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Role of Leadership towards implementing TQM: The US Experience

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Abstract
Total quality management can be a key element of a successful business but if not properly implemented can also lead to failure. This occurs in many cases because there is a substantial lack of understanding on the part of individuals tasked with implementing total quality management programs. One bottleneck for TQM implementation is the leadership and employees of an organization. Academics and practitioners both agree that appropriate managerial leadership is one of the factors that affect the successful implementation of TQM. Owing to the importance of leadership towards TQM, this study investigate the leadership behavior and its skills set on the successful implementation of the total quality management and how does leadership play its role in the total quality management. The instrument used in the study was a survey questionnaire which consisted of 49 questions for a sample that consisted of 50 executives and managers who are working under functional heads of operations, marketing, human resources, and finance departments working in the U.S construction industry. The analysis is carried using descriptive statistics and simple co-relation analysis. Conclusively, the study reveals a moderate relationship between leadership and success of TQM and high dispersion (incoherence among the respondents) was found between leadership and successful TQM implementation. The authors argue that sustainable and successful TQM implementation can be achieved through persistence, positive hands-on leadership, upfront preparation and continuous maintenance of a successful plan.

Keywords
TQM, Leadership, U.S construction industry, TQM-Leadsship relationship

1. Introduction

Total quality management can be a key element of a successful business but if not properly implemented it can lead to failure. The theory behind total quality management is sound so the problems that can be generated from use an implementation must come from another source. The source is the leadership and employees of an organization. Just how organizational leadership and employees affect total quality management is a topic that is often not considered until well into a total quality management project when issues begin to arise.

This occurs in many cases because there is a substantial lack of understanding on the part of individuals tasked with implementing total quality management programs. This lack of understanding is a key point that leads to unsuccessful total quality management implementations and thus leads us to the role of leadership on any TQM implementation is paramount.

TQM has become a key philosophy to assist organizations in becoming the most efficient, the most competitive, and the most successful that in the market place. TQM can be considerably affected by the Leadership behavior and the skills sets that are being implemented. Organizational leadership has the key responsibility for the organization in all aspects of management, operation and performance "Leadership is very different. It does not produce consistency and order, as the word implies; it produces movement". As individuals rise to positions of senior leadership, they leave the world of certainty, small group environments, focused mission areas, familiar technical competencies, and enter a world of ambiguity and complexity. Specified tasks lead to many interacting implied tasks, which often generate unintended consequences. Leaders must make do with the people who remain on the rolls during troubled times and they must figure out new ways to get the mission accomplished. Today's austere resources environment demands that work is done smartly, which is a fact of life for today's leaders anywhere, the TQM philosophy advocated by W. Edwards Deming and others, and subsequently adopted by DOD yields productivity through improved quality, but not without first causing an organizational culture charge. A participative employee/ management relationship is at the core of the TQM philosophy, combined with strong leadership commitment to change for the sake of improvement. The leadership and management skills required today at the top of large and complex organizations require extraordinary leaders which in turn provide better organizational performance, mission success and organizational survival. The larger the organization the more important it is for the organization to have a philosophy and culture which continuously points it in the direction of improvement whether or not leaders choose to implement TQM. Their organizations demand and expect good leadership to guide them through rough times, failure to do so will eventually lead to the organization's downfall.

2. Literature Review

The principles and practices of Total Quality Management can be deferent between various industries and enterprises, but there is a universal agreement about the importance of leadership for its achievement (Serafimovska and Ristova, 2011). Academics and practitioners both agree that appropriate managerial leadership is one of the factors that determine the variation in the success rate of TQM implementation (Perles, 2002). This has been the interest of several researchers and the need for senior management commitment and leadership is recognised by most prominent writers in the area of quality such as (Dale, 1994), (Juran and Gryna, 1993), (Berry, 1991), Garvin (1988), (Dahlgaard *et al*., 1998), (Yusof, 2000), (Bounds *et al*., 1994), (Oakland, 1993), (Aalbregtse *et al*., 1991), (Kanji and Baker, 1990), (Deming, 1986), (Feigenbaum, 1986), (Crosby, 1980), and (Shewhart, 1931).

The Deming Prize, European Quality Award (EQA), and the Malcolm Baldrige National Quality Award (MBNQA) also recognize the crucial role of top management leadership in creating the goals, values, and systems that guide the pursuit of continuous performance improvement (Das *et al*., 2011)

Although many of the activities occur in the lower levels of the organization. Yet, only the leadership of top management is in position to create a necessary organizational culture that is capable to lead and support TQM actions among employees from the lower levels of the organization (Serafimovska and Ristova, 2011). The same notion is asserted by (Flynn *et al.*, 1995) that it is impracticable to adopt QM and improve performance without strong top management support. Therefore, as seen from above excerpts TQM literature widely supports the necessity of management commitment and leadership for successful TQM implementation. (Gonza´lez and Guille´n, 2002).

In order for TQM to be effective, certain aspects of leadership have been cited in Table 1:

Table 1: Summary of Aspects of Leadership relevant to TQM (Adopted from Krumwiede et. al (1996))

Aspect of Leadership relevant to TQM	Cited by
1. Top management needs to give workers more power over their tasks, allowing them to make decisions	Johnson (1994)
2. TQM is systematic; the entire organization must be viewed as an interconnected whole.	Fucso (1994)
3. Top management must maintain a long-term perspective, not just a view of short-term goals such as quarterly results.	Tenner and DeToro (1992)
4. Top management must be a role model, walking the talk.	
5. Top management must inspire confidence by encouraging personal development of workers and simply saying thanks.	
6. Top management must ensure that workers' needs are met.	Anderson et al (1994)
7. Individual goals must be recognized and respected.	Spencer (1994)
8. The need for employee training and retraining must be recognized.	Walton (1986) Spencer (1994)
9. Employee self-efficacy beliefs and ideological values must be enhanced.	Waldman (1994)

In the context of TQM what is expected of leaders is more of the doing, being more in touch, more aware and being much more concerned with developing means rather than being just concerned with ends. Leaders in the context of TQM are more focused on corporate performance rather than just their own. Leadership in the context of TQM is not about power, authority and control, it is more about empowerment, recognition, coaching and developing others as argued by (Zairi, 1994).

The commitment of top management is generally a preliminary point for implementing and practicing TQM in order to enhance performance of an organization (Ahire & Ravichandran, 2001). Management at the top levels of an organization is responsible for implementation of TQM. If top management refuses to get involved and support the new philosophy, it will most likely fail. Top management must support this philosophy both monetarily and morally or TQM will probably not survive (Walton, 1986). Hence, the most critical factor contributes to successful TQM program is top management commitment (Ramirez & Looney, 1993; Lewis & Smith, 1994).

3. Scope

The study presents the findings of a questionnaire survey from the executives and managers who are working under functional heads of operations, marketing, human resources, and finance departments in the US construction industry.

4. Objective

The objective of this study is to investigate the leadership behavior and its skills set on the successful implementation of the total quality management and how does leadership play its role in the total quality management. Accordingly this study will examine the following research questions.

- How does leadership role can improve the TQM implementation process?
- How leadership as a skill set can improve the TQM?

5. Methodology

The sample size and instrumentation for the study is succeeding sub-sections.

5.1 Sample Size

The sample of study consisted of 50 executives and managers who are working under functional heads of operations, marketing, human resources, and finance departments. The researcher used convenience sampling in selecting the subjects. The subject community has all the characteristics of the type needed for in-depth study of this topic.

5.2 Instrumentation

The instrument used in the study was a survey questionnaire which consisted of 49 questions. The leadership behavior has been measured by a 27 item questionnaire which has been originally devised by the Xerox for its management performance survey.

6. Data Collection and Analysis

Fifty questionnaires along with a covering letter were distributed among the selected sample of managers and executives. It explained the purpose of the study and the importance of the participation of the employees in responding to the questionnaires.

The first stage of data analysis involved computing descriptive statistics as frequencies and percentages for analyzing characteristics of the subjects. Second a reliability analysis was done to check whether the questionnaires measure the variables reliably. The Alpha values were calculated for the same purpose. If the Alpha values are greater than 0.5, the questionnaires measure the variables reliably (leadership questionnaire and success of TQM questionnaire). Finally the simple correlation analysis was performed to identify the relationship between leadership and success of TQM.

6.1 Reliability analysis and factor analysis

A reliability analysis was done to check whether each Questionnaire measure the variables reliably. The Chronbach's Alpha value was measured for this purpose .The results reveal that the questionnaires measure the variables reliably as shown in Table 2.

Table 2: Summary of Reliability Analysis.

Questionnaire	Alpha Value	Comment
Leadership Behavior Questionnaire	0.7647	acceptable
Success of TQM Questionnaire	0.6832	acceptable

6.2 Questionnaire Responses and the Profile of Employees

There were 42 responses from the 50 questionnaires. It is a response rate of 84%, which is at a satisfactory level. However 42 questionnaires were selected for this analysis. It shows that 80% of the respondents were male employees while the rest were female employees. The majority of the employees appear to be within the age group of 36-50(60%).The highest number of respondents having been employees with G C E (A/L) qualification (48%) while rest 30% and 22% of employees were degree qualifications and GCE (O/L) respectively. The respondents have been from majority group having job experience of 6-10 years. There were 85% of married and 15% unmarried employees in the sample.

6.3 Descriptive Analysis

The Standard Error of Mean (SEM) is less than 3.5% for all variables and the highest standard error of mean is for leadership behavior (2.6%). The success of TQM has the highest average scores. Overall averages are above 3.00, and it implies that successfulness of all factors. Table 3 shows a summary of the descriptive statistics.

Table 3: Summary of Descriptive

Factor	Mean	Standard Deviation	Remarks
Leadership	4.08	0.343	High dispersion: Incoherence among the respondents
Success of TQM	4.15	0.248	Low dispersion: Coherence among the respondents

6.4 Correlation Analysis

Scatter plots were taken to identity relationship of success of TQM with the leadership. The correlation between leadership and success of TQM is positive and significant at 1% significance level since r = 0.530 and P = 0.000. Table 4, holds the results of the scatter plots.

Table 3: Comment on Scatter Plots

Variables Involved	Correlation Co-efficient(r).	Comments
Leadership-Success of TQM	0.530	A positive correlation. The points are much scattered around a straight line

The study reveals a moderate relationship between leadership and success of TQM (r = 0.531, P = 0.000). This is significant at 1% significance level. Hence leadership is reflected on success of TQM. The distribution of the leadership shows that the Mean and standard Deviation are at favorable levels. (Mean = 4.0789, Standard Deviation = 0.3425). The Standard Deviation shows that all senior managers' leadership behavior is committed on the quality at plus or minus 0.3425 Standard Deviation level.

7. Conclusions and Recommendations

Everyone in the organization is responsible for quality; especially senior management, however, only the latter can provide leadership system to achieve the desired results. To do so, senior management must practice the philosophy of management by thorough research and understanding of what it will take to lead a company successfully. Management should get out of the office and visit the customers, suppliers and departments within their organization, so that comprehension can be made about what is happening with a particular customer, supplier etc. Leadership plays a vital role in the implementation of TQM and with strong leadership success will be brought about into the company. With this concluded, the authors propose the following recommendations for practical and sustainable implementation of TQM.

- Successful implementation of Total Quality Management (TQM) in construction industry can be achieved through persistence, positive hands-on leadership, upfront preparation and continuous maintenance of a successful plan.

- Construction industry participants need to improve their worker relations and show faith in their employees. Employees should be allowed to make decisions regarding their work and should be encouraged to propose solutions related to work problems. Through effective communication and improved project coordination, workers must be motivated to improve their work.
- Motivation, training and retention of good employees must be enhanced by the human resource developers of the organization, combined with the support of the unions and employees about the concept of TQM.
- In order to improve overall performance, project team needs to focus on aspects of time, performance, maintenance of a stable and well-trained workforce, and establishing long-term partnerships among themselves.

9. References

Aalbregtse, R.J., Hejka, J.A. and McNeley, P.K. (1991). "Total Quality Management (TQM): How do you do it?" *Automation*, August, pp. 30-32.

Ahire, S.L., Ravichandran, T. (2001). "An innovation diffusion model of TQM implementation". *IEE Transactions on Engineering Management*,48(4), 445-64

Anderson, J. C., Rungtusanatham, M., & Schroeder, R. G. (1994). "A theory of quality management underlying the Deming management method". *Academy of Management Review*, 19(3), 472-509.

Berry, T.H. (1991). "Managing the Total Quality Transformation", *McGraw-Hill Book Company*, New York.

Bounds, G., Yorks, L., Adams, M., Ranney, G. (1994). "Beyond Total Quality Management – Towards the Emerging Paradigm", *McGraw-Hill Book Company*, Singapore.

Dahlgaard J. J., Kristensen K. and Kanji, G.K (1998). "Fundamentals of Total Quality Management – Process Analysis and Improvement", *1st Edition, Chapman and Hall, London.*

Dale, B.G. (ed.) (1994). "Managing Quality*", Prentice Hall, London*.

Das, A., Kumar, V., & Kumar, U. (2011). "The role of leadership competencies for implementing TQM: an empirical study in Thai manufacturing industry". *International Journal of Quality & Reliability Management*, 28(2), 195-219.

Dennis Krumwiede, Chwen Sheu and Jerome Lavelle (1996), "Total Quality Management and Leadership Personality". *ASEE Annual Conference Proceedings*.

Flynn, B.B., Schroeder, R.G. and S. Sakakibara, (1995), "The impact of quality management practices on performance and competitive advantage". *Decision Science Journal*, 26 (5), 659-691

Fucso, A.A. (1994). "Translating TQM into TQS". *Quality Progress*, 1(5). 105-108.

Garvin, D. A. (1988). "Managing Quality: The Strategic and Competitive Edge", *The Free Press, New York, NY*.

Gonza´lez, T.F. and Guille´n, M. (2002), "Leadership ethical dimension: a requirement in TQM implementation", *The TQM Magazine*, Vol. 14 No. 3, pp. 150-64.

Johnson, R. S. (1994). "Leadership for the quality transformation (Pt. 4)". *Quality Progress*, 26(4), 47-49.

Juran, J.M. and Grayna, F. M. (1993). "Quality Planning and Analysis", 3*rd Edition, McGraw Hill International Editions*.

Lewis, R.G., & Smith, D.H. (1994). "Total quality in higher education. Florida: St. Lucie"

Oakland, J.S. (1993). "Total Quality Management", *Butterworth-Heinemann*.

Perles, G.S.M. (2002), "The ethical dimension of leadership in the programs of total quality management", *Journal of Business Ethics*, Vol. 39 Nos 1-2, pp. 59-66

Ramirez, C., & Looney, T. (1993). "Baldrige award winners identify the essential activities of successful quality process". *Quality Digest*, January. 38–40

Serafimovska H, Ristova E. (2011), "The Impact of Leadership on Achieving Total Quality Management"

Spencer, B.A. (1994). "Models of organization and total quality management: A comparison and critical evaluation". *Academy of Management Review*, 19(3), 446-471.

Tenner, A. R. & DeToro, I. J. (1992). "Total quality management Three steps to continuous improvement". *Reading, MA: Addison-Wesley*

Waldman, D. A. (1994). "The contributions of total quality management to a theory of work performance". *Academy of Management Review*, 4(3), 510-536.

Walton, M. (1986). "The Deming management method". *New York: Putnam*.

Yusof, S.M. (2000). "Development of a Framework for TQM Implementation in Small Business", *Ph.D Thesis, Faculty of Engineering, University of Birmingham, United Kingdom*.

Zairi, Mohamed (19940. “Leadership in TQM Implementation: Some Case Examples”. *TQM Magazine*, Volume 6 Number 6