Business, Management and Economics Research
ISSN(e): 2412-1770, ISSN(p): 2413-855X
Vol. 5, Issue. 7, pp: 104-109, 2019
URL: https://arpgweb.com/journal/journal/8
DOI: https://doi.org/10.32861/bmer.57.104.109

Academic Research Publishing Group

Original Research **Open Access**

Quality Improvement Practices and Compliance Performance of Selected Malaysian SMIs: Recommendations for the Trainers

Faizah Abd Majid*
Faculty of Education, Universiti Teknologi MARA, Malaysia

Muhamad Kamal Sabran
Product Certification Department, SIRIM Bhd, Malaysia

Abstract

The study investigated the Quality Improvement Practices (QIP) of selected small medium industries (SMIs hereafter) namely the E&E manufacturers in Malaysia. The objectives of this study are to investigate the influence of the quality improvement practices (QIP) among Malaysian E&E manufacturers on their compliance performance. The quality improvement level of twelve QIP; seven soft factors and five hard factors, were determined in the study. Later, the improvement level of the QIP was compared according to the manufacturers' size, ownership, length of operation, and ISO status. A quantitative research method, which involved the distribution of a set of questionnaires, was used in the study. Another important aspect of the research is to identify relevant soft and hard factors that need emphasis in future trainings by the QIP trainers. As the sole assessor of Product Certification compliance for the manufacturers in Malaysia, SIRIM QAS has the data on the Malaysian manufacturers' compliance performances. Based on the data, it can be concluded that Malaysian SMIs are still struggling in implementing quality improvement practices. The data has yielded interesting findings related to the identified soft and hard factors that need further emphasis in future trainings. The findings provided recommendations for future trainers of QIP.

Keywords: Component; Quality improvement practices; Product compliance performance; Malaysian E and E manufacturer; Trainers and training.

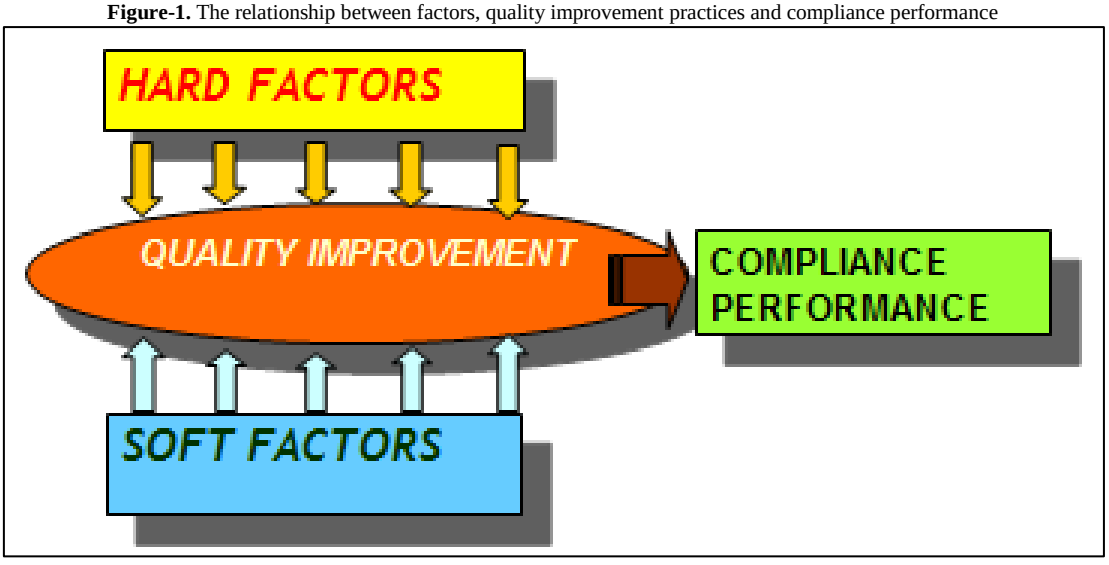
1. Introduction

The purpose of the paper is to investigate the relationship between the quality improvement practices and compliance performance among the selected Malaysian SMIs. Additionally, it attempted to investigate the relationship between the hard and soft quality improvement practices and the performance.

This study is necessary in bridging the gap between what is already known about the hard and soft factors and performance and what is yet to be explored, that is the differences in the influence of hard and soft factors on the quality improvement practices which resulted in the different degree of performance in the Malaysian E&E firms. Future trainings on QIP could be based on the study's findings.

The figure below illustrates the relationship between the factors, quality improvement practices, and compliance performance.

Figure-1. The relationship between factors, quality improvement practices and compliance performance



As the sole assessor of Product Certification compliance for the manufacturers in Malaysia, SIRIM QAS has the data on the Malaysian manufacturers' performances. The data indirectly reveals the obvious differences in the

*Corresponding Author

practices among the manufacturers. Based on the data, it is safe to conclude that Malaysian Small and Medium industries (SMIs hereafter) are still struggling in implementing quality improvement practices.

Since performance is due to the manufacturers' quality improvement practices (Deming, 1982; Juran, 1982), it is within the scope of this research to identify the differences in their quality improvement practices. Hence, in order to determine the differences in their quality improvement practices, it is wise for the research to focus on manufacturers with successful and unsuccessful performance. It is important to note that the performance was measured by referring to the Market Sampling Report done by SIRIM QAS on the Malaysian E&E manufacturers.

1.1. Research Objectives

The general aim of this study is to investigate the influence of the quality improvement practices among the selected Malaysian E&E manufacturers on their performance. In the investigation, attempts were taken to determine the relationship between the two categories of quality improvement practices; hard and soft, and level of performance. The following are the objectives which are based on the general aim.

1. Identify the current status of quality improvement practices of Malaysian E&E manufacturers?
2. Determine the difference of quality improvement practices between complied and non-complied manufacturers
3. Identify the factors to be emphasized on in future trainings

2. Literature Review

2.1. Total Quality Management

As a strategy to compete in the current global market, manufacturers have adopted the concepts of Total Quality Management (TQM). According to Pun (2002), TQM has been adopted by the industries as the "means of understanding and satisfying the needs and expectations of their customers" (Lewis *et al.*, 2006). Today's industrial economy is influenced by the global trend. As a consequence, manufacturers need to become strategic in ensuring their existence in the economy. One of the efforts that can be taken is the implementation of the TQM concepts. This statement is further confirmed by Powell (1995) and Thai Hoang *et al.* (2010) who postulate that TQM is a strategic force in today's industrial economy.

Basically, TQM emphasizes on the management philosophy and innovation of manufacturers in improving their overall effectiveness and performance. Ishikawa (1985), has elaborated that TQM is 'thought revolution' in management. This is further confirmed by Wood and Peccei (1995) when they succinctly state that TQM is "a way of managing organizations with the notion to enhance employee's attitudes" (Ooi *et al.*, 2005).

Eng Eng and Yusof (2003), found that Malaysian SMEs have shown a very keen interest in implementing TQM but the rate of registration for a quality system is still quite low.

2.2. Quality Improvement Practices

Quality improvement practices are best referred to as the manufacturers' strategies to compete by providing superior value to the customer and by improving process efficiency (Deming, 1982; Kaynak, 2003; Sadikoglu and Olcay, 2014). Additionally, they are also addressed as the set of activities and practices which comprised the hard (production and work process) and soft parts (human aspects), with a purpose to enhance efficiency and effectiveness for the benefit of the organization and its customer (Muhammad Madi *et al.*, 2008).

Wilkinson (1992), has divided quality improvement practices into two distinct groups; hard and soft factors. The hard quality improvement practices are production and work process control technique which ensure the correct functioning of such processes, for example process design, ISO 9000 norm, and the seven basic quality tools (Evans and Lindsay, 2002; Wilikinson *et al.*, 1998). The soft quality improvement practices on the other hand refers to the human aspects such as culture, trust, teamwork, employment continuity, education and training, top management leadership, employee involvement, customer satisfaction/involvement (Lau and Idris, 2001). Muhammad Madi (2007), states that the soft quality improvement practices are concerned with "the establishment of customer awareness and the management of human resources" (p. 73).

2.3. Organization Performance

Deming (1982), claims that without performance measurement, improvement is impossible. Performance measurement will provide relevant information on areas that need to be improved as the process of measurement includes the identification of aspects that would require corrective actions and preventions. However, as performance is dependent on the individual organization's sets of goals, the measures of performance vary accordingly. MPC as a body in Malaysia which oversees the productivity of local manufacturers have established performance indicators (i.e, added value per employee, total output per employee, added value content, process efficiency, fixed asset per employee, added value per fixed assets, added value per labour cost, and labour cost per employee).

Additionally, SIRIM QAS another body which shares similar responsibility has also established relevant performance indicators. However, SIRIM specifically caters to established standards such as the Product Certification Scheme (PCS). The present study adopts the performance indicators established by SIRIM QAS in measuring the respondents' organization's performance.

2.4. The Present Study and its Conceptual Framework

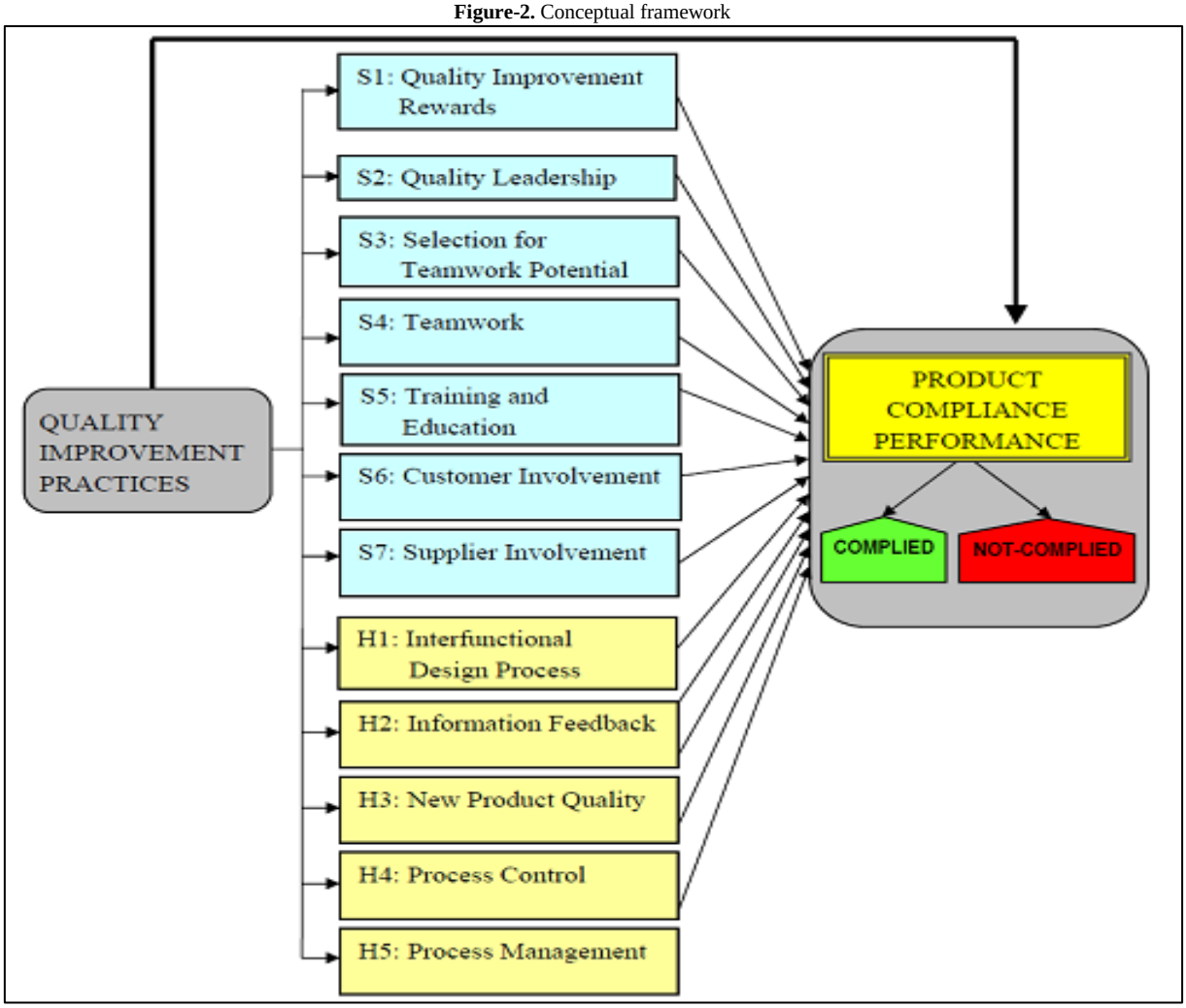
Literature review on the quality improvement practices has yielded a list of hard and soft factors. Similarly, the literature has suggested performance indicators which are suitable to measure performance. Most important, based on the previous studies not much emphasis was given on investigating the differences in influence between the hard and soft factors on the quality improvement practices and performance. Muhammad Madi (2007), confirms this when he claims,

> "...but surprisingly, the deserved reference to the fundamental relationship between the soft and hard practices has not been given in the debate about which quality factors are more important to achieve performance" (p. 74).

In addition, past researches have suggested that in a study on the relationship between quality improvement practices and performance, a set of questionnaire is most suitable to collect data. Hence, the present study is guided by this notion in mind.

The figure below depicts the conceptual framework of the research.

Figure-2. Conceptual framework



3. Materials and Methods

The quantitative research method was used in this study. At the onset of the research, it was determined that an investigation on the relationship between the hard and soft quality improvement practices and quality performance needed to be carried out among the E & E manufacturers in Malaysia. Hence, in identifying the population of the research, it was quite obvious that it covered the Malaysian E & E manufacturers which had their performance measured by the same assessor. Hence, the population for the research consisted of E & E manufacturers which have been audited by SIRIM QAS. This information served as the main category of the research population.

The population of this study is made up of all SIRIM certified electrical & electronics manufacturers in Malaysia. SIRIM QAS' Market Sampling Report (2015) will provide the list of the complied and non-complied manufacturers. Based on the list, it measures the product compliance performance of E & E manufacturers in Malaysia.

The questionnaire consisted of several sections. Section 1 elicits the demographic profile of the respondents. Section 2 measures the soft and hard quality improvement practices and the items were taken from Muhammad Madi (2007) who adopted Flynn *et al.* (1994) questionnaire. Section 3 provides the respective manufacturer's performance. As the data provides by SIRIM QAS database, the section on the performance was only for the use of the researcher who fed the information from the SIRIM database into the questionnaire upon receipt of the

completed questionnaire from the respondents. The data on the unsuccessful organizational performance was based on market sampling report.

The breakdown of the sections and the description of the research instruments are as summarized in the following table.

Table-1. Questionnaire Description

Section	Description	Number of items	Source
1	Personal and demographic information	5	Researcher
2	Quality Improvement practices	50	Muhammad Madi, 2007
3	Organizational performance	2	SIRIM QAS Market Sampling Report
Total		**57**	

4. Results and Discussion

The relevant items in the questionnaire were based on a Lickert scale of 1 to 10 with 1 being "Strongly disagree" and 10 being "Strongly agree". Hence, for the purpose of data interpretation and discussion, the following mean score range and level are referred to.

Table-2. Overall Quality Improvement Level

Mean Score	Level
1.00 ~ 1.99	Poor
2.00 ~ 3.99	Low
4.00 ~ 5.99	Moderate
6.00 to 7.99	Good
8.00 to 10.00	Excellent

The levels for each mean score range was determined by mutually dividing the maximum mean score, which is 10 with the intended 5 levels; Poor, Low, Moderate, Good, and Excellent). Thus, each mean score ranges between 1.00 and 1.99 (Poor); 2.00 and 3.99 (Low); 4.00 and 5.99 (Moderate); 6.00 and 7.99 (Good); and 8.00 and 10.00 (Excellent).

The analysis begins with a description of the profile of respondents. A total of 71 out of 172 companies were willing to share their experience. This provides a response rate of 41.28% which can be safely considered a high response rate in a self administered questionnaire.

4.1. The Current Status of Quality Improvement Practices of Malaysian E and E Manufacturers

(Most Preferred Quality Improvement Practice)

Table-3. Mean Scores for Quality Improvement Practice In Descending Order (n=71)

Quality Improvement Practices	Mean	SD
[H] Process Management	8.09	1.13
[S] Quality Leadership	7.89	1.01
[S] Supplier Involvement	7.72	1.08
[S] Customer Involvement	7.58	1.41
[S] Selection for Teamwork Potential	7.50	1.26
[S] Training & Education	7.48	1.32
[S] Teamwork	7.42	1.25
[H] Interfunctional Design Process	7.29	1.52
[H] New Product Quality	7.24	1.65
[H] Information Feedback	6.95	1.64
[S] Quality Improvement Rewards	6.24	1.51
[H] Process Control	6.09	1.33

Results in Table 3 shows the mean scores for 12 aspects of quality improvement practices. It can be seen that the E& E manufacturers preferred first Process Management (mean = 8.09), followed by Quality Leadership (mean = 7.89), Supplier Involvement (mean = 7.72) and Customer Involvement (mean = 7.58). The least preferred practice is Process Control (mean = 6.09). It is worth to note that the most preferred quality improvement practice which is Process Management was rated as 'Excellent' (mean score between 8.00 and 10.0) while the other 3 (Quality Leadership, Supplier Involvement and Customer Involvement) as well as the rest of the practices including the least preferred quality improvement practice were rated as 'Good' (mean score between 6.00 and 7.99).

Another important finding is that there are more soft factors quality improvement practices preferred than hard factor ones. As seen in the table, 9 practices have a mean score of 7.00 and above. Six out of the 9 practices namely Quality Leadership (mean =7.89), Supplier Involvement (mean = 7.72), Customer Involvement (mean = 7.58),

Selection for Teamwork (mean = 7.50), Training and Education (mean = 7.48), and Teamwork (mean= 7.42) are soft factors.

4.2. Difference of Quality Improvement Practices Between Complied and Non-Complied Manufacturers

As mentioned earlier, only 22 companies out of the 71 which took part in the research were selected for market sampling. Thus, the two groups identified as complied and non-complied E&E manufacturers were determined based on the 22 companies' compliance performance.

The following are the discussions on the findings for a significant difference of quality improvement practices between complied and non-complied manufacturers.

The results shown in Table 4 indicate that only two aspects of quality improvement practices were significantly different between the two groups of manufacturers. In terms of Customer Involvement, complied companies have a mean score of 8.27 whereas the non-complied companies had a mean score of 7.27. This implies that E&E manufacturers which complied with SIRIM standard tend to practice Customer Involvement as a part of their quality improvement practices more. The second aspect, Interfunctional Design Process was rated with a mean score of 7.61 by complied companies compared to 5.91 by non-complied companies. It can be concluded that complied companies practiced significantly more Interfunctional Design Process compared to non-complied companies.

The other ten aspects of quality improvement practices were found not to be significantly different between the two groups of companies.

It is also interesting to note that between the two significantly different quality improvement practices between the complied and non-complied E&E manufacturers, the soft factor quality improvement practice (Customer Involvement, mean = 8.27) is significantly practiced more than the hard factor quality improvement practice (Interfunctional Design Process, mean = 7.61) by the complied manufacturers. Again, this confirms the earlier finding that soft factors could lead to higher level of organizational performance.

Table-4. Significant Difference between Complied and Non-Complied Manufacturers

	Group	Mean	T value	Sig. (2-tailed)
[S] Customer Involvement	Complied	8.2727	2.135	0.045
	Non-Complied	7.2727		
[H] Interfunctional Design Process	Complied	7.6136	2.269	0.034
	Non-Complied	5.9091		

5. Conclusion

The aim of this study was to examine the influence of quality improvement practices and product compliance performance among the selected Malaysian SMIs. These hard and soft factors should effectively facilitate management of quality improvement, which in turn will enhance organizational performance. Future trainers may find the following salient findings as useful guidelines in determining their training contents.

The conclusions arising from the results of the study are:

1. The findings have revealed that there tend to be a similar trend in the current QIP of the selected E&E manufacturers. Firstly, 'Process Management', 'Quality Leadership' and 'Supplier Involvement' tend to be on top of the list of the 'Excellent level' of QIP. Next, all the companies agreed that 'Process Control' is the least important QIP.
2. There is a significant difference in the quality improvement level between complied and not-complied manufacturer. Hence, quality improvement in organizations showed that the level of adoption is perceived to be higher in complied manufacturer.

Hence, for future training purposes, it is important for trainers to understand the level of importance of each of the soft factors against the hard factors in ensuring effective QIP in the industries. As the findings have concurred with past research findings on different organizations, similar recommendations for future trainings in various organizations are proposed.

Acknowledgment

We are thankful to all who have contributed to the completion of this research. A special appreciation goes to all the respondents who gave their time to complete the questionnaire and were willing to share their experiences.

References

Deming, W. E. (1982). *Quality, productivity and competitive position.* MIT Center for Advanced Engineering study, USA: Cambridge, MA.

Eng Eng and Yusof (2003). A survey of TQM practices in the Malaysian electrical and electronic industry. *Total Quality Management,* 14(1): 63-77.

Evans, J. R. and Lindsay, W. M. (2002). *Management and control of quality.* West Pub Co: Minneapolis.

Flynn, B. B., Schroeder, R. G. and Sakakibara, S. (1994). A framework for quality management research and an associated measurement instrument. *Journal of Operations Management,* 11(4): 339-66.

Ishikawa, K. (1985). *What is total quality control? The Japanese way.* NJ: Prentice Hall.

Juran, J. M. (1982). *Juran on quality improvement.* Juran Institute: New York, NY.

Kaynak, H. (2003). The relationship between TQM practices and their effects on firm performance. *Journal of Operations*, 21(4): 405-35.

Lau, H. C. and Idris, M. A. (2001). The soft foundation of the critical success factors on TQM implementation in Malaysia. *The TQM Magazine*, 13(1): 51-60.

Lewis, W. G., Pun, K. F. and Lalla, T. R. M. (2006). Exploring soft versus hard factors for TQM implementation in small and medium-sized enterprises. *International Journal of Productivity and Performance Management*, 55(7): 539-54.

Muhammad Madi, A. (2007). *Influence of soft factors on quality improvement and performance.* Unpublished PhD Thesis. Universiti Putra Malaysia.

Muhammad Madi, A., Jegak, U. and Tari, J. J. (2008). The influence of soft factors on quality improvement and performance: perceptions from managers. *The TQM Journal*, 20(5): 436-52.

Ooi, K. B., Arumugam, V., Mohammad Samaun, S., Nooh, A. B., Hrm and Tqm (2005). Association with job involvement. *Personnel Review*, 36(6): 639-962.

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

Pun, K. F. (2002). Development of an integrated TQM and performance measurement system for self-assessment: a method. *Total Quality Management*, 13(6): 759-77.

Sadikoglu, E. and Olcay, H. (2014). The effectos of TQM practices on performance and the reasons of and the barriers to TQM practices in Turkey. *Advances in Decision Sciences*: 1-14. Available: https://www.hindawi.com/journals/ads/2014/537605/

Thai Hoang, D., Igel, B. and Laosirihongthong, T. (2010). TQM strategy and organisational characteristics: Evidence from a recent WTO member. *In Total Quality Management*, 21(9): 931-51.

Wilikinson, A., Redman, T., Snape, E. and Marchington, M. (1998). *Managing with total quality management. Theory and practice.* McMillan Press: London.

Wilkinson, A. (1992). The other side of quality: soft issues and the human resource dimension. *Total Quality Management*, 3(3): 323-29.

Wood, S. and Peccei, R. (1995). Does total quality management make a difference to employee attitudes? *In Employer Relations*, 17(3): 52-62.