Application and Limitations of Total Quality Management in Higher Education

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Total Quality Management (TQM) has proved itself effective in improving quality, reducing waste and increasing productivity in industry. The current study aims to explore the application and limitations of this philosophical approach in higher education. Literature pertaining to TQM was reviewed extensively for the identification of its relevance in higher education. The components of TQM are discussed as the application of TQM in higher education. However, two main limitations arise with reference to the implementation of TQM in higher education; the imprecisely defined role of student and application of Zero defect theory to the educational objectives. The ambiguity of student both as raw material and customer is one of the basic tensions while applying the idea of TQM in higher education. Furthermore, the zero defect theory can be applied to the objectives that call forth the attainment of minimum required criteria for a content (mastery objectives) but not to more complex developmental objectives on which various degrees of progress are expected from the students. Keeping in view the intricate nature of higher education, the implementation of relevant components of TQM will help in improving its quality.

Key words: Total Quality Management, higher education, customer satisfaction, leadership

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21st century poses a challenge to the educational institutions to prepare the students according to the demands of modern life. This developed a growing concern among the academicians and researchers about the quality of educational systems (De Jager & Nieuwenhuis, 2005). The world is continuously changing and the higher education should come up with a sense of urgency. The output of higher education is the number of graduating students whereas the outcome of colleges and universities is the quality of graduates. For the growth and industrialization of a country, output and outcome, or in other words, both quantity and quality of higher education are important (Moosa, 2006).

Quality is a set of characteristics that can be measured qualitatively or quantitatively (Owlia, 1996). Reid and Sanders (2007) portrayed a number of dimensions of the concept of quality. Objectively, quality is conformity to the specifications of a product or service that are measurable. In addition to the judgment of quality on objective criteria, it is also judged subjectively by customers. They evaluate the quality personally to see whether they are receiving enough in comparison to the price they have paid. Quality is also judged by the extent to which the intended function of a product is fulfilled (Reid & Sanders, 2007). Education is a service and in contrast to judging the quality of products it is more difficult to judge the quality of services being more subjective, perceptual and intangible. The quality of service is usually judged by sensitivity to the customers' needs, timeliness, courtesy of the staff, and promptness in solving complaints of the customers. Organizations have to pay a high cost if they are producing poor quality of products and services. The failure cost resulting from poor quality may be internal or external. These costs include rework, scrap, and loss of consumer's confidence. To avoid these costs, organizations plan to manage their quality effectively. They spend money on the assessment of the products or services and take preventive measures (Reid & Sanders, 2007).

The development of quality management undergoes four different phases or stages: quality inspection, quality control, quality assurance and total quality management (Dale & Plunkett, 1990). Quality inspection doesn't directly involve suppliers or customers and is limited to inhouse screening of the products. Products which do not conform to specification may be scraped, reworked or sold as lower quality items. Quality control involves self-inspection and feedback to earlier stages of the process so that the products not confirming the specification not are shipped to the customers (Dale & Plunkett, 1990). Quality is controlled through charts

and statistical procedures (Reid & Sanders, 2007). The concern is shifted from product quality towards system quality in quality assurance. It is prevention-based in contrast to the inspectionbased quality control. A variety of quality procedures are used to ensure the efficiency of the system. The last and the highest stage of quality management is Total Quality Management where principles of quality management are applied in each area and level of organization (Zhang, 1997). Quality control measures are not limited to the final product but are applied to all the processes and whole organization. This philosophy manages the people and organizations by using a wide range of activities (PHCC Educational Foundation, 1996). The total in TQM implies that quality must be managed in each area and level of the organization through the involvement of all stakeholders including the workers, the customers and the suppliers (Chartered Quality Institute, 2011).

Customers lie at the center and efforts are made not only to meeting but exceeding the customers' expectations. Quality is ensured through preventive measures and commitment. Root causes of problems are identified and eradicated from the base. In addition to the attention to the technical aspects of quality, the commitment of every person of the organization is involved to attain the excellence. Quality is ensured through the collaborated efforts of leadership and teams (Spanbauer, 1995; Waks, & Frank, 1999; Reid & Sanders, 2007). TQM focuses on the continuous improvement of the quality of products or services (PHCC Educational Foundation, 1996). The requirement is doing the right thing right first time and every time. Long term success is aimed at and ethical values are not compromised (Chartered Quality Institute, 2011). Clarity of vision, excellent relationships with customers, fewer barriers, trainings, and the commitment of everyone for the quality are the fundamental principles of TQM (Zhang, 1997). These principles of TQM are useful in the educational organizations when we are concerned with administrative excellence. However, the real question arises when we are interested in the application of TQM in teaching learning process of higher education.

TQM in Education

TQM has its roots in industry but many researchers advocate that just like industry, it is applicable to other fields including education. According to Williams (1993), TQM is applicable to non-commercial organizations just as it has been successfully applied in industry. Supporters of TQM advocate that the principles of TQM are equally applicable for transforming all types of processes in every field (James & Fisher, 1998). While comparing the education with industry, Juran and Gryna (1980) has made following analogies:

Higher Education	Industry
Student	Raw material
Service	Education
Process	Teaching
Product	Graduates of the university.
Raw material specifications	Minimum entrance requirements
Incoming inspections	Entrance examinations
Process specification	Curriculum, outline
Process facilities	Faculty, textbooks, laboratories
Process controls	Reports, quizzes
Final product testing	Examination

James and Fisher (1998), on the other hand advocate that industry alone is found to be the place where TQM has been proved effective across the time. According to them, relevance of TQM in higher education is unrevealed for the most part. Trivial empirical evidence for the successful application of TQM has been found in higher education. The evidence that is available is either anecdotal or limited to administrative tasks. TQM offers little help for dealing with the swiftly changing and radical environment of today's universities (James & Fisher, 1998). The orchestration of the educational processes must be kept in mind while applying TQM to education as the processes of education of human being and that of manufacturing are qualitatively different (Stensaasen, 1995).

The principles of TQM that are found to be aligned with educational system and can be incorporated efficiently in higher education are discussed below.

Customer satisfaction: TQM philosophy is customer driven (Reid & Sanders, 2007) that revolves around `Delighting the customer' and serving the customer better (Willis & Taylor,

1999, Owlia, 1996) as it believes that quality is only that has meaning for the customer (Stensaasen, 1995). Quality according to Deming (1986) is something that satisfies the customers, not only by meeting, but exceeding their expectations. It is necessary to identify the customers in the service offered by the higher education so that their needs and expectation can be satisfied (Spanbauer, 1995).

Customer is someone who interacts with the organization's product or service internally or externally; employers, suppliers and persons who purchase the organization goods or services (Robbins, 2002). The higher education comprises different groups like current and future students, employers, employees, industry, and government. Customers may be categorized into internal and external customers. External customers exist outside the organization and are the buyers of the product or service. Internal customers exist within organization and are the receivers of product or services from the other members of the organization. Ishikawa was the first guru of TQM who introduced the importance of internal customers (Reid & Sanders, 2007). Internal customers in higher education may be primary (Employees: educators) and secondary (students: as educational partners). External customers may also be primary (student) or secondary (Government, industry, parent) (Kanji, Malek, & Tambi, 1999). Traditionally, the quality was determined by plenty of resources-- large libraries, huge donations, screening procedures at the time of admissions, and other quantitative measures. Now, however, the concept of quality has been changed and involves the assessment and satisfaction of the needs and expectations of stakeholders (Seymour, 1993). Students expect from higher education the same what they expect from the other products and services: better service, higher quality, lower costs, and sense of satisfaction that they are receiving quality education that they deserved (Zemsky, Massey & Oedel, 1993). Satisfying the expectations of students and parents regarding access, quality, and price of education is the challenge for the institutes of higher education.

Continuous improvement: To achieve excellence, to remain competitive in the world, and to manage the dynamics of the change, it is essential to improve continuously (PHCC Educational Foundation, 1996; Burkhalter, 1996). TQM strives for continuously improving the quality of products or services in response to continuous feedback (Total Quality Management, 2002). Continuously reduced wastes, decreasing costs, and increasing productivity are the parameters of continuous improvement of quality. Continuous improvement is ensured through repeated use of Deming wheel or Shewhart's PDSA (Plan measurable objectives, Do, Study qualitatively and quantitatively, and Act) cycle (Dahlgaard, Kristensen, & Kanji, 1995; Burkhalter, 1996; Reid & Sanders, 2007). Continuous improvement is indeed equally applicable to each and every

field including higher education; continuously better teaching, better training, better learning, better methods of teaching, improved curricula, better teaching learning environment, producing better citizens, better intellectual, social and professional development and many more. Formative and continuous assessment can provide feedback for continuous improvement in higher education.

Leadership: The role of leadership is very important in TQM. It makes the leaders responsible for the quality of organization. For this, the commitment of leadership for the transformation of processes is very important. Traditionally, employees were blamed for problems in the organization. TQM, however, believes that majority of quality problems are caused by management and not the employees. According to Deming, 85 % of quality problems are due to the problems in system, whereas only 15% problems can be attributed to the low performance of employees (Reid & Sanders, 2007). Top management should play leadership role to organize the processes and systems appropriately and deal with the inherent problems of the system efficiently in order to minimize them (Zhang, 1997; Reid & Sanders, 2007). Leaders are responsible for transforming the organization through knowledge, personality and persuasive power (Deming, 1993). They must provide clear standards for work, methods to achieve them, and stress free working environment to the employees (Deming, 1986) and lead the team effectively through clear vision, goals, measurable objectives and assessment techniques (Burkhalter, 1996).

Lunenburg & Ornstein, (2004) gives teachers the status of manager of the students. So the teachers must play the role as leaders. Teachers are the leaders of total human beings dealing with the most significant processes of human life: socialization of students, helping them to learn, developing their personalities, and enabling them to be able to cope with the challenges of changing world. As leaders, teachers must give a fair and respectable treatment to their students giving them a comfortable and enjoyable environment where their abilities and competencies can be realized. They should stimulate the students to cooperate with each other as a team (Stensaasen, 1995). Moreover, teachers should also institute leadership among the students.

Pride of workmanship: In TQM, quality is not the responsibility of one department only; rather the entire organization assumes this responsibility (Zhang, 1997). TQM involves all levels of the organization starting with full commitment at the top (Zemsky et al., 1993). TQM replaces the fear with the commitment making every member of the organization responsible for the

quality. Contrary to traditional philosophies, TQM rewards employees for identifying the problems, as assessment of the problem is the first stage for enhancing the quality (Reid & Sanders, 2007). System is made up of interrelated parts and this must be realized by the employees to ensure the cultural change (Cruickshank, 2003). It strongly advocates employee participation because involvement of all staff at every level is necessary for developing confidence, two- way communication and higher performance. Lunenburg & Ornstein, (2004) give the status of employee to the student, which implies that participation of students is essential for continuously improving the quality of higher education.

Pride of workmanship has very important place in Deming's year. Continuous improvement is possible only if workers enjoy their work and feel satisfaction in the organization. In higher education, this is possible when students are recognized as valuable members and are treated in a respectable and dignified manner. When they are provided with a supportive, conductive, friendly, and cooperative educational environment, they participate in all activities with excitement and pleasure (Stensaasen, 1995). Feigenbaum's concept that employees should learn with each other success is well fitted in higher education (Reid & Sanders, 2007). Group work and projects using the concept of teams in TQM is also very beneficial in higher education.

Limitations of TQM in Higher Education

While many components of TQM are well aligned with higher education, a comparative study of the two reveals that there are certain aspects of TQM that are still needed to be defined before its total implication in higher education. They include imprecisely defined role of student and application of zero defect theory to educational objectives.

Status of student: While applying TQM to higher education, literature presents three roles of students: raw material, internal or external customer and employee. According to Cruickshank (2003), the products and customers of higher education are not précised like those are in other industries. Students may assume the role of partner, buyer and user of education (Kanji et al., (1999). While making a comparison between industry and education, some researchers assign the role of customer to the students (Spanbauer, 1995; Kanji et al., 1999). Juran and Gryna, (1980), on the other hand, consider the student as raw material who undergoes the process of teaching and turn them into a final product in the form of graduates. This ambiguity of student both as raw material to be shaped into product, as well as customer, lies at the heart of the basic tensions when we want to apply the idea of TQM to higher education. TQM emphasizes the quality of incoming resources so that quality products can be achieved. Prior abilities of the

students are the most important raw material. Abilities of the incoming students necessarily would be of varying level reflecting different interests and abilities. Educational institutions prior to higher education, however, don't aim at preparing a common module, but at the development of the potentials of individual students. We can use entry test for the diagnosis and identification of the talents and potential of each student but still we have to build on the existing and off course, different abilities of the students (Williams, 1993). Students can't be manipulated, quantified, measured, and calculated like things (Glenn, 1991).

Primary aim in higher education is learning and the learning requires contribution on the part of learner also. If a student does not attend the classes, complete the assignments or meet the reading requirements, how can he be dealt as a customer and how can we apply the 'delighting the customer' principle on this situation (Williams, 1993)? Students as customer in higher education are not like the customers of hotel. They may be unaware of their learning and developmental needs. It is the job of the teacher to examine and address the needs and expectations of the students in combination with the needs and expectations of other stakeholders of education including future instructors and employers (Spanbauer, 1995).

Zero defect theory and educational objectives: The second important limitation arises while applying the Zero defect theory of Crosby (1984), one of the main guru of TQM. The theory suggests that there must be no error in the product and service. Errors and mistakes are caused mainly due to insufficient knowledge or inattentive behavior and in turn they can be eliminated by training, education, attention to details and commitment for excellence. Employees must have clear knowledge and understanding of the specifications to which conformity is required. A quality culture featured by right thing right first and every time must be created by the management to achieve 100-percent quality (PHCC Educational Foundation, 1996). The aim is zero defects. For this purpose, input quality and timeliness must be ensured. "Outputs" are monitored throughout the entire process while making everyone responsible (Mead, 2003).

In educational institutions, however, we are dealing with two main types of learning objectives: mastery and developmental. Minimum essentials expected by all students are termed as mastery objectives. They are specific, their scope is narrow, and they must be achieved by the students to be promoted to the subsequent instructional level. Developmental objectives on the other hand are complex and general objective accompanied with a sample of specific learning outcomes. Students are expected to show variation in the performance on the continuum of developmental objectives (Ball State University, 1999).

Zero defect theory is fine with the mastery objectives that are minimum essentials, narrow in scope, and are specific, but not applicable to the developmental objectives, which are complex learning outcomes and where varying degree of progress is expected from the students.

Conclusion

Total Quality Management concepts have proved to be powerful in every organization and so in the Education. Different elements of TQM approach are well integrated in the education. On the other hand there arise certain questions as well which still need to be answered more competently while implementing it in educational system. Conclusions of the study account for different areas of TQM pertaining to its applications and limitations in higher education.

There is high conformity in the concept of continuous improvement in both TQM approach and higher education. Higher education institutes should always seek for their continuous improvement for their survival. Their success is also conditioned with customer satisfaction. The customers in case of higher education are the back bone of any nation. Similarly the role of Leadership described by TQM is equally important in higher education as in any other organization, whether this role is played by the top management/ administration or teachers. The concepts of employee empowerment, pride of workmanship and co-operative teams can be incorporated very effectively in higher education to promote teaching learning environment at higher education.

However the issues are raised when we talk about the status of the student. If we consider the students as the raw material which TQM advocates, then we have to negate the individual differences of learners. Entry tests to any higher education institute can't serve the purpose. Individual differences in terms of students' personalities, their aptitude and attitude are always there which can't be manipulated as the raw material. And then if we see the students as a product, it then must be a zero-defect product. The concept of zero-defect is limited to achievement of mastery objectives, the minimum essential requirements. However, attaining developmental objectives largely depends on individual potentials. For the developmental objectives, concept of continuous improvement is more relevant than concept of zero-defect. Another status that is assigned to the student in TQM is of customer, which is very popular. The analogy of business customer with student creates some confusion when we talk about 'delighting the customer' which is possible in former situation with its true spirit. Students sometimes may not be happy with the assigned work which is important for their learning and they may also not know what is actually beneficial for them in competitive world of professional

life. These limitations leave a question mark on successful implementation of TQM in higher education.

This is the time that the idea of Total Quality Management may be implemented in higher education. Policy makers in this regard must take into consideration how Total Quality Management can be ensured in higher education in a holistic manner. Along with incorporating the elements of TQM that are well aligned like customer satisfaction, continuous improvement, leadership and pride of workmanship, need of the day is to address the challenges and issues as well. In this regard it is critically important to define the role of the student clearly. It further requires a thought that how individual differences can be catered to while applying zero defect theory in higher education. A well-defined policy can redirect the higher education to meet the higher quality standards.

References

Ball State University. (1999). *Shaping department goals and objectives for assessment.* Retrieved on July 2, 2011 from http://web.bsu.edu/IRAA/AA/WB/ chapter2.htm

Burkhalter, B. B. (1996). How can institutions of higher education achieve quality within the new economy? *Total Quality Management, 7,* (2), 153- 160.

Chartered Quality Institute. (2011). Total quality management. Retrieved on July 4, 2011 from http://www.thecqi.org/Knowledge-Hub/Resources/Factsheets/Total-   quality-management/

Crosby, P. B. (1984). *Quality without tears.* New York: McGraw-Hill.

Cruickshank, M. (2003). Total quality management in the higher education sector: a literature review from an international and Australian perspective. *Total Quality Management & Business Excellence, 14* (10), 1159 -1167.

Dahlgaard, J. J., Kristensen, K. & Kanji, G. K. (1995). Total quality management and education. *Total Quality Management & Business Excellence, 6* (5), 445-456.

Dale, B. G., & Plunkett, J. J. (1990). *Managing quality.* New York: Philip Allan.

De Jager, H. J., & Nieuwenhuis, F. J. (2005). Linkages between total quality management and the outcomes-based approach in an education environment, *Quality in Higher Education, 11* (3), 251-260.

Deming, W. E. (1986). *Out of the crisis.* Massachusetts: Cambridge, MIT, Center for Advanced Engineering Study.

Deming, W. E. (1993). *The new economics for industry, government, education.* Massachusetts: Cambridge, MIT, Centre for Advanced Engineering Study.

James, J. V. K., & Fisher, L. (1998). Higher education and total quality management. *Total Quality Management & Business Excellence, 9* (8), 659-668.

Juran, J. M., & Gryna, F. M. (1980). *Quality planning and analysis* (2nd ed.). New York: McGraw-Hill.

Kanji, G. K., Malek, A., & Tambi, B. A. (1999). Total quality management in UK higher education institutions. *Total Quality Management & Business Excellence, 10* (1), 129153.

Lunenburg, F. C., & Ornstein, A. C. (2004). *Educational administration: Concepts and practices.* Belmont: Wadsworth/ Thomson Learning.

Mead, A. (2003). *Deming's principles of total quality management* (TQM).

Retrieved on July 17, 2008 from 17 www.geocities.com/parthadeb/ deming.html Moosa, K. (2006). *Quality assurance in higher education successful approaches for improving quality in colleges and universities.* Proceedings of the 1st International Conference on Assessing Quality in Higher Education. Lahore, Pakistan, *1,* 96- 110.

Owlia, M. S. (1996). Quality in higher education-a survey, *Total Quality Management & Business Excellence, 7* (2), 161-172.

PHCC Educational Foundation. (1996). *Total quality management: A continuous improvement process.* Retrieved from www.foundation.phccweb.org/Library/ Articles/TQM.pdf on July 4, 2011.

Reid, R. D. & Sanders, N. R. (2007). *Operations management: An integrated approach,* (3rd Ed.). Hoboken, NJ: John Wiley & Sons.

Robbins, S. P. (2002). *Management.* Upper Saddle River, NJ: Pearson Education.

Seymour, D. (1993). Quality on campus: Three institutions, three beginnings, *Change, 25* 14-27.

Spanbauer, S. J. (1995). Reactivating higher education with total quality management: Using quality and productivity concepts, techniques and tools to improve higher education. *Total Quality Management & Business Excellence, 6* (5), 519-537.

Stensaasen, S. (1995). The application of Deming's theory of total quality management to achieve continuous improvements in education. *Total Quality Management, 6* (5&6), 579-592.

Total quality management. (2002). Retrieved on July 19, 2008 from http://searchcio. techtarget.com/sDefinition/0,,sid182_gci799434,00.html

Waks, S., & Frank, M. (1999). Application of the total quality management approach principles and the ISO 9000 standards in engineering education. *European Journal of Engineering Education, 24* (3), 249-258.

Williams, G. (1993). Total quality management in higher education: Panacea or placebo. *Higher Education, 25,* 229-237.

Willis, T. H., & Taylor, A. J. (1999). Total quality management and higher education: The employers' perspective. *Total Quality Management & Business Excellence, 10* (7), 9971007.

Zemsky, R., Massey, W. F. & Oedel, P. (1993). On reversing the ratchet, *Change, 25,* 56- 62.

Zhang, Z. (1997). *Developing a TQM quality management method model.* (SOM Research Report, 970A48). Groningen, The Netherlands: University of Groningen, Faculty of Management and Organization.