

The feasibility of implementing organizational neatness system (5s) Case Study: Health Center in the Sari city in 2016

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Abstract

Today, the change in any organization begins with gradual changes to fully implement. This research is a descriptive cross-sectional method. The research environment is Sari city urban health care centers. The population consisted of 21 employees of this center. Data were collected on the basis of researchers' questionnaire neatness system with five axes and 25 questions and based on Likert scale. SPSS software and Kolmogorov–Smirnov test and binomial and ANOVA were used for data analysis and interpretation. All five item neatness system is normal based on Kolmogorov–Smirnov test and a significant level of 0.05. Finally, in cleanup62%, arrangement62%, cleaning57%, standardization 47.5% and culture axes28.5%, neatness system implementation were achieved and respectively. It is suggested that special attention be to training employees and managers and perform monitoring and management oversight to achieve neatness system.

Keywords: Neatness system, Cleanup, Arrangement, Cleaning, Standardization, Culture.

Introduction

The best and most suitable way to order and harmony among the equipment, tools and equipment and separating them as type, nature, functionality, and healthy and faulty and ... is one of very important and

necessary case in organizations and companies which has an important role in increasing the survival and development and better functioning of an organization. Among, 5s neatness System is one of these systems[1].

Order and symmetry is a principle inherent in all people and has special place in all aspects of social life to achieve the work properly and contributes to efficient planning and targeted to achieve the maximum satisfaction [2].

Order and discipline is inevitability notion to discuss complex phenomena as well as the concept of law in a simple phenomenological analysis [3].

5s neatness system is ideas that until recently was considered as immaterial act in the field of production and productivity and it considered merely interesting, but not essential. But now manage changed your view of this system and put it centered thinking and philosophy. Nowadays, 5s neatness system is a key way to manage and plan for comprehensive participation of all employees. 5s neatness system

Fig 1. 5s concepts [10]

Japanese Term	English Translation	Equivalent 'S' Term
Seiri	Organization	Sort
Seiton	Tidiness	Systematize
Seiso	Cleaning	Sweep
Seiketsu	Standardization	Standardize
Shitsuke	Discipline	Self-discipline

Implementation can not only be customized to workers, but, it is the duty of all members of the organization which work together with the efforts and encouragement to conclude [4].

In fact, 5s neatness system is embodiment of individuals ability to participate in all aspects and why is that 5s neatness system is considered as an indicator of the effectiveness of organization management and stone scales to measure the full participation of its staff. Most organizations that have succeeded in implementing 5s considered to act 5s as an indicator of employee performance evaluation and provide part of the paid benefits based on the positive assessment of the index [5].

Osada raised the need for the continuous improvement philosophy of professional behavior through the integration of seiri, seiton, seiso, seiketsu and shitsuke in the workplace. The Toyota production system (TPS) is a clear example of the application of the 5S principles [6].

5s starter in Iran is the industrial recovery in the automotive industry. Practical activities in this field started since 74 and Saipa and Iran Khodro are the pioneers of this movement. Mojtaba Kashani introduced this system in the automotive industry and did a great job of "garage to the clinic" and thus refers to him as the father of 5S in Iran. He raised the issue of industrial Haft-Sin in the book titled heart role in the management in order to localize the concepts of 5S and linking it to cultural concepts. According to Japanese were considering the concept of House Keeping of American culture and presented it in the form of Japanese culture, he received 7S concept of Japanese companies and combined it with Iranian Haft-Sin and present industrial Haft-Sin. According to him, industrial Haft-Sin is as follows:

1. Disassemble, 2. Arrangement, 3. Whiteness and cleanliness, 4. Try to maintain a desired status, 5. Organization and discipline, 6. Hard work and, 7. Persistence in doing a good job as far as habit [7].

According to the system definition, 5s is set of standards and activities which in form of a cultural – management system emphasizing on creating an environment organized, tidy, clean, beautiful, graceful, creative and keep it. According to Kaizen, 5s is management philosophy that pays to organized work environment with very low investment and visible and immediate results in improving quality and productivity [8].

Regards 5S as an industrial practice that distinguishes an organization from the others. According to the Japanese and organizations 5S have two components, a high level of management organizational system with complexity meaning and it translates to perfect performance and the other one is management provision tools position. Even though the 5S housekeeping program aids production but the 5S technique is one of the most known in industrial and business environment and there are few proofs about its adoption in organizations [9].

1-Seiri (organization, sorting). Remove all unnecessary tools and parts. Go through all tools, materials, and so forth in the plant and work area. Keep only essential items.

2-Seiton (setting an order of flow, streamlining). Arrange the work, workers, equipment, parts, and instructions in such a way that the work flows free of inefficiencies through the value added tasks with a work division necessary to meet demand.

3-Seiso (shining, cleaning). Clean the workspace and all equipment, and keep it clean and tidy ready for the next user.

4-Seiketsu (standardize, visual control). Ensure procedures and setups throughout the operation promote interchangeability. Normal and abnormal situations are distinguished, using visible and simple rules.

5- Shitsuke (sustains, discipline and habit). Make it a way of life. This means commitment. Ensure disciplined adherence to rules and procedures [11].

According to the survey of 5s neatness system implementation in Iran, in research conducted by Dr. Abdo-al-reza Naddaf and Mohammad- Ali Hamed in District 3 Shiraz at 2009 obtained good results in the implementation and enforcement of this system. The results of this research were based on 42 questions posed in the questionnaire which ultimately resulted in the 5s neatness system implementation in five different divisions axes as follow: cleanup 4.21%, arrangement 6.18%, cleanliness 6.14%, standardization 25% and culture 5.20% [12].

Background research

Milad Aghaei and Asghar Aghaei (2013) in a paper titled the effect of 5s on the efficiency and effectiveness of staff police, effectiveness was measured according to the staff opinion to effect of 5 s performances on performance. Findings from the study indicate that in staff examined, 5s independent variable influencing the efficiency and effectiveness of staff police [8].

Shahram Mirzaei and Bahman Sharoghi (2012) in a paper on the establishment of organization the 5s working environment at Islamic Azad University of Ardebil stated optimal use of resources, timely removal of unnecessary material, successful stemming pollution, review of existing standards, increased commitment of officials and employees, improvement of communication systems, important to identify each type of waste to reduce its variants are visible cases occurred based on the establishment of the project[13].

Mariano Jimenez and et al. (2015) in an article entitled Implementation of 5S method in the laboratory of Industrial Engineering University examined the experience of 5s to optimize work and safety engineering laboratories in university. In this way, the results are generalizable to other similar centers. Developed research projects cause organizational culture all sources in laboratory practice. Working model was defined to create 5S structure and implementation process is recorded. College labs were

converted to industrial labs along with the application of 5S. They are consistent with the organizational and safety requirements which are usually found in the metalworking industry. Training, monitoring and maintenance resources and related measures have been implemented in substantially less time and with lower costs. Available space increased for resources [11].

A survey was conducted in a private hospital in Malaysia by AR. Abdul Aziz et al. (2014). The questionnaires were distributed to 330 staff members who were divided into two sections. It was found that before the application of 5S, the scores varied from poor to good (scoring from 1-3) for efficiency of work process, achievement after the implementation of 5S the scores, had changed from good to excellent (scoring from 3-5). In the second section, the staff had given 100% scoring for the commitment towards clean, safe and conducive working place, 64% scoring on the necessity to immediately disposed items that had been segregated, 99% scoring for the importance of arrangement for easy searching /putting back the items, 99% scoring for the importance of schedule for cleaning of the workplace to ensure it is free from dust and 99% scoring on the importance of 5S as a good management system. It concluded that 5S is an effective tool for housekeeping or organization of supplies in health care [14].

Avi Chourasia and et al (2016), in the article (Review on Implementation of 5S methodology in the Services Sector), The aim of this paper is to review the implementation of 5S methodology as one of the tools of lean management in the services sector. It is one of the fastest-growing sectors of the Indian economy. It contributes around 52 percent in GDP. The 5S process is most fundamental component of lean philosophy. 5S is the beginning of a productive life for everyone. 5S system has been developed from Japanese management techniques. It is widely applied in various manufacturing and business sectors. The system helps to organize a workplace for increased efficiency, decrease waste, optimize quality, improves productivity and more satisfied customers. Results have shown that 5S can be applied to the service industry with beneficial effects [15].

Harsha and et al (2013), in the article (5S as a tool and strategy for improvising the work place) provided some vast literature on the implementation of 5S in any industry. This strategy involves the study and change in the work place of a manufacturing industry post implementation of 5S. This strategy helps in minimizing the time of manufacturing and also increases the area of work place. Thus, the solution found by our approach solely minimizes several kinds of wastes in the production process and which finally helps in the development of the organization. An Inspection process has been executed on the basis of 5S check lists and the results analyzed to confirm great changes like increasing efficiency in production and quality, improves safety [16].

Shokuh Tafreshi and et al (2014), in the article (Implementing 5S System in Information Department of Iranian National Library), the purpose of this

research is to study the feasibility of implementing 5S system in information department of Iranian national library. The descriptive survey method was used in this study. The population includes all information sections of Iranian national library, which consists of 6 units, namely special resources, closed resources, reference and public library, non-book sources, children and disabled, Iran and Islam studies and finally reception and membership. To gather data, the information in each section was examined separately and 5 checklist related to 5 elements of 5s system which was for each group were tested, and then obtained data from all surveys was calculated. To show the distribution of data quantity and hypothesis test, the K2 method and the mean method were used respectively. The results of the analysis showed that the 15.5% of the Iranian National Library Information System 5s is not observed, in 13.4% 5s system is poor, 11.7% is acceptable, 19.1% is good and in 40.3% cases 5s system in information department of Iranian national library is done completely. The mean test showed that with maximum tolerance of 0.05, the 5S system is realized in information department of Iranian national library and the hypothesis is verified [17].

P. Rai (2016) aims to identifying the effectiveness of 5S implementation in diverse industries to study employee performance and their attitude towards 5S. Surveying method was used and data collection was done by distributing questionnaires among general staff members of the organizations which have implemented 5S technique. The target organizations were chosen from different organizations and diverse field of work. The result shows that 5S is an effective tool for the advancement of organizational performance, regardless of organization type, size, its production or its service. 5S technique has been strongly supports the objectives of organization to achieve continuous improvement and higher performance. It has been concluded that 5S is a useful quality management tool to improve employee performance in any organization [18].

Research questions

1. How much first item 5s neatness system implementation (clearing) in urban health care centers of Sari in 2016?
2. How much The second item 5s neatness system implementation (arrangement) in urban health care centers of Sari in 2016?
3. How much The Third item 5s neatness system implementation (cleaning) in urban health care centers of Sari in 2016?
4. How much The fourth item 5s neatness system implementation (standardization) in urban health care centers of Sari in 2016?
5. How much The fifth item 5s neatness system implementation (culture) in urban health care centers of Sari in 2016?

Research Methodology

This research is a descriptive cross-sectional study. The research environment in the article is "Sari urban



health care centers". The study population consisted of 21 employees of this center's managers and employees. In this study, the data collection tool is a self-made questionnaire which is used as neatness system questionnaire to collect data for this study. It is included on the questionnaire on five neatness system axes 5s permeability which researcher has to complete a questionnaire in interaction with managers and staff. This questioner is included 5 main section (phase) and 25 questions. Scoring was based on the Likert scale and score is awarded from very good to very poor choice as 5 to 1. To assess the tool reliability (questioner), first questionnaires were distributed randomly among the 12 members of the community. Then after collecting the questionnaires completed by members of the society, reliability was determined using the software SPSS. The results using Cronbach's alpha showed its reliability has been excellent at a level appropriate.

In this study, descriptive and inferential statistical methods were used to analyze data from questionnaires. After collecting and preparing the data matrix, Excel was used to processing and SPSS, tables and statistical tests were used to interpretation and analysis of data. Descriptive method was used for describe how the structure of the sample population and with regard to the response of the sample. In the analysis of data, first, Kolmogorov–Smirnov test was used to data normalization and then binomial tests were used for investigate research questions.

Research findings

According to researcher interaction with staff and officials, 45 percent (14 people) participants were female and 55 percent (7 people) were male. Also, 9.5% (2 people) participants were in the age group under 25 years old, 28.5 percent (6 people) were in the age group 25-35 years old, 52.5 percent (11 people) were in the age group 36-45years old and 9.5 percent (2 people) were in the age group 46-55 years old. Results also showed that 62% (13 people) participants have bachelor's positions, 24% (5 people) have operational management positions, and 9.5% (2 people) have middle management posts and 4.5% (1 people) have senior management positions. Also, 28.5 percent (6 people) participants have work experience less than 10 years, 57 percent (12 people) have 11-20 years, 9.5 percent (2 people) have 21-30 year and 5 percent (1 people) have over 30 years of experience.

Kolmogorov–Smirnov test was used to measurement of five-item neatness system permeability due to the influence of five phases in his health center and to test the normality of the data. The results of which can be seen in the following table.

Table1. Kolmogorov–Smirnov test table to test the normality of the data

Number	Factors	Culture	Standardization	Cleaning	Arrangement	Cleanup
1	Abundance	21	21	21	21	21
2	Average	1.601	1.846	1.297	1.378	1.451
3	Kolmogoro v-smirnov	0.907	0.951	0.982	0.973	0.947
4	sig	0.270	0.369	0.304	0.538	0.237

The results of the data in Table 1 show that after Kolmogorov–Smirnov test, all data on the five-phase neatness system 5s were normal by "cleanup, arrangement, cleaning, standardization and culture", respectively, because according to the Kolmogorov–Smirnov, if sig > 0.05, indicates that the data is normal. So according to the most sig values, all five phases are normalized in the 0.05. Five-item neatness system permeability was presented in each phase with the help of non-parametric binomial test. The results of this test are shown in Table 2. Thus, according to these results and considering the average number 3 on the Likert scale, neatness System 5s in Sari urban health care centers is executed in the cleanup phase to 62 percent, the arrangement to 43 percent and in cleaning to 57 percent and in standardization to 47.5 percent and in culture phase to 28.5 percent.

Conclusion

1-4-The results of the first question: The role of the first item 5s, in clearing at urban health care centers of Sari at 2016?

According to the findings presented in Table 2, 62% cleanup is done. Failed to unload unnecessary items in the quarantine time due to lack of support from senior management, as well as lack of adequate participation of employees and, consequently, creating a negative mentality and cynicism in employees are significant damage that is likely to occur at this stage.

Mohammad- Ali Hamedi and Abdo-al-reza Naddaf present 2.14% to cleanup at 2009 which that pathology is no rooting in disadvantages of working and efficient use of space in the workplace.

Table2. Binomial test table of Sari urban health care center in 5s neatness system five phase

Sig	Test prop.	Observed Prop	Number	Category	Groups	Phase
0.00	50%	38%	8	≤ 3	Grp 1	Cleanup
—	—	62%	13	> 3	Grp 2	
—	—	100%	21	—	Total	
·,·,·	50%	57%	12	≤ 3	Grp 1	Arrangement
—	—	43%	9	> 3	Grp 2	
—	—	100%	21	—	Total	
·,·,·	50%	43%	9	≤ 3	Grp 1	Cleaning
—	—	57%	12	> 3	Grp 2	
—	—	100%	21	—	Total	
·,·,·	50%	52.5%	11	≤ 3	Grp 1	Standardization
—	—	47.5%	10	> 3	Grp 2	
—	—	100%	21	—	Total	
·,·,·	50%	71.5%	15	≤ 3	Grp 1	Culture
—	—	28.5%	6	> 3	Grp 2	
—	—	100%	21	—	Total	

Result: The first item 5s i.e. cleanup has little implemented in this center due to insufficient training. It is recommended to use the red label to do it.

2-4-The results of the second question: The role of the second item 5s, arrangement in urban health care centers of Sari at 2016?

According to the findings presented in Table 1, arrangement has been made at a rate of 43%. This

principle pathology is lack of adequate staff cooperation in determining the appropriate items and lack of adherence to defined rules in arrangement of essential items as well as small operating environment. Mohammad- Ali Hamedi and Abdo-al-reza Naddaf present 18.6% to arrangement at 2009 which that pathology is failure to reduce errors and duplication.

Result: According to low percentage of arrangement results, one can reached higher percentage of these axes with tools such as workshop maps, paste and naming anything.

3-4-The results of the third question: The role of the third item 5s cleaning in urban health care centers of Sari at 2016?

According to the findings presented in Table 1, cleaning has been made at a rate of 57%. This principle pathology is lack of adequate funding to do cleanup and beautification activities. Abdo-al-reza Naddaf presented 14.6% to cleaning at 2009 which that pathology is failure to identify minor problems through staff review and prevention disease staff.

Result: Cleaning is done in this center less than normal. So to make up for it can be implemented clean, pollution prevention and coloring.

4-4-The results of the fourth question: The role of the fourth item 5s, standardization in urban health care centers of Sari at 2016?

According to the findings presented in Table 1, standardization has been made at a rate of 47.5%. This principle pathology is lack of cooperation and interest of employees and the relevant authorities in standards of neatness. Abdo-al-reza Naddaf presented 24.9% to standardization at 2009 which that pathology is failure to reduce working time and the use of signs and labels.

Result: Due to the first three axes relationship with fourth item and with respect to below percent of three-item previous and consequently lower percentage of this item, elimination of first three defects can it compensate by taking advantage of the management and care.

5.4: The results of the fifth question: The role of the fifth item 5s, culture in urban health care centers of Sari at 2016?

According to the findings presented in Table 1, culture has been made at a rate of 28.5%. This principle pathology is lack of seriousness in carrying out audits and lack of sensitivity, particularly senior managers about the results of audits carried out. Abdo-al-reza Naddaf presented 21.9% to culture at 2009 which that pathology is failure to reduce working time and the use of signs and labels.

Result: To rise of this item percentage, must be practical repetition, practice and teaching 5s to achieve gains.

Recommendation

1. Providing appropriate context for the implementation of neatness system
2. Staff training with neatness system and its benefits for the organization and improve the quality and

efficiency of services and organization productivity growth.

3. Provides financial resources to neatness system implement and achieve it.

4. Having a positive attitude about the neatness system from top managers and its transfer to the staff.

5. Organization exalts and moves towards the establishment of complex systems.

6. Total quality management and timely production

7. Increase efficiency, satisfaction and employee productivity.

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Reference

- [1] Zavareh trusteeship, Mohammad-Reza, Matboe Saleh, Parvaneh, "5 steps to successfully organize the workplace, Amirkabir University of Technology", Third Edition, 2012.
- [2] Mirzaei Daryani SH & Shareghi B. "Establishment workplace organizing system", 5S. Technical Journal of Engineering and Applied Sciences 2012; 2(3): 69-73
- [3] Hayek FA. Law, "legislation and liberty: A new statement of the liberal principles of justice and political economy", USA: Routledge; 2012.
- [4] Osada Takashi, Principles for achieving excellent quality in the workplace (5s), Translated by: Ali-Naghi Ali- Reza, Zeinabbakhsh Ahmad- Reza, National Productivity Organization of Iran, Third Edition, 2011.
- [5] Tesochia, Kazo, Super 5s engineering activities within the organization, translated by: Kardan, Fatemeh, Publishing Training Centre and Industrial Research of Iran, Fourth Edition, 2012.
- [6] Monden, Y, "Toyota Production System: An Integrated Approach to Just-In-Time", fourth ed. Institute of Industrial Engineers, 2012.
- [7] Ebrahimi, Mohammad Sadegh, Mahmodpoor, Ali, Paseban, Mohammad, "Neatness system in the organization, 5S", Third Conference of modern management science, 25 August, 2014.
- [8] Milad Aghaei, Asghar Aghaei, "The Effect of 5s on the efficiency and effectiveness of staff police", Strategic Studies in security and social order, 2(1), spring and summer 2013.
- [9] Ab Rahman, M.N., et al, "Implementation of 5S Practices in the Manufacturing Companies: A Case Study", American Journal of Applied Sciences, Vol7 No.8), 2010, pp1182-1189
- [10] Singh, Ranteshwar. M Gohil, Ashish. B Shah, Dhaval. Desai, Sanjay, "Total Productive Maintenance (TPM) Implementation in a Machine Shop: A Case Study. Procedia Engineering", 2012, pp592 – 599.
- [11] Jiménez, Mariano. Romero, Luis. Domínguez, Manuel. Espinosa, María del Mar, "5S methodology implementation in the laboratories of an industrial engineering university school", Journal : Safety Science, Volume 78, October, 2015, pp163–172.
- [12] Hamed, Mohammad Ali, Naddaf, Abdo-al-reza, "Check how to implement 5s in District 3 Shiraz", Iran, 2009.
- [13] Shahram Mirzaei Daryani, Bahman Shareghi, "The establishment of the organization of workplace 5 s at the University of Ardebil Islamic Azad", Beyond Management, 6(23) Winter 2012.
- [14] AR. Abdul Aziz, MB. Nishazini, Fareza, N.A. Azizan, "Survey to See the Impact of 5S Implementation Among Staff of Kpj Seremban Specialist Hospital, Malaysia," IOSR Journal of Business and Management (IOSR-JBM), e-ISSN: 2278- 487X, p-ISSN: 2319-7668. Volume 16, Issue 3. Ver. I March, 2014, pp. 82-96.
- [15] Chourasia, Ravi. Nema, Dr Archana, "Review on Implementation of 5S methodology in the Services Sector". International Research Journal of Engineering and Technology (IRJET). Volume: 03 Issue:04, 2016
- [16] Lingareddy, Harsha. Reddy, G. Sahitya. Jagadeshwar, K, "5S As a tool and strategy for improvising the work place". International Journal of Advanced Engineering Technology. E-ISSN 0976-3945, 2013
- [17] Tafreshi, Shokuh. Safavi, Zeinab, "Implementing 5S System in Information Department of Iranian National Library", Journal of Political & Social Sciences. Vol., 1 (1), 19-29, 2014
- [18] P. Rai. "Effectiveness of 5S Implementation on Organizations Performance," Abhinav International Monthly Refereed Journal of Research in Management & Technology, Volume 5, Issue 1, January, 2016.

