

Critical Success Factors of TQM in Higher Education Institutions Context

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Abstract

The levels of competition and market forces have become extremely high in the higher education sector; these challenges led the higher education to be viewed as an international business. To cope with these environmental changes, higher education Institutions (HEIs) found Total Quality Management (TQM) as an inescapable tool to achieve their organizational objectives. Accordingly, it was evidenced that (TQM) can be implemented in (HEIs) but how to implement effectively is still not known. The objectives of this research are: to review (TQM) literature related to higher education sector, to explore various research instruments for studying quality assurance in higher education, and to determine the critical success factors in higher education based on total quality management (TQM) philosophy. To achieve these objectives, the study was conducted in Higher Education Institutions context. Data was collected through a distributed questionnaire to the academic and nonacademic staff members from the chosen HEI, Waljat College of Applied Sciences, Muscat, Sultanate of Oman. Statistical tests were performed using Statistical Package for Social Sciences (SPSS). This study found that the highest significant success factors were Employees Involvement followed by Stakeholder Focus, and Other Stakeholder Focus respectively. The significance of this study is that it identified parameters of an efficient (TQM) system based on identification of Critical Success Factors (CSFs) that may influence implementation of (TQM).

Keywords: *Total Quality Management (TQM); Higher Education Institutions (HEIs); Critical Success Factors (CSFs); key Performance Indicators (KPIs); International Standard Organization (ISO).*

1. Introduction

Quality of higher education is considered to be one of the most important aspects of human resource development, creation of knowledge and social strength for any country. TQM has been implemented in the manufacturing sector long time back, while in the service sector the implementation of TQM is considered to be new. Recent studies has showed that it is applicable to implement TQM philosophy in the higher education institutions. So among the well-known private higher education Institutions (HEIs) of Oman, Waljat College of Applied Sciences was

chosen for conducting a survey on various parameters that can possibly have the greater influence on TQM in HEIs and thus provide a supplementary quality management guidelines for the HEIs and other concerned stake holders

2. Literature Review

2.1 Total Quality Management in Higher Education Institutions

International Organization for Standardization (ISO) [1] defines TQM as management approach of an organization centered on quality, based on the participation of all the members and aiming at long term success through customer satisfaction and benefits to all members of the organization and to society. Similarly, Ho and Wearn [2] considered TQM as a way of managing to improve the effectiveness, efficiency, cohesiveness, flexibility, and competitiveness of a business as a whole. Byraktar *et al.* [3] stated that TQM has been used in the industries for a long time, service applications of TQM are quite new.

According to Frazer [4] quality in higher education is important because universities must be accountable to society, to employers, to students, and each other. Thiagarajan [5] stated that TQM has become the most significant quality philosophies for measuring the overall HEI quality. Munoz [6] added that one of the main contributions of TQM application in the HEIs is this philosophy will contribute positively in increasing the stakeholders' satisfactions. Recent researches on TQM have brought a widely updated plan for educational reforms and modernization of educational organizations [7].

Accordingly, it can be concluded that TQM can be implemented in HEIs but still there is a gap of knowledge of how to achieve successful implementation of TQM in HEIs. The information about critical success factors of TQM may help to remove the implementation barriers. Therefore, the following section discussed the literature related to critical success factors of TQM.

2.2 Critical Success Factors for TQM Implementation in Higher Education Institutions

Implementation of CSFs in HEIs [8, 9] is heavily depending on the implementation of CSFs in the manufacturing sector. However, the basic purpose of identifying critical success factors for TQM implementation in HEIs is to benchmark the cutting edge of TQM implementations in HEIs [10]. The CSFs considered in this study were developed by Bayraktar [3] consisting of 11 factors of TQM in HEIs as follows:

Leadership: According to NIST [11] and in line with Malcolm Baldrige Quality Award top management commitment has a significant role in the implementation of TQM. Thus, leadership was considered as a primary CSF for TQM. In TQM implementation, leaders are responsible for developing and communicating the company vision, and then building organization-wide commitment in the people in order to achieve the specified targets [12, 13]. Additionally, it is important for the HEIs Top management to put more attention to employees involvement in the decision making process, and to make sure that the key performance indicators (KPIs) are very clear for all their staff due to the (KPIs) direct effect on employees performance measurements.

Vision: Vision determines innovative approach and goals of leadership in development of HEIs. Thus, the presence of clear vision statement covers the path to success. However,

according to Bayraktar [14] variation from vision statement leads to different policies on TQM implementations and that may prove misleading.

Measurement and Evaluation: These are tools to identify quality of performance of HEIs. This in turn will point to areas of weakness and improvements will be sought. Bayraktar [14] stated that it is essential to clearly define the key performance indicators (KPIs) before starting measuring and evaluating the staff performance in HEIs. Further details are discussed in section 2.3.

Process Control and Improvement: According to Sahney *et al.*, [15] HEIs are service organizations in which many processes are operative at a time that may require a multidimensional organizational structure to govern and monitor these processes. For this purpose at every step process control and later on improvement are needed to reduce the tension on quality improvement system and will contribute in satisfying the demands of stakeholders.

Program Design: it is vital to review the HEIs stakeholder needs before designing any academic program. In response to any internal or external force to change the designed programs are required to be regularly reviewed. According to Sahney, *et al.*, [15] there are two approaches which can be applied to follow TQM philosophy in academic program design, these are: SERVQUAL which is a service quality model developed by Zeithaml, *et al* [16] and Quality Function Deployment (QFD) which is method developed by Akao [17] to transform qualitative user demands into quantitative parameters, to deploy the functions forming quality, and to deploy methods for achieving the design quality into subsystems and component parts, and ultimately to specific elements of the manufacturing process.

Quality System Improvement: According (ISO) [1] it is vital to establish and review periodically the quality systems in any organization. It was evident in HEIs that there are two recommended tools which can be used to enhance the consistency of the quality systems; where the first is process flow charts and the second is quality criteria checklist [18].

Employee Involvement: To generate a quality culture, the employees must be involved at every step regarding their work places, environment, process, products, and management practice. Behara and Gundersen [19] found that TQM practices emphasize teamwork and cross-functional relationships that provide many opportunities for social interaction and social reinforcement.

Recognition and Reward: According to Zhang [8] a regular and transparent procedure to evaluate the performance level of employees and selection criteria for reward is needed. Thus, it is recommended to make sure that the criteria's of recognition and reward system were set to consider the HEIs staff involvement in this process to create and enhance the staff level of organizational commitment.

Education and Training: According to Dale [20] HEIs should make the necessary arrangement concerning the training and education of their staff to gain the implementation of the quality assurance programs. They should be trained and have the awareness of all the regarding fields and the compulsory financial arrangement should be available in this effort.

Student Focus: According to Sirvanci [21] it is recommended to consider the students' needs, listen to students complains, establish a feedback system to the students complains, support students social activities, and to establish alumni club.

Other Stakeholders' Focus: According to Bayraktar [14] for any HEI there are different stakeholders such as employees, students, society, governing bodies, etc. Accordingly, it is recommended to be aware about the needs of these different categories of stakeholders and to work hard to achieve these needs. In addition, identifying the stakeholders' needs should be reviewed and updated in regular bases whenever there is a force of change which may cause any change in the stakeholders' needs or expectations.

2.3 Measurements of the Critical Factors of TQM in Higher Education Institutions

Different authors have identified critical factors of TQM; however, Badri, *et al* [22] identified valid and reliable eight critical factors of quality management in a business unit. The instrument of the operational measures of the developed factors was tested by using data collected from 424 general managers and quality managers in the United Arab Emirates. Results provide strong evidence that leadership, measurement and evaluation, program design and resources, employee involvement, and education and training are reliable and valid critical success factors of TQM. For the same purpose, Owlia and Aspinwall [23] surveyed 124 people involved in educational quality efforts in the United States, Europe, India and Australia. The results identified that leadership, program design and resources, employee involvement, education and training, and students focus are valid and reliable CSFs of TQM.

Similarly, Tang and Zairi [24] examined the implementation of total quality management in a service sector context namely financial services and higher education. A benchmarking exercise using secondary data via three case studies from each sector was undertaken. The results confirmed that leadership, process control and improvement, and employee involvement are CSFs of TQM. Another instrument was developed by Kanji, *et al* [10] by conducting an exploratory research on quality practices at higher education institutions in the US and Malaysia. Findings of the study confirmed that leadership, measurement and evaluation, process control and improvement, quality system improvement, employee involvement, student focus, and other stakeholders focus are reliable and valid CSFs of TQM.

Finally, Bayraktar, *et al* [3] identified 11 KSFs of TQM in an HEI. These identified areas represents the operational measurements for the CSFs in any HEI. Reliability and validity for the 11 KSFs was tested after collecting data from a sample of 144 academics from 22 HEIs in Turkey. The findings of the study confirmed that the reliable CSFs are leadership, vision, measurement and evaluation, process control and improvement, program design and resources, quality system improvement, employee involvement, recognition and reward, education and training, student focus, and other stakeholders focus. These factors are applied in this study to achieve the research objectives.

3. Research Methodology

This section provides details about research objectives, and data collection method.

3.1 Research Objectives

1. To review (TQM) literature related to higher education sector.
2. To explore various research instruments for studying quality assurance in higher education.
3. To determine the critical success factors in higher education based on total quality management (TQM) philosophy.

3.2 Data Collection Method

The standardized questionnaire was designed by Bayraktar, *et al* [3] to include 11 sections. The questionnaire was distributed to the academic and non-academic staff at Waljat College of Applied Sciences (WCAS) which was founded in 2001 to promote high international quality education in Oman and it states to prepare the students for modern, high quality jobs. The questionnaire was designed to include five-point Likert scales ranging from 1 'strongly disagree' to 5 'strongly agree'.

4. Results and Data Analysis

This section is divided into 2 parts. First part takes in to account descriptive analyses like mean, standard deviation for 64 items and 11 constructs of the distributed questionnaire. The second part deals with a correlation analysis.

4.1 Descriptive Analysis

Descriptive data analysis is used to summarize the questionnaire close ended questions to describe the behavior of the sample population in regard to the questions. The participation response rate was 63%, which is satisfactory given the nature of respondents. The characteristics of respondents are summarized in Table 4.1.

Table 4.1. Characteristics of respondents

Characteristics	Percentage (%)
Gender	
• Male	53
• Female	47
Age	
• 20-30 years	28
• 31-40 years	50
• 41-49 years	15
• 50 and above	7
Academic Qualifications	
• High School Certificate	7
• Diploma	13
• Bachelor	26
• Master and above	54
Years of experience in this organization	
• Less than 1 year	13
• 1-3 years	10
• 3-5 years	39
• 5 years and above	39
Type of employment	
• Academic	71
• Non-academic	29

Mean and standard deviations for each of the questionnaire constructs were calculated in order to check precision level of each Quality Assurance (QA) practice in WCAS. A summary of descriptive analysis construct wise is seen in Table 4.2.

Table 4.2. A Summary of Descriptive Statistics Construct wise

Construct	Variable	Mean	Standard Deviation
Leadership	Lead	2.77	1.09
Vision	Vision	3.06	1.04
Measurement & Evaluation	ME	3.11	0.86
Process control & improvement	PC& I	3.32	0.94
Program Design & Resources	PD	3.05	0.81
Quality system Improvement	QSI	3.07	1.02
Employee Involvement	EI	3.15	1.00
Recognition & Rewards	RR	3.24	0.89
Employees Training	ET	2.93	1.10
Students Focus	SF	3.27	1.15
Other Stakeholders	OSH	2.91	1.06

Table 4.2 showed the highest standard deviation comparing with the other standard deviations was for student focus followed by employee training, leadership, other stakeholder focus, vision, quality system improvement, employee involvement, process control and improvement, recognition and rewards, measurement and evaluation, and program design and resources respectively. This means that the amount of variation or distribution from the standard deviation for student focus was the highest and for program design and resources was the lowest.

4.2 Correlation Analysis

In order to propose the critical success factors for quality improvement systems in higher education institutions context which is the third objective of this study, Pearson correlation coefficient was constructed to indicate the linear relationship between two variables (construct). The results are reported along with the significance of interrelationship in Table 3.3.

Table 4.3 indicates that there are 55 significant correlations coefficient. The dependent variable Quality System Improvement (QSI) has 10 significant correlations, highest one with construct Employee Involvement (EI) ($r = 0.92^{**}$), second highest with Other Stakeholder Focus (OSF) ($r = 0.92^{**}$), third highest with construct Student Focus (SF) ($r = 0.91^{**}$), fourth highest with construct Education & Training (E&T) ($r = 0.89^{**}$) and fifth highest with construct Recognition & Rewards (R&R) ($r = 0.80^{**}$). As the table indicates all the coefficients are significant at least at 5% level of significant.

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Table 4.3. Correlation Among all Variables

Construct	Lead	Vision	M&E	PC&I	PD	QSI	EI	R&R	E&T	SF	OSF
Lead	1	0.97*	0.73*	0.87*	0.72*	0.89*	0.84*	0.74*	0.85*	0.83*	0.88*
Vision		1	0.76*	0.90*	0.74*	0.89*	0.80*	0.79*	0.87*	0.84*	0.86*
M&E			1	0.88*	0.79*	0.86*	0.86*	0.68*	0.81*	0.85*	0.82*
PC&I				1	0.82*	0.93*	0.88*	0.74*	0.84*	0.91*	0.88*
PD					1	0.83*	0.73*	0.82*	0.75*	0.83*	0.83*
QSI						1	0.92*	0.80*	0.89*	0.91*	0.92*
EI							1	0.73*	0.82*	0.84*	0.83*
R&R								1	0.74*	0.78*	0.81*
E&T									1	0.85*	0.91*
SF										1	0.94*
OSF											1

** Correlation is significant at the 0.01 level (2-tailed)

In addition, it is observed from Table 3.3 that all ten constructs were significantly associated with each other with positive coefficients. However, the strength of independence of constructs pairs vary from minimum 0.681 (Recognition & Reward and Program Design) to maximum 0.977 (Leadership and Vision). From the correlation analysis of construct, it is obvious that all the constructs are linked to each other which describes that for the development of a good-natured and advantageous quality organization culture in higher education institutions all studied constructs are crucial. Secondly, positive values of Pearson correlation coefficient shows that adoption of one construct ease and facilitates the adoption and performance of other constructs. The highest Pearson correlation coefficient's value 0.977 (Leadership and Vision) depicts that presence and prevailing of vision among top management is essential to become a productive and exemplary leadership. Therefore, Correlation analysis among all variables indicates that variable quality system improvement (QSI) is significantly correlated with all other variables.

5. Conclusion

The present study has explored various research instruments for studying quality assurance in higher education, and determined the critical success factors in higher education based on total quality management (TQM) philosophy. Findings showed that the 11 sections instrument developed by Bayraktar [3] was highly reliable and valid for testing CSFs in higher education. In addition, findings showed that highest significant success factor was Employees Involvement followed by Stakeholder Focus, and Other Stakeholder Focus respectively.

6. Limitation and Recommendations for Future Research of the Study

The current study has collected the data from one HEI only due to financial and time constraints. It is recommended that the future researchers collect data from more than one Higher Education Institute for such studies. It will be helpful in doing comparative study. In addition, the present study has followed the cross sectional as a time horizon. So, it is recommended that future studies be carried out as longitudinal studies. It will be helpful in understanding the organizations to show the patterns of a variable over time.

References

- [1] International Organization for Standardization (1994), ISO 8402:1994 (E/F/R), Quality, Management and Quality Assurance – Vocabulary. International Organization for Standardization. Geneva, Switzerland.
- [2] K.S Ho and K. Wearn, “A TQM Model for Higher Education and Training”, Training for Quality. vol. 3, no. 2, pp. 25-33, 1995.
- [3] E. Bayraktar, E.Tatoglu, and S. Zaim. “An Instrument for Measuring the Critical Factors of TQM in Turkish Higher Education”. Total Quality Management, vol. 19, no. 5-6 pp. 551-574, 2008.
- [4] M. Frazer, “Quality in Higher Education: An International Perspective”. In Diana Green (ed.), What is Quality in Higher Education. UK: SRHE and Open University Press 1994.
- [5] T. Thiagarajan, An Empirical Study of Total Quality Management in Malaysia: A Proposed Framework of Generic Application. Unpublished PhD Thesis, University of Bradford, 1996.
- [6] M.A. Munoz, Total Quality Management in Higher Education: Lessons learned from an Information Technology Office, 1999.
- [7] S. Mutlu, The Facility of the Total Quality Management at the Primary Schools According To the Opinions of Teachers and Administrators. Unpublished Master’s Thesis, Adana: Cukurova University, 2001.
- [8] Z. Zhang, “Implementation of Total Quality Management, an Empirical Study of Chinese Manufacturing Firms”. PhD theses. Faculty of Management and Organization of the University of Groningen, Netherland, 2000.
- [9] M. Demirbag, E. Tatoglu, M.Tekinkus, and S. Zaim, “An Analysis of the Relationship Between TQM Implementation and Organizational Performance: Evidence From Turkish Smes”, Journal of Manufacturing Technology Management, vol. 17, no.6, pp.829–847, 2006.
- [10] G.K.Kanji, and A. Malek, “Total Quality Management in UK Higher Education Institutions”, Total Quality Management, vol. 10, no. 1, pp. 129–153, 1999.
- [11] NIST. MBNQA Criteria 2003, Malcolm Baldrige Award 2003, Education Criteria for Performance Excellence (National Institute of Standards and Technology), 2003.
- [12] D.K. Kehoe, The Fundamentals of Quality Management. London: Chapman & Hall, 1996.
- [13] D. A. Waldman, “The Contributions of Total Quality Management to a Theory of Work Performance”, Academy of Management Review, vol. 19, no. 4, pp. 510–536, 1994.
- [14] E. Bayraktar, “Designing Higher Education Institutions as Service Organizations: a Process Oriented Approach”, International Journal of Business, Management and Economics, vol. 2, no. 5, pp.15-27, 2006.
- [15] S. Sahney, D.K.Banwet, and S. Karuness, “A Servqual and QFD Approach to Total Quality Education”. International Journal of Productivity and Performance Management, vol. 53, no. 2, pp. 143–166, 2004.
- [16] V. Zeithaml, P. Parasuraman, and L. Berry, "Delivering Quality Service; Balancing Customer Perceptions and Expectations," Free Press, 1990.
- [17] Y. Akao, "Development History of Quality Function Deployment". The Customer Driven Approach to Quality Planning and Deployment. Minato, Tokyo 107 Japan: Asian Productivity Organization, 1994.
- [18] N.B. GoËzacËan, and R. Ziarati, “Developing Quality Criteria for Application in the Higher Education Sector in Turkey”, Total Quality Management, vol. 3, no.7, pp. 913- 926, 2002.

- [19] R.S. Behara and D.E.Gunderson. Analysis of Quality Management Practices in Services. International Journal of Quality and Reliability Management, vol 18, no.6, pp. 584–604, 2001.
- [20] B.G. Dale, “Managing Quality”. 3rd Ed. Blackwell Publishers, Oxford.
- [21] Sirvanci, M.B. (2004). TQM Implementation: Critical Issues for TQM Implementation in Higher Education. The TQM Magazine, 16(6), 382–386, 1999.
- [22] M.A. Badri, and D. Davis, “A Study of Measuring the Critical Factors of Quality Management”. International Journal of Quality and Reliability Management, vol. 12, no. 2, 1995.
- [23] M.S. Owlia and E.M Aspinwall, “TQM in Higher Education – A Review”, International Journal of Quality and Reliability Management, vol.14, no. 5, pp.527-543, 1997.
- [24] K.H.Tang, and M. Zairi, “Benchmarking Quality Implementation in a Service Context: A Comparative Analysis of Financial Services and Institutions of Higher Education. Part III”, Total Quality Management, vol. 9, no. 8, pp. 669-679, 1998.