THE TOTAL QUALITY MANAGEMENT (TQM) MODEL: THE MEDIATING ROLE OF ORGANIZATIONAL LEARNING AND QUALITY IMPROVEMENT ON THAI E-GOVERNMENT PERFORMANCE: A CONCEPTUAL FRAMEWORK

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ABSTRACT

Total quality management (TQM) has been widely considered as the strategic, tactical and operational tool in the quality management research field. There is a great challengingfor public sectors in adopting and implementing this strategy in order to maintain their sustainable quality performance. The aim of this study is to develop and propose the conceptual framework and research model of TQM implementation with quality improvement and organizational learning as the mediating role in relation to organizational performance particularly in context with the Thai E-government organizations. It examines the relationships between TQM,quality improvement, organizational learning and organizational performance by measuring the quality performance as performance indicator. A comprehensive review of literature on TQM,quality improvement, organizational learning and organizational performance was carried out to accomplish the objectives of this study and a research model and hypotheses were generated. Two research questions and 6 hypotheses were proposed to re-validate the TQM model. The adoption of such a theoretical model on TQM quality improvement, organizational learning and organizational performance would help public officials, decision makers, and practitioners of quality management in better understanding of the TQM practices and to focus on the identified practices while implementing TQM with quality improvement and

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organizational learning in their organizations. Further, the scope for future study is to test and validate the theoretical model by collecting the primary data from ThaiE-government organizations and using Structural Equation Modeling (SEM) approach for hypotheses testing.

Keywords: total quality management (TQM); quality improvement; organizational learning; organizational performance; Thai E-government organization.

INTRODUCTION

Currently, Informational Technology has developed rapidly and an important role. Technology is a tool that makes the process more efficient functioning of the organization and be able to respond the needs of users with better service. Thailand has entered the information technology to contribute to the development of E-government, such as filing taxes online system, online registration system, etc. E-Government is to operate state using modern computer technology and communication networks to optimize the performance of the public sector to improve the public service, information services and to promote economic and social development (Lundvall& Johnson, 1994) as well as a country competency to drive the competition in the knowledge economy and allows people to have more affinity with the government (Fang, 2002), the development of E-Government is a core strategy in the development of information technology and communication of Thailand (ICT), which is a way of new public management by the application of ICT to enhance the operational efficiency of the sector and services to the citizen using the Internet as an electronic media services enable people to get quick and easy access thoroughly and evenly.

However, Thai E-Government in public sectors is ongoing problem of the development of Information and Communication Technology of Thailand. Thai public sectors bring computer applications for no benefit to develop the government with delay if compared to the private side and no use information and communication technology adequately and direction to develop. A progressive of the information technology systems of the various departments' inequality or other public sectors seem not interested in or lack the resources needed and continue to lack direction.

In order to bridge the gap and provide public sectors with practical assistance in correctly managing and implementing the TQM practices to achieve quality performance, this

study proposes a conceptual model of TQM implementation in relation to company performance (quality performance) particularly for Indian service sector to examine whether the implementation of TQM practices result in an improvement of company's quality performance. Thus, the scope of this study is in finding out the association between the TQM practices and quality performance in the service industry and more precisely, Thai E-Government. Given the above reasons, the objectives of this study are two fold:

• To explore the relationships between TQM,organizational learning, quality improvement and Thai E-government performance; and

• To develop a conceptual framework and research model of organizational learning and quality improvement as the mediating role in relation to Thai E-government performance.

The remaining of this study is structured as follows. In the second section, the theories laid down in the literatures of key TQM practices, relationships between TQM, quality improvement, organizational learning and organizational performance are reviewed. In the next section, development of conceptual framework and research model is presented followed by formulation of proposed research questions, hypotheses and research methodology. Finally, conclusions of this study are discussed, which is followed by implications and recommendation for future research.

LITERATURE REVIEW

Key constructs of TQM

Total quality management (TQM) is a powerful tool to learn and increase organization the competitive advantage. (Hendrick&Singhal, 2001; Martinez-Costa & Jimenez-Jimenez, 2009; Martinez-Lorente, Dewhurst &Gallego-Rodriguez, 2000; Terziovski& Samson, 2000; Walley, 2000) To study quality management which everyone within organization must concern all areas and stages in order to continuous quality improvement. TQM is the one of the many popular tools used to develop the organization to excellence (Deming, 1986). Presently, there are many organizations looking forward to developing their potential as criteria. Quality levels of the public sectors must be developed as a continuous process of TQM and the operating system can be modified to improve the quality of the activities to become accomplished by specific clients and stakeholders being sustainable (Benson et al., 1991; Saraph et al., 1989)

TQM is a constantly developing management belief for organizations. The beliefs engages a systematic, unchanging, integrated, organization extend attitude engaging everything and every person. There is a general agreement that TQM is a way to manage an organization for developing its overall effectiveness to compete internationally (Easton and Jarrell, 1998; Handfield et al., 1998; Hendricks and Singhal 1996; Anderson et al., 1994; KunstandLemmink, 2000). According to Al-khalifa and Aspinwall (2008), the level of awareness and knowledge of TQM has been increased considerably during last decade. Many studies have investigated such TQM implementation. Some variables such as leadership, teamwork, and customer focus were widely addressed by Karuppusami and Gandhinathan (2006).

Some other variables like training, product/service design, process management, and supplier quality management, were investigated by Saraph et al.(1989), Black and Porter (1996), Motwani (2001), Antony et al., (2002), and Sila and Ebrahimpour (2005). Mohrman et al, (1995) pointed out that Quality culture is the design of arrangement items or behavior which has been adopted by a society (team, group) as the admitted way of solving problems. An organization with a 'quality culture' can be defined as one having "clear values and beliefs that foster total quality behaviour". Moreover, communication is the life blood of an organization and plays a significant role in connection with quality issues. There is strong relationship between good communication and successful quality implementation (Black and Porter, 1996).

TQM literature from other researchers was studied. Based on the results of the literature review, the concept of TQM was defined. In this study, TQM consists of 9 constructs; implementing TQM is merely to implement these 9 constructs. Implementing each construct is through a set of TQM practices

Relationships between TQM and organizational performance

Many researchers have concluded that TQM has a positive effect on company results (Martinez-Costa and Jimenez-Jimenez, 2009). Kaynak (2003) examines the relationships among TQM practices and the direct and indirect effects of these practices on various performance levels, Samson and Terziovsky(1999) shows this relationship in cross-sectional sense; meaning that TQM's categories of leadership, management of people and customer focus were the strongest significant predictors of operational performance.

A considerable body of empirical evidence suggests that TQM implementation improves organizational performance of the organization. It has been measured in various ways

and found that the quality management model and specific practices, which best predict performance varies across the world (Adam and Foster,2000; Prajogoet al, 2004; Arumugam et al., 2008).The research framework for quality management proposed by Flynn et al. (1994) suggested that the inputs of this frameworkare the quality management (QM) practices while quality performance represents outcomes. Further, product design process,process flow management, and top-management support have significant correlation with organizational performance (Flynn et al., 1995).

Parzinger and Nath (2000) examined the link between TQM and software quality and found that TQM implementationimproves the software quality and performance, and thus, increases customer satisfaction. Hasan and Kerr (2003) studied therelationship between TQM practices and organization performance in service organizations and discovered that TQM practiceslike top-management commitment; employee involvement; training; supplier quality; quality costs; service design; qualitytechniques, benchmarking; and customer satisfaction leads to higher productivity and organizational performance.

Prajogo and Brown (2004) conducted an empirical study within Australian organizations to investigate the relationshipbetween TQM practices and organizational performance, and the results indicated a strong and positive linkage. A study on ISO9000certified organizations of Taiwan performed by Jeng (1998) examined linkage between six QM practices and organizational performance.

Many researchers found customer focus as the most powerful discriminated practice of quality performance while remaining five practices showed low discriminating powers. Brah and Tee (2002) examined the relationship between TQM constructs and organization performance by measuring organizational performance of Singapore companies. They found that implementation of TQM leads to quality performance and have positive correlation. Another study based on the comparative analysis of TQM practices and quality performance between Australian manufacturing and service firms, Prajogo (2005) reported that there exist no significant differences in the level of most of the TQM practices and organizational performance between two sectors.

A study utilizing structural equation modeling (SEM) approach by Sanchez-Rodriguez et al., (2006) provided the insights into the current information technology (IT) and TQM theory and practice on operational and quality performance. They found TQM initiatives generate

significant positive gains in operational and quality performance. In line to this, Prajogo and Sohal (2004) also employed SEM approach to examine the multidimensionality of TQM in association with organization performance. Using empirical data collected form 194 Australian firms the finding support the proposition in pairing the mechanistic elements of TQM with quality performance and the organic elements with innovation performance.

A recent empirical study conducted by Arumugam et al. (2008) explored the relationship between TQM practices and quality performance on ISO9001:2000 certified manufacturing organizations in Malaysia. Analyzing empirical data drawn from 122 Malaysian organizations through correlation and multiple regression analyses, the finding revealed that TQM practices were found to be partially correlated with quality performance. They further found that customer focus and continuous improvement were perceived as dominant TQM practices in organizational performance.

Relationships between organizational learning and quality improvement

The world around us and the environment in which different organizations are working is becoming progressively complicated day after day. In order to survive, organizations need to adapt themselves to the new changes and developments. An organizational learning is considered as a major privilege in this competitive world (Zareet al, 2010) because organizations need to learn in order to strive hard to overcome the chaotic and changing conditions (Hannah & Lester, 2009). Organizational learning promote quality improvement and employee creativity (Calantone et al, 2002; Ramus and Steger, 2000), which in turn helps to improve organizational performance (Luo et al., 2005; Pearce et al., 2010). It can also facilitate knowledge sharing and transfer within the organization (Jiang and Li, 2008), which is very important in the process of organizational performance. Nowadays organizations have found the significance of organizational learning as a vital corporate strategy and development of quality (Romero-Martínez et al., 2010) and some studies show that organizational learning is an important factor that helps organizations to improve their quality (AktanandBulut, 2008; Douglas and Fitzsimmons, 2009; Molina and Callahan, 2009).

To improve their performance, organizations need to focus on continuous learning and use of knowledge, which can serve as a critical key to success for facilitating individual, team, and organizational learning leading to continuous improvement in business operations (Harrim,

2008; Watkins andMarsick, 1996; Weldy, 2009). In order for organizations to achieve these ends, they need to have the qualities of organizational learning. It is an organization that helps facilitate the learning of all its members and consciously modifies itself and affects its context (Pedleret al., 1996). Additionally, Organizational learning comprise embedded systems to capture and share knowledge so that the organization may continue to progress and develop competitively (Calantone, et al., 2002; Gonzalez, 2010). According to Watkins and Marsick (1993), Organizational learning is "an organization that learns continuously and transforms itself. Learning takes place in individuals, teams, the organization and even the communities with which the organization interacts. Learning is a continuous, strategically used process – integrated with, and running parallel to work"

Relationships between quality improvement and organizational learning on organizational performance

Several studies on quality improvement such as Deming (1986), Schmidt andFinnigon (1992), Opara (1996), HendriksandSinghal (1996), Wimsatt (1998) and Christiansen (1995), have indicated that quality improvement practices bring improvement to overall performance. Ahire (1996) proposes that quality improvement in organizations can improve product quality and business performance. He also suggested that there was a significant positive relationship between quality improvement and performance. In addition, several other studies also have succeeded in providing evidence that quality improvement practices have a positive effect on overall performance of organizations (Schaffer and Thomson, 1992; Opara, 1996; Cherkasky, 1992; Agus and Hassan, 2000). Deming (1986) and Juran (1988) believed that quality can have positive impact on improving performance.

The linkage between quality and quality improvement was widely investigated by Prajogo and Sohal (2004), Hendricks and Singhal (2001), Kaynak (2003), Easton and Jarrell (1998), Powell (1995), Samson and Terziovski (1999). The relationship between quality and quality improvement was addressed for manufacturing firms by Motwani et al (1994) and Christiansen and Lee (1994), for service organizations by Kanji and Tambi (1999) and Brah et al.(2000) or a combination of manufacturing and service firms by Powell (1995), Hendricks and Singhal (1996), and Easton and Jarrell (1998). According to these studies, effective quality implementation leads to performance improvement. In line with these studies, Terziovski et al (2003) carried out a research on 400 of Australian companies. According to this study, they

found quality as a significant factor that had positive impact on performance. Similar to above researchers, Demirbag et al (2006) and Kaynak (2003) emphasized on positive impact of quality on performance improvement.

According to Baker and Sinkula (1999) not only think that the organizational learning orientation of a firm affects its performance directly but they also think there's an indirect relationship between. A firm's learning orientation influences its performance indirectly by improving the quality of its market-oriented behaviors and directly through facilitating the generative learning that leads to innovations (Baker and Sinkula, 1999). The direct influences of organizational learning can be listed as; (1) the promotion of generative learning as a core competency as a result of knowledge creation, (2) the questioning of long-held assumptions such as to always follow market-oriented strategy, instead try to lead the market with new product development strategy for instance, (3) the realization that customer satisfaction cannot always be maximized with customer feedback mechanism but innovative disruptions are needed (Baker and Sinkula, 1999). Accordingly the learning orientation influences firm performance indirectly through market information generation and market information dissemination (Sinkula et al., 1997). This market information processing, is a necessary condition for organizational learning, essentially the process transforming information into knowledge (Sinkula et al., 1997).

CONCEPTUAL FRAMWORK

Based on the above literature review, a conceptual framework is developed and a research model has been proposed to examine the extent to which the 9 TQM practices with quality improvement and organizational learning as the mediating role are practiced and implemented in Thai E-Government organization and to explore the relationships between identified TQM practices and organizational performance by measuring the 'Quality Performance' as a performance indicator. The proposed TQM research framework is depicted in Figure 1. This research model suggests that the greater the extent to which these TQM practices are present, the quality performance of Thai E-Government organization will be higher.

The main objective of the study is to establish the TQM implementation and evaluation model for Thai E-Government organization.

The two research question of this study can be articulated as follows:

Research Question 1: What are the relation between TQM, organizational learning, quality improvement and organizational performance within Thai E-Government context?

Research Question2: What is the direct and indirect effect of TQM, organizational learning, quality improvement and organizational performance within Thai E-Government context?

Thus, a comprehensive review of literature suggests the extent of implementation of 9 TQM practices in the public sectors. Though, there exist a number of TQM practices but the identified 9 practices are frequently used and implemented in public sectors for better quality oriented results. This leads to the following hypotheses:

Hypothesis H1: TQM positively relate to quality improvement

Hypothesis H2: TQM positively relate to organizational learning

Hypothesis H3: Organizational learning positively relate to quality improvement

Hypothesis H4: TQM positively relate to organizational performance

Hypothesis H5: Quality Improvement positively relate to organizational performance

HypothesisH6:Organizational learning positively relate to organizational performance

The framework for above hypotheses is presented in Figure 1.

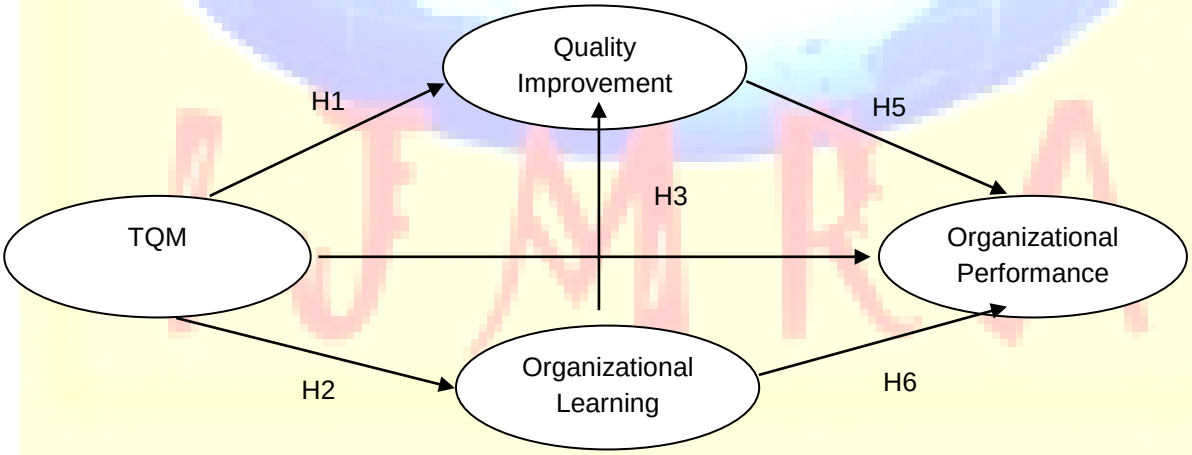

Figure 1. Proposed model**.**

RESEARCH METHODOLOGY

Instrument and measurement scales.

The main instrument in this study is a list of structured questions or questionnaires given to the Public official. The scale measures used in this study were adapted from existing measures using five-point Likert scale with "strongly disagree" and "strongly agree" anchoring the scales. Total quality management was measured on a 62 items scale measure adapted from Salaheldin (2009); Brah and Lim (2006); Kozak et al. (2007); Kaluarachchi (2009);Prajogo et al, (2005) Al-Khalifa et al. (2008) ; Hayat M.Awan et al (2008); Demirbag et al. (2006) ; Manuela S.Macinati (2008); ZulnaidiYaAcob (2008); Arawati (2005); Abdullah et al(2008,2009); Fryer et al (2007); Li et al. (2003). Organizational Learning was measured using 11 items scale measure adapted from Watkins and Marsick, (2003);Örtenblad, (2002), Ekwensi, Moranski, and Townsend-Sweet, (2006). study. Quality Improvement was measured using a 16 items scale adapted from Adam and Foster, (2000). Finally, Organizational performance was measured using a 9 item scale measure adapted from Curkovic et al., (2000). For measurement scales please refer to Table 1

Table 1: Measurementscales

No	Construct	Sources	Question Items
1	Total Quality Management	Salaheldin (2009); Brah and Lim (2006); Kozak et al. (2007); Kaluarachchi (2009);Prajogo et al, (2005) Al-Khalifa et al. (2008) ; Hayat M.Awan et al (2008); Demirbag et al. (2006) ; Manuela S.Macinati (2008); ZulnaidiYaAcob (2008); Arawati (2005); Abdullah et al(2007,2008); Fryer et al (2007); Li et al. (2003).	62
2	Organizational Learning	Watkins&Marsick, (2003);Örtenblad, (2002),Ekwensi, Moranski,	11

		andTownsend-Sweet, (2006).	
3	Quality Improvement	Adam & Foster, (2000)	16
4	Organizational performance	Curkovic et al., (2000)	9

Samples and procedures

The type of samples and the number of e-government organizations were determined on the basis of meeting the information requirements for the research. In this research, unit of analysis is organizational level and there are 283 public organizations with their own websitesuch as governmental agency, public organization,autonomous organization, state enterprises and organizations control by ministry. The respondents (purposive sampling) will be selected from the public chief executives' 9 - 11 level as representatives to analysis the model; moreover, public officials' 3 – 8 level have also been targeted and treated to accommodate a comparative analysis. Both of them must have been involved in online interaction using e-government applicationswith the purpose of establishing quality performance.

A sample size of 400 for public officials gives a statistical accuracy of ±5% and is often thought of as the most "cost effective" sample size. Another consideration with sample size is the number needed for the data analysis. If descriptive statistics are to be used, e.g., mean, frequencies, then nearly any sample size will suffice. On the other hand, a good size sample, e.g., 200-500, is needed for multiple regression, analysis of covariance, or log-linear analysis, which might be performed for more rigorous state impact evaluations. The sample size should be appropriate for the analysis that is planned.

Therefore, the population from data above was enough for this research purpose and statistical power. McQuitty (2004: 175-183) suggested that it is important to determine the minimum sample size required in order to achieve a desired level of statistical power with a given model prior to data collection. Schreiber et al (2006: 323-337) mentioned that although sample size needed is affected by the normality of the data and estimation method that researchers use, the generally agreed-on value is 10 participants for every free parameter estimated. Although there is little consensus on the recommended sample size for SEM (Sivo et al, 2006: 267-289), Garver and Mentzer (1999: 33-57), and Hoelter (1983: 325–344) proposed a

'critical sample size' of 200. In other words, as a rule of thumb, any number above 200 is understood to provide sufficient statistical power for data analysis. With reference on numbers of rule-of-thumbs available, the sample size in this research must be minimum 200 according to the most rigid rule. The reason for this was that such statistical power could have sufficiency to operate the structural equation model (SEM).

Electronic Government Agency (Public Organization) (EGA) provided the author with an organization name list. In Thailand, there were 283 E-government organizations. The data were based on previous research, and public executives and officials of 283 E-government organizations were totally selected from the list with the help of a computer. The sample size was decided after considering the expected response rate, requirements for performing statistical analyses, and survey cost and 283 questionnaires to their targeted groups along with their respective official documents. These documents (namely, cover letters, drafted by the author), which described the aim of the questionnaire surveys, were issued by National Institute of Development Administration (NIDA). The questionnaires were sent by mail directly to the executive departments in these 283 E-government organizations as shown in table 2.

Table 2: Targeted Thai E-government organizations

Types of public sector organizations		**Sampling Size**	
		Chief executive	**Public officials**
Governmental agency.	171	171	242
Autonomous organization	18	18	25
Public Organization	26	26	36
State enterprises	58	58	82
Organization control by Ministry	10	10	15
Total	**283**	**283**	**400**

Scale validation

In the present study, structural equation modelling (SEM) is used to examine the relations among TQM practices, organizational learning, quality improvementandorganizational performance as well as the mediating effect of organizational learning and quality improvement experienced by public employees. The application of SEM is executed using the Statistical Package for the Social Sciences (SPSS) 11.5 and Analysis of Moment Structures (AMOS) 16.0. The estimation of parameters in the models is determined using maximum likelihood estimation.

Four models are examined using the two-stage approach recommended by Anderson and Gerbing (1988). The first model (i.e., Measurement Model) involves the development of measurement models using confirmatory factor analysis (CFA) to achieve the best fitting group of items to represent each measurement scale.

The internal consistency of each construct is evaluated by assessing the composite reliability. In the present study, the composite reliabilities of all latent constructs are calculated using the formula suggested by Fornell and Larcker (1981). The composite reliabilities of all latent constructs are greater than the desirable values of 0.60 recommended by Bagozzi and Yi (1988). Discriminant validity can be assessed through the correlations analysis. Following Bagozzi and Warshaw (1990), discriminant validity is validated when each correlation is less than 1.0 by an amount greater than twice its respective standard error.

Structural models

Model fit indices are taken into account to confirm the model fit to the data. In this study, the model fit indices used include the chi square (χ^2) test statistics/degrees of freedom (d.f.) ratio, goodness-of-fit (GFI) index, adjusted goodness-of-fit (AGFI) index, root mean square error of approximation (RMSEA), normed fit index (NFI), comparative fit index (CFI), and Tucker Lewis index (TLI). There is a considerable fit for all models because the model fit indices of the models have exceeded the acceptance levels recommended by the prior studies (e.g., Hair et al., 2010; Chau and Hu, 2001; Forza and Filippini, 1998; Vandenberg and Scarpello, 1994; Browne and Cudeck, 1993).

CONCLUSION

The primary objective of this study is to develop a TQM model and evaluation research framework that can be used as a guide in the formulation of an effective TQM implementation approach to Thai E-Government organizations. Although, past studies on TQM have undertaken the identification and implementation of TQM practices successfully but still the literature on the investigation of linkage between TQM practices,quality improvement and organizational learning on organizational performance in context with the Thai E-Government organizations is in nascent stage. In line to this, the present study attempts to bridge this gap and contribute to the

development of conceptual framework and research model particularly for Thai E-Government organizations.

To carry out this study, the key TQM practices,quality improvement, organizational learningand organization performance measures indicators have been extensively investigated as presented earlier. Based on this review, a research model of TQM implementation in relation to quality improvement and organizational learning on Thai E-Government performance by measuring quality performance has been proposed. Two research questions and 6 hypotheses were formulated from this model.

Theoretical implication

Although TQM practices have been a significant source of practice-oriented management prescriptions and have been the subject of a large volume of published research, little is known of the implementation of TQM practices leading to quality improvement and organizational learningon Thai E-Government performance experienced by public employees. To date, this is a domain of research and application which has been neglected within the academicians, administrators and managers. As a result, this research contributes by formulating and testing a research model that explains how and why diverse TQM practices have different relationships with quality improvement and organizational learning on Thai E-Government performance. Besides extending the current research of TQM, the proposed research model has filled the research gap in the literature of TQM and role stressors.

Furthermore, the use of SEM in this study provides an excellent way to analyze the models simultaneously, assess the mediating effects of quality improvement and organizational learning, and provide multiple fit indices to determine if the hypothesized models are correctly specified. This contribution is important because the simultaneous investigations of different dimensions of TQM practices (i.e. management leadership, training, customer focus, service design, team work, supplier quality management, process management, quality culture, communication), quality improvement and organizational learning provides a more comprehensive understanding of the phenomena and advances the current knowledge concerning the interrelationships among nine TQM practices, quality improvement and organizational learning on Thai E-Government performance.

To our knowledge, none of the studies conducted in the areas of TQM research have explored both direct and indirect effects in the relationships among TQM practices, quality

improvement and organizational learning. In this regard, the establishment of multidimensional and mediating relationships between the nice TQM practices, quality improvement and organizational learning in this study is an important distinction that previous studies have not identified.

Practical implication

Thailandhas experienced of quality improvement and organizational learning and been a disruptive issue for both individuals and organizations over the years. From a practical perspective, it is important to know which TQM dimensions are significantly associated with quality improvement and organizational learning experienced by the Public employees. Since the proposed model allows an analysis of independent dimension of TQM in relation to quality improvement and organizational learning, the research model of this study serves as a diagnostic tool for the organizationaladministrators and managers to gain insight into the positive and negative influences of TQM practices on public employees' quality improvement and organizational learning. This analysis is certainly important because when the relationships among different TQM practices, quality improvement and organizational learning on Thai E-Government performance can be uncovered, the public organizational administrators and practitioners will be able to manage the individual employees' behaviour by applying current TQM practices along withquality improvement and organizational learning experienced by employees.

Future research

Future research involves data collection and empirical analysis where the hypotheses about the extent of implementation and relationships will be tested in the Thai E-Government organizations. The results will hopefully prove that the greater the extent to which these TQM practices are present, the quality performance of the organizations will be higher. At the end, it would be interesting to test and validate the proposed theoretical model using different approaches; one of them is the 'Structural Equation Modeling' (SEM) approach which has the capability of testing and validating such a theoretical model. Statistical software like Amos 16.0, LISREL 8.8 etc. can be used in future to build correlation matrix, confirmatory factor analysis (CFA), and diagramming to validate the relationships. Further, this study is limited to the public

service sector but in future it can be extended to other private sector as well as an exhaustive research in various aspects of TQM such as sustainability, knowledge management, organization strategy, TQM role, and many more can be undertaken to incorporate the flexibility in TQM in relation to quality improvement and organizational learningon performance.

ACKNOWLEDGEMENT

The authors would like to thanks the anonymous referees for their helpful and invaluable comments which helped to improve the presentation of the paper considerably.

REFEERENCES

- Abdullah, Bin M. M., Uli, J. and Tari, Jose, Juan. 2008. The influence of soft factors on quality improvement and performance. **The TQM Journal**. 20, 5:435-452.
- Abdullah, Bin M. M. Uli, J. and Tari, Jose, Juan. 2009. The relationship of performance with soft factors and quality improvement.**Total Quality Management& Business Excellence**. 20, 7: 735-748.Adam, E and Foster, S. 2000. Quality improvement approach and performance: multisite analysis within a firm, **Journal of Quality Management**.5, 3: 143–158.
- Agus, A. and Hassan, Z. 2000. TQM Benchmarking for Malaysian Manufacturing Companies: An Exploratory Study. **Bangi**: UKM, Malaysia
- Ahire, S.L. 1996. An empirical investigation of quality management in small firms. **Production and Inventory management Journal**: 44-50.
- Aktan, B., and Bulut, C. 2008. Financial Performance Impacts of Corporate Entrepreneurship in Emerging Markets: A Case of Turkey. **European Journal of Economics, Finance and Administrative Sciences**: 12 – 22.
- Al-Khalifa,K., and Aspinwall, E. 2008. Critical success factors of TQM: A UK study. **International Journal of Productivity and Quality Management**. 3, 4: 430-443.
- Anderson, J. C., &Gerbing, D. W. 1988. Structural equation modeling in practice: A review and recommended two-step approach.**Psychological Bulletin**.103, 3:411-423.
- Antony, J., Leung, K., Knowles, G., and Gosh, S. 2002. Critical success factors of TQM implementation in Hong Kong industries. **International Journal of Quality and Reliability Management**. 19, 5: 551–566.

- Arawati, A. 2005. The structural linkages between TQM, product quality performance, and business performance: Preliminary empirical study in electronics companies. **Singapore Management Review**. 27, 1: 87-105.
- Arumugam, V., Ooi, K. B., and Fong, T. C. 2008. TQM practices and quality management performance: An investigation of their relationship using data from ISO9001: 2000 firms in Malaysia. **The TQM Journal**. 20, 6: 636-650.
- Awan, M. H., Bhatti, I. M.,Bukhari, K., &Qureshi, A. M. 2008. Critical Success Factors of TQM:Impact on Business Performance of Manufacturing Sector in Pakistan. **International Journal of Businessand Management Science**. 1, 2:187-203.
- Bagozzi, R.P. and Warshaw, P.R. 1990. Trying to consume.**Journal of Consumer Research**. 17, 2: 127-140.
- Bagozzi, R.P. and Yi, Y. 1988. On the evaluation of structural equation models.**Academy of Marketing Science**. 16, 1: 74-94.
- Baker, W. E., and Sinkula, J. M. 1999.The synergistic effect of market orientation and learning orientation on organizational performance.**Journal of the Academy of Marketing Science**. 27, 4: 411–427.
- Black, S., and Porter, L. 1996.Identification of critical factors of TQM. **Decision Sciences**, 27: 1-21.
- Benson, P. G., Saraph, J.V. and Schroeder,R. G. 1991. The effects of organizational context on quality management: an empirical investigation, **Management Science**. 37, 9: 1107- 1124.
- BrahShaukat A and Lim Hua Ying. 2006. The effects of technology and TQM on the performance of logistics companies. **International Journal of Physical Distribution & Logistics Management**. 36, 3:192 - 209
- BrahShaukat A and Tee, S.S.L. 2002.Relationship between TQM and performance of Singapore companies.**International Journal of Quality & Reliability Management**. 19, 4: 356-379.
- BrahShaukat A, Wong, J. L., and Rao, B. M. 2000. TQM and business performance in the service sector: a Singapore study. **International Journal of Operations & Production Management**. 20, 11: 1293-1312.

- Browne, M.W. and Cudeck, R. 1993. **Alternative ways of assessing model fit. In K. A. Bollen and J.S. Long (Eds.), Testing structural equation models**.Newbury Park, CA: Sage:136-162.
- Calantone, Roger J., S. Tamer Cavusgil, and Yushan Zhao. 2002. Learning orientation, firm innovation capability, and firm performance**. Industrial Marketing Management**, 31, 6: 515-524.
- Chau, P.Y.K. and Hu, P.J.H. 2001. Information technology acceptance by individual professional: A model comparison approach. **Decision Sciences**. 32,4: 699-719.
- Cherkasky, S.M. 1992. Total quality for a sustainable competitive advantage.**Quality Journal**. 8: 4-7.
- Christiansen, J.S. 1995. Efficiency to total quality management.**Quality Management Journal**. 2, 2 : 5.
- Christiansen, J.S. and Lee, W.Y. 1994. Total Quality Management and Corporate Performance: An empirical investigation. **Working Paper**, Ford Motor Co. and Kent State University.
- Curkovic, C., Vickery, S., and Droge, C. 2000. Quality related action programs: their impact on quality performance and business performance. **Decision Sciences**. 31, 4: 885-905.
- Deming, W. Edwards.1986.**Out of the Crisis**. Cambridge.MA: MIT Center for Advanced Engineering Study.
- Demirbag, E. Tatoglu., M. Tekinkus., and S. Zaim. 2006. An analysis of the relationship between total quality management implementation and organizational performance Turkish SMEs.**Journal of Manufacturing Technology Management**. 17, 6: 829-847.
- Douglas, E., and Fitzsimmons, J. 2009. Individual Intentions Towards Entrepreneurship vsIntrapreneurship.**Strategic Management Journal**. 5: 265–273.
- Easton, George S. and Jarrell, Sherry L.1998. The Effects of Total Quality Management on Corporate Performance: An Empirical Investigation. **Journal of Business**. 71: 22-35.
- Ekwensi, F., Moranski, J., and Townsend-Sweet, M. 2006. E-Learning Concepts and Techniques.Bloomsburg University of Pennsylvania's Department of Instructional Technology. 5.1 **Instructional Strategies for Online Learning**. Retrieved November 8, 2012 : http://iit.bloomu.edu/Spring2006_eBook_ files/ ebook_spring2006.pdf

- Flynn, B.B., Schroeder, R.G., and Sakakibara, S. 1994. A framework for quality management research and an associated measurement instrument.**Journal of Operations Management**.11, 4: 339- 366.
- Flynn, B.B., Schroeder, R.G., and Sakakibara, S. 1995. The impact of quality management practices on performance and competitive advantage. **Decision Sciences** 26: 659–691.
- Fryer, Karen J., Antony, J., and Douglas, A. 2007. Critical success factors of continuous improvement in the public sector. **The TQM Magazine**. 19, 5:497-517.
- Fornell, C. and Larcker, D.F.1981. Evaluating structural equation models with unobservable variables and measurement error.**Journal of Marketing Research.** 18, 1: 39-50.
- Forza, C. and Filippini, R. 1998. TQM impact on quality conformance and customer satisfaction: A causal model. **International Journal of Production Economics.** 55, 1: 1-20.
- Garver, M. S. and Mentzer, J.T. 1999. Logistics research methods: Employing structural equation modeling to test for construct validity.**Journal of Business Logistics**: 33-57
- Gonzalez, A. M. 2010. **The U.S. Army: A Learning Organization**. SSRN eLibrary.
- Handfield, R., Ghosh, S. and Fawcett, S. 1998.Quality-driven change and its effects on financial performance.**Quality Management Journal**. 5, 3: 13-30.
- Hannah, S., and Lester, P. 2009. A multilevel approach to building and leading learning organizations.**The Leadership Quarterly**.20 , 1: 34-48.
- Harrim, H. M. 2008. Learning Organization and Organizational Performance Relationship: Empirical Study of Pharmaceutical Firms in Jordan. **Knowledge Management Practice**. 9:44-65.
- Hasan, R.M. and Kerr. 2003. The relationship between total quality management practices and organisational performance in service organisations. **The TQM Magazine**. 15, 4 :286 – 291.
- Hair, J.F.Jr., Black, W.C., Babin, B.J. and Anderson, R.E. 2010.**Multivariate Data**
- **Analysis: A Global Perspective (7th ed.)**. New Jersey: Pearson Education Inc.

- Hendricks, K.B. and Singhal, V.R. 1996. Quality awards and the market value of the firm: an empirical investigation, **Management Science**. 42, 3: 415-436.
- Hendricks, K. B. and Singhal, V. R. 2001.The long-run stock price performance of firms with effective TQM programs. **Management Science.**47, 3: 359-368.
- Hoelter, D. R. 1983. The analysis of covariance structures: Goodness-of-fit indices, **Sociological Methods and Research**: 325–344
- Jeng, Y.C. 1998. Performance evaluation of ISO 9000 registered companies in Taiwan. **The TQM Magazine**. 10, 2: 132-138.
- Jiang, X., and Li, Y. 2008. The relationship between organizational learning and firms' financial performance in strategic alliances: A contingency approach. **Journal of World Business**. 43, 3: 365-379.
- Juran, J. M. 1988. **Juran on planning for quality**. New York, NY: The Free Press.
- Kaluarachchi, S.P. 2009. Successful TQM Implementation in Sri Lankan Public Hospitals.**Annals of Business Administrative Science**. 8: 55–74.
- Kanji, G. K., and Tambi A. M. bin A. 1999. Total Quality Management in UK higher education institutions.**Total Quality Management**. 10, 1: 129-153.
- Karuppusami. K., and Gandhinathan, R. 2006. Pareto analysis of critical success factors of total quality management. **The TQM Magazine**. 18, 4: 372-385.
- Kaynak, H. 2003. The relationship between TQM practices and their effects on firm performance.**Journal of Operations Management**. 21, 4: 405-435.
- Kozak, M., Asunakutlu, T. &Safran, B. 2007. TQM implementation at public hospitals: a study in Turkey. **International Journal of Productivity and Quality Management**. 2,2: 193 – 207
- Kunst, P., and Lemmink, J. 2000. Quality management and business performance in hospitals:A search for success parameters. **Total Quality Management**. 11, 8: 1123-1133.
- Li, J. H., Andersen, A. R., & Harrison, R. T. 2003. Total quality management principles and practices in China. **International Journal of Quality & Reliability Management**. 20, 9: 1026-1050.
- Lundvall, B.-Å and Johnson, B. 1994.The learning economy.**Journal of Industry Studies**. 1, 2:23-42.

- Luo, X., Zhou, L., and Liu, S. 2005. Entrepreneurial firms in the context of China's transition economy: an integrative framework and empirical examination. **Journal of Business Research**. 58, 3: 277-284.
- Macinati, S. M. 2008. The relationship between quality management systems and Organizationalperformance in the Italian National Health Service.**Elsevier Ireland Ltd**. 85, 7: 228-241.
- Martinez-Costa, M., and Jimenez-Jimenez, D. 2009. The effectiveness of TQM: The key role of organizational learning in small business. **International Small Business Journal**. 27, 1: 98–125.
- Martinez-Lorente, A. R., Dewhurst, F. W., and Gallego-Rodriguez, A. 2000.Relating TQM, marketing and business performance: An exploratory study.**International Journal of Production Research**. 38, 14: 3227–3246.
- McQuitty, S. 2004. Statistical power and structural equation models in business research, **Journal of Business Research**: 175-183.
- Mohrman, S. A., Tenkasi, R. V., Lawler, E. E., III, and Ledford, G. E., Jr. 1995. Total quality management: Practice and outcomes in the largest US firms. **Employee Relations**. 17, 3: 26–41.
- Molina, C., and Callahan, J. 2009. Fostering organizational performance.**Training**. 33, 5: 388-400.
- Motwani, J. 2001. Measuring critical factors of TQM.**Measuring Business Excellence**. 5, 2: 27–30.
- Motwani, J.G., Mahmoud, E., and Rice, G. 1994. Quality practices of Indian organization: an empirical analysis. **International Journal of Quality and Reliability Management**. 11, 1: 38-52.
- Opara, E.U. 1996. The empirical test of total quality management: an application of TQM at Chevron and its impact on productivity. **Quality Management Journal**.4, 1: 10.
- Örtenblad, A. 2002.A typology of the idea of learning organization.**Management Learning.**33: 213–230.

- Parzinger, M.J., Nath, R., 2000. A study of the relationships between total quality management implementation factors and software quality.**Total Quality Management**. 11, 3: 353–371.
- Pearce, I., John, A., Fritz, D., and Davis, P. 2010. Entrepreneurial Orientation and the Performance of Religious Congregations as Predicted by Rational Choice Theory. **Entrepreneurship Theory and Practice**. 34, 1: 219-248.
- Pedler, M., Burgoyne, J., and Boydell, T. 1996. **The learning company: a strategy for sustainable development**. McGraw-Hill.
- Powell, T.C. 1995. Total quality management as competitive advantage: A review and empirical study. **Strategic Management Journal**. 16, 1: 15–37.
- Prajogo, D.I., and Brown, A. 2004. The relationship between TQM practices and quality performance and the role of formal TQM programs: An Australian empirical study. **Quality Management Journal**. 11:31–43.
- Prajogo, D.I. 2005.The comparative analysis of TQM practices and quality performance between manufacturing and service firms.**International Journal of Service Industry Management**.16, 3: 217-228.
- Prajogo, D.I., Power, D. J., and Sohal, A. S. 2004. The role of trading partner relationships in determining innovation performance: An empirical examination.**European Journal of Innovation Management**. 7, 3: 178–186.
- Prajogo, D.I. and Sohal, S.A. 2004.Transitioning from total quality management to total innovation management: an Australian case.**International Journal of Quality & Reliability Management**. 21, 8: 861-875.
- Ramus, C., and Steger, U. 2000.The roles of supervisory support behaviors and environmental policy in employee" Eco initiatives" at leading-edge European companies.**The Academy of Management Journal**. 43, 4: 605-626.
- Romero-Martínez, A., Fernández-Rodríguez, Z., and Vázquez-Inchausti, E. 2010.Exploring corporate entrepreneurship in privatized firms. **Journal of World Business**, 45, 1: 2-8.

- Terziovski, M., and Samson, D. 2000.The effect of company size on the relationship between TQM strategy and organizational performance.**The TQM Magazine**. 12, 2: 144–148.
- Terziovski, M., Power, D., and Sohal, A.S. 2003. The longitudinal effects of the ISO 9000 certification process on business performance. **European Journal of Operational Research**.146, 3: 580–595.
- Salaheldin Ismail Salaheldin. 2009. Critical success factors for TQM implementation and their impact on performance of SMEs. **International Journal of Productivity and Performance Management**. 58, 3:215 - 237
- Saraph, J. V., Benson, G. and Schroeder, R. G. 1989.An instrument for measuring the critical factors of quality management.**Decision Sciences**. 20: 810-829.
- Samson, D., and Terziovsky, M. 1999. The relationship between total quality management practices and operational performance, **Journal of Operations Management**.17, 4: 393-409.
- Sanchez-Rodrigues, C., Hemsworth, D. and Clavel, J. G. 2006.An empirical study on the impact of standardization of materials and purchasing procedures on purchasing and business performance.**Supply Chain Management**. 11,1: 56-64.
- Schaffer, R.H. and Thomson, H. 1992. Successful change programs begin with results. **Harvard Business Review**. Sep/Oct: 80-89.
- Schmidt, W. H., and Finnigan, J. P. 1992.**The race without a finish line**. San Francisco: Jossey Bass.
- Schreiber, J. B., Nora, A., Stage, F. K., Barlow, E. A. and King, J. 2006. Reporting Structural Equation Modeling and Confirmatory Factor Analysis Results: A Review. **The Journal of Educational Research**. 99: 323-337.
- Sinkula, J. M., Baker, W. E., and Noordewier, T. 1997. A framework for market-based organizational learning: linking values, knowledge, and behavior**. Journal of the academy of Marketing Science**.25, 4: 305-318.
- Sila, I., and Ebrahimpour, M. 2005. Critical linkages among TQM factors and business results.**International Journal of Operations and Production Management**. 25, 11: 1123–1155.

- Sivo, S. A., Fan, X. T., Witta, E .L. and Willse, J. T. 2006. The Search for 'Optimal' Cutoff Properties: Fit Index Criteria in Structural Equation Modeling, **The Journal of Experimental Education**: 267-289.
- Vandenberg, R.J. and Scarpello, V. 1994.A longitudinal assessment of the determinant relationship between employee commitments to the occupation and the organization.**Journal of Organizational Behavior**. 15,6: 535-547.
- Walley, K. 2000. TQM in non-manufacturing SMEs: Evidence from the UK farming sector. **International Small Business Journal**. 18, 4: 46–61.
- Watkins, K.E., and Marsick, V. J. 1996.**In action: Creating the learning organization**. Alexandria, VA: American Society for Training and Development.
- Watkins, K. E., and Marsick, V. J. 1993.**Sculpting the learning organization: Lessons in the art and science of systemic change**. San Francisco: Jossey-Bass.
- Watkins, K. E., and Marsick, V. J. 2003.**Making learning count! Diagnosing the learning culture in organizations**. Thousand Oaks, CA: Sage.
- Weldy, T. 2009.Learning organization and transfer: strategies for improving performance.**The Learning Organization**. 16, 1: 58-68.
- Wimsatt, A. 1998.**Study proves management concept pays off**. IIE solutions (INE). 30, 11: 11.
- Zare, R., Jajarmizadeh, M., and Abbasi, N. 2010. Relation Between Job Characteristics Model (JCM) and Learning Organization (LO).**World Applied Sciences Journal**. 8, 10: 1253-1259.
- Zulnaidi, Ya'acob. 2008. A structural relationship between total quality management, strategic control systems and performance of Malaysian local governments. **A Thesis submitted to the Graduate School in full fulfillment of the requirements for the degree of Doctor of Philosophy, University Utara Malaysia**. 1-346.