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THE IMPACT OF ISO REGISTRATION ON TOTAL QUALITY MANAGEMENT (TQM) PRACTICES OF THE PUBLIC SECTOR IN KOTA KINABALU SABAH[1]

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Abstract

The main objective of this study is to explore the employee perception on the impact of ISO 9000 registration on Total Quality Management (TQM) practices of the public sector in Kota Kinabalu, Sabah. Thus, this study examined to what extent does the employee's perceptions of certified ISO9000 department and non-certified ISO department affect on TQM practices namely, top management commitment, teamwork, empowerment, training & development and motivational strategies (reward and recognitions) and to what extent the relationship of between the independent variables (status of department) and dependent variables (TQM practices) is moderated by size of department, years of employee's experience and education level of employee in public sector. The study was carried out on the federal government departments/agencies in Kota Kinabalu, Sabah. The study classifies the public sector as certified ISO 9000 and non-ISO departments in relation to the TQM practices on employee/individual perceptions. Five constructs of TQM practices in the Malaysian public sector were identified. The questionnaire based on the five-point Likert Scale was chosen for this study from non-probability sampling method (targeted/purposive) of certified ISO and non-ISO departments. A total of 240 self-administered questionnaires were sent to these departments in order to get the public sector's employees perception on the impact of ISO 9000 implementation on TQM practices, which covered executive level (top management and middle management) as well as non-executive (supporting 1 and 2) of the Malaysian public sector organizational hierarchy system. A total of 162 questionnaires were returned which made up 67% response rate. The result reveals that there is no significant impact found between ISO 9000 registered department and non-ISO department on all five TQM variables pertaining to top management commitment, teamwork, empowerment, training and development, and reward and recognition. However, there is significant moderating impact found between ISO 9000 registered department and all five TQM variables when size of department was used as a moderator, but partial moderating impact supported on non-ISO department. It is learnt that size of department has a strong moderating impact to ISO department on their TQM practices which has shown that bigger department size has a higher mean score pertaining to TQM practices, which can be summarized that ISO 9000 has been treated as a work manual or reference for the bigger departments to ease their work process flow in an organization.

Key words: ISO9000, Total Quality Management, public sector, Analysis of variance

Introduction

Quality management is a competitive dimension that sets one company apart from another, yet quality often means different things to different people. It is often a highly non-quantifiable variable whose interpretation changes over time and enterprise. How does a company achieve a reputation for quality when the definition of quality varies from company to company and industry to industry? How can quality be measured or quantified? A search for these questions stimulates much interest in quality programmes (Zhu & Scheuermann 1999).

The quality movement in the West began in the United States at the turn of the 20th century. Frederick W. Taylor who introduced new approaches to improve

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the work of unskilled workers in industrial organizations did one of the first attempts of the movement. Known as "The Father of Scientific Management", he outlined two important quality principles; firstly, that the workers should have standard tools and conditions to complete the task; and secondly, failure to complete the task is a high loss and should be personally costly. In Japan, it is quite usual for the upper managers (the presidents and the general managers) to provide leadership to the quality function. The Japanese upper managers first assumed this leadership during the quality emergency of the late 1940's and early 1950's. It was the upper managers who launch those massive training programmes of annual quality improvement.

In Malaysia, there is no exception in the quality movement both in public and private sectors. The Prime Minister launched the Excellent Work Culture in 1989. The Prime Minister Quality Award, Quality Control Circle (QCC) Convention, Quality Day Campaign, and massive training in quality courses are the reflective of government inspiration towards quality improvement. The Japanese and Western experience could be valuable lessons for Malaysia to benefit (Mukhtar 1995).

The Government of Malaysia is striving to enhance quality service of the public sector. Therefore, the ambitious vision of the Malaysian Public Sector is to become "a world class public sector". Hence, there is a need to the current emphasis on productivity and quality management, which have reached a new milestone with the introduction of circulars called Development Administration Circular (DAC) in 1991.

Total Quality Management (TQM) was introduced in ministries and government department/agencies with the issuance of DAC No. 1 of 1992 (1/1992) entitled 'Guideline on Total Quality Management in The Civil Services'. Under TQM concept, government agencies have been urged to implement seven (7) important principles of quality management. These principles are Top Management Support, Strategic Quality Planning, Customer Focus, Providing Training and Recognition, Fostering Teamwork, Establishing Performance Measurement and Quality Assurance (Mohd. Shaid, 1995).

As an effort to accelerate excellent services achievement, the use of elements in quality management system (QMS) based on 'Malaysian Standard-International Standard Organisation 9000' (MS-ISO 9000) series standards have been used by some of the government departments. The prime importance of this quality management system is clients' satisfaction with the services that being provided (Abd. Aziz, 1995).

Tobin (1990) defines TQM as the totally integrated effort for gaining competitive advantage by continuously improving every facet of organization culture. TQM focuses externally on meeting customers' requirements, while internally on management commitment, employee training and education. Its main objective is to embed quality into processes, products and services. TQM stresses the involvement of everyone inside and outside of the organisation, such as customers and suppliers.

However, TQM entails much more than statistical tools. It requires top management commitment, leadership, training and teamwork. These are the key factors in a successful implementation of TQM. The literature is filled with discussions of these key factors (Hakes, 1991; Saylor, 1992)

This paper is aimed to explore the employee perception on the impact of ISO 9000 on TQM management practices of the public sector in Malaysia and to review how layers of management perceive quality. Middle level management staffs are considered to be the pillars of their organisation. Their perceptions about quality influence the future of the organisation. On top of that, their attitudes toward quality may affect the performance of the organisation specifically.

It is interesting to note that there are still organisations in the public sectors that have not yet implementing ISO 9000. However, this does not mean that they ignore the importance of producing quality products or services to the customer issued of DAC No. 1 of 1992 entitled 'Guideline on Total Quality Management in The Civil Services'. Thus, it is interesting to make comparison between management practices of government departments/ agencies that formally certified/ registered ISO 9000 and those are not certified/ registered ISO 9000 in their organisation, but implement and embrace TQM philosophy.

Statement of the Problem

Hill (1995) found that the perception of employees to TQM is often positive. However, the reaction of employees is likely to vary from one organisation to another depending on the style of management and the approach adopted in implementing TQM. Some employees perceive TQM as a threat to their power and position and resist the introduction of TQM. On the other hand, some feel that they have gained influence in their work and task after TQM was implemented in their organisation (Wilkinson *et al.*, 1997).

Generally, proponents of ISO 9000 view the benefits of such registration as having the ability to improve product or service quality; its efficiency and productivity; customer confidence; competitive advantage and the like. Criticism of ISO 9000 relates to high level of paper work and documentation. Its rigid system does not support creativity or empowerment which standard aims for consistency but not continuous improvements (Barnes, 1998; Larson, 1999).

Customers' complaints such as on late delivery often arise in the Malaysian public sector, even though TQM and ISO 9000 are being implemented (The STAR, 11 November 2003). The process of ISO documentation and implementation is very messy and costly. Thus, further study is needed in public sector to answer the re-

search question:

"to what extent does the employees' perceptions of certified ISO 9000 department and non-certified ISO department affect on TQM practices namely, top management commitment, teamwork, empowerment, training & development and motivational strategies (reward and recognitions) and to what extent the relationship between the independent variables (status of departments) and dependent variables (TQM practices) is moderated by size of department, years of employee's experience and education level of employee in public sector"

Objectives of the Study

i) o investigate employee's perception in the department status (independent variables: ISO and non-ISO departments) and TQM practices (dependent variables) namely, top management commitment, teamwork, empowerment, training & development and motivational strategies (reward and recognitions).
ii) To study the relationship between the department status and TQM practices, and whether or not the relationship is moderated by the size of department, employee's experience and education level.

Significance of the Study

The results of the proposed study will help to assess the impact of ISO 9000 registration on TQM practices and the possibility of co-exist in the public sector. This will also help government policy makers and quality practitioners to determine the future path of ISO 9000 and its relevancy in enhancing the operations of a government department.

Scope of the study

The study was carried out in the federal government departments/agencies in Kota Kinabalu, Sabah. The study classifies the public sector as certified ISO 9000 and non-ISO departments in relation to the TQM practices on employee/individual perceptions. Six certified ISO 9000 departments and six non-ISO departments were selected on purposive sampling. This study uses the term public sector as to indicate federal government agencies and departments or units, and those terminologies will be used interchangeably.

Research Methodology

This is a replicative studies by Rao *et al.* (1997), Poh (2000) and Quazi *et al.* (2002) which were carried out in private firms, the theoretical framework is similar whereby the independent variables in this study are the ISO 9000 registration status of the department namely, ISO 9000-registered and not registered departments. The dependant variables are the constructs (concepts) of TQM practices. However, these factors of TQM practices in dependant variables are replicated from the study by Poh (2000) since the constructs are in line with this study which is much more concern in terms of leadership and HRD of the public sector interest on more service than product oriented. Therefore, for the purpose of this study in public sector, five factors pertaining to TQM practices namely top management commitment, teamwork, empowerment, training & development and motivational strategies (reward and recognitions) were measured to see how ISO 9000 quality standard can result in an effective implementation of those factors. The moderating variables of this study are the size of the department in terms of number of employees being employed, years of working experience and education level of employee.

The main purpose of this study is to determine the employees' perceptions of the TQM practices in both ISO and non-ISO departments. It is intended to investigate the differences in perception of TQM practices between ISO and non-ISO departments. The TQM practices in this study were leadership, teamwork, empowerment, training and development, reward and recognition. The scope was confined to the public sector departments/ agencies. This study used the term public sector as to indicate federal government agencies and departments or units, and those terminologies were used interchangeably. This was to avoid confusion and to maintain consistency in this study. Since the target respondents were federal government departments in Kota Kinabalu, Sabah and the nature of work at their state operational level is totally different from their counterparts in Kuala Lumpur head quarters, thus, the job title was redefined to suit the state level working condition of target respondents. Three levels of management consisting of top management (management & professional officer: head & deputy head of department/agency/unit), middle management (executive officer, chief clerk, supervisor etc.) and supporting staff (clerk, typist, general worker etc).

The questionnaire based on the five-point Likert Scale was chosen for this study from non-probability sampling method (targeted/purposive) of certified ISO and non-ISO departments. A total of 240 self-administered questionnaires were sent to these departments in order to get the public sector's employees perception on the impact of ISO 9000 implementation on TQM practices, which covered executive level (top management and middle management) as well as non-executive (supporting 1 and 2) of the Malaysian public sector organizational hierarchy system. Only 162 valid returns were received which consisted of 81 copies from ISO 9000 certified department and 80 copies of non-ISO departments were sent back and usable. This indicated a response rate of 67%.

Analysis

Profile of respondents

The respondents consisted of 50.3% of ISO department and 49.7% of non-ISO department. Most of the respondents (49.1%) were from those working in the department with the staff ranging from 26 – 50 employees and the lowest respondents (9.9%) came from the department with more than 75 employees. In terms of gender difference, male is higher than female with total respondents 50.3% and 49.7% respectively. By education level, SPM and STPM/Diploma holders recorded 35.4% and 34.8%, while Degree and SRP/PMR holders recorded 22.4% and 7.5% respectively.

At organizational level, Management & Professional officers responded 16.1%, while Supporting Staff 1 & 2 responded 32.3% and 51.6%, which cumulated 48.4% respondents were executives and 51.6% respondents were non-executives. Most of the respondents (57.8%) had a working experience ranging between 1-5 years, while others were almost equal between 6-20 years working experience and above which represented 42.2% respondents in total.

Descriptive Statistics

The results of item measuring each variables, the means and standard deviation of each constructs are shown in Table 1, i.e. five variables of TQM practices namely, top management commitment, teamwork, empowerment, training and development, and reward and recognition. Top management commitment variable showed the highest mean score (4.0275), followed by empowerment (3.9805), teamwork (3.7870), training and development (3.4615) and the lowest mean score was reward and recognition (3.4259).

Table 1 *Descriptive Statistics*

Variables	No. of items	Mean	SD	Reliability
Top management commitment	7	4.0275	0.6734	0.8833
Teamwork	7	3.7870	0.5774	0.8017
Empowerment	7	3.9805	0.5450	0.8600
Training & development	10	3.4615	0.6158	0.8530
Reward & recognition	7	3.4259	0.7369	0.8542

Reliability of data

The reliability of empirical measurements is indicated by the internal consistency, which can be estimated by using a reliability coefficient such as Cronbach's alpha. An internal consistency analysis was performed separately for each of the construct of TQM practices. The analysis recorded that the reliability values ranging from 0.8017 to 0.8833. The result indicated that the Cronbach's alpha for 38 items/elements measured for TQM practices were more than 0.80. According to Sekaran (2003), the closer the reliability coefficient gets to 1.0, the better. In general, reliabilities less than 0.6 are considered poor, those in the 0.70 range are acceptable, and those over 0.80 good. Thus, the internal consistency reliability of the measures used in this study can be considered to be good and no single item to be deleted.

Analysis of variance

Analysis of variance (ANOVA) was used to explore the relationship of the ISO 9000 registration and TQM practices. ANOVA is essentially concerned with tests of mean responses. Five one-way ANOVA tests were conducted, one for each construct. The mean value for the given construct was taken as the dependent variable. The non-metric independent variable was the status of ISO 9000 registration of the respondents, i.e. either ISO 9000 registered or non-ISO 9000 registered. The F-ratios indicate that the differences between these two groups are not statistically significant at the 5% (p-values ranging between 0.137 and 0.856). The results showed there is no significant impact found between ISO 9000 registered department and non-ISO department on all five TQM variables pertaining to top management commitment, teamwork, empowerment, training & development, and reward & recognition.

ANOVA was also used to explore whether the relationship between ISO 9000 registration department status and TQM practices is moderated by the size of department (number of employee). Table 2 shows there is significant moderating impact found between ISO 9000 registered department and all five TQM variables pertaining to top management commitment, teamwork, empowerment, training and development, and reward and recognition when size of department was used as a moderator. However, partially moderating impact supported on non-ISO department, i.e. for the reward and recognition ($p=0.017$)

ANOVA was also used to explore whether the education level of respondent moderates the relationship between ISO 9000 registration department status and TQM practices. Table 3 shows there is significant moderating impact found between ISO 9000 registered department and three TQM variables pertaining to top management commitment, teamwork, and reward and recognition when education level was used as a moderator. The result shows that at 5% significance level, there is a significant moderating effect by education level of the ISO 9000 registered department employees on three TQM practices namely, top management commitment

(p=0.0022), teamwork (p=0.009), and reward and recognition (p=0.003).

However, ANOVA shows there is no significant moderating impact found between ISO 9000 registered department and TQM variables as well as non-ISO department on TQM practices when employee's experience was used as a moderator to both department status.

Table 2 Size of department as a moderator of ISO registered department3.4762

TQM practice	No. of employee	Mean	F-ratio (p-value)
Top management commitment	<25	4.3750	
	26-50	3.9190	11.181
	51-75	3.4762	(p<0.0001)
	>75	4.6250	
Teamwork	<25	4.0893	
	26-50	4.3750	8.871
	51-75	3.5238	(p<0.0001)
	>75	4.3750	
Empowerment	<25	4.2500	
	26-50	3.9000	5.403
	51-75	3.8245	(p=0.002)
	>75	4.4464	
Training & Development	<25	3.8125	
	26-50	3.4200	5.870
	51-75	3.2222	(p=0.001)
	>75	3.9688	
Reward & Recognition	<25	3.4286	
	26-50	3.3381	8.902
	51-75	3.0423	(p<0.0001)
	>75	4.1875	

Table 3 Education level as a moderator of ISO registered department

TQM practice	Education level	Mean	F-ratio (p-value)
Top management commitment	SRP & <	4.1905	
	SPM	4.1169	3.384
	STPM/Diploma	4.1576	(p=0.022)
	Degree & >	3.5820	
Teamwork	SRP & <	4.0952	
	SPM	3.9156	4.112
	STPM/Diploma	4.0148	(p=0.009)
	Degree & >	3.4921	
Empowerment	SRP & <	4.0952	
	SPM	4.0779	0.643
	STPM/Diploma	4.0837	(p=0.590)
	Degree & >	3.8889	
Training & Development	SRP & <	3.5667	
	SPM	3.4273	1.520
	STPM/Diploma	3.7000	(p=0.216)
	Degree & >	3.3407	
Reward & Recognition	SRP & <	3.8571	
	SPM	3.3247	5.015
	STPM/Diploma	3.7882	(p=0.003)
	Degree & >	3.0423	

Discussion

Impact of ISO 9000 and non-ISO on TQM practices

The impacts of ISO 9000 on TQM practices in the public sector do not give any differences in this study as compared to non-ISO department. However, this finding has validated the recent study by Quazi *et al.* (2002) that the use of ISO 9000 as a QMS has no significant impact on TQM practices in private firms in Singapore and has clearly contrast with the studies done by Rao *et al.* (1997) and Poh (2000). The significant finding by Rao *et al.* (1997) on the relationship between ISO 9000 and TQM practices is strongly contributed by the facts that the study was done in four different country cross-continents namely, United State (US), Mexico, India and China at organisational unit of analysis with their different work culture settings, and the total response was sufficiently large enough with 649 responses, while significant finding by Poh (2000) was involved with totally different kind of industry sensitivity of respondents on each groups of ISO and non-ISO. However, the repetitive study by Quazi *et al.* (2002) was carried out only in one country at organisational unit of analysis with only 93 respondents made up 20% of response rate which probably shares the similar work cultures among respondents.

This study is in line with the claims by Sallis & Hingley (1992) on four alternative theories of the relationship between ISO 9000 and TQM, the third theory shows that ISO 9000 has a minor role in the larger TQM enterprise. The ISO 9000 is seen as only one element in a more important venture. In this theory, quality is delivered by the active participation of the workforce in improvement teams and not by paper based procedures. The researchers are in view that the reason behind no impacts in the use of ISO 9000 in the public sector as compared to non-ISO departments whom do not willingly to register it on their TQM practices, simply because the federal government has successfully being implemented TQM practices and embedding in their work cultures with the issuance of DAC No. 1 of 1992 entitled 'Guideline on Total Quality Management in The Civil Services'.

This cultural transformation has taken place in the federal government work culture before the instruction of using ISO 9000 as a QMS in the public sector came into the picture four years later in 1996. The DAC No. 2 of 1996 entitled 'Guideline on MS ISO 9000 in Public Sector" which stressed the importance of taking ISO 9000 as QMS in the public sector. The contradiction to use whether ISO 9000 as QMS for work process or TQM as a management philosophy as whole might be due to the nature of federal government work setting, whether it involves in the process of licensing or certain business linkages, ISO 9000 can be used to gain exter-

nal conformance in such work process. In contrast, if one department deals with the confidential work, which may effect on internal security but need to be more work process oriented, TQM philosophy, which is concerned on continuous improvement, may be the right choice.

Demographic Factors: Impact of ISO and non-ISO on TQM practices

The result if size of department plays the role of a moderating effect on ISO 9000 showed a strong effect on TQM practices. This study is clearly contrast from the study by Quazi *et al.* (2002), which found no impact on the relationship if size of department were to be implied, but it is in line with the finding by Rao *et al.* (1997). The contrast findings on size effect between Quazi *et al.* (2002) and Rao *et al.* (1997) caused by industry sensitivity, whereby Rao *et al.* (1997) study came from the big firms, while Quazi *et al.* (2002) at small and medium firms (SMEs). However, since this study does not indicate on industry sensitivity because all respondents from the sampling were involved in the service sector and not manufacturing sector. If industry sensitivity is taken into account, the significant impact may come from the understanding among workers on the importance of work culture, which normally circulated in general to all government departments by MAMPU, Public Service Department and Federal Treasury. These three departments in the federal government so called 'central agency' have an authority to extend work procedures, policies and rules as a general guideline to all public servants in all departments.

By size of department used as a moderator in ISO department on their perception towards TQM practices, higher mean score found in the bigger sized departments ranging more than 75 employees with the means of all five variables between 3.9 to 4.6 at ($p< 0.0001$), while smaller sized department ranging less than 25 employees with means score 3.4 to 4.3 at ($p< 0.0001$). An explanation for higher mean obtained by smaller and bigger sized departments and not at middle size might be due to better interaction and communication within organization to better understanding of ISO 9000 work process.

Only reward and recognition significantly found in non-ISO departments on their perception towards TQM practices with mean score between 3.2 and 3.9 at ($p< 0.05$) obtained by bigger sized department ranging employees from 51 to 75 (note that non-ISO department respondents came from only three categories that is below 25, between 26-50, and between 51 to 75) as compared to smaller sized department. This might be due to reward and recognition are much appreciated by them to ensure that top management is more concerned on their subordinates' well-being since the number of employees is quite high.

By education level used as a moderator in ISO department, higher mean score from 3.3 to 4.2 at ($p< 0.05$) were obtained by STPM holders and below (SPM and SRP) on their perception on top management, teamwork, and reward and recognition of TQM practices as compared to degree holders and above with ranging means from 3.0 to 3.6 at ($p< 0.05$). This can be explained that degree holders as a top management in an organisation perceived top management, teamwork, and reward and recognition as least priority variables on TQM practices. Thus, it indicated the misconception on TQM practices perceived by top management in ISO department, which as a top management they should support an open system management without too bureaucratic practices. Another important point with lower mean score obtained by degree holders are because they understand better the questionnaire sent to them and know better the actual environment since their role as a top management in such organisation and placed three variables that are top management, teamwork, and reward and recognition as least priority as compared to those in lower position with STPM holders and below. This can be further explained that bureaucratic nature and 'paternalistic' approach (father knows best) still exist in public sector although ISO was implemented.

By working experience used as a moderator in their current department in public sector does not affect in their TQM practices for both ISO and non-ISO. This is likely because most of the respondents have work experience with less than five years, which indicated that the understanding on their department's mission and vision regardless whether they work in ISO or non-ISO department is still need to be further improved under supervision of their superior. This is clearly contrast with the study by Poh (2000) which found significant influences in terms of working experience on the perception of quality management practices among the Malaysian manufacturing firms.

Implication of Study

This study will help to assess the impact of ISO 9000 registration on TQM practices in the public sector, which will also help government policy makers and quality practitioners to determine the future path of ISO 9000 in Malaysia partly and its relevancy in enhancing the operations of a government department.

Arguments against the implementation of ISO 9000 as a QMS is generally cited as an increased costs and increased bureaucracy, since TQM philosophy which strongly insists on the importance of top management, teamwork, empowerment, training and development, and reward and recognition, and have to be in line with the aim to achieve organisational success and commitment through the work cultural transformation, continuous improvement, customer oriented, bottom-up communication and the like have been implemented in 1992 for the public sector.

While it cannot be denied that there are costs involved in developing and implementing the system, these have to be weighed against the resulting increases in productivity that can arise out of better managing delivery processes. Any management system, which is badly implemented, may lead to increased paperwork and bureaucratic restrictions or loss of creativity. As well as designed and implemented system seeks to provide a disciplined approach that takes care of routine matters efficiently; it provides all staff with more time for creativity and improvement related activities.

Conclusion

Although this study may provide some preliminary empirical evidences, it may increase our understanding of the impacts of ISO 9000 on TQM practices as compared to those non-registered department particularly in public sector, which aims to provide better public services to government organizations which are not profit oriented, they have to create a good governance nation and become a world class public sector. Healthy work culture is to be embedded to all government staff as it is a more 'humanistic approach' by accepting TQM philosophy rather than the QMS which highly concerned on 'systems approach', but for certain reasons especially due to nature of the work flow and process in certain departments, QMS is the most preferred to avoid uncertainties in delivering good customer services.

It can be concluded from the result of the analysis that there is no significant impact found between ISO 9000 registered department and non-ISO department on all five TQM variables pertaining to top management commitment, teamwork, empowerment, training and development. However, there is significant moderating impact found between ISO 9000 registered department and all five TQM variables pertaining to top management commitment, teamwork, empowerment, training and development, and reward and recognition when size of department was used as a moderator, but partial moderating impact supported on non-ISO department. Only partial moderating impact found between ISO 9000 registered department and TQM variables as well as non-ISO department on TQM practices whenever employee's education level was used as moderator, and no significant moderating impact found between ISO 9000 registered department and TQM variables as well as non-ISO department on TQM practices when employee's experience was used as a moderator to both department status. It is learnt that size of department has a strong moderating impact to ISO department on their TQM practices which has shown that bigger department size has a higher mean score pertaining to TQM practices, which can be summarized that ISO 9000 has been treated as a work manual or reference for the bigger departments to ease their work process flow in an organization.

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