

The Effectiveness of the Implementation of QE/5S towards Quality Environment at Workplace

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Abstract

Since many organizations attempt to become the best in their service, a good management system is required and therefore, the implementation of 5S is highly recommended. 5S is known as the 5 pillars which refer to sort, set in order, shine, standardize, and sustain (Hirano, 1995). This system is a good starting point for all improvement effort and maintaining work efficiency by the staff. The application of 5S at workplace will also help in improving safety, work efficiency, productivity and a sense of ownership. However, the implementation of 5S demands a huge commitment from the top management and participation by everyone in the organization is required. UiTM (Perak) is an educational institution with almost 200 administration staff in the administration building. Since 2012, UiTM Perak has gained recognition and 5S certification from Malaysia Productivity Corporation (MPC) for the commitment of QE/5S practice at workplace. This paper attempt to discover the significance 5S implementation in a workplace and to identify the impact of the elements in 5S towards quality environment among UiTM (Perak) administration staff. A structured questionnaire was distributed randomly among UiTM staff. Data from the questionnaire was analysed using the SPSS. While for secondary data, multiple case study and literature review from various organizations were analysed qualitatively to see the gap and the best practice in sustaining the implementation of QE/5S. This research is hoped to contribute to the knowledge of the importance of QE/5S implementation and would strongly support the objectives of organization to achieve continuous improvement and quality environment in workplace.

Keywords: QE/5S (Quality Environment), implementation of 5S, workplace

1.0 Introduction

UiTM (Perak) is an educational institution with almost 400 administration staff. Since 2012, UiTM Perak has gained recognition and 5S certification from Malaysia Productivity Corporation (MPC) for the commitment of QE/5S practice at workplace. Library UiTM Perak was the first department secure the 5S Certification from the MPC followed by administration building consist of 7 departments namely Administration division, Management and Quality division, Academics Affairs (HEA) division, Students Affair (HEP) division, Auxiliary Police (AP) division, Research and Industrial Linkages (PJI) office and Bursary office. A year after UiTM (Perak) has successfully obtained the 5S certification for all its office building including the Academy of Contemporary Islamic Studies (ACIS), Corporate Communication Unit, Infotech, Office of the Development and Facilities Management, 5 Colleges Management Office and etc. Through this credit of the quality practice, UiTM Perak is expected to rise the challenge of ensuring continues of QE/5S practice among the staff and the university as a whole to ensure the sustainability of quality environment in a workplace. Since it has a huge impact on human behavior, safety and environmental issues this study is conducted to investigate further.

1.1 Issues and Background of the Studies

The acceptance of quality environment and 5S implementation in enhancing productivity and competitiveness in workplace is starting to increase by many organizations including in higher learning institutions. Most of the organizations have developed a management system based on 5S implementation, and the number of certified organizations is on the rise. There are number of activities that can contribute to the quality environment as such by identify, reduce and eliminate waste, enhance operation effectiveness in a better working environment and so on. Meanwhile, 5S is a philosophy rooted in Japan knows as Seiri (sort), Seiton (set in order), Seiso (shine), Seiketsu (standardize), Shitsuke (sustain) (Hiroyuki, 1995). The practice of 5S aims to embed the values of organization, neatness, cleaning, standardization and discipline into the workplace (Osada, 1991). The relationship between quality environment and the implementation of 5S in workplace still can be questioned since

many organizations has put prioritization in work quality yet continues of 5S practice is not hardly tackled by the top to down management. It has been realized that 5S practices is a good starting point for all improvement efforts by improving products and services, and lowering cost in order to maintain the organizations excellent performance and to be more competitive. According to Audrey, 2013 some organization in Malaysia still failed in their attempts to implement and sustain 5S system while only very few local organization had sustained. Reason behind this was reported by MPC Report, 2012 as cited in Borneo Post 2012, that most of the local federal and state agencies in Malaysia did not have the initiative to implement any quality movement programs as they were not convinced the practice would improve their delivery system and reduce operation costs. The elements of 5s itself still not assist to continues of environment quality in workplace. Therefore it is important to look up the integration of 5S and quality environment towards its variables elements to ensure the sustainability of 5S implementation.

1.2 Objective of study

This paper is attempt i) to discover the significance 5S implementation in a workplace and ii) to identify the impact of the elements in 5S towards quality environment among UiTM (Perak) administration staff. Those objectives would investigate the intergration and importance elements in 5S implementation and quality environment that can help to improve better workplace among the staff.

2.0 Literature review

The quality environment is known as conducive environment that emphasize on three main elements on healthy, comfortable and quality and productive life for everyone at work (Ho and S.K, 2010: Ho et al., 1995). The quality environment mainly a fundamental to higher productivity and better quality, improved accident prevention, healthier corporate climate and increased employees performance (Osada, 1991). In QE/5S practice the quality environment is known as environment designed and concept to build a quality work environment both physically and mentally. When implemented successfully in an organisation, 5S will bring amazing changes. Quality Environment practices use 5S Concept as tools towards achieving systematic organization, productive environment, and standardization in the workplace. The elements of quality and productive life is measure through systematic work process, and practical, besides increase the competency level, encourage a productivity and effective of the work process and safe cost. A comfortable and healthy element is measure where all the necessary items are conveniently located, orderly arranged and kept clean (Ho and S.K, 2010: Ho et al., 1995). These can be identifying after the implementation of first 4S (Seiri, Seiton, Seiso and seiketsu). The driving force for 5S program comes from people in the organisation. In this respect, the last 'S' of Shitsuke is vital to the success. Shitsuke is to train people accordingly and make it as a habit so that they will follow good habit and always maintaining correct procedures. The understanding of this concept is globally accepted as the effect towards the quality of environment. From 2 case studies done among big organization, the implementation of 5S program in its nature, is a tool that can help improve good environmental management that can lead to quality result (Becker, 2001). This quality focus becomes widely accepted in conjunction with other Japanese approaches to quality such as *kaizen* principles, just-in-time (JIT) and TPM (Shih and Gurnani, 1997, Wakhlu, 2007, p.140).

According to Raid, A (2011), there are several advantages or benefits in 5s such as clean workplace, lower safety incident/ accident rate, less wasted labor time, transparent process flow, reduced set-up and cycle times, increased floor space and of course give better quality environment. Arash, et al (2012), believes that 5s principle is an effective ways to improve health and safety, environmental performance and housekeeping. Other than that, 5s practices gives better workplace and maintenance system's procedures, decrease waste and non- value added activities (Arash, et al (2012); Nilipour, et al (2005). In addition, 5s practices helps in improvement of internal communication skill among staff. As supported by Arash, et al (2012), poor communication can cause wasting resources, time and money, and lowering moral amongst staff.

In practice, enormous effort may be required to achieve this integrated management system. Researchers recommend considering 5S in a more philosophical or at least strategic way. When 5S becomes a way of doing business, operations needed to be approached differently due to the behavioural changes required as a basis for 5S to succeed. Once all members within an organisation can fully understand and implement 5S, organisational readiness towards best practice becomes more realistic, since one of the outcomes of successful 5S practices is increased morale and organisational resilience (Osada, 1991 as cited in Gapp, Fisher & Kobayashi, 2008). Bamber et al. (2000) as cited in Gapp, Fisher & Kobayashi, (2008) suggested that 5S contributes to the following important strategic priorities: productivity, quality, costs, delivery, safety and morale. The method of 5S is one way to engage people and contribute to culture change (Mike Bresko, 2009). Mike further explains the concept of 5S is a 'visually-oriented system of cleanliness, organization, and arrangement designed to facilitate greater productivity,

safety, and quality'. The 5S concept is trusted to give improvement in productivity of an organization not only refer as housekeeping but much more significant involving cost and quality. There are many examples of successful implementation the principles of the 5-S, especially in the service sector organisations, such as institutions, libraries, government buildings and leisure centres. Gupta, A et al (2015) for example in his finding against on application of 5S concept at a small scale manufacturing company found that 5s helps in saving of space by 50 square foot area or Rs 50000 was saved by removing inventories from the floor. Study also concluded that after 5s implementation, average time spends in search of tools is about 5 minute/ day or Rs 515/month, compared 40 minute/ day before 5s implementation (Gupta, A et al, 2015). Dilek (2013), on the other hand, find that by implementing 5S in workplace, it become more cleanliness and it's the main important aspect for hotel industry since hygiene aspect is crucial especially in their housekeeping, food and beverage, safety and for image as well. Furthermore Dilek 2013 also added that the programs, tasks, controls, conditions, performance criteria, guidelines, etc related to hotel management should be standardized and be made continuous in order to get positive feedbacks from employees and customer. Those actually will be more effortless if the organisations had implemented 5S in their workplace.

Furthermore, a main objective of 5S practices is to maximise the intensity of workplace health and safety in concurrence with improved productivity. A development and evolvement of 5S between 1945 and 1998, survey done by the Japan Industrial Safety and Health Association JISHA, 1999 showed that a reduction in the frequency of work incidents. An additional sixth S "safety" introduced and is occasionally added to promote the drop in numbers of work injuries. The significance of implementing 5S goes beyond direct productivity as it is associated with decreasing numbers of industrial accidents during the survey period (JISHA, 1999). The benefit of good workplace include the prevention of defects; prevention of accidents; and the elimination of time wasted for searching tools, documentation and other ingredients of manufacture (Wazed & Ahmed, 2009). Research done in manufacturing industry by Pasale (2013) resulted that 5S programme are visible within short period of time and the employees in the organisation become self disciplined.

By implementing 5S in workplace, it does actually will not only useful to organize the workplace physically, but eventually it will help to developed staff attitudes and discipline. Thus will create working environment more efficient, productive and more competent to the organization as a whole. In Malaysia, the Standards and Industrial Research Institute of Malaysia or SIRIM has played an effective role to encourage the utilization of 5S concept among Malaysian industries (Ho *et al.*,1995). In relation to that, most local government agencies in Malaysia have introduced and implemented 5S to simply clean up their work areas and improve organisational productivity (Mohd Nizamet *al.*, 2010) as well as a tool in improving housekeeping, environmental performance, as well as safety standards in a systematic way (Fotopoulos & Psomas, 2010). This shows that 5S practices have a significant contribution to the effectiveness and efficiency of the organisational performance. Overall, the key elements of quality perspective in implementing 5S in workplace can be define in terms of cleanness, safety, cost efficiency, organized and standardization and delivery to gain customer satisfaction.

3.0 Research methodology

Briefly, research methodology known as a set of procedures or methods that have been used to conduct a research. There are two types of research methodologies which implies in this study. There are known as the qualitative and quantitative method which will be used during the analysis phase in this research. To be noted, qualitative research involves the use of qualitative data such as interviews, direct observations, survey and analysis of documents and other material. Furthermore, questionnaire and documents review are also the research instruments used in this study to gather information such as staff's preferences, opinions and suggestions regarding to implementation of QE/5S in UiTM Seri Iskandar. This study will be conducted in a number of research stages and utilized a variety of research method in order to ensure the effectiveness and accuracy of data. Briefly, this research will involve 5 stage namely initial stages, literature stage, data collection, data analysis and finally the conclusion and recommendation regarding to the issue. The survey was conducted among Administration staff in UiTM Seri Iskandar who directly works in departments which has been recognized 5S certification from MPC since 2012-2014. According to Fred N. Kerlinger (1985), sampling is defined as taking any portion of a population as representative of that population. This will presume that only part of population will be chosen in this study by using random sampling technique. Taroyamani (1967) have shown some theory in getting the number of sample and detail calculation to the size of sample in this study with degree of confidence at 90% has shown as below:-

$$n = \frac{N}{1 + Ne^2}$$

Where n=sample size, N=population size, e=the error of sampling. Thus will give number of sample is at least 60

of respondent. However 150 of questionnaire were distributed which represent 10% from total respondents from each department but only 134 of them were return back to complete the questionnaire. The researchers used Statistical Package for Social Science Software (SPSS) to analyse the obtained data. Frequency analysis and Likert scaling analysis were used for the purpose to find Staff perception on implementation of 5S towards quality environment in their workplace. These data will be presented in the form of tables and all information will be tabulated into frequency and percentage distribution forms for univariate analysis. While for qualitative data, study will conduct an interview and the transcript will be analysed qualitatively using Constant Comparison Method.

4.0 Data analysis and finding

From this empirical study revealed that the two objectives of this research have been achieved. The questionnaires survey was divided into 2 parts (Section A: respondent background, Section B: Impact of 5S implementation in workplace from 5 perspective namely Neat and Tidy, Work organized and Standardization, Improved Safety, Cost Efficiency and Customer Service Satisfaction. In order to identify the impact of implementation 5S in quality environment workplace among the staff, this research has been conducted onto descriptive statistics for closed ended question and presented in a frequency table. However for open ended questions, it were analysed through quantitative content analysis to aim of quantifying emerging characteristics and concepts. Furthermore, Likert Scale analysis also will be used in this part in order to know the respondents specify their level of agreement to a statement amongst five (5) quality environment perspectives as mentioned before. The data only took with the top 3 of mean score in staff perception after the implementation of 5S. Basically Likert Scale techniques indicate that the higher average score in certain factor, the more important it is in the analysis which represents the average view of respondents. Summary of Analysis on workers perspective to those elements shows in the following table:-

Table 1: Quality Elements in 5S Implementation

Quality Environment Perspectives	All Survey responses	Total Count	All Survey responses					Mean Score
			1	2	3	4	5	
Cost efficiency, (more productive to organization)	Provides cost-savings by reducing inventory, storage fees and space requirements	134	1	2	16	61	20	4.17
	Reduces equipment downtime, maintenance and cycle time thereby reducing production cost		1	5	15	57	22	4.12
	Unneeded items are eliminated and the needed ones are organized, required floor space is dramatically reduced.		1	5	12	57	25	4.08
Neat and Tidy for healthy environment in workplace	Workplaces are cleaner and organized that make workers feel comfortable.				13	61	26	4.13
	The pleasantries of the simplified work environment increases employee moral	134		1	7	63	29	4.2
	Work environment greatly improved		8	14	18	34	26	3.57
Improve safe and security in a workplace	Unsafe practices are eliminated through the standardization step of 5S			1	15	58	26	4.12
	Employees will be more aware of their surroundings and potential safety hazards	134		2	10	61	27	4.08
	Good organization, correct locations reduces unnecessary movements and potential for injuries to the workers			2	12	58	28	4.02
Workplace is more organized, structured and Standardization	Implements standardization thereby achieving output consistency				18	60	22	4.04
	less time will be spent on searching for needed items thus ensuring a continuous improvement in productivity	134	1	2	16	57	24	4.02
	Classify various document in well identified files or in directory assist workers for a better improvement		2	7	21	50	20	3.79
Enhance Customer Services Satisfaction	Enhance organization image and customer trust			3	16	55	26	4.0
	Employee are more motivate and enhancing their effort in services	134	2	6	10	55	27	3.97
	Facilities and amenities are improved to meet customer needs			2	15	57	26	3.94

*1= % totally disagree, 2= % disagree, 3= % no opinion, 4= % agree, 5= % totally agree. (Source: Authors Research, 2014)

Table above indicate people perspective and opinion regarding to quality perspective amongst five elements after the implementation of 5S in UiTM Perak since 2012-2014. Basically, there are 5 quality elements which have been rank above base on the priority point of view which has been answered by 134 of respondents. Based on the analysis, Cost efficiency being the major quality elements and indicate the highest score during this study followed by Neat and Tidy, Safety Improvement, Work organized and Standardization and Enhance Customer Service Satisfaction. Respondents had agreed that implementation of 5S has assist the departments in their cost efficiency by provides a cost-savings through reducing inventory, storage fees and space requirements (4.17), reduces equipment downtime, maintenance and cycle time thereby reducing production cost (4.12) and unneeded items are eliminated and the needed ones are organized, required floor space is dramatically reduced (4.08). Meanwhile second rank of improvement quality after 5S implementation is neat and tidy for healthy environment in workplace. They agree that after 5S implemented, their workplaces are cleaner and more organized which make workers feel comfortable (4.13). The pleasantries of the simplified work environment indirectly had increases employee moral (4.2) towards commitments to the organization and the work environment is greatly improved (3.57). In terms of safety improvement, the mean score of level respondent's agreement is at 4.12 for unsafe practices are eliminated through the standardization step in 5S. The employees become more aware of their surroundings and the potentialities of safety hazards can be reduce at 4.08 and the implementation of 5S also had bring good organization by mange a proper location can indirectly reduces unnecessary movements and possibility for injuries to the workers can be eliminated (4.02).

The next quality element in 5S that achieve in UiTM Perak is workplace become more organized, structured and standardization. Top three mean score of this element are the implementation of standardization thereby achieving output consistency (4.04), less time will be spent on searching for needed items thus ensuring a continuous improvement in productivity (4.02) and classification of various document in well identified files or in directory assist workers for a better improvement. It's so important for staff to be more organized as in basic principals in 5S they need to set in order to ensure the quality of their services in terms of time, cost and productivity. Lastly the least quality elements that the respondents agreed for after 5S implemented is enhancement of customer service satisfaction. With mean score at 4.0 the respondents are agree that 5S had assist them in enhancing organization image and customer trust which then will give better reputation to the university as a whole. Next, the employee become more motivated and tried to put more effort to organization as they get moral support from the top management (3.97). Lastly the respondents concur that facilities and amenities are improved after the implementation of 5S to meet customer needs (3.94). Overall, the implementation of 5S had proofed to be as an effective way for UiTM Perak staff in providing better workplace. They feel more comfortable, safety and organized which will help them to improve their work positively (Johana Y. *etl*, 2014).

5.0 Conclusion

Implementing the 5S rules should not apply to the staff only; it hardly needed a bunch of commitment from top to down level in promoting 5S usage. It is important that organization to understand the need of using 5S rules in the workplace and agree on the changes requires for a better quality and productivity to the organization. Quality elements such as cost efficiency, improvement in cleanness, safety enhancement, standardization and customer satisfaction will only being achieve if all of the staff had give full commitment and enjoy the real means of 5S. As UiTM Perak gained recognition and 5S certification from MPC for 3 years in row, the acceptance of quality environment and 5S implementation in enhancing productivity and competitiveness in workplace being acknowledged and become a work culture to the staff. Since with many improvement, techniques, commitment and development in addressing the successfulness of 5S in among the staff, it hope that this implementation of will give better workplace to all.

6.0 References

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