

IMPLEMENTATION OF 5S PRACTICES AT 3K ELITE SCHOOLS IN TERENGGANU

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Abstract

Nowadays, the Japanese 5S practices are often prevail among community organizations to enhance the capabilities and productivity. The study focused on the best management of teachers, students and its facilities through the process of 5's, a Japanese technology used in housekeeping index in improving the productivity of the school. This study effort dealt with the implementation of 5S methodology at secondary schools in Kemaman, Terengganu. By following the 5S methodology, this research effort may show significant improvements to safety, productivity, efficiency, and housekeeping. The study documented improvements by using before and after pictures. It also intends to build a stronger work ethic within the teachers and students who would be expected to continue the good practices. It is a movement to make sure that all the elements if a "workplace systems" function in order to allow the facilities to deliver an optimum level of performance. This study will use the technology of 5's to identify the effectiveness and standardize the operating systems in a systematic order adding more value to the schools.

Keywords: productivity; efficiency; improvement; effectiveness; standardize; systematic

1.0 INTRODUCTION

5S is an approach to organize, order, clean, standardize and continuously improve a work area. It is one of the efficiently-working tools of Lean Manufacturing. The program gets its name from five activities beginning with the letter S, which were derived from five Japanese words. The words are Seiri, Seiton, Seiso, Seiketsu, and Shitsuke, which when translated mean Sort, Set in Order, Shining, Standardize, and Sustain, respectively. Sort helps to remove all unneeded items; only what is needed stays. Set establishes locations and quantities needed for efficient operation. Shine represents cleaning through inspection. Standardize implements visual displays and controls. Sustain helps to keep the organization effort in place through training and total employee involvement.

Japan was the first country to use the 5S approach to assist a manufacturing sector organization. Implementing 5S in the organization is one of the important steps toward continuous improvement. Implementing 5S ensures continuous improvement in housekeeping and results in better safety standards and environment. To start with 5S implementation, there is a need of developing a common language that is understood by all, so that people in the organization can communicate with each other.

5S team organized through the establishment of environmental quality within the firm including the cleanliness and order. 5S provide a more effective approach when integrated with the management system. Support management is a necessity to provide potential benefits of the implementation of 5S (Narasimhan, 2009). Schools, homes, workplaces and communities can be improved through 5S activities (Gapp et al., 2008). Implementation of 5S brings improvements to the neatness and order and eventually generate improvements in overall productivity improvement products. Learning and participation of employees is a major benefit that must be observed when the 5S implemented in the organization. Results Implementation of 5S provide better packaging decisions, the result has a better job providing interesting picture can be observed in the organization. In addition, the implementation of 5S can also ensure a safer working environment.

2.0 LITERATURE REVIEW

Nowadays, the concept is derived from the Japanese 5S practices often prevail among community organizations to enhance the capabilities and productivity (Mohd Nizam, 2010). However, in severe cases can last (Al-Aomar, 2011).

2.2 *Seiri (sorting)*

Sorting is first step 5s and the main idea is to remove unnecessary items in the workplace. Tag red made with things that are not required in the organization. Things are rarely used and transferred to the storage area more regularly outside of work. The things that really do not need to be disposed of organization (Peterson and Smith, 2001). Sorting helps in removing the broken tools, scrap and obsolete jigs and fixtures (Harrington, 2000). This makes the flow smoother item and employees work and move more easily. By declaring the work area must be assessed and to identify the types of things that need to be evaluated.

2.3 *Seiton (set in order)*

The second step in the 5S take things sorted and put in the best supporting function they provide. Group members should be encouraged to place items in their eyes and increase the use of visual workplace management (Van Patten, 2006). Pictures must be taken before and after to document the progress is then used as an example in other 5S training activities. Meetings continued to be held to discuss and explain the benefits of development activities, are of major importance at this stage (Samuels, 2009). An important advantage of Set in Order is that everything needed for work can be seen clearly. Another is that the associates were given enough time to avoid the mistakes of earlier (Howell, 2009).

2.4 *Seiso (shine)*

The three "S" focuses on cleanup activities in the organization. Daily hygiene needs to be done to have a better job. Working conditions comfortable and safe ensured when S the third run. Achieved high quality work. The work area clean and organized itself to act as a factor of increasing employee motivation. Each employee in a clean environment and healthy shape and improve their confidence. Employees must make "S" as a usual practice. They need to keep clean without being told to do so. Zone-wise responsibility should be given to the employee. Some standards must be followed to ensure that people do the cleaning effectively (Lancucki, 2001).

2.5 Seiketsu (Standardize)

Achieving high standards of an organization can be determined by workplace standards (Peterson and Smith, 2001). Good working standards should be maintained as McDonalds and Pizza Hut is the best example in achieving good standards (Harrington, 2000). Employees play a significant role in the establishment of these standards. Every employee must know the responsibilities and duties of housekeeping to do in their normal routines. The best working practices which run through different ways to ensure that everyone carrying out their activities at their workplace (Dudek-Burlikowska, 2006; Lancucki, 2001). Audit should be held regularly and marks should be given for the affected areas.

2.6 Shitsuke (sustain)

"S" is considered the most difficult to implement. Most companies do 5S activities for several months. But it becomes very difficult to maintain activities performed for longer periods of time (Peterson and Smith, 2001). Standards should be maintained from year to year in a more effective (Harrington, 2000; Dudek-Burlikowska, 2006). Employee should be given regular counseling. Proper discipline should be maintained. Also there should be a system of awards and rewards in the workplace to motivate workers. This award can be made through financial reward or gift certificates of excellence (Lancucki, 2001).

3.0 PROBLEM STATEMENT OF THE STUDY

From an observation and conversation with some teachers, it was learnt that the elite schools have become unorganized and crowded, which hinders the movement of people and materials. Productivity and learning become impeded and time is wasted searching for the correct tools because of congestion and disorganization.

4.0 PURPOSE OF STUDY

The purpose of the research was to implement 5S methodology in this school and make suggestions for continuous improvement for unorganized areas. The desired results and benefits the school layout gained were to organize, label, and store efficiently all needed tools, equipment, and materials. It was also important to fully utilize all available space in the school. Another purpose of this study was to focus on continuous improvement actions.

5.0 METHOD AND MATERIAL

The objectives of the study were to apply the 5S methodology at Elite School in Terengganu. The Elite School was experiencing problems related to a disorganized floor space of material such as paper, books, education tools and others. It was intended that the study would serve as a reference for the school management process and be a model for continuous improvement of this school environment. The 5S implementation was to evaluate the current situation and propose alternatives to improve flow of people, material, and work. In the long run, it is expected that teachers and students will benefit by learning what an impact 5S can have on their workstation and workflow.

The data are collected in the organization using the following methods:

- Direct observations;
- Participative observations;
- Documentary analysis; and
- Semi-structured interviews

5.1 Identifying the Problem

Identifying the problem was the first step before beginning the 5S implementation. The whole building of school as the area to implement 5S methodology.

5.2 Sort

After identifying the problem and taking all the photographs of school, all the equipment and tools were categorized as either needed or unneeded. The items, tools, and materials which were not needed, were moved to the red-tagged area. A red-tag is a 5S form or document used to identify potential junk items in a workplace and storing them temporarily until assignable action can be undertaken. All items were temporarily moved and clearly marked with a large red paper tag, which contained all the details of tagging like work area, reason for tag, type of materials and disposition or reposition date for easy reference.

5.3 Set in order

The second phase was to reorganize the area. Without this step, standardization of the work area in the future would not be accomplished. Organizing all tools and eliminating unnecessary items would generate more space. Every garbage can and tool was reassigned to a location. These parameters were decided taking into account the work done at, or tool requirement of, a particular workstation. Three considerations were taken into account for the set-in-order phase:

- Where to fix position for all tools?
- What items should be included in school
- How many of each item should be on hand (indicate amount)?

Drawing a 5S map similar to the one used in value stream mapping, made it easy to communicate with the instructors and teams about the current-state and future-state map of the school and clearly gave a picture of the location of all the materials. Areas for storing daily-purpose materials such as rolls of fabric, broom, mop, recycle bin, rag barrels and trashcans were also marked.

5.4 Shine

This was the third step-cleaning all the dust and dirt in school. In this step it was decided to divide the jobs between teams consisting of teachers and students and a scope of work for each team was created by asking questions like: Who was doing what? Which parts should be cleaned? What are the techniques and processes to clean the areas? Consolidating daily activities, such as cleaning procedures, ordering cleaning supplies and giving responsibilities to each teachers and students for his/her areas in certain processes with certain methods were completed at this stage.

5.6 Standardize

The fourth pillar of 5S methodology can exist only when the previous three methods are implemented and running routinely. The key to success for a tidy workplace at all times is for everyone to put forth a little

effort every day. The secret of this method is to remember that there should be no unnecessary items, no mess, and no dirt. After cleaning, it is important to standardize the entire space so that any anomaly can be easily spotted. Every designated area or space or garbage can should be identified with important information such as name of work station or areas.

5.7 Sustain

This will be the final phase of the implementation, which is also called the critique phase. In this process, whatever was done so far has to be maintained? All the visual aids that the teachers and students came up with will have to be improved during meetings and later used as training. This is the 5S discipline that will motivate people to maintain the quality gains. The teachers and students will discuss all the duties and responsibilities of each and every staff member of the school to make a more efficient

6.0 ANALYSIS/RESULTS

5S is one of the Lean tools that help to create, maintain and continuously develop a work area. This study was conducted to implement 5S methodology in the elite School at Terengganu. A visual inspection of the school was done to analyze the current situation and propose a solution to improve working areas. Many unnecessary items-never-used frames, racks, cabinets, garment printer press, and work tables were eliminated. Part of 5S, namely the Sort and Set in Order phases, were utilized to determine the actual use of equipment and tools in schools. After implementing 5S and reviewing the results, it appears that the school was much cleaner, and better organized. Finally, the results were seen and evaluated through **before-and-after photographs** while checklists were created to make specific 5S activities a habit and push for further improvements in the school.

6.1 Benefit of implementing 5S

After the implementation of 5S, the results were documented in the form of photographs and checklists. Photographs and checklists gave visual evidence of the effectiveness of 5S in Elite School. Current photographs can in turn be used as the basis for future continuous improvement effort. This methodology strives to achieve continuous improvement, maintain better work place efficiency, lessen mistakes, and to enhance safety by maintaining clean and tidy working areas.

6.2 Before and After Pictures

Pictures can distinguish the state of the lab before and after the application of 5S. After implementation, the school was much cleaner with more open spaces, less congestion, and a proper place for all the tools and materials.

6.3 Visual Workplace

Before implementation of 5S, garbage cans, recycle bins, mops, and brooms did not have designated places. Other items such as the flash cure units were blocking an emergency door, which posed a safety hazard. The result of the set-in-order phase is a clear layout plan. In the standardize phase specified labels were used for items and equipment identification to add efficiency, improve the organization of the workspace and create a visual workplace using 5S. An advantage behind creating a visual workplace is that any person can easily access each piece of equipment, storage space, or related tools quickly, perform his or her task and put things back to assigned places. So, it stays standardized, and is in place and ready for the next time it is used. This implementation achieved a place for everything and everything in its place.

6.4 Clear Layout

All the items and equipment in use were clearly separated using lines and labeled. This step emphasizes the requirement of using specified places to store tools and materials so that they are always in order.

6.5 Safe and Organized Work Stations

5S intends a safe, organized workplace with standards that eliminate hazards and improves effectiveness. The study intended to provide a designated work area for all three IR Flash cure units.

7.0 CONCLUSIONS AND RECOMMENDATIONS

Implementation of 5S in the elite School, not only set up a more efficient workspace to support students and teachers, but it is also assumed to help in building a culture that will ease the implementation, sustainability and improvements in school now and in the future This highlights an area that will have practical applications now, and through sustaining efforts, will improve.

- Consolidate daily activities, such as cleaning procedures, by ordering cleaning supplies. Make targets to be cleaned, such as storage areas, equipment, and surroundings. This will facilitate better cleaning areas, the right tools and equipment in the right place.
- The observations should address the possible inspection by the team of instructors or teachers regularly to sustain 5S implementation. Several unknowns should be examined to truly determine the best system, such as checkpoints for each workplace. There should be a regular tour of inspection every month by instructors or concerned patrol team. They should visit every section in the lab and evaluations given by the patrol team should also be announced.

The specific recommendations may not be completely relevant as pieces of equipment may be taken out or added in, which would change the process being conducted in the school. Different needs would necessitate different 5S results. This highlights an area that will have practical applications now, and through sustaining efforts, will improve.

There should be a regular tour of inspection every month by teachers or concerned patrol team. They should visit every section in the schools and evaluations given by the patrol team should also be announced. Teachers will have to establish 5S training and discipline users in habits to avoid disorganization, and preventive cleaning through regular inspection of the workplace. The teachers should motivate and encourage students and all the lab users to make continuous improvement to their workplace on a day-to-day basis.

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