

## APPLICATION OF 5S MANAGEMENT IN IMPROVING THE QUALITY OF FURNITURE PRODUCTION IN MEUBEL KARYA AGUNG OF PONOROGO REGENCY

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### Abstract

*5S (Sort, Set in order, Shine, Standardize, dan Self Discipline) is a work culture that must be applied in all workplaces both in the formal and informal sectors. The implementation of 5S aims to make workers feel comfortable and safe while working. In addition, the application of 5S can make work more effective and efficient because it can eliminate wasted time due to more time to search for goods, work areas that look full due to excess equipment and unneeded goods or dirty environments. Furniture Works In Semanding District, Kauman, Ponorogo is one of the informal sectors that have not implemented 5S. This is seen from the condition of the work area full of unnecessary equipment and goods, messy, and dirty. Therefore, researchers conducted research analysis of the application of 5S in Furniture Works. Purpose: The purpose of the research to know the application of the principle of 5S in Furniture Works. Method: This research uses qualitative design. The research was conducted with direct observation and using the 5S checklist. Research Results: The results showed that the application of 5S in Furniture Works is still not good. This is evident from the achievement of the 5S as a whole which is below 50%. Conclusion: The results of the study concluded that the implementation of 5S in Furniture Works is still lacking so it is necessary to conduct training on 5S and internal audits periodically.*

**Keywords :** *Application, 5S, Production Quality*

### INTRODUCTION

The development of increasingly sophisticated technology provides progress in the industrial sector. Progress in the industrial sector provides benefits for many parties. (Nusannas, 2018). In order to maintain quality, the industrial sector demands human resources that are owned into quality resources as well. Humans are an important and dominant element in an organization. Therefore, human resources must have the ability to carry out tasks for the realization of the goals of an

organization. One way to form quality human resources in work is by shaping the work culture. (Sri Hartati, 2022) One way to form quality human resources in work is by shaping the work culture. Work culture is formed when a unit of work stands. (Edy Sutrisno, 2010).

One of the most widely applied working principles in the industrial sector is the 5S. Principle 5S is a culture to regulate workplace conditions so that workers are effective and efficient in working. (Nusannas, 2018). The implementation of 5S can allow companies or working institutions to organize and manage workspaces, human resources (workers), time, quality, and capital to produce products with smaller failures, create a suitable, clean, and disciplined workplace. (Chapman, 2005). Principle 5S stands for Sort, Set in order, Shine, Standardize, and Self Discipline. The 5R principle in Japanese is known as 5S (Seiri, Seiton, Seiso, Seiketsu, Shitsuke). Sort is to neatly arrange and store the items used in the work process so that when the goods will be reused, workers are easy to find these items. Set in order is cleaning the work environment and items in the work area. Shine is the act of guarding the 3 pillars "S". Self discipline ensures that workers have the awareness to run a 5S. (Damairia Hayu Parmasari & Suryanto Suryanto, 2012).

Previous research results showed that there is a significant relationship between 5R attitude and work productivity in workers of pt Sanoh Indonesia manufacturing company. (Agus Supriyanto, 2014). In addition, previous research has also shown that there is a significant relationship between the application of 5R culture and employee performance at CV Cahaya Mandiri. (Agus Supriyanto, 2014). In addition, a study explained that it is necessary to implement 5R to prevent occupational diseases of the teeth, mouth, and respiratory tract in the informal batik industry in Sragen. (Setyawan, 2015).

Furniture works is one of the work environments that need to be done 5S application. The results of previous research showed that Furniture Works do well. The application of 5S is done because the laboratory in Furniture Works is a means that becomes a special feature of the furniture took. The application of 5S in Furniture Works is done to support practical work productivity through fast, accurate, comfortable, and safe work. (Virgian Purjayanto, Yoto Yoto, & Basuki

Basuki, 2015). A messy and unorganized work environment in Furniture Works makes the workspace less comfortable such as the volume of workspace becomes small so that an analysis of 5S work principles with employee motivation, the result is that there is a relationship between employee motivation and the application of 5S in the workplace. (Siska & Lisa Fitri Sari, 2016).

Meubel Karya Agung is one of the Furniture Stores on Jl. Orchid No.65, Tonatan, Kec. Ponorogo, Ponorogo Regency, East Java. Based on the results of preliminary studies, researchers found that the owners of Furniture Works have not applied It is indicated by the environmental conditions of Furniture Works and equipment that is not neat. Many unused cardboard boxes are placed around the work area, screwdrivers, unaddated locks separately in buckets, unsuspecting equipment such as cardboard and paper placed on shelves, scattered oil, and dirty, rusty floors, walls, and appliances. In addition, the limitations of the workplace of furniture owners make it difficult for furniture store owners to arrange equipment neatly. This makes researchers need to conduct an analysis on the application of 5S in Furniture Works, Tonatan, Kec. Ponorogo, Ponorogo Regency. Analysis of the implementation of 5S is expected to provide benefits of increasing work productivity later for the owner of Furniture Karya Agung, Ponorogo.

Based on the description above, researchers formulated the problem "How is the application of the 5S principle to The Great Works Furniture in Ponorogo?". In addition, the purpose of this study is to find out the application of the 5S principle to The Great Works Furniture in Ponorogo.

## METHOD

The approach used is *cross sectional*. Approach *cross sectional* A measurement taken at one time or one period. This type of research is a combination study (*mixed method*) with an observational research design. *Mix method* is research that is applied if the researcher has questions that need to be tested in terms of *outcomes* and processes, and concerns the combination of quantitative and qualitative methods in one study to provide a good explanation of a problem. (Masrizal Masrizal, 2012). Qualitative

research produces and processes data that is descriptive, such as interview transcripts, field notes, images, photos, videos, and so on. (Kristi, 2012). This study analyzed the percentage value of each component S first and then explained the meaning of the percentage value into sentences. The research time is December 2021. The research site was conducted in Furniture Karya Agung, Ponorogo. The subject of the study is the great furniture workspace. The variables studied in this study were the application of 5S (Sort, Set in order, Shine, Standardize, and Self Discipline).

The instrument used in the study was *the* 5S checklist. Data collection methods use interviews, observations, and documentation. Data obtained from interviews, observations, and documentation of furniture store workspaces. Data analysis is done by calculating the percentage of 5S ability through the 5S *checklist* sheet. The Sort, Set in order, Shine, Standardize, and Self Discipline components each have multiple question items. Each item has a score of 1-5. Then the scores of each question item are summed up. Once summed, divided by the maximum score. Then, put a percentage of each component "S".

Table 1 is an example of calculating the score of each question item from the "S" component.

No	Component S	Question	Score (1-5)	Percentage (0-100%)
1.	Sort	Have unused items been red-lined, evaluated, and removed from the area?	4	$4/5 \times 100 = 80$
		Whether the material or materials at work are neatly arranged?	3	$3/5 \times 100 = 60$
Total			7	$7/10 \times 100 = 70$
2.	Set in order	Is it easy to place, use, retrieve the tools and materials necessary to production?	3	$3/5 \times 100 = 60$
		Is it easy to identify faulty or inappropriate materials and tools?	2	$2/5 \times 100 = 40$
Total			5	$5/10 \times 100 = 50$
3.	Shine	Is the workplace clean and free of dirt, dust, oil, and garbage?	5	$5/5 \times 100 = 100$
		Are the equipment maintained and equipment easily accessible in the	4	$4/5 \times 100 = 80$

appropriate place?

Total		9	$9/10 \times 100 = 90$
4. Standardize	Are all areas of the work station consistent with the requested level?	3	$3/5 \times 100 = 60$
	What is the level of cleanliness in all areas of the cooperation station?	4	$4/5 \times 100 = 80$
Total		7	$7/10 \times 100 = 70$
5. Self Discipline	Do all workers pay attention and understand the concept of the 5S??	2	$2/5 \times 100 = 40$
	Is there a tool to measure 5S performance??	3	$3/5 \times 100 = 60$
Total		5	$5/10 \times 100 = 50$

The 5S parameters can be seen in Table 2 as follows:

Table 2. 5S Luability Parameters

No	Persentase (0-100%)	Keterangan
1.	0-59	Unsatisfactory
2.	60-79	Repairs need to be made
3.	$\geq 80$	Satisfying

In this study, researchers adhere to research ethics by providing information to the owner of Furniture Works about the research to be done and do not force the owner of Furniture Masterpiece Researchers provide *informed consent* and guarantee the subject will not be harmed materially and immateriil.



Figure 1. Mabel's Store Condition

## RESULTS

Based on the results of the study, it was found that the application of 5S in Furniture Stores is far from good. This is indicated by messy and unorganized furniture store equipment, equipment that is not placed back in place after use, a dirty work environment due to dust and oil attached to the floor, damaged equipment caused by never being treated, and the attitude of workers who are not disciplined and do not have awareness of the importance of applying 5S.

Tabel 3. Application of Aspects Sort and Set in order at Meubel Karya Agung, Ponorogo

No.	Variable	Question	Score	Score Maximum	Percentage
1.	Sort	Whether unused items have been red lined, evaluated, and removed from the area?	0	5	0 %
		Whether the material or materials at work are neatly arranged ?	0	5	0 %
		Is the workplace free of unnecessary cluttered items?	2	5	40 %
		Whether the storage of materials or materials in accordance with the many uses?	0	5	0 %
Total			2	20	10%
2.	Set order	Is it easy to place, use, retrieve the tools and materials necessary for production?	3	5	60%
		Is it easy to identify faulty or inappropriate materials and tools?	2	5	40%
		Are tools and materials placed in the right place after they are used?	2	5	40%
		Is there a clear standard and Can you see for workplace conditions?	2	5	40%
		Total	9	20	45%

Table 3 shows that the application of the "Sort" aspect only achieves a score of 2 out of a maximum score of 20. This means that the "Set in order" aspect only reaches 10%. The workspace shows that unused items are not red-lined, evaluated

and removed from the workplace. The equipment in the workspace is still arranged in a mess, there are unused equipment still in the workplace and the room is too small and overloaded with materials. In addition, Table 3 also shows that the "Sort" aspect of The Masterpiece Furniture only reaches a score of 9 out of a maximum score of 20. This means that the "Sort" aspect of the Meubel Karya Agung 45%. Based on Table 3, the ease of putting, using, and retrieving the necessary items is only 60%. In addition, the ease of identifying unsuitable materials and tools, laying materials and tools in place again, and clear standards for each workspace were only 40%.

Table 4. Application of Aspects "Shine and Standardize" at Meubel Karya Agung, Ponorogo

No.	Variable	Question	Skor	Skor Maksimal	Persentase
1.	Shine	Is the workplace clean and free of dirt, dust, oil, and trash?	1	5	20%
		Is the cleanliness of equipment maintained and equipment easily accessible in the appropriate place?	1	5	20%
		Is cleanliness part of the job and is it mentioned in the SOP?	0	5	0%
		Does the level of cleanliness achieve expectations to achieve 5S performance success?	0	5	0%
		Total	2	20	10%
2.	Standardize	Are all areas of the work station consistent with the requested level?	0	5	0%
		What is the level of cleanliness in all areas of the cooperation station?	2	5	40%
		Are the hygiene standards used by them based on clear <i>evidence</i> ?	0	5	0%
		Do workers pay attention to hygiene standards for work stations?	2	5	40%
		Total	4	20	20%

Table 4 shows that the achievement of the aspect of "Shine" in Furniture Masterpiece, Ponorogo by 10%. The ability of a workplace free from dust, dirt, oil, and garbage and efforts to keep equipment clean and easily accessible in the

appropriate place only reached 20%. The hygiene component becomes a part of the work mentioned in the SOP and hygiene expectations can achieve work performance that is expected not to be achieved at all or by 0%. In addition, consistency of the implementation of cleanliness and hygiene standards used in the workplace was not achieved at all (0%). The level of cleanliness in all workplaces and workers' attention to cleanliness is only reached 40% each. Overall, the "Standardize" aspect reached 20%.

Table 5. Application of Aspects of "Self Discipline" to Furniture Masterpiece, Ponorogo

Variable	Pertanyaan	Skor	Score Maximum	Percentage
Self Discipline	Do all workers pay attention to and understand the 5S concept?	5	5	40%
	Is there a problem for measuring 5S performance?	5	5	0%
	Is 5S performance good for being part of their goal?	5	5	20%
	Is 5S performance regularly evaluated and communicated to the department?	5	5	0%
Total		3	20	15%

Based on Table 5, it shows that the ability of the "Standardize" aspect reaches a score of 3 out of the maximum score of 20. This means that the 15% of the "Standardize" aspect is 15%. In addition, the ability of attention and understanding of 5R only reaches 40%. 5R performance is not good enough to achieve work performance because it only reaches 20%. There is no tool yet to measure 5R performance, evaluate, and communicate it with other workers.

## DISCUSSION

Based on data obtained from direct observations by researchers, the application of the "Sort" aspect in Furniture Works, Ponorogo has not been implemented properly with a level of achievement of only 10%. This is seen from the state of the workplace that is still filled with equipment and materials (materials) that are no longer needed. Equipment and materials inside Meubel Karya Agung which is no



longer needed such as used tires, used oil, cardboard and scrap paper, used cans, and used radiator water bottles. In addition, the items are not placed in warehouses and are not labeled red as a sign that they are no longer in use. Owner Meubel Karya Agung He said that the lack of information and knowledge so do not know if equipment and materials in the workplace that are no longer used should be labeled red. This is in line with previous research that said that there is a significant influence of providing information through counseling of knowledge and attitudes of 5S in the workforce in the center of the Blangkon Serengan Surakarta artisan industry. (Muslihah, 2016). In addition, the owner of Meubel Karya Agung said that equipment and materials that are not used are still placed in the workspace because of the limitations of the place. This causes the room to look small and full of items.

Sort (*Seiri*) is a work culture principle that aims to realize an effective and efficient workplace so that work can run smoothly. (Takashi Osada, 2011). In addition, Sort aims to maximize the existing workplace only for equipment and materials used only. (Vincent Gaspersz, 2007). Previous research conducted at PT Y, a manufacturing company that produces food, implemented the practice of "Sort" by sorting all items in the workplace and classified according to frequency of use. Items of doubt are separated in an area of the workplace and given a clear limit. In addition, the work area does not store unnecessary items. Items that are not needed are put red labeled red then stored in the warehouse or discarded. (Siti Rachmawati, Seviana Rinawati, Iwan Suryadi, & Paskanita, 2018). No sort aspects in Meubel Karya Agung allegedly caused by workers' awareness of the application of less 5S. This is in line with Kartika and Hastuti saying that the implementation of 5S in the production department of shoe companies has not been implemented because of the low awareness of workers to carry out. Workers have the view that, if the 5S is implemented it will not have a big impact because that does only a few workers. In addition, the absence of cooperation between workers and mutual reminders and lack of cohesiveness cause employee interest in carrying out low 5S. Workers never get information about the importance of implementing 5S. In addition, narrow workplaces and infrastructure facilities such as places or containers become obstacles to the application of Sort in Meubel Karya Agung. (Yudhanto & Purwanto, 2020).

Based on the results of direct observations made by researchers, the application of aspects of "Set in order" in Meubel Karya Agung, Ponorogo has not been good. This is seen with the level of 45% of the "Set in order" aspect. Furniture Workers, has not put equipment and materials that have been used after work to his place again. Meubel Karya Agung has no place for equipment and materials. Equipment and materials are only placed in buckets that are already dirty. Equipment and materials are not classified based on the function and frequency of their use. This causes equipment and materials to look scattered and not arranged in order. This is seen by the laying of ring locks, T keys, English keys, screwdrivers, pliers, hammers and saws mixed in one bucket.

Set in order (*Seiton*) is the storage of equipment and materials in its proper place or location. The purpose of the application of "Set in order" is to facilitate in finding the equipment or materials in question if needed again. Implementing "Set in order" will be very useful especially for new people who previously did not know where to store it. (Vincent Gaspersz, 2007). The laying of equipment and materials in Meubel Karya Agung should be similar equipment or materials placed in the same place. The keys are placed on a shelf. Hammers, screwdrivers, pliers and saws are placed on other shelves separately. Meubel Karya Agung need to provide shelves to place equipment and materials. This is in line with previous research that states that the solution to optimize the "Set in order" aspect on CV Kokoh Bersatu Plastik is to rearrange the storage area of production raw materials by increasing the number of storage racks. Storage shelves can be given special markings to distinguish the storage area of each type of equipment and material: Storage shelves for locks can be green, hammer storage racks can be marked yellow, and screwdriver storage racks can be marked blue, and tang storage racks can be given brown marks. The laying of equipment and materials is sorted according to the order of the work process and frequency of use. The equipment and materials needed in the first stage of work and often used are placed on the most accessible shelves. Meanwhile, the equipment and materials needed at the end of the work process and rarely used are placed on shelves whose ease level is smaller than the equipment and materials that are often used and needed in the early stages of work. (Kristyanto & Kusdiartini, 2021). The application

of "Set in order" will reduce the time wasted by looking for equipment or materials needed while working. Previous research on the application of the 5S principle in the chemical warehouse of oil palm plantation companies mentioned that after the "Set in order" activity, the storage warehouse was seen more spacious because the cardboard boxes were arranged with Set in order and unused jerry cans were removed from the warehouse. Cardboard boxes containing chemicals are given pallet tools to prevent evaporation of chemicals and make it easier for officers to perform physical checks of goods. (M Hudori, 2017). This is in line with Kartika and Rinawati who say that the company must be efficient in using the room. The efficiency of the use of the room and a good system is needed so that warehousing activities run smoothly, equipment and materials are also maintained. The efficiency of space, equipment, materials and the implementation of a good system will realize the aspect of Set in order. (Kartika & Dyah Ika Rinawati, 2016). Diputra's research shows that there is a positive relationship between 5S attitudes and K3 behavior in students of SmK Kartini Batam. This causes students who have a positive attitude towards 5S will have good K3 behavior and understand about things that should not and should not be done because it has potential dangers and risks that can cause accidents and diseases due to work. (Rahman, IStandardizei IStandardizei, & M Faizal Arianto, 2021). The non-implementation of the Set in order aspect in the Meubel Karya Agung is allegedly caused by workers in the Meubel Karya Agung who do not yet have the culture to behave Set in order. This is seen from workers who put items out of place and mix equipment that is not similar or has the same function.

Based on the results of direct observations made by researchers, the results showed that the ability of aspects of "Shine" in Meubel Karya Agung, Ponorogo is not good. This is evident from the results that show the figure of 10%. Meubel Karya Agung workers rarely clean the workplace. This is seen from a workplace filled with dust and oil attached to the floor, walls, equipment or materials used for work. In addition, workers also claimed not to have adequate facilities and infrastructure to clean the work area. Workers only use brooms to clean dust and dirt. No clean wipes are used to clean the equipment. It forms habits. Habits are formed through repeated actions. (Michael LeBoeuf, 2010). The repetitive action of workers who only clean

the work area with a broom and do not use a rag cannot clean equipment, materials and work areas optimally. This causes the workplace to still look dirty even though it has been swept away. The non-implementation of aspects of Set in order in Meubel Karya Agung is allegedly caused by workers who like to procrastinate on the habit of cleaning the workplace after work. Workers claim to only sweep the workplace every 3 or 4 days, even though the workplace is used daily. This causes the workplace to accumulate by dust and oil as well as equipment and materials that are not used.

The results of previous research on the application of the 5S method and the design of material and equipment laying facilities for *waste of motion* elimination in *generator set* assembly at PT Berkat Manunggal Jaya mentioned that the design of the "Shine" aspect can be done through stages, namely determining the list and cleaning equipment needed and determining workplace hygiene responsibilities. Facilities and infrastructure to implement "Shine" include large garbage cans, brooms, pengki, kemoceng, laps, and notice boards. (Tanuwijaya & Bambang Purwanggono, 2015). The implementation of "Shine" in the workplace can minimize the cost of tool damage, faster cleaning time, a more comfortable and cheerful work atmosphere, workers will produce creative ideas, and safe at work. (Kristyanto & Kusdiartini, 2021).

Based on the results of direct observations made by researchers who found the aspect of "Standardize" in Meubel Karya Agung, Ponorogo is still not good. This is seen with a 20% reach. Workers at the Meubel Karya Agung have not standardized the equipment and materials used. This is evident from equipment and materials that are not cleaned regularly and are never repaired. There is no cleaning schedule at the Meubel Karya Agung. In addition, judging from the aspects of "Sort" and "Set in order" workers have not implemented both aspects continuously. There are no signs and warning boards to keep the 3R (Sort, Set in order, Shine) on an ongoing basis.

Standardize (*Seiketsu*) is a difficult stage of work culture. It takes standardization and consistency from each individual to perform the previous 3S stage. "Standardize" can be done by making standardization and all individuals must commit to complying with the standards that have been created. Gift giving and punishment can be done to motivate workers to apply "Standardize". (Kristyanto & Kusdiartini, 2021). The

results of previous research mentioned that the measurement of "Standardize" can be done by making *a self assessment form* that states that there are efforts and mechanisms so that the previous 3S is always implemented properly at all times and there is an invitation to always carry out the previous 3S stage in the form of slogans or warnings. (Rahman & Nurhusna, 2019). Standardize is an important aspect that must be applied in the work environment. This is because with the application of standardize aspects, equipment and materials in the work environment will be more durable and longer in use. This will lead to efficiency in the use of tools and materials so as to minimize the cost of expenditure and increase greater profits.

Based on the results of direct observations made by researchers, the achievement of aspects of "Self Discipline" in Meubel Karya Agung, Ponorogo is still not good. This is seen from the durability of "Self Discipline" only reached the 15% mark. Workers at the Furniture Store do not yet have the awareness and discipline to implement the 5S. Workers do not yet understand the importance of implementing 5S. Workers also revealed that they have not felt ashamed if their work environment looks full, messy, dirty, and not standardized.

Self Discipline (*Shitsuke*) is a work culture to maintain previous 4S stages that have been running. This can be done by providing training to workers about the importance of implementing 5S. In addition, 5S learning can be done periodically and internal audits of 5R periodically. (Rahman & Nurhusna, 2019). The results of previous research mentioned that it is necessary to conduct periodic audits and training related to 5S to warehouse area workers at CV Sempurna Boga Makmur Semarang. This is because the company has never conducted 5R audits and training. Auditing can be done by going directly to the field and using predefined audit assessment indicators. In addition, 5S training contains self-awareness of work ethic, discipline to standards, and shame for breaking rules. (Siti Rachmawati, Seviana Rinawati, Iwan Suryadi, & Paskanita, 2018). The existence of an audit can provide correction and improvement to everything involved in the work be it work processes, equipment, materials, workplaces, or workers themselves. The existence of an audit will provide data on whether there is an alignment between the objective and the output. If the goals and objectives of the organization or workplace are not achieved,

improvement measures are taken to be able to achieve and even increase the targets to be achieved. This is in line with Silaban who said that smk3 audit is feedback for management to take corrective action to increase the company's productivity. (Silaban, 2022).

## CONCLUSION

The application of 5S to Meubel Karya Agung, Ponorogo is far from a good category. Socialization needs to be done about the importance of implementing 5S culture and internal audits so that 5S can be realized so that worker productivity can increase.

The obstacle of this study is a narrow research place that makes researchers feel less comfortable when taking research data. In addition, dusty research places make researchers also less maximal in collecting data.

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