

Do ISO Certified SME's have Hgher Quality Practices?

Empirical Insights from the Northern Region of Malaysia

Nusrah Samat

School of Management, Universiti Sains Malaysia, 11800 Minden, Penang, Malaysia

Tel: 6-04-6532751 E-mail: nusrahs@gmail.com

T. Ramayah (Corresponding author)

Technology Management Lab, School of Management, Universiti Sains Malaysia

11800 Minden, Penang, Malaysia

Tel: 6-04-6533889 E-mail: ramayah@usm.my

Yusliza Mohd. Yusoff

Faculty of Administrative Science and Policy Studies, Universiti Teknologi MARA, 40450 Shah Alam

Selangor, Malaysia

Tel: 6-019-6506230 E-mail: yusliza1977@yahoo.com

Abstract

Most scholars as well as practitioners are fully aware that Total Quality Management (TQM) has become the key factor in improving organizational performance. Most of past researchers have found that TQM has a deep impact on organizational performance including the small and medium enterprises (SMEs). Several researchers have also looked at the issue of ISO 9000 certification in relations to the implementation of TQM. This study tries to examine whether ISO certified companies have higher TQM practices as compared to those non ISO certified small and medium enterprises in the northern region of Malaysia. The result shows that the only significant difference between ISO certified and non-ISO certified organizations was in training and education with ISO certified firms reporting higher extent. However, overall, ISO certified firms did not differ significantly on the other 6 practices. This to a certain extent questions the rationale of getting certified.

Keywords: ISO 9000, SME, Quality practices, Certification

1. Introduction

The business world has become increasingly globalized and firms have to compete globally compared to locally in the previous years. One of the competitive advantage used by many firms are quality. Closely related to quality are the quality management practices. Although many have resorted to implementing these practices in their efforts to stay competitive, there have emerged several new concepts and certifications that can be pursued by these firms instead. So apart from the importance of TQM, some researchers have raised the issue of ISO 9000 certification in relations to the implementation of TQM. According to Sohail and Teo (2003), some researchers like Bradley (1994) have pointed out the opinion that the ISO 9000 certification is the first step towards the implementation of TQM while some researchers still prefer to maintain focusing on TQM only. They indicated that even though some authors praise the ISO 9000 concept, others view it as a ritualized form of quality management that should not be used in isolation from TQM principles.

Briscoe, Fawcett, and Todd (2005) indicated that internalizing the core ISO practices is important in improving performance and ISO 9000 practices must become part of the routine in the organization. It is also proposed by Fenghueih, Ching, and Cleve (1999) that for the maximum benefits of ISO 9000 certification, the efforts undertaken in implementing the standards should be part of a TQM process.

Meanwhile, a study by Sun (2000) found that ISO 9000 standards are partially related to the implementation of TQM and the improvement of business performance and therefore it is recommended by the study that ISO 9000 should be incorporated with the philosophy and methods of TQM. In addition, Martinez-Lorente and Martinez Costa (2004) mentioned that despite the beliefs about ISO 9000 as a good first step in the way of implementing TQM, some of the ISO 9000 principles are contradictory once implemented with TQM philosophy. Ho (1994) has pointed out 8 characteristics, which are needed in order to implement TQM and ISO 9000 successfully. One of them is TQM is needed in the ISO 9000 system in order to produce quality products and services. This is because even with the ISO 9000 certification in hand, it would not guarantee that the products are of high quality.

This study tries to examine whether ISO certified companies have higher TQM practices as compared to those non ISO certified small and medium enterprises in the northern region of Malaysia by adapting the Sohail and Teo's (2003) framework of quality measurements.

2. Literature Review

2.1 TQM Practices

TQM is an approach historically unique to improve the organizational effectiveness with solid conceptual foundations, which at the same time, provides a strategy to enhance business performance, taking into consideration the way companies and their staffs operate (Wruck & Jensen, 1994). It has become the major business strategy in the 1990s (Witcher, 1994; Lee & Leung, 1999).

According to Javier, Antonio, and Mignel (2003), a distinction can be made between the TQM content, elements, processes or practices. It is so-called elements (Waldman, 1994) practices and principles (Dean & Bowen, 1994), values and techniques (Hellsten & Klefsjo, 2000), processes and contents (Reed, Lemak, & Mero, 2000), interventions (Hackman & Wageman, 1995), principles and precepts (Sitkin, Sutcliffe, & Schroeder, 1994), etc. Although definitions do not coincide in full, all of them still refer to those fundamentals that make up TQM theoretical frame without which the management system implemented in the organization or the philosophy on which it is based could not be called TQM (Javier et al., 2003). The elements of TQM practices are vary according to various scholars. Table 1 below shows the various practices that has been proposed by different authors. (See Table 1)

For this study, seven main practices of TQM implementation has been used in which all practices are selected due to their relation to and supported in service organizations: *management support and commitment, employee involvement, employee empowerment, information and communication, training and education, customer focus, and continuous improvement*. All these seven practices are among 25 TQM practices listed to be the most common extracted across 76 studies on TQM (Sila & Ebrahimpour, 2002).

2.2 ISO 9000 defined

ISO certification started in Europe and was spread to North America, Japan, and the rest of the world in which it was introduced in 1987 by the International Organization for Standardization, based in Geneva, Switzerland (Abraham, Crawford, Carter, & Mazotta, 2000). It is a series of standards for quality management systems with a comprehensive model of quality systems (Sun, 2000) that addresses the quality of a company's processes (Withers, Ebrahimpour, & Hikmet, 1997). Similar with other quality management practices, these standards are based on the concept that certain minimum characteristics of a quality management system could be usefully standardized, giving mutual benefit to suppliers and customers, and they focus on process rather than product quality (Van der Wiele, Dale & Williams, 2000; Withers & Ebrahimpour, 1998; Gourlay, 1994).

The ISO 9000 series sets out the methods that can be implemented in an organization to ensure customers' requirements are fully met (Oakland, 1989). Yahya and Goh (2001) mentioned that ISO 9000 is a management control procedure. It involves a business documenting the processes of design, production, and distribution to ensure that the quality of products and services meets the needs of customers (Quazi, Hong, & Meng, 2002; Pun, Chin, & Lau, 1999).

2.3 ISO 9000 in Malaysia

In Malaysia, the Scientific and Industrial Research Institute of Malaysia (also known as SIRIM) is the one responsible to issue the standards for a quality management and quality assurance system which is recognized as MS ISO 9000 standard. This standard has been widely accepted in the Malaysian private sector. MS ISO 9000 is welcomed by most Malaysian companies. Knowing the facts that MS ISO 9000 is a good standard to be implemented, the government has decided to adopt the MS ISO 9000 standard to the civil services as well. With the main objective to develop an efficient and effective quality management system in order to provide the best service consistently to the public, the Malaysian government started the implementation of MS ISO 9000 in the civil services on 1st November 1995. From there, the MS ISO 9000 has played a big role in creating a quality public service for the Malaysian public service.

2.4 SMEs in Malaysia

There are various descriptions of SMEs. Some describe SMEs based on number of employees; some measure the amount of capital or maybe assets and even sales turnover while the Small and Medium Industries Development Corporation (SMIDEC) defined SMEs into two broad categories. The first one is Manufacturing, Manufacturing-Related Services and Agro-based industries, which comprises the enterprises with full-time employees not exceeding 150 or with annual sales turnover not exceeding RM25 million. Second one is the Services,

Primary Agriculture and Information & Communication Technology (ICT). This second category refers to service enterprises with full-time employees not exceeding 50 OR with annual sales turnover not exceeding RM5 million (Saleh & Ndubisi, 2006).

In most developing and developing countries, the small and medium sized enterprises (SMEs) sector plays a crucial role in contributing to the growth of the economy. Similarly in Malaysia, SMEs forms an important part in the national economy right from the aspects of business units, employment opportunities, income generation, training and development, up to contributing 47.3% of the gross domestic product (GDP) (Leong, 2006). Besides, currently SMEs contribute about 16.6% of the country's total exports (Habib, 2006). According to Habib (2006) as well, the Prime Minister of Malaysia, Datuk Seri Abdullah Ahmad Badawi also admitted the importance of role played by SMEs. He said that SMEs, even though they are not big, but they contribute much on the economy of the country and they are one of the sectors that is growing rapidly in most developing countries nowadays. Furthermore, according to statistics provided by SMIDEC (2004), SMEs contributed 57.6% to exports in the manufacturing sector, 40.6% in the service sector, and 1.8% in the agriculture sector. All of these evidences suggest that SMEs contribute an important role not only in the economy aspect but also in the nation's well being.

3. Research Framework

The research model developed by Sohail and Teo (2003) has been adapted and used in this study. However this study only focuses on to link the two main components of TQM practices and ISO 9000 certification instead of three main components of TQM practices; ISO 9000 certification and Organizational performance studied by them (refer to Figure 1). Also, the dimension of TQM practices studied by Sohail and Teo (2003) were different from this study. This study focused on the seven practices comprising of management support and commitment, employee involvement, employee empowerment, information and communication, training and education, customer focus, and continuous improvement compared to the six variables in Sohail and Teo (2003): employee training and empowerment, customer involvement and satisfaction, process management, quality measurement and benchmarking, top management commitment, and, strategic planning.

4. Research Methodology

4.1 The Instrument

In collecting the data, a structured questionnaire was used as the research instrument for this study. The survey instrument consisted of seven variables of TQM practices, which are the management support and commitment, employee involvement, employee empowerment, information and communication, training and education, customer focus, and continuous improvement. It measures the level of TQM practices in the organization. The 33 questions asked were modified from Antony, Leung, Knowles, and Gosh (2002), Brah, Wong, and Rao (2000), and Sureshchandar, Rajendran, and Anantharaman (2002), in which respondents were asked to respond to the statement using 5-point Likert scale ranging from strongly disagree, which is weighted as 1, to strongly agree, weighted as 5.

4.2 Sample and Procedure

A field study was conducted in collecting the primary data from a population of service organizations in the northern region of Malaysia (Kedah, Perak, Penang, and Perlis States) that do practices TQM in their operations. These service organizations comprise of banks, finance companies, insurance companies, private and public utility service organizations, higher learning organizations, consulting service companies and other related service organizations.

A total of 200 service organizations have been contacted. About 175 of them were implementing TQM practices in their business routine. A set of questionnaire was sent to each service organizations by post and e-mail directed to the manager. For the mail questionnaire, a set of questionnaire containing a cover letter and stamped-reply envelope address to the managers as the key informant of the organization, while the e-mail questionnaires were sent using the e-mail address of the managers. In ensuring a good response, the researcher kept contact and followed up through e-mail and phone. A total of 66 usable responses were subsequently used in the analysis.

4.3 Goodness of Measure

In determining the goodness of data for the study, factor analysis and reliability analysis were used. Factor analysis was performed to assess convergent validity. The results of the factor analysis and reliability test are presented in Table 1 and Table 2.

Table 1 presents the factor loadings for each rotated factor and each variable of TQM practices. The first factor (F1) relates to the support and commitment in practicing TQM given by the top management. Five items are found to have significant loadings in this factor. The second factor (F2) concerns on the involvement of employees in practicing the TQM in the organization. For this factor, four items are found to have significant loadings. F3 refers to the level of employee empowerment in the implementation of TQM, which comprises of four items. F4 concerns

the degree of information and communication being used in the organization. This factor comprises of four items that have been found to have significant loadings. The fifth factor (F5) is labeled as training and education that has been exposed to employees. This factor has six items, which are found to have significant loadings. F6 consists of five items, which has been found to have significant loadings in this factor. This factor suggests the role of customer focus in practicing the TQM. The final factor (F7) relates to the level of continuous improvement being made by the organization. It consists of five items, which are found to have significant loadings in this factor. This further enhances the convergent validity of the instruments used in the study.

In terms of reliability analysis, the Cronbach alpha's ranged from 0.723 for employee empowerment to 0.932 for continuous improvement, again showing acceptable reliability for all the measures used. (See Table 3)

5. Research Findings and Discussion

5.1 Profile of the Organizations

In terms of nature of service organization, majority (54.5%) of them were from the others category of service organization such as public service department, government authority, government agencies, healthcare industry and hotels. Meanwhile, 15.2% comes from higher learning organizations, 13.6% from consulting service companies, and 7.6% from financing companies, while both banking industry and insurance companies contributed 4.5% respectively. From all service organizations that have participated, 65.2% comes from private sector and the remaining 34.8% comes from public sector. In term of size, 89.4% are the small size organizations that have below 500 employees, and 10.6% are the medium size organizations with the range of 501 to 1 000 employees. Only 39.4% of these service organizations have received the ISO 9000 (or similar) certification (refer Table 3).

5.2 Means and Standard Deviations of TQM Practices

The means and standard deviations of TQM practices are portrayed in Table 2. "Continuous improvement" has the highest mean and standard deviation with 3.887 and 0.870 respectively. Meanwhile, "employee involvement" has the lowest mean with 3.380 and "employee empowerment" has the lowest standard deviation with 0.649.

5.3 Comparing ISO Certified and Non-ISO Certified Organizations

An independent samples t-test was conducted to compare the practices ISO certified and non-ISO certified firms. There were significant differences in the scores for ISO certified firms ($M=3.76$, $SD=0.62$), and non ISO certified firms [$M=3.25$, $SD=0.89$; $t(64)=2.766$, $p=0.007$] for the training and education practices only. The magnitude of the differences in the means was moderate to large (eta squared= 0.1).

Effect size is to test if the statistical differences found is truly sufficient and not by chance. Although sometimes the difference is significant, it may be because of the large sample size where very small differences will be significant. Effect size calculates the strength of the association which indicates the relative magnitude of the differences between means. Tabachnick and Fidell (1996, p. 53) described this as "amount of total variance that is predictable from the knowledge of the levels of the independent variable"

One common measure of effect size is eta squared. Eta squared represents the proportion of variance of the dependent variable that is explained by the independent variable (Pallant, 2001). To interpret the strength we can follow the guidelines of Cohen (1988) which is as follows:

- 0.01= small effect size
- 0.06= moderate effect; and
- 0.14= large effect size

See Table 5.

6. Limitation and Suggestion for Future Research

This study covers only the northern region of Malaysia, more variations of results could be gained through a wider coverage of respondents. A comparison of the same study between service organizations and manufacturing companies could give another valuable contribution. Meanwhile, the self-reporting bias perhaps can be reduced with multiple responses from different individuals and management levels. Also, more variations of results could be gained by including more TQM practices.

7. Conclusion

Many companies have invested a lot of money in getting the ISO certification. The general perception is that ISO certified companies have higher quality practices. From the findings of this study it can be concluded that ISO certified organizations only differed on the extent of training and education whereas for the other TQM practices there were no significant differences. The non ISO certified firms also had the same level of practices. So the

question would be is it necessary to spend a big chunk of investment to get certification when there are no tangible differences.

References

- Abraham, M., Crawford, J., Carter, D., & Mazotta, F. (2000). Management decisions for effective ISO 9000 accreditation. *Management Decision*, 38(3), 182-193.
- Agus, A., & Abdullah, M. (2000). Total quality management practices in manufacturing companies in Malaysia: An exploratory analysis. *Total Quality Management*, 11(8), 1041-1051.
- Agus, A., Krishnan, S. K., & Syed, A. K. S. L. (2000). The structural impact of total quality management on financial performance relative to competitors through customer satisfaction: A study of Malaysian manufacturing companies. *Total Quality Management*, 11(4-6), S808-S819.
- Ahire, S. L., Golhar, D. Y., & Waller, M. A. (1996). Development and validation of TQM implementation constructs. *Decision Sciences*, 27(1), 23-56.
- Antony, J., Leung, K., Knowles, G., & Gosh, S. (2002). Critical success factors of TQM implementation in Hong Kong industries. *International Journal of Quality and Reliability Management*, 19(5), 551-566.
- Black, A. S., & Porter, L. J. (1996). Identification of the critical factors of TQM, *Decision Sciences*, 27, 1-22.
- Bradley, M. (1994). Starting quality management from ISO 9000. *The TQM Magazine*, 6(1), 50-54.
- Brah, S. A., Wong, J. L., & Rao, B. M. (2000). TQM and business performance in the service sector: A Singapore study. *International Journal of Operations and Production Management*, 20(11), 1293-1312.
- Briscoe, J. A., Fawcett, S. E., & Todd, R. H. (2005). The implementation and impact of ISO 9000 among small and manufacturing enterprises, *Journal of Small Business Management*, 43(3), 309-330.
- Cohen, J. W. (1988). *Statistical power analysis for the behavioral sciences*. Hillsdale, NJ: Lawrence Erlbaum Associates.
- Dean, J.W. and Bowen, D.E. (1994), "Management theory and total quality: improving research and practice through theory development", *Academy of Management Review*, 19 (3), 392-418.
- Fenghueih, H., Ching, H., & Cleve, C. (1999). A study of ISO 9000 process, motivation and performance. *Total Quality Management*, 10(7), 1009-1025.
- Habib, S. (2006). Loans boost for SMEs. *StarBiz*, The Star, Tuesday 8 August 2006, p. B1.
- Hackman, J., & Wageman, R. (1995). Total quality management: Empirical, conceptual, and practical issues. *Administrative Science Quarterly*, 40(June), 309-42.
- Hellsten, U., & Klefsjö, B. (2000). TQM as a management system consisting of values, techniques and tools. *The TQM Magazine*, 12(4), 238-44.
- Ho, S. K. M. (1994). Is the ISO 9000 series for total quality management? *International Journal of Quality and Reliability Management*, 11(9), 74-89.
- Javier, F. L. M., Antonio, V. J., & Mignel, L. M. F. (2003). Factors affecting the relationship between total quality management and organizational performance. *International Journal of Quality and Reliability Management*, 20(2), 188-208.
- Lee, S. F., & Leung, R. (1999). Survey on total quality management implementation in Hong Kong. *Managerial Auditing Journal*, 14(1/2), 71-74.
- Leong, N. (2006). SMEs contributing 47% to GDP. *Starbiz*, The Star, Tuesday 8 August 2006, p. B4.
- Martinez-Lorente, A., & Martinez-Costa, M. (2004). ISO 9000 and TQM: Substitutes or complimentaries? An empirical study in industrial companies. *International Journal of Quality and Reliability Management*, 1(23), 260-276.
- Oakland, J. S. (1989). *Total Quality Management*. Butterworth-Heinemann Ltd. Oxford.
- Ooi, K. B., Arumugam, V., & Teo, S. H. (2005). Does soft TQM predict employees' attitudes? *The TQM Magazine*, 17(3), 279-289.
- Pallant, J. (2001). *SPSS survival manual: A step by step guide to data analysis using SPSS for Windows (Version 10)*, NSW, Australia: Allen & Unwin.

- Pun, K. F., Chin, K. S., & Lau, H. (1999). A self-assessed quality management system based on integration of MBNQA/ISO 9000/ISO 14000. *International Journal of Quality & Reliability Management*, 16(6), 606-629.
- Quazi, A. H., Hong, W. C., & Meng, T. C. (2002). Impacts of ISO 9000 certification on quality management practices: A comparative study. *Total Quality Management*, 13(1), 53-67.
- Reed, R., Lemak, D. J., & Mero, N. P. (2000). Total quality management and sustainable competitive advantage. *Journal of Quality Management*, 5, 5-26.
- Saleh, A. S., & Ndubisi, N. O. (2006). SME development in Malaysia: Domestic and global challenges. *University of Wollongong Economics Working Paper Series 2006*. [Online] Available, Available: <http://www.uow.edu.au/commerce/econ/wpapers.html> (February 2006).
- Saraph, J. V., Benson, G., & Schroeder, R. G. (1989). An instrument for measuring the critical factors of quality management. *Decision Sciences*, 20(4), 810-829.
- Sila, I., & Ebrahimpour, M. (2002). An investigation of the total quality management survey based research published between 1989 and 2000: A literature review. *International Journal of Quality and Reliability Management*, 19(7), 902-970.
- Sitkin, S., Sutcliffe, K., & Schroeder, R. (1994). Distinguishing control from learning in total quality management: A contingency perspective. *Academy of Management Review*, 19(3), 537-564.
- Sohail, M. S., & Teo, B. H. (2003). TQM practices and organizational performances of SMEs in Malaysia: Some empirical observations. *Benchmarking: An International Journal*, 10 (1), 37-53.
- Sun, H. (2000). Total quality management, ISO 9000 certification and performance improvement. *International Journal of Quality and Reliability Management*, 17(2), 168-179.
- Sureshchandar, G. S., Rajendran, C., & Anantharaman, R. N. (2002). The relationship between management's perception of total quality service and customer perceptions of service quality. *Total Quality Management*, 13(1), 69-88.
- Tabachnick, B. G., & Fidell, L. S. (1996). *Using multivariate statistics*, New York: Harper Collins.
- Tentime, Z. T., & Solomon, G. H. (2002). Total quality management and the planning behavior of the SMEs in developing economies. *The TQM Magazine*, 14 (3), 181-191.
- Van der Wiele, T., Dale, B., & Williams, R. (2000). Self-assessment based on quality/excellence award models. *Journal of General Management*, 25 (3), 50-56.
- Waldman, D.A. (1994), "The contributions of total quality management to a theory of work performance", *Academy of Management Review*, 19 (3), 510-36.
- Witcher, B. (1994). The adoption of total quality management in Scotland. *The TQM Magazine*, 6(2), 48-53.
- Withers, E. B., & Ebrahimpour, M. (1998). Quality implications of ISO 9000 certifications: A case study of European firms. [Online] Available: www.sbaer.uca.edu.
- Withers, E. B., Ebrahimpour, M., & Hikmet, N. (1997). An exploration of the impact of TQM and JIT on ISO 9000 registered companies. *International Journal of Production Economics*, 53, 209-216.
- Wruck, K. H., & Jensen, M. C. (1994). Science, specific knowledge, and total quality management. *Journal of Accounting and Economics*, 18, 247-287.
- Yahya, S., & Goh, K. W. (2001). The implementation of an ISO 9000 quality system. *International Journal of Quality & Reliability Management*, 18(9), 941-966.
- Yusoff, S. M., & Aspinwall, E. (1999). Critical success factors for TQM implementation in small and medium enterprises. *Total Quality Management*, 10(4/5), 803-809.

Table 1. Various types of TQM practices proposed

Author (Year)	Number of Practices Used	Practices
Saraph, Benson, and Schroeder (1989)	Eight (8) Critical success factors (CSFs) for TQM implementation	Top management leadership, role of the quality department, training, product design, supplier quality management, process management, quality data reporting, and employee relations.
Ahire, Golhar, and Walker (1996)	Twelve (12) implementation constructs of TQM	Top management commitment, employee training, design quality management, supplier quality management, internal quality information usage, employee involvement, employee empowerment, customer focus, benchmarking, and SPC usage.
Black and Porter (1996)	Ten (10) major TQM practices	People and customer management, supplier partnerships, communication of improvement information, customer satisfaction orientation, external interface management, teamwork structures for improvement, operational quality planning, quality improvement measurement systems, and corporate quality culture.
Yusoff and Aspinwall (1999)	Ten (10) TQM factors	Management leadership, continuous improvement systems, education and training, supplier quality management, systems and processes, measurement and feedback, human resources management, improvement tools and techniques, resources, and work environment and culture.
Brah et al. (2000)	Eleven (11) constructs of TQM implementation	Top management support, customer focus, employee involvement, employee training, employee empowerment, supplier quality management, process improvement, service design, quality improvement rewards, benchmarking, and cleanliness and organization.
Agus and Abdullah (2000)	Eight (8) TQM factors	Top management commitment, customer focus, supplier relationships, training, employee focus, quality process, measurement, and zero defect.
Agus, Krishnan, and Syed (2000)	Five (5) TQM factors	Top management commitment, supplier relationship, training, employee focus, and customer focus.
Antony et al. (2002)	Eleven (11) TQM practices	Management commitment, role of the quality department, training and education, employee involvement, continuous improvement, supplier partnership, product/service design, quality policies, quality data and reporting, communication to improve quality, and customer satisfaction orientation.
Sureshchandar et al., (2002)	Twelve (12) major practices	Top management commitment and visionary leadership, human resource management, technical system, information and analysis system, benchmarking, continuous improvement, customer focus, employee satisfaction, union intervention, social responsibility, servicescapes, and service

		culture.
Temtime and Solomon (2002)	Eight (8) critical TQM factors	Managerial leadership and commitment, customer satisfaction, continuous improvement, employee empowerment and involvement, supplier partnership, quality culture and philosophy, resources and working environment, and measurement and feedback.
Ooi, Arumugam, and Teo (2005)	Nine (9) TQM practices	Top management, education and training, employee participation, customer focus, organizational culture, teamwork, job involvement, career satisfaction, commitment.

Table 2. Factor loading of the seven TQM factors

Items	F1	F2	F3	F4	F5	F6	F7
MSC 1	0.827						
MSC 2	0.842						
MSC 3	0.834						
MSC 4	0.757						
MSC 5	0.783						
EI 1		0.851					
EI 2		0.707					
EI 3		0.818					
EI 4		0.822					
EE 1			0.721				
EE 2			0.697				
EE 3			0.743				
EE 4			0.793				
IC 1				0.700			
IC 2				0.823			
IC 3				0.868			
IC 4				0.779			
TE 1					0.790		
TE 2					0.823		
TE 3					0.842		
TE 4					0.846		
TE 5					0.898		
TE 6					0.818		
CF 1						0.685	
CF 2						0.899	
CF 3						0.829	
CF 4						0.892	
CF 5						0.787	

CI 1									0.886
CI 2									0.892
CI 3									0.851
CI 4									0.911
CI 5									0.894

Notes: Where F1 = Management Support and Commitment; F2 = Employee Involvement; F3 = Employee Empowerment; F4 = Information and Communication; F5 = Training and Education; F6 = Customer Focus; F7 = Continuous Improvement

Table 3. Means, standard deviations, reliability and correlations for the main variables (n = 66)

	Mean	SD	Reliability	1	2	3	4	5	6
Management Support and Commitment	3.721	0.840	0.868						
Employee Involvement	3.380	0.766	0.812	0.620*					
Employee Empowerment	3.525	0.649	0.723	0.346*	0.471*				
Information and Communication	3.682	0.759	0.803	0.664*	0.702*	0.517*			
Training and Education	3.452	0.826	0.914	0.709*	0.618*	0.459*	0.656*		
Customer Focus	3.703	0.778	0.877	0.757*	0.559*	0.399*	0.752*	0.644*	
Continuous Improvement	3.887	0.870	0.932	0.707*	0.505*	0.384*	0.682*	0.672*	0.781*

Note: ** Correlation significant at 0.01, * Correlation significant at 0.05

Table 4. Organization Profile

Type	Category	Frequency	Percentage (%)
Nature of Service	Others	36	54.5
	Higher learning organizations	10	15.2
	Consulting service companies	9	13.6
	Financing companies	5	7.6
	Banking industry	3	4.5
	Insurance companies	3	4.5
Type	Private Sector	43	65.2
	Public Sector	23	34.8
Size	Small	59	89.4
	Medium	7	10.6
ISO 9000 certification	No	40	60.6
	Yes	6	39.4

Table 5. t-test Results

Variable	ISO Certification		t-value
	Certified	Not Certified	
Management Support and Commitment	3.92	3.59	1.593
Employee Involvement	3.53	3.28	1.279
Employee Empowerment	3.64	3.45	1.172
Information and Communication	3.68	3.68	0.007
Training and Education	3.76	3.25	2.766**
Customer Focus	3.68	3.72	-0.218
Continuous Improvement	3.98	3.80	0.828

** p< 0.01, * p< 0.05

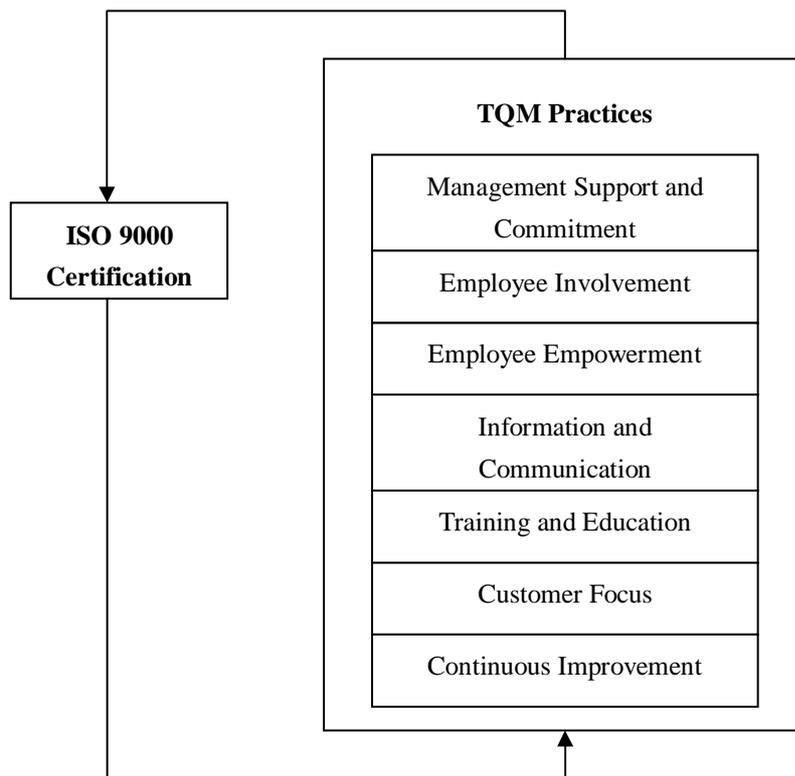


Figure 1. Research Framework