

The Link between Organizational Learning Capability and Quality Culture for Total Quality Management: A Case Study in Vocational Education

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Abstract

Both the total quality management (TQM) and learning organization (LO) appear to be promising approaches for organizational transformation towards a more effective, efficient, and responsive organization in the past. The evolutionary development and theory supports for these two fields are distinct but they appear to have more in common than they have in distinctiveness. However, there is little synergy developed between these two fields both in academic research and industrial applications. It is possibly due to the fact that both the academia and industry are taking a limiting polarized view of TQM and LO and hence not getting the benefits of linking the two. This paper tries to establish a link between the organizational learning capability and the quality culture for TQM implementation based on a case study on the largest vocational education institution, the Vocational Training Council, of Hong Kong. The study reveals that there is a strong positive correlation between organizational learning capability and quality culture. The exploratory explanations for the links between the organizational learning capability constructs and the quality culture constructs are also discussed in this paper. The findings of the study support other literatures that TQM should be embedded in LO and serves as an enabler for organizational learning (OL) in transforming and creating organizations which continuously expand their abilities to change and shape their future.

Key Words: Organizational Learning, TQM, Quality Culture, Vocational Education

1. Introduction

Total quality management (TQM) has generally been recognized as a major innovation in management thought and has gained widespread acceptance in business and industry. The

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evolution of TQM into an all pervasive philosophy of management took shape through the works of Crosby, Deming, Feigenbaum, Juran and Taguchi. Dean and Bowen (1994) see TQM as a philosophy or an approach to management that can be characterized by its principles, practices, and techniques. Its three principles are customer focus, continuous improvement, and teamwork. Gaither (1996) defines TQM as the process of changing the fundamental culture of an organization and redirecting it towards superior product or service quality. Education sector has recognized the importance of TQM and the number of education institutions adopting TQM has increased significantly in the last two decades.

On the other hand, organizations have come to believe that the way in which an organization learns is a key index to its effectiveness and potential to improve, innovate and grow. Building a learning organization (LO) gives a promising solution to organizations under turbulent and uncertain work environment (Garavan, 1997). Similar to the TQM, there are also numerous interpretations and definitions of LO. Senge (1990) describes learning organizations as organizations in which "people continually expand their capacity to create results they truly desire". Garvin (1993) offers a more practical definition and defines LO as "an organization skilled at creating, acquiring, and transferring knowledge, and at modifying its behaviour to reflect new knowledge and insights". A LO can simply be regarded as an "organization form" with values, policies, practices, system, structure, culture etc. that supports and accelerates organizational learning (O'Brien, 1994). The concept of organizational learning (OL) goes as far back as the 1950s (Marsh and Simon, 1958). More recently a common theme emerging from different perspectives on organizational learning focuses on the need for organizations to adapt to changing environments, learn from the past, anticipate and respond to threats, and continuously improve and innovate to build a desirable future.

The evolutionary development and theory supports for TQM and LO are distinct but they appear to have more in common than they have in distinctiveness. However, there is little synergy developed between these two fields both in academic research and industrial applications. It is possibly due to the fact that both the academia and industry are taking a limiting polarized view of TQM and LO and hence not getting the benefits of linking the two (McAdam *et al.*, 1998). Sohal and Morrison (1995) point out that LO principles like experimentation with new approaches, knowledge transfer etc. are best realized by grounding them on TQM principles and culture. On the other hand, review of current literatures shows that quality culture is a critical factor for successful TQM implementation (Chin *et al.*, 2002; Ngowi, 2000). The present study tries to establish a link between the organizational learning capability and the quality culture for TQM in the context of vocation education, and the possible explanations for the relationships between organizational learning capability constructs and the quality culture constructs in view of the literatures and current work practices will be provided.

This study is carried out in the Hong Kong Institute of Vocational Education (IVE) of the Vocational Training Council (VTC), which is the largest provider of vocational education and

training in Hong Kong. The VTC provides job related training and education to about 140,000 people annually, and over 340 courses at various levels from higher diploma to craft certificate are provided. As the other local higher educational institutions, the VTC was protected from external threats and isolated from the dictates of consumers in the past. However, the scenario changed immensely during the last decade, the VTC is currently facing increased competitions, reduced funding, numerous educational reforms, and coupled with greater demands for accountability from government and other stakeholders. In response to these changes, the VTC has started implementing the TQM as early as in 1998 so as to establish an organization-wide platform for quality vocational education. In the recent strategic plan, the VTC has further recognized that the current organization is not flexible, adaptive, effective and efficient enough to face the recent challenges and the numerous educational reforms, and the organization should become more entrepreneurial, adaptive and client-focused. This explains the context and rationale of conducting the present study.

2. Total Quality Management and Learning Organization

Relationship between TQM and LO has been discussed in recent literatures. Garvin (1991) reports that the LO concepts appear to address similar categories of the MBNQA. Dervitsiotis (1998) has similar findings for the EFQM award. Luthans *et al.* (1995) argue that TQM is tended to focus on internal processes rather than external issues, and is more reactive and adaptive than anticipative. LO envisions changes and commits to generating and transferring new knowledge and innovation. Facing uncertain and turbulent environment, it is time for organizations to go beyond TQM and to understand the nature and application of organizational learning. TQM should be embedded in LO, but TQM is only the first step or wave in transforming and creating organizations which continuously expand their abilities to change and shape their futures. Other authors (Garvin, 1993; Love *et al.*, 2000) support that TQM can provide an environment for organizational learning or TQM can serve as an enabler for organizational learning.

Goetsch and Davis (1997) define quality culture as an organizational value system that results in an environment that is conducive to the establishment and continual improvement of quality. It consists of values, traditions, procedures, and expectations that promote quality. Many literatures confirm that quality culture determines the effectiveness of TQM implementation and organizational performance (Powell, 1995; Iran *et al.*, 2004; Chin and Pun, 2002). Detert *et al.* (2003) conduct a detailed study and have identified nine quality culture constructs for TQM in education sector, namely:

Shared Vision: a shared vision and shared goals among staff members are critical for

college success.

Customer Focus: educational needs should be determined primarily by relevant stakeholders rather than by educational experts alone.

Long Term Focus: improving education requires a long-term commitment and fulfillment of long term goals.

Continuous Improvement: college should strive to make continuous changes to improve education.

Teacher Involvement: teachers should be active in improving the overall college operation.

Collaboration: collaboration among different departments/units is necessary for an effective college.

Data Based Decision Making: decision making should rely on factual information.

Systems/Ownership Focus: quality problems are primarily caused by poor systems and processes, not by teachers; emphasis on process ownership.

Quality at Same Cost: quality could be improved with the existing resources.

A LO has to promote and nurture its capability to learn for improvement and innovation. Goh and Richards (1997) propose that organizational learning capability (OLC) can be determined by measuring its essential organizational characteristics and management practices that promote organizational learning, and an organizational learning survey instrument has been developed to measure the OLC. Similarly, Gomez *et al.* (2005) identify four OLC dimensions/constructs, namely:

Management Commitment: management support and commitment to shared vision, organizational learning and developing culture for knowledge acquisition, creation and transfer; involved and facilitative leadership.

Systems Perspective: building a shared vision; system thinking-viewing the organization as a whole system.

Openness and Experimentation: a climate of openness for new ideas allowing individual knowledge to be constantly renewed, widened and improved; support experimentation in searching for innovative flexible solutions for problems.

Knowledge Transfer and Integration: team work and learning, mechanism for knowledge spreading at an individual level and integrated into the organization.

The above review shows that there is a relationship between organizational learning capability and TQM especially in the perspective of quality culture. The study presented in the next two sections elaborates further this relationship in terms of quality culture constructs and OLC dimensions.

3. Study Methodologies

With references to the School Quality Management Culture Survey proposed by Detert *et al.* (2003) and the Organizational Learning Capability Measurement Scale of Gomez *et al.* (2005) discussed above, a measurement instrument in the form of a structured self-administrated questionnaire is developed for the present study. The questionnaire consists of 50 questions in three parts.

- i. Part A addresses the personal particulars of the respondents including discipline, length of services, rank etc.
- ii. Part B measures the organizational learning capability.
- iii. Part C measures the cultural values or beliefs relevant to the TQM implementation in the Organization.

Likert scales of 1 to 7 are used with 1 being “totally disagree” and 7 represented “totally agree”. Stratified sampling technique is employed for the selection of survey respondents. Stratified sampling means subjects are selected by dividing up the population into groups (strata) and subjects within strata are randomly selected. The staff members of the organization are divided into different strata according to their academic disciplines (e.g. construction, business administration etc.). The proportion of staff being selected from each stratum is about the same. For each stratum, it is again further divided into senior and operational staff. Within each stratum, staff members are then randomly selected with a proportion matching with the ratio of senior to operational staff in the organization. This procedure ensures staff will have an equal chance of being selected. Respondents are requested to indicate their level of agreement with each question. Statistical analysis on the self-reported data of the questionnaires will be performed by means of the SPSS 12 for Windows. The validity and reliability of the test constructs are measured by factor analysis and the Cronbach alpha respectively. The link between organizational learning capability and quality culture is then determined by means of correlation analysis.

4. Analysis of Results

A total of 55 valid questionnaires are received, which represents a return rate of about 22%. Among the respondents, the ratio of senior staff to operational staff is close to the actual ratio of the organization that indicating the sample group is a fair representation of the staff distribution of the organization. The findings of the survey are summarized in Table 1-2.

Table 1. Organizational Learning Capability Survey (Questionnaire Part B)

Organizational Learning Capability Construct	Questions Number	Factor Loading	Reliability (Cronbach α)
Management Commitment (OLCC1)	B1	0.695	0.641
	B2 (rs)	0.671	
	B3	0.621	
	B4	0.633	
	B5	0.592	
Systems Perspective (OLCC2)	B6	0.839	0.677
	B7	0.779	
	B8	0.715	
Openness and Experimentation (OLCC3)	B9	0.888	0.797
	B10	0.794	
	B11	0.725	
	B12	0.756	
Knowledge Transfer and Integration (OLCC4)	B13	0.788	0.665
	B14	0.798	
	B15 (rs)	0.672	
	B16	0.623	

Remark: rs = reverse scored

Table 2. Quality Culture Survey (Questionnaire Part C)

Quality Culture Construct	Questions Number	Factor Loading	Reliability (Cronbach α)
Shared Vision (QCC1)	C7	0.700	0.617
	C12	0.719	
	C21	0.840	
Customer Focus (QCC2)	C4	0.804	0.575
	C8	0.749	
	C15 (rs)	0.527	
	C23	0.540	
Long-Term Focus (QCC3)	C1 (rs)	0.864	0.767
	C11	0.746	
	C28 (rs)	0.766	
	C31	0.694	
Continuous Improvement (QCC4)	C3	0.629	0.609
	C16 (rs)	0.772	
	C22 (rs)	0.658	
	C26	0.652	
Teacher Involvement (QCC5)	C2	0.763	0.733
	C19	0.802	
	C29	0.863	
Collaboration (QCC6)	C5	0.713	0.580
	C27	0.783	
	C30	0.725	
Data-Based Decision Making (QCC7)	C9	0.732	0.610
	C13	0.577	
	C18	0.620	
	C24	0.791	
System/Ownership Focus (QCC8)	C6	0.733	0.684
	C17	0.796	
	C25	0.833	
Quality at Same Cost (QCC9)	C10 (rs)	0.673	0.574
	C14	0.870	
	C20	0.657	

Remark: rs = reverse scored

Factor loadings of Table 1 and 2 are correlations of the variables with the factors. It is usual to regard factor loadings as high if they are greater than 0.6 and moderately high if they are above 0.3 (Kline, 1999). As the factor loadings for all 13 constructs range from 0.527 to 0.888, the factor relationships for all the four organizational learning capability constructs (OLCCs) and the nine quality culture constructs (QCCs) are therefore well established, i.e. they are all valid measurement scales for the intended measurement. On the other hand, the Cronbach alpha values for all constructs lie between 0.574~0.797. Normally, the alpha value should be greater than 0.7 for well established measures, but can be somewhat lower for measures that just being developed, in the 0.6 or 0.5 range (Nunnally and Bernstein, 1994). As no alpha value in this study is less than 0.5, therefore the results are considered to be consistent and reliable. As a conclusion, the four OLCCs and the nine QCCs are shown to be valid and reliable measurement scales for measuring the organizational learning capability and quality culture for the Organization.

After confirming the validity and reliability of the measurements, the correlations between the OLCCs and QCCs are then determined with the SPSS 12 for Windows, as summarized in Table 3.

Table 3. Correlation between Organizational Learning Capability and Quality Culture

	OLCC1	OLCC2	OLCC3	OLCC4	Overall
QCC1	0.533	0.397	0.469	0.411	0.586
QCC2	0.275 [#]	0.462	0.397	0.502	0.533
QCC3	0.514	0.632	0.438	0.480	0.664
QCC4	0.453	0.504	0.350	0.276 [#]	0.507
QCC5	0.436	0.484	0.475	0.597	0.644
QCC6	0.280 [#]	0.406	0.453	0.443	0.518
QCC7	0.582	0.613	0.465	0.546	0.708
QCC8	0.729	0.588	0.468	0.632	0.769
QCC9	-	0.349	-	-	0.288 [#]
Overall	0.676	0.737	0.638	0.707	0.889
Overall ⁺	0.686	0.739	0.633	0.718	0.894

Note: All correlations are significant at 0.01 level, entries marked with (#) are significant at 0.05 level

- statistically insignificant + QCC9 ignored

All correlations between the QCCs and OLCCs are found to be significant at 0.01 level, except the four highlighted with a # (at 0.05 level) and the three statistically insignificant ones in Table 3. Besides, it seems that QCC9 (quality at same cost) is not much related to organizational learning capability. The overall correlation is found to be + 0.889, or + 0.894 after excluding QCC9. In either case, the correlation coefficient ($r > + 0.75$) reveals that a strong positive correlation existed between the OLC and the quality culture.

5. Discussion

Important QCCs in relations to the OLCCs (with $r > 0.5$) are listed in Table 4 for easy references. Among the eight QCCs, QCC7 and QCC8 are found to be the two common constructs with relative high correlations with all the OLCCs except OLCC3.

Table 4. Significant QCCs in Relations to OLCCs

Organizational Learning Capability Construct	Important QCCs in Relations to the OLCC with Correlation Coefficient, $r > 0.5$
Management Commitment (OLCC1)	Shared vision (QCC1) Long-term focus (QCC3) Data-based decision making (QCC7) System/ownership focus (QCC8)
Systems Perspective (OLCC2)	Long-term focus (QCC3) Continuous improvement (QCC4) Data-based decision making (QCC7) System/ownership focus (QCC8)
Openness and Experimentation (OLCC3)	NIL
Knowledge Transfer and Integration (OLCC4)	Customer focus (QCC2) Teacher involvement (QCC5) Data-based decision making (QCC7) System/ownership focus (QCC8)

The possible explanations to these significant correlations in view of literatures and existing work practices are explored. Literatures show that LO with management commitment (OLCC1) should emphasize a culture on shared vision, and develop long term objectives with full commitment (Brandt, 2003; Pettinger, 2002) – QCC1 and QCC2. Effective communication system should be provided to facilitate information sharing and data acquisition that are vital for decision making (Wycoff, 2003; Brandt, 2003) – QCC7. LO should promote systems approach and process ownership with adequate empowerment for continuous improvement and innovation (Belasen, 2000; Marquardt, 1996) – QCC8.

LO with strong system perspective (OLCC2) requires the leaders demonstrating long term commitment (QCC3), and both leaders and staff should continuously improve (QCC4) their work processes and output (Goh, 1998; Pettinger, 2002). Similarly, effective communication system for information sharing and data acquisition (QCC7), emphasis on system approach and process ownership (QCC8) can promote systems thinking throughout the organization (Brandt, 2003; Wang and Ahmed, 2003).

The findings show that there are only weak correlations between OLCC3 and the individual QCCs although it is strongly correlated to the QCC as a whole. Openness and ex-

perimentation (OLCC3) are important ingredients to nurture organization creativity and innovation culture (Leavy, 2005). Kunstler (2005) reports that creativity and innovation culture are lacking in education institutions but these factors are critical for the survival and growth of the institutions on facing challenges. The weak correlations between OLCC3 and the QCCs suggest that the VTC or the vocational education sector in Hong Kong is not as highly “innovative” as organizations within the commercial or industrial sectors. However, as the challenges and competitions in the vocational education sector will definitely become more and more severe in the near future, the issues of organization creativity and innovativeness (in relations to OLCC3) need to be seriously addressed.

To facilitate knowledge transfer and integration, LO should emphasize and promote a culture on customer focus (Tidd *et al.*, 1997), staff participation, empowerment and team work (Tidd *et al.*, 1997; Shelton and Darling, 2003). Similarly, an effective communication system for information sharing and data acquisition, emphasis on systems thinking and process ownership also promote knowledge transfer and integration within an organization (Brandt, 2003; Goh, 1998; Chanal, 2004).

6. Conclusion

The measurement instrument developed for this study has identified four OLCCs and nine QCCs capable of measuring the organizational learning capability and quality culture for the vocational education sector. This study also shows that there is a strong positive correlation between the organizational learning capability and the quality culture for TQM. Possible explanations on strong correlations among OLCCs and specific QCCs in views of literatures and work practices are also discussed.

The results of this study reinforce the authors' believe that linking the organizational learning and TQM with due regards to its quality culture can bring synergetic benefits and facilitate the transformation towards a learning organization. TQM can serve as an enabler for organizational learning because an appropriately developed quality culture can enhance its organizational learning capability to change and shape its future.

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