5s Techniques to Optimize Classroom Organization

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Abstract — *This research project was focused in the 5s methodology for the improvement of an elementary classroom. The 5s is defined as a method of five steps that seeks to improve working space, eliminate waste and improve efficiency within the service industry. This methodology can be utilized to improve any service or space. In this research the 5s tool can be utilized to improve the organization and time management with a small classroom that provides tutoring services for elementary students. An organized space is fundamental for the proper classroom management techniques.*

In order to optimize space and improve time management in the classroom the 5s methodology was used. The name of the steps is derived from the Japanese language. These are: Seiri, Seiton, Seiso, Seiketsu, Shitsuke. Its beginnings were in the Toyota Corporation in 1960 with the objective of achieving a well-organized and clean working environment that could be sustained permanently.

This research seeks to optimize a small classroom, improve lesson plans being carried and time management, promote organization skills and positive habits. This is important for appropriate classroom management techniques such as increased students focus, promote self-awareness of shared space, reduce waste, reduce negative impact in the lesson plan and increase student's motivation.

The 5s methodology brings a structure and tools to improve a process by optimizing and increasing efficiency in the service field. In this case optimized space and organization for the results in an elementary tutoring classroom.

__Key terms__ — classroom, improve, management, optimize

INTRODUCTION

Teaching has a lot of challenges and one of them is keeping the classroom organized. The first thing students notice when they get to the classroom the first day of school is how organized it is. This has a very important role on the behavior and cognitive focus of students. An organized classroom becomes a behavioral model for students. The teacher is responsible of sorting, set in order and standardize the aesthetics setting of the classroom and students are responsible of shining and sustaining the new habits learned throughout the semester. Implementing 5s methodology helps students become more functional and independent during the early stages. Furthermore, good organization skills within the classroom help students focus more on the lesson, creates life habits, teaches awareness of our surroundings and belongings, and helps promote a responsible behavior.

This research project will be focused on the improvements 5s methodology can bring to the elementary tutoring classroom and behavioral component of students.

PROBLEM STATEMENT

The students take approximately 20 minutes to get their books and materials from the classroom bookshelf. This is very detrimental because the tutoring class is 60 minutes. Students have to go through all books in order figure out which one is theirs. This is because all of the books are piled on top of each other and are not identified with a label. Once they are done finding their materials the teacher can start the class with only 40 minutes left. This approach has a negative impact on the lesson plan for the day. In most cases the teacher cannot cover the complete material due to ineffective organization and time management. In addition, when the class ends, the

students must put their materials back. This takes approximately 10 minutes and the results are devasting due to the fact that some books get placed on unassigned areas of the classroom. The 5s methodology will be used to improve the classroom setting and time management in the class.

Research Description

This research is about improving classroom organization, waste reduction and increase efficiency during lesson teachings. Thus, keeping the classroom organized throughout the day. This is important for the process to reduce lost materials, misbehavior and lack of interest in the class.

Research Objectives

This project aims to improve organization within the classroom, reduce waste, improve layouts, reduce time effectively generate more space and increase efficiency. The 5s tool will allowed to increase lesson plan coverage up to 50 minutes, as oppose to the previous 40 minutes of lesson coverage recorded.

Research Contributions

This project seeks to maintain classroom organization through the utilization of 5s tools, such as: Sort, set in order, shine, standardize and sustain. This improves the classroom organization arrangement, thus creating a favorable environment in which students eliminate waste, cultivate valuable skills and life habits while implementing 5s methodology into their daily school activities.

Literature Review

The 5s methodology was developed by Hiroyuki Hirano as a technique to establish and maintain the quality of a service. This philosophy allows to develop a plan of continuous maintenance for the classification, order and cleanliness while increasing productivity. Most Japanese 5s professionals consider the 5s not only improves the physical, but also the thinking processes [1]. Its increased popularity in japan made this technique a very attractive one for western countries.

When starting out with the tools of 5s the first step is to sort useful items and then removing unnecessary supplies. It is proposed ideally that frequently used supplies should be placed close to the workstation, thus reducing excess travel [2]. Then, the "shine" of the 5s tools would follow. This tool takes care of maintaining a good and clean image while assigning each individual a task. In educational sector the tasks could be discarding unnecessary materials, cleaning classroom equipment after used and daily inspection of materials. Afterwards, standardization should take place. This procedure is employed as a way to ensure that areas are kept organized. Checklist and visual controls can be utilized for the standardized tool. Then, sustain takes place as a practice of discipline in everyday activities. Dedication and effort are key aspects to sustain what the 5s methodology achieved. Charts can be beneficial when implementing the sustain tool, this would include detail information on the tasks that every member should partake.

Implementing the 5s methodology into the classroom leads to benefits such as: less time looking for needed materials, improvement of time management, self-awareness of the surrounding work environment, increases productivity, improves safety, teaches discipline and contributes to positive classroom management skills.

Regardless of the organization size or type, 5s can be used for upgrade activities within environments such as homes, schools, communities, and workplaces [3]. The educational community could specifically benefit from the 5s by optimizing teaching lesson plans in school performance in less time, reduction of cost and improves value of the teaching procedure. It is an invaluable tool to decrease waste and promotes continuous improvement. Furthermore, engaging students in classroom management is imperative for cognitive development of the early childhood stages. Students get to improve habits, learn through experiences and improve inner discipline

General Concepts of 5s Methodology

The 5s methodology is a system that focuses the elimination of waste and organization to produce work in a more efficient, effective and safe manner. The practice of 5s aims to embed the values of organization, neatness, cleaning, standardization and discipline into the

workplace basically in its existing configuration, and it is typically the first lean method implemented by firms [2].

A common term for 5s is housekeeping. The practice of 5s recognizes the values of an organized and standardized working space. In Japan the 5s practice was initiated in the manufacturing sector and then extended to other industries and services sector. 5s is recognized by following five Japanese words: Seiri, Seiton, Seiso, Seiketsu and Shitsuke. All of these describe standardize methods that improve organization in the work field. We will now look at each method in detail.

- **Sort (Seiri):** the first step of the methodology. It involves sorting or going through all of the tools being used within an area. This is done with the objective of identifying the purpose of the items and decide whether they are still useful around the work area.

- **Set in order (Seiton):** It's during this phase that necessary items are placed back in the working space but in an organized manner. It is important to engage in this step only when the sorting phase is finished. Also, members working in the 5s methodology can gather in groups to decide and employ different strategies to set in order the remaining items.

- **Shine (Seiso):** The housekeeping and maintenance taking place during the methodology. Shine begins while cleaning the working area and performing regular maintenance checkups. Thus, making employees become more invested in their work and space.

- **Standardize (Seiketsu):** Standardization helps maintain and improve the new process implemented. This helps to prevent old habits from coming back into the workplace. This step requires documentation such as, checklists, schedules and reminders.

- **Sustain (Shitsuke):** The last tool of the methodology focuses on maintaining the procedures implemented and updating them when necessary. When the step of sustain takes place, it is taking into consideration keeping the complete 5s methodology running smoothly. During this step the goal is to keep the 5s a permanent solution, not a temporary one.

PROJECT METHODOLOGY

A systematic approach needs to be used as a methodology to achieve the goals of the project. Since the purpose of the project is to improve classroom organization for the optimization of time management and reduction of waste the 5s tool will be used.

Figure 1
5s Tool

The following 5s tools and steps will be used:

- **Sorting:** This step was taken to eliminate unnecessary items and clutter on bookshelves, tables and closet. Identifying different spaces in order to organize and sort materials in designated areas. With sort, unused desks and chairs were removed. Also, unnecessary paperwork was disposed of.

- **Set in order**: By using this tool we removed and organized the tables, chairs and books within our small space. Thus, creating little sections within the classroom that served different purposes. For example, we optimized our space and created a small reading section for the students.

- **Shining:** Shining of the tables, shelves, closet and chairs was done to have the classroom in a clean manner.

- **Standardizing:** This was done by labeling out spaces to identify them. A layout of class information's, schedules, calendars and reminders were done. Different colors were used to differentiate between topics which was a great application of visual management.

- **Sustain:** It takes place with regular updates and weekly checks to maintain the organized environment within the classroom. We created a

chart that identifies the tasks that each student must do at the end of the day. This is in order to sustain and teach students positive life habits.

RESULTS AND DISCUSSION

The results obtained through the five steps of the 5s methodology follows.

Sort

As part of the sort phase a sort flow diagram (figure 2) was used to determine which materials should be eliminated and those that are going to be kept.
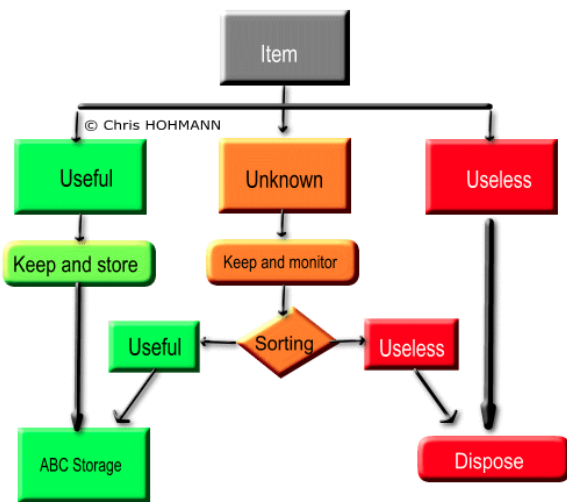
Figure 2
Sort Flow Diagram

Another tool that was used for sorting is an inventory chart of classroom materials. This chart will enable us to identify which books are duplicated and unused for a long period of time, thus we can donate them. This step is fundamental for optimizing space. See table 1.

Table 1
Classroom Inventory

Item	Quantity
Go Math Vol 1 Textbook	6
Go Math Vol 2 Textbook	4
Go Math Vol 3 Textbook	2
Go Math Vol 4 Textbook	6
Santillana Math 3rd Textbook	2
Sadlier Vol 3 Workbook	4
Social Studies Textbook	4
English Textbook Vol 1	1
English Reading Vol 2	1
English Reading and Comprehension	1
English 03 exercises workbook	60

Set in Order

The materials that were classified as useful were kept and organized in a designated space. The most important benefits of setting in order in the project is it ensures that all of the materials follow a logical pattern to the sorting phase.

Shining

The items were cleaned thoroughly and efficient work was carried out.

Standardize

Through the process of sort and set in order we were able to organize materials within the bookshelf that are currently being utilized and sort out materials that were outdated. Identification labels were used to implement visual controls in the working area. The bookshelf was divided into five stations. The first one contained construction paper, a first aid kit and binders. The second sections carried the math materials. This section was divided into three more sections with the purpose to further organize and distribute the materials more efficiently. From left to right we have: Notebook, workbooks and textbooks. Each of these items are labeled with the student name. The third shelf carries the materials separated within a plastic container properly identified. The fourth shelf was designated for

supplementary material from other courses, such as: Social Studies, English and Science. Lastly, we have the fifth shelf which carries all of the items that during the sort phase were identified as duplicates to be donated. See figure 3.
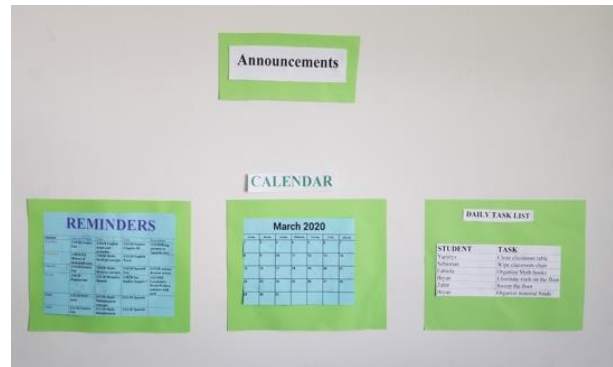

Figure 3
Labeling the Bookshelf

Sustain

During this last stage a task checklist will be utilize daily. This will ensure that each student has a task that they must to daily at the end of the class to sustain and maintain the 5s methodology in the classroom. In order to get elementary students interested in the sustain phase of the 5s methodology it is imperative that from the start they become an active member and contributor of the project. As an effect, students from the math tutoring class had the opportunity to create, cut and glue the labels, schedule, calendar and checklist represented in the figures throughout this project. In the following we have the announcement wall that included two parts from the standardize phase, these are the reminders and calendar.

However, we decided to include a sustain visual tool, a task checklist. In this checklist we have each of the student's name and the daily task they must complete at the end of the class. See figure 4.

Figure 4
Announcement Wall

CONCLUSION

The 5s methodology has contributed positively to the classroom management techniques. Space optimization has resulted from this project within the tutoring classroom. A positive correlation between classroom organization and proper time management was noted. The efforts of this tool enable the teacher to give her lesson for 50 minutes instead of the 40 minutes recorded. Waste elimination was our first goal, this was achieved through the sorting and set in order phase. This gave the teacher the opportunity to designate a reading area for students to enjoy in their free time. The second goal of this project was to improve classroom management through the teaching of positive habits within the classroom. This was essentially important in order for the students to adapt and sustain the 5s work. Students from my class were more self-aware of shared space and conscious towards classroom materials.

REFERENCES

[1] R. Chourasia and A. Nema, "Implementation of 5S methodology in higher education institute," *IRJET*, vol. 06, issue 02, pp. 1795-1799, Feb. 2019. [Online]. Available: https://www.irjet.net/archives/V6/i2/IRJET-V6I2353.pdf

[2] J. S. Randhawa and I. S. Ahuja, "5S implementation methodologies: literature review and directions 49," *International Journal of Productivity and Quality Management*, vol. 20(1), pp. 48-74, 2017.

[3] A. Ghodrati and N. Zulkifli, "A Review on 5s implementation in industrial and business organizations," IOSR-JBM, vol. 5, issue 3, pp. 11-13, Nov.-Dec. 2012. [Online]. Available: https://pdfs.semanticscholar.org/132f/eb7900942ce848606 5c111f5d683d2ae1054.pdf