found that top management and educational leaders play a major role in achieving TQM in an educational institute. Sims and Sims (1995, p. 13) claim that HEIs which implemented TQM were only successful when their top management was committed and actively involved. The results driven by Mathur (No date) by his studies in Graduate School of Business, University of Chicago, Kellogg School at Northwestern University, RMIT, University of La Verna, California and the Teaching Laboratory at the Chicago Business School can be taken as inspiration by the Indian HE. These institutes have managed to achieve TQM.

VII. CONCLUSION

TQM is a holistic approach towards the overall improvement of an organisation. The theory of TQM has tended to be successful in HE provided that the management or the head of the HEI have enough potential to implement it. TQM looks to improve every department of HEIs or universities. As mentioned earlier it improves every process, every job and every person within the organisation. Its application is important in HE in order to get maximum benefit out of HE provided in HEIs or universities. Though TQM was originated in corporate sector yet it has its significance in HE sector also.

Universities have to maintain quality of educational provisions to secure their position in the market as they are the organisation that are providing services. As students and parents are their stakeholder universities or HEIs are accountable to them. On one hand TQM facilitates universities to attract student and secure its funding opportunities for sustainability while on the other hand it helps universities to develop qualified professionals and good citizens with great values by making the provision of quality education. Thus the answer to the question whether TQM should be practiced in HE is yes.

As far as India is concerned, TQM is being practiced in Indian HE sector. Different institutes including PU are practicing different theories of quality management like ISO 9000, TQM and Best Practice Benchmarking. However, they all aim at improving the quality in all aspects in HE. Though the best practices of TQM is limited to some top class institutions particularly to engineering, management and other technical college yet the importance of quality management is realised by the education governing bodies like UGC, NAAC and AICTE which shall give positive results in future. However, the present situation is not satisfactory. The report by Planning Commission, that only 14000 colleges out of 18064 are under the purview of UGC and NAAC has accredited only 140 universities out of 378 in the last sixteen years increases the level of worries. This indicates that the provision of quality management is not up to the mark in HE in India. Only some top class universities and HEIs cannot provide the quality education to the students of second largest populated country in the world.

The next point, the empirical evidence of the use of TQM in different context, however, gives some positive indications. TQM has proved its utility as a quality management tool in HE in different parts of world, which is explained by the examples of Mathur (No date). However, it is the leadership quality of top management that make TQM tools work to assure the quality of education in HE. In India despite of good planning and many empirical evidences of use of TQM several gaps in leadership quality like lack of potential in top management of the institute, lack of interaction and collaboration with industry, scarcity of time and commitment, resistance of employees, less emphasis on laboratory work, unqualified and inexperience faculty members hamper the efforts of assuring total quality in HE.

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