2021
Vol.23 No.1

POLISH JOURNAL OF MANAGEMENT STUDIES
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THE COMPARISON OF THE TQM PRACTICES AND QUALITY PERFORMANCE BETWEEN MANUFACTURING & SERVICE SECTORS

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Abstract: This paper seeks to carry out an empirical comparison of the TQM Practices and Quality Performance between manufacturing and Service Sectors in Thailand. The research was conducted using primary data collected from the 525 respondents from the manufacturing and service sectors. The data was analyzed using MANOVA analysis, t-tests analysis and structural equation modelling (SEM), with SPSS and AMOS software. For RQ1, the study conducted MANOVA analysis and found out that there is a significant difference between the manufacturing and service sector, in terms of TQM and quality performance. An extended analysis of t-test revealed that TQM and quality performance of the manufacturing sector was different from that of the service sector for the 6 variables (leadership, strategic management, customer focus, information analysis, people management, and process management) but no significant difference between the two sectors for product quality variable. The structural equation modelling was applied to answer RQ2 and RQ3. The results revealed that both the manufacturing and service data effectively fit within the model, and that there was significant difference within the two groups of the model. The results also indicated there no significant difference between the strength of the relationship between TQM practices and quality performance between the manufacturing and service organization in Thailand. This study supports the application of the TQM in the organizations. The study observes that for effective performance, firms should consider adopting TQM practices and quality measures which are suitable to their sectors and organizations.

Keywords: Quality performance, total quality management, organizational performance, process management

DOI: 10.17512/pjms.2021.23.1.27

Article history:
Received January 11, 2021; *Revised* January 27, 2021*; Accepted* March 02, 2021

Introduction

With the increased advancement in technology in the world, people are becoming aware of the meaning of term quality, and their rights to receive highest quality products and services. At the same time, businesses and organizations have realized the importance of offering the best quality to their current and potential customers. As a result, quality has become a critical competitive factor, and the organizations that manage to offer higher quality for the same price are considered to enjoy a competitive advantage (Wong *et al.*, 2010). To achieve highest quality products and services, organizations are focusing on developing their internal

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consistency (Thaba, S.C., & Mbohwa, C., 2015). Inferring from (Pradhan, 2014) among the major management approaches that can, and are being adopted to achieve the required continuous quality improvement is the total quality management (TQM). Total quality management (TQM) implies an organizational-wide management philosophy, whose major focus is to continuously improve enhance and improve the quality of the concerned organization's products, services and processes (Pattanayak *et al.*, 2017). This is done with customer's needs, preferences, and expectations in mind, with an objective of meeting or even exceeding their satisfactions, and the resultant performance of the overall organization (Ooi, 2014). As a technique of achieving considerable customer satisfaction as well as addressing the challenge of global competition, various organization have adopted and implemented strategies and employed assets of enhancing and adjusting the aspects of TQM and its associated strategies. TQM is currently considered by many organizations as a means of increasing quality, achieve customer satisfaction, increase the organization's revenue and income, as well as develop performance (Talib *et al.*, 2013).

The role played by the TQM is currently being considered as the main determinant of the business success and future survival of most of the organizations, particularly the administrative and manufacturing firm, in the current technologically advancing and competitive environment. The successful adoption and integration of the TQM in the business activities of a firm is the source of increasing the market share and customer retention (Haar & Spell, 2008a). Additionally, it was observed that organizations that have effectively adopted and implemented the TQM have a higher competitive advantage as compared to those that have not (Joiner, 2007). The relationship between TQM and organization performance has been considered as an intermittent issue in various aspects of business administration and has remained an issue of concern for managers and scholar researchers. Some researchers have indicated that there exists a positive relationship between the TQM and the organization performance (Sweis, *et al*., 2019). At the same time, many organizations have indicated that they have enjoyed substantial benefits of implementing the TQM including financial gains, improved operational performance, customer satisfaction, employee satisfaction among others (Panuwatwanich, & Nguyen, 2017). Similarly, other empirical research did not find any significant link between TQM and organization's performance (Powell, 1995). It has been found that there exists an inverse relationship between TQM and performance. In the research field, there is an absence of the confirmation of the relationship between the degree of adoption of the TQM and its implementation and its impact on the performance of organizations in manufacturing and service sector in Thailand (Rahman & Bullock, 2005; Yang *et al*., 2009).

There are several studies that have investigated the difference and application of the TQM in the manufacturing and service sector. For instance, a comparative study of the application of the TQM practices in the manufacturing and service

sectors (Sadikoglu & Olcay, 2014). The findings of the paper indicted that the two sectors depicted significant differences in terms of TQM practices and its application. It investigated the TQM contrasts between the manufacturing and service industries (Huq & Stolen, 1998). The research found out that due to the different application environment, there is variation in the TQM tools and procedures. However, the underlying concepts are quite similar for both manufacturing and services sector. The study also indicated that it is not clear whether the procedures tested to work in the service sector would work effectively in the manufacturing sector (O'Rourke & Bennett, 2006). Another study was conducted in Singapore and its results indicated that the service sector organizations had a lower level of adoption and implementation of the TQM practices, as compared to the organizations in the manufacturing sector. This was majorly observed in various operations such as information and analysis, quality performance and the organizational process management. However, there is no evidence of how the two sectors compares in Thailand, in terms of adopting and implementing TQM and its comparison with quality performance. As a result, this study bridges this gap by conducting an empirical comparison of the TQM practices and quality performance between manufacturing and service sectors in Thailand (Chung Woon, K. 2000).

Research Questions

The study will be focused in answering the following research questions:

Is there a significant difference between the manufacturing and service organizations with respect to TQM implementation and quality performance?

Is there a significant difference between the manufacturing and service organizations with respect to construct validity of TQM implementation?

Is there any significant difference between the strength of the relationship between TQM practices and quality performance between the manufacturing and service organization in Thailand?

Literature Review

The concept of Total quality management (TQM) contributes to organizational management through the improvement of efficiency and, consequently, organizational success. The TQM approach was based on the idea of providing systematic improvement to manufacturing processes leading to a competitive advantage of the manufactured products. The success of the TQM approaches in manufacturing led to incorporating the approach in the management processes to improve the organizational performances (Sweis et al., 2019; Hafeez et al., 2018). The relationships between total quality management and organization performance involves an approach of quality improvement for firm-wide management processes aimed at improving performance in areas such as customer satisfaction, quality of service and products, and profitability (Hafeez et al., 2018).

The increased integration of the TQM practices in management practices by many firms around the world has increased the attention of researchers to this

management practice area. Studies suggest that the TQM management approaches are not mere management fads but practices capable of improving organizational performance through the delivery of competitive advantage. The total quality management approaches focus on the improvement of organizational processes through the provision of superior customer value and meeting customer needs. The TQM processes aim to ensure continuous improvement in the individuals of the organization, systems, and processes to ensure efficiency and effectiveness of the overall organization (Amin et al., 2017)

The total quality management approach can be considered a management philosophy that aims to improve every function in the organization and can only be achieved by incorporating the concept of quality from the production processes to customer service practices in the organization. As a management philosophy, various studies have classified various critical success factors of TQM. Difference research into the total quality management approaches outlines various dimensions considered critical for the management philosophy's success. The common dimensions of TQM involve; higher management commitment, employee training, customer focus, continuous support, and leadership, among other dimensions (Alzoubi, 2019, Haque, et al., 2020). However, some articulate that the research studies do not single out the main critical dimensions vital in the success of the TQM approaches (Saleh et al., 2018; Trif, 2013).

The TQM approach involving the top management commitment dimension refers to the involvement of the organization's senior management activeness in the firm's functions. Effective implementation of the TQM approaches all aspects of the organization to be incorporated. Active involvement of the organization's senior management functions will ensure better implementation of quality policies (Dubey et al., 2017). Effective senior management TQM policies will include quality-related strategic planning and better allocation of resources aimed at ensuring systematic quality activities in operations and evaluations. It is articulated that top management in organizations plays a vital role in the overall success of the firm. The commitment of the senior management teams in organizations is varied and involves making strategic decisions to influence organizational performance and maintaining positive relationships within the organization to influence performance. An organization with committed senior management is likely to have a higher potential for success due to the ability to withstand the external pressures to encourage performance (Bouranta et al., 2017; Biswakarma, 2017).

The objective of the use of total quality management strategies is to ensure that the employees effectively and continuously improve the quality of products and services offered to customers. The customers are thus vital in determining the quality processes adopted by organizations to demand. Customer focus is thus a critical dimension in the TQM practices as they determine the quality of the products and services (Iqbal, 2018). It was suggested that meeting customer demands requires effective communication between the organization and the customers (Mehralian, 2017). For instance, customers need to get value for their

money; thus, if a product lasts longer than expected, the customer will know that their expenditure on the products was worth the product's quality. Studies outlines that understanding customers' wants and needs give the organization a better chance of determining the sourcing strategies and manufacturing processes to achieve success, and consequently, improves its competitive advantage. Firms implementing the use of the TQM approach, thus strive to understand their customer needs and expectations for better production processes that meet the customer needs (Iqbal, 2018).

Continuous improvement is another critical dimension in the practice of total quality management (TQM). A study suggests that organizational efficiency can only be achieved through customer satisfaction, which cannot be achieved in a day (Ershadi & Soleimani, 2019). The organization, therefore, needs to find ways to improve its processes, including production and meeting customer needs. TQM practices take a long-term approach to ensure continued organizational success (Smutná & Farana, 2010). The long-term approach thus necessitates the need for organizations to ensure continuous improvement in all businesses' functions. The dimension of continuous improvement is tied with the total quality management principles implemented by senior management. For instance, implementing TQM practices effectively to promote continuous improvement will require establishing quality policies in production and other processes as measurable goals in all sections of the organization. Continuous improvement through the TQM approach can be achieved by recognizing and encouraging innovations to improve the firm's quality of innovations aimed at improving the quality of processes and development (Sutrisno & Ardyan, 2020).

Relationship between TQM and performance

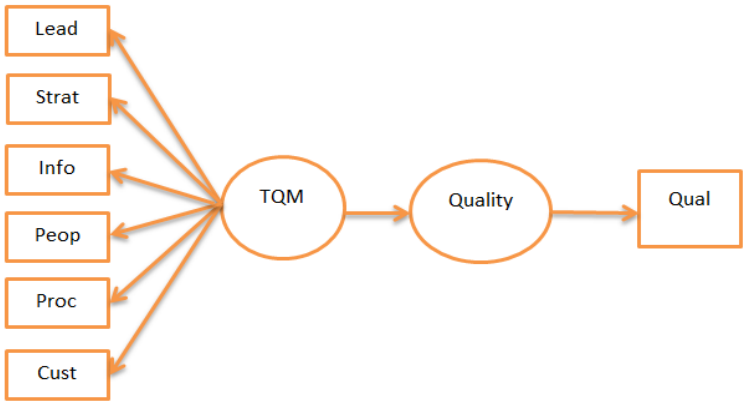
Organizational performance refers to the analysis of the organization's performance against its goals and objectives. Organizational performance analysis involves the actual output compared to the intended output (Hussain & Oriji, 2018). Three vital outcomes have been analyzed during the organizational performance analysis: shareholder value performance, financial performance, and market performance (Yuliansyah & Mohamed, 2017). The dimensions of analysis focus on the effectiveness of the organization's operations in the various sections. Research articulates that the organizations' performance can be analyzed through the dimensions of organizational, financial, and operational effectiveness (Tran, 2020; Hussain et al., 2011). However, the organization's performance can be analyzed through its operations and through other non-operational aspects such as product quality, customer satisfaction, and financial performance. Many organizations measure organizational performance by evaluating the dimensions of market performance regarding market share and product sales. Customers form an integral part of the organization's success; thus, determining an organization's performance can be achieved by determining customer satisfaction (Soltani, 2018).

Research into total quality management and organization performance indicates varied relationships between the two business concepts. It was suggested that a

positive relationship between the TQM practices and performance, with the implementation of the total quality management indicating improvements to performance Prajogo (2005a; 2005b). In the research (Hilman, 2019), Author agrees that organizational performance measures include financial and product quality aspects. The two measures of performance are directly affected by total quality management practices. Similarly, (Talib et al., 2013) suggests that the relationship between TQM and performance can be manifested through total management practices such as employee training, customer management, and training aimed at improving quality. Practices that improve employee performance directly influence the overall performance of the organization. Organizational performance measured based on financial performance measures the returns on assets and return on investments—organizations aiming to attain good financial performance focus on minimizing costs while maximizing returns. According to (Mahmood et al., 2015), organizations understand the need for implanting the TQM practices to minimize costs while producing high-quality products. Effective organization performance helps firms to attain a competitive advantage. A research determined that the TQM practices aim at empowering the employees to produce quality products services. Improves employee performance is vital in ensuring customer satisfaction (Yusr et al., 2017). Consequently, improved customer satisfaction leads to the organizations' attaining a competitive advantage in the marketplace. In addition, organizational performance can be measured through the determination of the shareholder value. In the free markets, the shareholder value is considered the top priority in any organization's senior management. The implementation of the TQM practices directly influences the organization's performance by focusing on top management commitment (Budaj, et al., 2018). Among the major dimensions of TQM involve top management commitment, which is responsible for formulating quality policies and implementing strategies aimed at performance improvement in the organization (Hilman, 2019).

Conceptual Framework

From the critical review of the literature, the conceptual framework adopted in this literature was developed. The figure below presents the conceptual framework. There were two major variables, the Total Quality management (TQM) and the Quality performance (Quality). The variables of the total quality management included Leadership (Lead) Strategic Management (Strat), Information Analysis (Info), People Management (Peop), Process Management (Proc), Customer Focus (Cust). The quality has only one variable – Quality (Qual).



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From the conceptual framework, the following research hypotheses were developed.
H1:There is significant difference between the manufacturing and service organizations with respect to TQM implementation and quality performance.
H2:There is significant difference between the manufacturing and service organizations with respect to construct validity of TQM implementation.
H3:There is significant difference between the strength of the relationship between TQM practices and quality performance between the manufacturing and service organization in Thailand.

Research Methodology

The instruments used for this research was a structured questionnaire, which was divided in two sections – the first one measuring the TQM practices and the second one measuring the aspects of product quality performance. The constructs were measured using a five-point Likert scale which ranged from 1 = strongly disagree to 5 = strongly agree. The research employed a multivariate analysis of variance (MANOVA) and simple linear relationship model, with two groups of variables – those measuring the TQM considered as the independent variables, and the quality performance, which was the dependent variable of the study. To measure the TQM constructs, the Samson & Terziovski (1999) model was adapted for the reason that it has been majorly applied in various other studies such as Juran (1995), Ahire et al (1995), Evans and Lindsay (1999). The model constitutes the criteria for Malcolm Baldrige National Quality Award (BNQA), which applies six measurement criteria including: leadership, strategy and planning, customer focus, people management, process management, and information analysis. Regarding the quality performance, the Ahire et al (1996) scale was considered optimal for the analysis. It comprises of four items that reflects the dimensions of quality performance, which are reliability, performance, conformance to specification and durability.

The developed questionnaire was refined based on the improvement comments from managers, academicians, company representatives. The questionnaire was also revised and improved on the basis of the respondents after a pilot study. The data was collected between Nov 2020 and January 2021, using a structured questionnaire method from a sample of 650 managers who were randomly selected from the manufacturing and service sector in Thailand. From a total of 600 questionnaire, the study recorded a total of 437 managers who responded, and after cleaning the data, a total of 396 responses were considered suitable for using in study. The statistical data analysis conducted involved demographic statistics, reliability and validity analysis, and structural equation modelling (SEM) using SPSS (version 23.0) and SmartPLS (Version 3).

Results and Discussion

There was a slight difference in the response of the manufacturing and service sectors. The manufacturing sector response was 55.8% while the service sector response was 44.2%. The manufacturing sectors included operations in food and beverage, clothing, footwear, paper productions, transport and automotive. The service sector included hotel and catering, healthcare, and retail and distribution. Considering the size of the firms, 44.3% were large firms (with 50+ employees) while 45.7% were SMEs with less than 50 employees. The respondents held various managerial positions in departments such as finance, marketing, human resource management, account among others. The descriptive statistics also showed that most of the respondents were male (57%) and female were (43%). Considering the respondents of the research, 32% had more than 10 years' experience in the managerial positions, while 46% had more than 5 years' experience in the managerial position, which indicated that the respondents have experience in the management.

The seven scales used to measure the TQM and quality was subjected to reliability and validity tests. The reliability test was evaluated using the Cronbach's alpha tests while the validity was conducted using the confirmatory factor analysis (CFA) by applying the goodness of fit indices (GFI). The results of the analysis are presented in the table below.

Table 1. Reliability and Validity Analysis Results

Constructs	No. of items	Goodness of Fit	Means	Cronbach's Alpha
Leadership	4	0.928	2.83	0.906
Strategic Management	4	0.989	2.99	0.856
Customer Focus	4	0.917	2.88	0.893
Information Analysis	4	0.892	2.91	0.874
People Management	4	0.869	2.81	0.890
Process Management	4	0.913	2.93	0.704
Product Quality	4	0.975	3.16	0.893

From the statistics presented in the table above of the seven constructs used, the Cronbach's alpha was all above the threshold of 0.70 that was suggested by Nunnally (1978). Considering the validity of the constructs, the Goodness of Fit index (GFI) exceeds 0.90 threshold suggested by (Hair *et al*., 2018).These findings suggest that validity and reliability of the constructs was established.

Difference between Manufacturing and Service Sector

To determine the difference between the manufacturing and service sector in terms of TQM and quality performance, the multivariate analysis of variance (MANOVA) was conducted, with an objective of examining the overall statistical differences among the constructs used in the study. From the findings, the Wilk's Lambda ($F = 5.551$, $p < 0.05$) and the Hoteling' Trace ($F = 5.551$, $p < 0.05$). Since the p-value is less than 0.05, we reject the null hypothesis of Hypothesis 1 and conclude that there is a significant difference between the manufacturing and service sector, in terms of TQM and quality performance. This finding gives answer to the first research question of this study. It is also important to note that the assumption of MANOVA that the observe covariance matrices of the dependent variables between are equal across the groups was accepted.

Due to the identified differences between the variables, a follow up t-test was conducted to investigate which variables depicted a significant difference between the manufacturing and service sector. The t-test results are presented in the table below.

Table 2. t-test Results for Manufacturing and Service Sector

	Manufacturing		**Service**			
	Mean	**Std. deviation**	**Mean**	**Std. deviation**	**Mean Difference**	**P-value**
Leadership	2.3285	0.69568	2.6649	0.72302	-0.3364	0.001**
Strategic Mgt.	2.9044	0.88282	3.1056	0.93115	-0.2012	0.012**
Customer Focus	2.7978	0.94874	2.9925	0.97601	-0.1947	0.022**
Information Analysis	2.8114	0.90119	3.0269	0.91647	-0.2155	0.007**
People Mgt.	2.727	0.97951	2.9073	0.98913	-0.1803	0.037**
Process Mgt.	2.8558	0.79375	3.0162	0.86572	-0.1604	0.028**
Product Quality	3.2142	1.06207	3.0991	1.03425	0.1151	0.213

From the statistics presented in the figure above, it was observed that all the variables except Product quality had a significant difference between the

manufacturing and service sector. In other words, the TQM and quality performance of the manufacturing sector was different from that of the service sector for the 6 variables (leadership, strategic management, customer focus, information analysis, people management, and process management) but no significant difference between the two sectors for product quality variable. Therefore, in response to RQ1, this finding concludes that there is a significant difference between the manufacturing and service organizations with respect to TQM implementation and quality performance. In comparison to other studies, our findings contradict that of Prajogo (2005a;2005b) whose findings indicated that there is no significant difference between the manufacturing and service quality in terms of TQM and quality performance. Similarly, adopted variables which were quite similar to this study, the conclusion of the study was that there is no significant difference between the manufacturing and service quality in terms of TQM and quality performance apart for the people management variable. Comparing the two sectors, manufacturing sector has a lower mean score for all variables except product quality, than the service sector (Chung Woon, K. 2000).

Structural Equation Modelling

The structural equation modelling was applied to answer RQ2 and RQ3. It determined the overall difference between the manufacturing sector and service sector, regarding their relationship inn TQM and quality performance. The SEM model output is presented in the figure below. From the results presented in the figure below, the model thresholds were achieved. For instance, the RMSEA (0.072) met the set criteria of 0.08 or less, and SRMR (0.348) met the criteria of being 0.05 or less. Similarly, the GFI was 0.972, which is above the required 0.9. the normalized chi-square (X2/df = 1.889) was within the recommended levels of 1.0 to2.0 according to (Hair et al.,2018). This indicated that both the manufacturing and service data effectively fit within the model, and that there was significant difference within the two groups of the model. This results to answering the RQ2, that the measurement of the two groups were statistically significantly different, indicating that there is significant difference between the manufacturing and service organizations with respect to construct validity of TQM implementation. The structural relationship between the TQM and Quality is summarized in the table below. From the table, there is insignificant relationship between Quality and TQM ($\beta = 0.078$, $P > 0.05$). This leads to the conclusion that there no significant difference between the strength of the relationship between TQM practices and quality performance between the manufacturing and service organization in Thailand.

Table 3. Structural Equation Model

			Estimate	**S.E.**	**C.R.**	**P**
Quality	<---	TQM	.078	.054	1.450	.147
Cust	<---	TQM	1.000	-	-	-

Proc	<---	TQM	.796	.029	27.010	***
Peop	<---	TQM	1.026	.032	32.487	***
Info	<---	TQM	.982	.028	35.419	***
Strat	<---	TQM	.897	.031	28.713	***
Lead	<---	TQM	.658	.027	24.074	***
Qual	<---	Quality	1.000	-	-	-

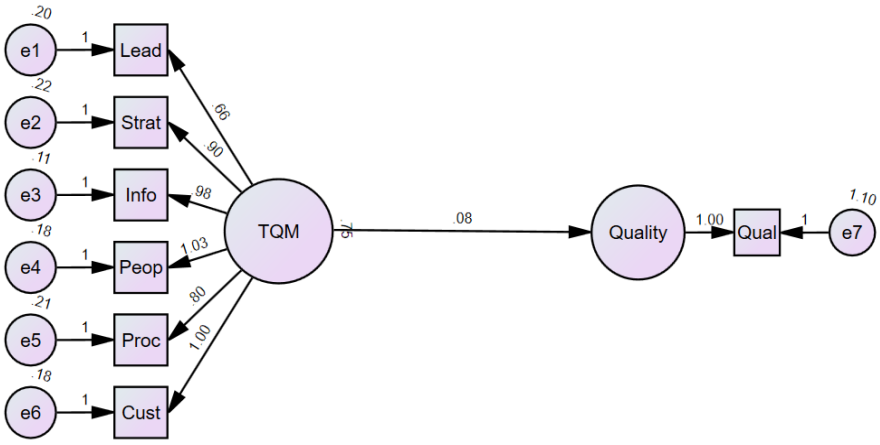

Figure 2: Structural Equation Modelling Results of the Analysis

Managerial Implications

Managers who want to achieve quality management in their organizations should understand which quality management practices are the most suitable in their organization or sector. From the findings of this study, various aspects of TQM have varying effects on manufacturing and service sector. The level of application of TQM practices such as leadership, strategic management, customer focus, information analysis, people management, and process management would result to different results in terms of quality of the performance of the concerned organization. As a result, based on the findings of this study, and in reference to critical review of the literature, this study has developed some recommendations that should be considered by the managers. First, to achieve high quality performance in their organization, the managers should adopt and implement TQM practices. This is critical as far as achieving competitive advantage is concerned. Second, managers should evaluate the most suitable TQM practices, based on the sector they are operating in, and the specific characteristics, goals and resources of their organizations. lastly, the management should consider the barriers that hinder

effective implementation of TQM in order to achieve maximum benefit from the practice.

Conclusions

This study conducted an empirical comparison of the TQM practices and quality performance between the manufacturing and services sector in Thailand. The objective was to find out if the manufacturing and service sector observed similar TQM practices and quality performance. The research was guided by three objectives; (1) to determine if there a significant difference between the manufacturing and service organizations with respect to TQM implementation and quality performance; (2) to determine if there a significant difference between the manufacturing and service organizations with respect to construct validity of TQM implementation; and (3), to determine if there is any significant difference between the strength of the relationship between TQM practices and quality performance between the manufacturing and service organization in Thailand. The findings of the study indicated that the validity and reliability of the constructs data was verified. With regard to the first objective, the study conducted MANOVA analysis and found out that there is a significant difference between the manufacturing and service sector, in terms of TQM and quality performance. An extended analysis of t-test revealed that TQM and quality performance of the manufacturing sector was different from that of the service sector for the 6 variables (leadership, strategic management, customer focus, information analysis, people management, and process management) but no significant difference between the two sectors for product quality variable. The structural equation modelling was applied to answer RQ2 and RQ3. The results revealed that both the manufacturing and service data effectively fit within the model, and that there was significant difference within the two groups of the model. The results also indicated there was no significant difference between the strength of the relationship between TQM practices and quality performance between the manufacturing and service organization in Thailand. This study supports the application of the TQM in the organizations. However, based on its findings that there are significant differences existing between the two sectors, it is vital to consider applying varying TQM aspects based on the suitability of the sector, or the organization concerned. Additionally, with the increasing technology advancement and fragmentation of the sectors, this research suggests further research with consideration of other different sub-sectors. This study is limited to the fact that the study was carried out in two sectors, the manufacturing, and the service sector in in Thailand. Therefore, the generalization of these findings to other sectors or other regions of the world should be done with caution. Additionally, with time, and with advancement in technology, the operational areas of companies are becoming more and more fragmented. As a result, therefore, in future, the organizations considered by this study to be in the manufacturing and service sector could have changed. This is also in consideration

of the factors that are used to classify a sector as a manufacturing, a service or any other one.

References

Ahire, S. L., Golhar, D. Y. and Waller, M. A., (1996). Development and Validation of TQM Implementation Constructs. *Decision Sciences*, *27*(1), 23–56.

Ahire, S. L., Landeros, R. and Golhar, D. Y., (1995). Total Quality Management: A Literature Review and an Agenda for Future Research. *Production and Operations Management*, *4*(3), 277–306.

Alzoubi, H., Ahmed, G., (2019). Do TQM practices improve organisational success A case study of electronics industry in the UAE. *International Journal of Economics and Business Research*, *17*(4), 459.

Amin, M., Aldakhil, A. M., Wu, C., Rezaei, S. and Cobanoglu, C., (2017). The structural relationship between TQM, employee satisfaction and hotel performance. *International Journal of Contemporary Hospitality Management*, *29*(4), 1256–1278.

Biswakarma, G., (2017). Effectiveness of Total Quality Management in Nepal: A Case Study of Hospitality Sector. *International Journal of Research in Business Studies and Management*, *4*(5), 32–40. https://www.ijrbsm.org/papers/v4-i5/4.pdf

Bouranta, N., Psomas, E. L. and Pantouvakis, A., (2017). Identifying the critical determinants of TQM and their impact on company performance. *The TQM Journal*, *29*(1), 147–166.

Budaj, P., Klencová, J., Daňková, A. and Piteková, J., (2018). Economic aspects of the mining industry in the Slovak Republic. *Acta Montanistica Slovaca*, *23*(1), 1–9. https://actamont.tuke.sk/pdf/2018/n1/1budaj.pdf

Chung Woon, K., (2000). Assessment of TQM implementation. *Business Process Management Journal*, *6*(4), 314–330.

Dubey, R., Gunasekaran, A., Childe, S. J., Papadopoulos, T., Hazen, B. T. and Roubaud, D., (2017). Examining top management commitment to TQM diffusion using institutional and upper echelon theories. *International Journal of Production Research*, *56*(8), 2988–3006.

Ershadi, M. J., Najafi, N. and Soleimani, P., (2019). Measuring the impact of soft and hard total quality management factors on customer behavior based on the role of innovation and continuous improvement. *The TQM Journal*, *31*(6), 1093–1115.

Evans, J. R., Lindsay, W. M., (1995). *The Management and Control of Quality* (3rd ed.). West Publishing.

Haar, J. M., Spell, C. S., (2008a). Predicting total quality management adoption in New Zealand. *Journal of Enterprise Information Management*, *21*(2), 162–178.

Hafeez, M. H., Basheer, M. F., Rafique, M. and Siddiqui, S. H., (2018). Exploring the Links between TQM Practices, Business Innovativeness and Firm Performance: An Emerging Market Perspective, *Pakistan Journal of Social Sciences.38*(2), 485–500. http://pjss.bzu.edu.pk/website/journal/article/5ecf924595cd4/page

Hair, J. F., Black, W. C. & Babin, B. J., (2018). *Multivariate Data Analysis*. Cengage.

Hilman, H., Ali, G. A. and Gorondutse, A. H., (2019). The relationship between TQM and SMEs' performance. *International Journal of Productivity and Performance Management*, *69*(1), 61–84.

Huq, Z., Stolen, J. D., (1998). Total quality management contrasts in manufacturing and service industries. *International Journal of Quality & Reliability Management*, *15*(2), 138–161.

Hussain, N., Bhatti, W. A. and Jilani, A., (2011). An Empirical Analysis of After Sales Service and Customer Satisfaction. *Management & Marketing*, *6*(4), 561–572. http://www.managementmarketing.ro/pdf/articole/243.pdf

Hussain, N., Rigoni, U. and Orij, R. P., (2016). Corporate Governance and Sustainability Performance: Analysis of Triple Bottom Line Performance. *Journal of Business Ethics*, *149*(2), 411–432.

Iqbal, A., Asrar-ul-Haq, M., (2018). Establishing relationship between TQM practices and employee performance: The mediating role of change readiness. *International Journal of Production Economics*, *203*, 62–68.

Joiner, T. A., (2007). Total quality management and performance. *International Journal of Quality & Reliability Management*, *24*(6), 617–627.

Juran, J. M., (1995). *A history of managing for quality: The evolution, trends, and future directions of managing for quality*. ASQC Quality Press.

Haque, A.U., Sher, A. and Urbański, M. (2020). Is the role of authentic leadership effective in managing occupational stress and psychological capital? *Forum Scientiae Oeconomia*, 8(2), 59-77.

Mahmood, S., Qadeer, F. and Ahmad, A., (2015). The Role of Organizational Learning in Understanding Relationship between Total Quality Management and Organizational Performance. *Pakistan Journal of Commerce and Social Sciences*, *9*(1), 282–302. http://jespk.net/paper.php?paperid=236

Mehralian, G., Nazari, J. A., Nooriparto, G. and Rasekh, H. R., (2017). TQM and organizational performance using the balanced scorecard approach. *International Journal of Productivity and Performance Management*, *66*(1), 111–125.

Nunnally, J. C., (1978). An Overview of Psychological Measurement. *Clinical Diagnosis of Mental Disorders*, 97–146.

Ooi, K.-B., (2014). TQM practices and knowledge management: a multi-group analysis of constructs and structural invariance between the manufacturing and service sectors. *Total Quality Management & Business Excellence*, *26*(11–12), 1131–1145.

O'Rourke, V., Bennett, B., (2006). A study of Irish service SMEs, concerning quality management programmes. *Management & Marketing*, *4*(1), 95–104. http://www.managementmarketing.ro/pdf/articole/40.pdf

Panuwatwanich, K., Nguyen, T. T., (2017). Influence of Total Quality Management on Performance of Vietnamese Construction Firms. *Procedia Engineering*, *182*, 548–555.

Pattanayak, D., Koilakuntla, M. and Punyatoya, P., (2017). Investigating the influence of TQM, service quality and market orientation on customer satisfaction and loyalty in the Indian banking sector. *International Journal of Quality & Reliability Management*, *34*(3), 362–377.

Powell, T. C., (1995). Total quality management as competitive advantage: A review and empirical study. *Strategic Management Journal*, *16*(1), 15–37.

Pradhan, S., (2014). Total Quality Management in Service Sector: Case Study of Academic Libraries. *Journal of Business and Management Sciences*, *2*(3A), 29–32.

Prajogo, D. I., (2005a). 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., (2005b). The comparative analysis of TQM practices and quality performance between manufacturing and service firms. *International Journal of Service Industry Management*, *16*(3), 217–228.

Rahman, S., Bullock, P., (2005). Soft TQM, hard TQM, and organisational performance relationships: an empirical investigation. *Omega*, *33*(1), 73–83.

Sadikoglu, E., Olcay, H., (2014). The Effects of Total Quality Management Practices on Performance and the Reasons of and the Barriers to TQM Practices in Turkey. *Advances in Decision Sciences*, *2014*, 1–17.

Saleh, R. A., Sweis, R. J. and Mahmoud Saleh, F. I. (2018). Investigating the impact of hard total quality management practices on operational performance in manufacturing organizations. *Benchmarking: An International Journal*, *25*(7), 2040–2064.

Samson, D., Terziovski, M., (1999). The relationship between total quality management practices and operational performance. *Journal of Operations Management*, *17*(4), 393–409.

Smutná, J., Farana, R., (2010). Understanding the quality concept in the higher education. *Acta Montanistica Slovaca*, *15*(1), 54–57. https://actamont.tuke.sk/pdf/2010/n1/11smutna.pdf

Soltani, Z., Zareie, B., Milani, F. S. and Navimipour, N. J., (2018). The impact of the customer relationship management on the organization performance. *The Journal of High Technology Management Research*, *29*(2), 237–246.

Sutrisno, T. F. C. W., Ardyan, E., (2020). Achieving Organizational Performance in Food Companies: The Critical Role of Leadership and Continuous Improvement as Part of TQM Practice. *Quality - Access to Success*, *21*(177), 133–138. https://www.srac.ro/calitatea/en/arhiva/2020/QAS_Vol.21_No.177_Aug.2020.pdf

Sweis, R. J., Ismaeil, A.'. S., I, A. and N, A.S., (2019). The Relationship between Total Quality Management (TQM) Implementation and Organisation Performance: Evidence from the Airlines Companies in UAE. *International Journal of Information, Business and Management*, *11*(1), 58–79.

Talib, F., Rahman, Z. and Qureshi, M. N., (2013). An empirical investigation of relationship between total quality management practices and quality performance in Indian service companies. *International Journal of Quality & Reliability Management*, *30*(3), 280–318.

Thaba, S. C., Mbohwa, C., (2015). Integrating values and principles of cooperative enterprises with TQM elements a conceptual framework for customer satisfaction. *University of Johannesburg Institutional Repository*, 1–5.

Tran, Y. T., Nguyen, N. P., (2020). The impact of the performance measurement system on the organizational performance of the public sector in a transition economy: Is public accountability a missing link? *Cogent Business & Management*, *7*(1), 1792669.

Trif, M. S., (2013). The Influence of Overall Satisfaction and Trust on Customer Loyalty. *Management & Marketing*, *8*(1), 109–128.

Wong, C. H., Sim, J. J., Lam, C. H., Loke, S. P. and Darmawan, N., (2010). A linear structural equation modelling of TQM principles and its influence on quality performance. *International Journal of Modelling in Operations Management*, *1*(1), 107.

Yang, J., Wong, C. W. Y., Lai, K.- and Ntoko, A. N., (2009). The antecedents of dyadic quality performance and its effect on buyer–supplier relationship improvement. *International Journal of Production Economics*, *120*(1), 243–251.

Yuliansyah, Y., Gurd, B. and Mohamed, N., (2017). The significant of business strategy in improving organizational performance. *Humanomics*, *33*(1), 56–74.

Yusr, M. M., Mokhtar, S. S. M., Othman, A. R. and Sulaiman, Y., (2017). Does interaction between TQM practices and knowledge management processes enhance the innovation performance? *International Journal of Quality & Reliability Management*, *34*(7), 955–974.

PORÓWNANIE PRAKTYK TQM ORAZ WYDAJNOŚCI JAKOŚCI MIĘDZY SEKTORAMI PRODUKCYJNYMI I USŁUGOWYMI

Streszczenie: Celem tego artykułu jest przeprowadzenie empirycznego porównania praktyk TQM i wyników w zakresie jakości między sektorami produkcyjnymi i usługowymi w Tajlandii. Badanie przeprowadzono na podstawie danych pierwotnych zebranych od 525 respondentów z sektora produkcyjnego i usługowego. Dane zostały przeanalizowane przy użyciu analizy MANOVA, analizy testów t i modelowania równań strukturalnych (SEM) przy użyciu oprogramowania SPSS i AMOS. W przypadku RQ1 badanie przeprowadziło analizę MANOVA i wykazało, że istnieje znacząca różnica między sektorem produkcyjnym i usługowym, jeśli chodzi o TQM i jakość wykonania. Rozszerzona analiza testu t wykazała, że TQM i wyniki jakościowe sektora produkcyjnego różniły się od wyników sektora usług dla 6 zmiennych (przywództwo, zarządzanie strategiczne, orientacja na klienta, analiza informacji, zarządzanie ludźmi i zarządzanie procesami), ale nie znaczna różnica między tymi dwoma sektorami pod względem zmiennej jakości produktu. Modelowanie równań strukturalnych zastosowano do odpowiedzi RQ2 i RQ3. Wyniki ujawniły, że zarówno dane produkcyjne, jak i usługowe skutecznie pasują do modelu oraz że istnieje znacząca różnica w obu grupach modelu. Wyniki wskazały również, że nie ma znaczącej różnicy między siłą związku między praktykami TQM a wynikami w zakresie jakości między organizacją produkcyjną i usługową w Tajlandii. Niniejsze badanie wspiera stosowanie TQM w organizacjach. W badaniu zauważono, że w celu skutecznego działania firmy powinny rozważyć przyjęcie praktyk TQM i środków jakości, które są odpowiednie dla ich sektorów i organizacji.

Słowa kluczowe: wyniki jakościowe, całościowe zarządzanie jakością, wyniki organizacyjne, zarządzanie procesowe

制造和服务部门的全面质量管理实践与质量绩效的比较

摘要: 本文旨在对泰国制造业和服务业之间的全面质量管理实践和质量绩效进行实证比较。这项研究是使用从制造业和服务业的525名受访者那里收集的主要数据进行的。使用MANOVA分析，t检验分析和结构方程模型（SEM）以及SPSS和AMOS软件对数据进行了分析。对于RQ1，该研究进行了MANOVA分析，发现制造和服务部门之间在TQM和质量绩效方面存在显着差异。对t检验的扩展分析表明，制造业的TQM和质量绩效与服务部门的6个变量（领导力，战略管理，客户关注，信息分析，人员管理和过程管理）不同，但没有产品质量变量在两个部门之间的显着差异。应用结构方程建模来回答RQ2和RQ3。结果表明，制造和服务数据都有效地适合模型，并且两组模型之间存在显着差异。结果还表明，泰国的制造和服务组织之间的全面质量管理实践之间的关系强度与质量绩效之间没有显着差异。这项研究支持TQM在组织中的应用。研究发现，为了获得有效的绩效，企业应考虑采用适合其所在行业和组织的TQM做法和质量措施。

关键字: 质量绩效，全面质量管理，组织绩效，过程管理