ANALYSIS OF FACTORS RELATED TO IMPLEMENTATION 5S/5R

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ABSTRACT
According to data from the International Labour Organization (ILO), an estimated 374 million workers are affected by non-fatal accidents each year, many of which severely affect workers' ability to work. PT. Sanpak Unggul has implemented 5S (Seiri, Seiton, Seiso, Seiketsu, Shitsuke) but there are still 5S findings, such as there are still materials to be processed that are not neatly arranged, materials are scattered and the equipment used in the manufacturing process is not well organized. This study aims to determine the relationship between age, length of work, level of education and level of knowledge with the application of 5S. This type of research is quantitative with a cross sectional approach with a sample of 83 people taken using a simple random sampling technique, through questionnaires and analyzed using Univariate. The results of the study processed using the chi-square test showed that there was a relationship between the level of education (p value = 0.006) and the level of knowledge (p = 0.009) with the application of 5S, there is no relationship between the variables age (p = 1.000) and length of work (p = 0.386) with the application of 5S. The conclusion of this research is that the level of education and knowledge is related to the implementation of 5S. Increasing the educational level criteria in the recruitment process is one method that can be implemented in companies. Meanwhile, the level of knowledge can be increased by adding pamphlets and training regarding 5S.

Keywords: age; education; knowledge; length of work; 5S

INTRODUCTION
The manufacturing industry cannot be separated from the role of the packaging industry. Moreover, with the Industrial Revolution 4.0 and to adapt to new habits, packaging manufacturers are expected to innovate to meet needs and follow current trends (Ministry of Industry, 2020). Plastic packaging is a necessity for the community because of its various advantages such as rust-free, easy to shape, cheap and not easily broken. The plastic industry also plays an important role in the supply chain for food, beverages, pharmaceuticals, cosmetics, electronics, and many more. Data from the International Labor Organization (ILO), around 2.78 million workers in the world die each year due to work accidents and work-related diseases. More than 380,000 of them are caused by work accidents. There are almost 1,000 times more non-fatal work accidents than fatal work accidents each year. An estimated 374 million workers are affected by non-fatal accidents each year, many of which greatly affect workers' ability to work (ILO Office in Jakarta, 2018).

The number of work accidents in Indonesia in 2021 based on data from the Social Security Administering Agency for Employment was 234,270 cases (BPJS Ketenagakerjaan, 2022). This number increased by 5.65% from 2020 which was 221,740 cases. Seeing this trend, the number of work accidents in Indonesia in the last five years has continued to increase. Since 2017, there have been 123,040 work accidents. This number increased by 40.94% to 173,415 in 2018. One year later, work accidents increased by 5.43% to 182,835. In 2020, household

work accidents increased by 21.28% to 221,740. The number increased again last year. According to BPJS Ketenagakerjaan, most of these accidents occurred in the workplace. The high number of work accidents and occupational diseases is reduced by implementing hazard risk control in K3, namely elimination, substitution, engineering, administrative control and use of PPE. The potential hazards can be controlled by first determining a priority scale which can then help in selecting risk control called the risk control hierarchy (Widowati, 2017).

One way to create a comfortable and orderly work environment is to implement the 5S program (Seiri, Seiton, Seiso, Seiketsu, Shitsuke) as an example of a form of administrative control. By increasing what is important in the workplace and removing or throwing away what is not important so that it is comfortable during the production process and can increase employee productivity (Reza, 2019). 5S or 5R (concise, neat, clean, care, diligent) in Indonesia is a way (method) to organize and manage the workplace and continuously become a better workplace. The goal is to improve the efficiency and quality of the workplace (Santoso, 2016). Since its introduction by Takashi Osada in the early 1980s, it is believed that the implementation of the 5S technique can greatly improve environmental performance in all lines of any organization especially household, health, safety, etc. (Kumar, 2012). The implementation of 5S began in Japan and the United States in the automotive industry and became a must in this sector. In the last decade the concept of 5S has continued to grow because it has proven its efficiency and effectiveness. An important characteristic of 5S is flexibility. This method has been successfully applied in various fields such as health, retail, IT, government, transportation, in manufacturing and supply chains, in the commercial and public sectors (Veres, 2018).

Researchers agree that 5S is a very powerful tool, worthy of implementation and spending less investment in improving organizational performance in terms of economic opportunities and environmental sustainability which include benefits of quality, productivity, safety, cost, workplace environment and waste reduction (Jamian, 2012). In the industrial sector, the implementation of 5S by Abdalrazig Sati (Sati et al., 2019) can increase efficiency in workflow, improve the quality of the work environment in the workplace, reduce human movement, and allow for more order after the removal of unnecessary items. Research conducted by Patel (C. Patel & Thakkar, 2014) in a ceramic manufacturing company proved that awareness of the 5S concept indirectly increased employee morale with a better work environment. While in the smaller industrial sector, there was an increase in productivity efficiency of up to 20% after the implementation of the 5S method (Shaikh et al., 2015). In other small-scale manufacturing industries in Costa (Costa et al., 2018) showed that 5S practices produced several benefits such as: better space management, increased productivity, reduced time needed to find objects/items, prevention of tool loss, less waste, improvements in the work environment, in safety and productivity, and efficiency and cleanliness. The implementation of 5S functions for housekeeping, worker empowerment, and checking errors caused by workers which are then used to reduce accidents caused by slipping, excessive stress, and hazards at the location (Singh, 2014). Through 5S in the study (Jilcha, 2016) it was found that 5S can improve health and safety in the workplace because the workplace is orderly and reduces the effects of ineffective K3 management before 5S is implemented.

There are factors that can influence the implementation of 5S. Based on research (Rosnasari, 2017) there is a relationship between knowledge and the implementation of the 5R program in the finishing section of the PM 5/6/9 unit of PT. Pura Barutama Kudus (r = 471 and p value 0.001). Many studies on the relationship between knowledge, attitudes and behavior show that

the relationship between the three is very strong, but in the study (Phuspa, 2020) the 5R behavior of La-tansa Gontor bakery workers was not significantly related to 5R knowledge and attitudes. One of the companies that has implemented 5S is PT. Sanpak Unggul. PT. Sanpak Unggul is one of the local companies with international standards engaged in the production of plastic-based packaging with Blow and Injection Molding machine processes and equipped with Decoration machines such as Printing Art and Labeling machines. Established in 1990 and operating commercially in August 1993, PT. Sanpak Unggul produces plastic packaging for personal care, household, food, lubricants, chemicals, pharmaceutical industries, promotional items and automotive/engineering spare parts. Based on the observation results, PT. Sanpak Unggul has implemented 5S but there are still 5S findings such as there are still materials to be processed that are not neatly arranged, scattered materials and equipment used in the manufacturing process is not arranged properly. The cause of untidy equipment is the placement of equipment that is placed carelessly by workers. Such causes often cause lost equipment and useless items in the work environment so that it can slow down the rate of production and increase the risk of work accidents such as tripping over items that are placed carelessly. Therefore, the purpose of the study is to find factors related to the implementation of 5S at PT. Sanpak Unggul.

METHOD
This research is an observational analytical study with a cross-sectional study approach. This research was conducted at PT. Sanpak Unggul, Bogor Regency in 2022. The sample used was PT. Sanpak Unggul workers with sampling using a simple random sampling technique of 83 people with a simple lottery system through paper from a total of 473 employees determined by the Slovin formula with a tolerance limit of 10%. This study uses research instruments, namely questionnaires and observation sheets, then validity and reliability tests are carried out. The research variables consist of: 1) age, 2) length of service, 3) level of education, 4) level of knowledge, 5) implementation of 5S / 5R. The data analysis technique in this study uses univariate and bivariate analysis with the chi-square statistical test and the Fisher test as an alternative test to determine the relationship between the independent and dependent variables. The operational definition used in this study is that the age variable is divided into: a) Age> 40 years, b) Age <40 years. Furthermore, the length of service category is divided into: a) < 12 years, b) > 12 years. The education level category is divided into 2, namely: a) Secondary education (SMA/SMK/MA), b) Higher education (university). The 5S knowledge level category is divided into: a) Less, if the value < median b) Good, if the value > median. For the assessment of 5S implementation, it is divided into categories: a) Level of implementation is less (score = < median), b) Good (score = > median).

RESULT
The distribution of respondent data was obtained based on this study and univariate analysis was carried out on the variables of age, length of service, education level, level of knowledge and implementation of 5S/5R. Based on table 1, it is known that respondents with age > 40 years are 38 people (45.8%), age < 40 years are 45 people (54.2%), it is known that respondents with length of service < 12 years are 35 people (42.2%). A total of respondents with length of service > 12 years are 48 people (57.8%). In the education level variable, it is known that respondents with the highest education level are 58 people (69.9%). While respondents with the highest education level are 25 people (30.1%). It is known that respondents with a low level of knowledge are 23 people (27.7%). While respondents with a good level of knowledge are 60 people (72.3%). It is known that respondents with a low level of 5S/5R implementation are 44 people (53%). While respondents with a good level of 5S/5R implementation are 39 people (47%).

Table 1.
Univariate Analysis Results

Variable	Category	f	%
Age	> 40 Year	38	45,8
	≤ 40 Year	45	54,2
Length of work	≤ 12 Year	35	42,2
	> 12 Year	48	57,8
Level of education	Secondary Education	58	69,9
	College	25	30,1
Level of Knowledge	Less	23	27,7
	Good	60	72,3
Implementation of 5S/5R	Less	44	53
	Good	39	47

In the univariate analysis of the numeric variables in Table 2, it is known that respondents in the age variable have a normality p-value of 0.049; median 40 years; mode 25 years; minimum value 20 years; maximum value 55 years; range 35 years. In the length of service variable, it has a normality p-value of 0.002; median 12 years; mode 12 years; minimum value 1 year; maximum value 31 years; range 30 years. In the knowledge level variable, it has a normality p-value <0.0001; median 83; mode 83; minimum value 66; maximum value 100; range 34. 0.002; median 12 years; mode 12 years; minimum value 1 year; maximum value 31 years; range 30 years. In the 5S/5R implementation variable, it has a normality p-value of 0.018; median 58; mode 50; minimum value 38; max value 94; range 56.

Table 2.
Univariate Analysis on Numerical Variables

Variable	p-value normalitas	Median	Modus	Min	Max	Range
Age	0,049	40 Year	25 Year	20 Year	55 Year	35 Year
Length of work	0,002	12 Year	12 Year	1 Year	31 Year	30 Year
Level of Knowledge	<0,0001	83	83	66	100	34
Implementation of 5S/5R	0,018	58	50	38	94	56

In the bivariate analysis in Table 3 using statistical tests with chi-square obtained a p value of 1,000 (p>0.05) then Ho is accepted, meaning there is no relationship between worker age and the implementation of 5S/5R, both workers aged >40 years or <40 years tend to be less in implementing 5S/5R. It is known that respondents who are <40 years old are 45 people (54.2%) and as many as 24 people (53.3%) of the age <40 years have less implementation of 5S. Age can indicate a person's maturity in the workplace. The older the age, the more mature in acting. This is reflected in the formation of a rational way of thinking as age increases. In addition, older people also show a level of intellectual and psychological maturity, which allows them to better control their emotions and other traits (Sangaji et al., 2018).

These results are in line with research (Septaviani, 2012) on motorcycle workshop mechanics X in Semarang City for the correlation of age with 5S practices, which showed no relationship between respondent age and 5S practices. Research conducted by Untari (Untari, 2021) also showed no relationship between age and unsafe behavior in production division employees at PT X Jakarta. Other research by Sangaji (Sangaji et al., 2018) also showed no relationship between age and unsafe behavior in hull workers at PT X shipyard. Research conducted by Husna (Husna et al., 2021) found no significant relationship between age and unsafe actions in mechanical workers at PT. X. The results of research conducted by Salim (Salim, 2018) on construction workers at PT Indopora East 8 Project Cibubur East Jakarta showed no significant relationship between age and unsafe behavior.

Another study conducted by Rinanda (Rinanda & Paskarini, 2014) showed that there was a low correlation between age and safe behavior in drivers transporting hazardous chemicals at PT Aneka Gas Industri, Sidoarjo. Another study conducted by Asriani (Asriani et al., 2011) showed that there was no significant correlation between age and unsafe behavior in the urea factory of PT. Pupuk Sriwidjaja Palembang. A study conducted by Siahaan (Siahaan & Yuliyatni, 2022) showed that there was no correlation between age and unsafe behavior in drivers of the Roadside Business Cooperative. A study conducted by Ernyasih (Ernyasih & Sari, 2020) showed that there was no correlation between age and clean and healthy living behavior (PHBS) in MTS students at the Al-Amanah Al-Gontory Islamic Boarding School. Research conducted by Siahaan (Ernyasih & Sari, 2020) showed that there was no relationship between age and unsafe behavior in Koperasi Usaha Pinggir Jalan drivers. Although age is an influential factor in the theory of behavioral change, there are still many other factors that can inhibit the influence of this behavior.

Bivariate data on the relationship between length of service and the implementation of 5S/5R using the chi-square test showed that there was no relationship between length of service and the implementation of 5S (p = 0.386) at PT. Sanpak Unggul. Length of service is related to a person's experience in carrying out their work, experienced workers are considered more capable of doing and understanding their work better (Sangaji et al., 2018). The results of this study are also in line with research (Septaviani, 2012) which means that there is no relationship between length of service and 5S practices. Research conducted by Ernawati (Ernawati & Nurlelawati, 2017) also showed no relationship between length of service and implementation of K3 implementation at RSIA Permata Sarana Husada in February 2015. The results of other studies conducted by (Sangaji et al., 2018) also showed that there was no relationship between length of service and unsafe behavior of workers in the hull section of the PT X shipyard. Research conducted by Husna (Husna et al., 2021) found no significant relationship between length of service and unsafe actions in mechanical workers at PT. X. Research conducted by Yusril (Yusril et al., 2020) showed that length of service did not have a significant relationship with unsafe actions in workers in the production section of PT. Sermani Steel. The results of research conducted by Salim (Salim, 2018) on construction workers at PT Indopora East 8 Project Cibubur, East Jakarta showed no significant relationship between length of service and unsafe behavior. Another study conducted by Asriani (Asriani et al., 2011) showed no significant relationship between length of service and unsafe behavior in the urea factory of PT. Pupuk Sriwidjaja Palembang. Research conducted by Putro (Putro et al., 2022) showed that length of service was not related to safe behavior in bus drivers at PT Primajasa Perdanaraya Utama. Research conducted by Noviandi (Noviandi et al., 2017) showed that length of service was not related to unsafe behavior in bus drivers on the Jember Kencong Lumajang route. This can be caused by working for a long time creating a sense of familiarity with the job, so that workers pay less attention to the job and do it incorrectly.

Based on the results of the study using the chi-square test on the relationship between education level and the implementation of 5S/5R, a p-value of 0.006 (p<0.05) was obtained, meaning that there is a relationship between education level and the implementation of 5S/5R. Workers with secondary education tend to be less likely to implement 5S/5R (64%), workers with higher education tend to be good at implementing 5S/5R (72%). Workers with secondary education have a 2.278 times greater risk of being less likely to implement 5S/5R compared to workers with higher education. Education level is important to increase awareness and the importance of health and safety in the workplace. Education is one of the factors that underlies a person's behavior in their learning experience. A worker's education level can
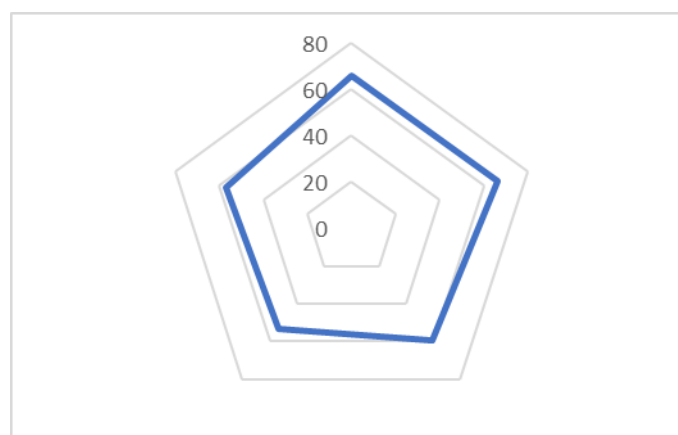
indicate their level of knowledge and behavior in the workplace (Sangaji et al., 2018). These results are also in line with Septaviani's (2012) research on motorcycle repair mechanics x Semarang City, there is a relationship between education level and 5S practices. This study is in accordance with the results of research conducted by Untari (Untari et al., 2021) there is a significant relationship between education and unsafe behavior in production division employees at PT X Jakarta in 2021. Other research conducted by Endroyo (Endroyo, 2010) on construction service actors in Semarang showed a significant relationship between education level and K3 attitudes. This can occur in formal education that has been taken by workers has an influence on accepting new things in work, in this case the practice of 5S and then being able to easily adapt in implementing its practice.

Table 3.
Bivariate Analysis Results

Variable	Implementation of 5S/5R				P value	Interprestation	Value PR
	Not enough		Good				
	f	%	f	%			
Age							
> 40 Year	20	52,6	18	47,4	1,000	Not related	0,978
≤ 40 Year	24	53,3	21	46,7			(0,657-1,483)
Length of work							
≤ 12 Year	21	60	14	40	0,386	Not related	1,252
> 12 Year	23	47,9	25	52,1			(0,839-1,868)
Education Level							
Secondary Education	37	63,8	21	36,2	0,006	Relate	2,278
College	7	28	18	72			(1,180-4,398)
Level of Knowledge							
Not enough	18	78,3	5	21,7	0,009	Relate	1,806
Good	26	43,3	34	56,7			(1,259-2590)

Respondents who have poor knowledge regarding 5S are 27.7%. Based on the results of the study using the chi-square test, it is known that there is a relationship between the level of knowledge and the implementation of 5S (p = 0.009). Workers with poor knowledge have a 1.806-fold risk of not implementing 5S/5R compared to workers with good knowledge. 5S knowledge includes the 5S aspects consisting of Seiri (Compact), Seiton (Neat), Seiso (Clean), Seiketsu (Care), Shitsuke (Diligent). This is in line with Rosnasari's research (Rosnasari & Dewi, 2017) on factory workers at PT. Pura Barutama, there is a relationship between knowledge and the implementation of the 5R program. Research conducted by Safitri (Safitri & Wahyuningsih, 2021) also shows a relationship between knowledge and the implementation of 5R employees that occurs in the storage room of the Central Java Province Occupational Safety Center. This study is also in accordance with the study conducted by Rahayu (Rahayu & Saputra, 2016) which shows that there is a relationship between knowledge and K3 behavior in workers in the coconut oil processing area of PT. Inhil Sarimas Kelapa Inhil. The results of the study conducted by Rinanda (Rinanda & Paskarini, 2014) showed that there was a sufficient relationship between knowledge and safe behavior. Other studies conducted by Asriani (Asriani et al., 2011) also showed that there was a significant relationship between knowledge of hazards and unsafe behavior.

Graph 1. 5S/5R Implementation Value

Based on the analysis of the research results, it shows that the factors related to the implementation of 5S/5R at PT. Sanpak Unggul are the level of education and the level of knowledge. The level of education can be improved through the recruitment of new employees or the provision of scholarships to employees of PT. Sanpak Unggul. While the level of knowledge can be improved by adding pamphlets about 5S in the work area and training on the implementation of 5S. Graph 1 shows a summary value of 65.78; a neat value of 66.14; a clean value of 59.40; a care value of 53.49; a diligent value of 56.94. Based on graph 1, the care value has the lowest value and needs to be improved.

DISCUSSION
The 5S method (or in Japanese known as 5R: Seiri, Seiton, Seiso, Seiketsu, and Shitsuke) is a systematic approach to creating a more organized, efficient, and clean work environment. The 5S principle is very relevant in various sectors, ranging from manufacturing, service industries, to offices. In this study, various factors related to the success of 5S implementation were identified and analyzed, including organizational, environmental, and cultural factors. This study shows that the success of 5S implementation in the work environment depends not only on the technical understanding of this method but also on management support, organizational culture, and the level of employee participation. One factor that has a significant influence on 5S implementation is organizational support. This support includes commitment from top management, adequate resource allocation, and policies that support the sustainability of the 5S program. From this study, it is known that organizations that have clear policies on 5S implementation, including regular training for employees and consistent supervision, tend to be more successful in implementing 5S compared to organizations that do not have supporting policies. This shows that policy factors and organizational commitment are very influential in building a sustainable 5S culture. The work environment also plays an important role in the success of 5S implementation. A supportive environment, both physically and psychologically, affects how employees view and participate in the 5S program. A clean and organized work environment not only improves work efficiency but also improves work morale and safety. This study shows that organizations that are successful in implementing 5S have a planned physical layout, adequate lighting, and good ventilation so that employees feel comfortable and motivated to maintain a clean and orderly work environment.

Leadership is also a key factor in the success of 5S implementation. Leaders who understand the importance of 5S and are able to set an example for employees will more easily get full support from their teams. In this study, leaders who actively monitor and provide constructive feedback on the implementation of 5S were found to be able to motivate employees to continue to improve cleanliness and order in the workplace. Leaders who provide rewards for

5S performance can also encourage employees to be more committed to the established 5S standards. Education and training have also been shown to be very important in the success of 5S implementation. Employees who understand the principles of 5S well tend to be more disciplined in their daily implementation. In this study, organizations that provide regular 5S training have better results in implementing this method. Training helps employees understand the importance of each step in 5S and build positive habits related to cleanliness and order.

CONCLUSION

The conclusion of this study is that there is a relationship between the variables of worker education level (p value = 0.006), knowledge level (p value = 0.009) with the implementation of 5S/5R and there is no relationship between the variables of age (p value = 1.000), length of service (p value = 0.386) to the implementation of 5S/5R at PT. Sanpak Unggul.

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