

## The Study of Feasibility of the Establishment of 5s System in Academic Libraries of Islamic Azad University in Mazandaran Province

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**Abstract:** The purpose is studying the feasibility of the establishment of 5s system in the libraries of Islamic Azad Universities in Mazandaran province. The current study is from the applicable type and in analytical-survey method. The statistical society of this study includes all employees of the libraries of Islamic Azad Universities in Mazandaran Province in a number of 60 people. The research tool is pre-made questionnaire which has been previously used by Amini. Its reliability is equal to 0.843 based on Cronbach's alpha. The Kolmogorov Smirnov test and descriptive statistics, single-sample t test, t-student and Friedman tests have been used to analyze data. The facilities of libraries of Islamic Azad Universities in Mazandaran province in applying 5s system are lower than the average level (2.20); also among the indices of this system, the facilities of all indices including the index of sorting out materials and separation (2.33), facilities of discipline index (2.39), facilities of sweeping index (2.33), facilities of standardization index (2.35) and facilities of education and culturalization (systematization) index (2.31) have been also lower than the average value.

**Key words:** Feasibility, 5s system, academic libraries, Islamic Azad University, Mazandaran, standardization

### INTRODUCTION

The universe is based on the discipline and each phenomenon in the creation world has a special position and plays a certain role; in our religious teachings, the issue of discipline is so important that Imam Ali (A.S) in the last minutes of his honorable life and in his will for his children and nation advised them to piety and discipline in their works. Adherence to discipline in the organizations is very important; and increase in productivity and achieving an optimum efficiency is possible through an efficient organization. With tact and good management, tools and appliances, one can create value and credibility for the organization.

The role of discipline is such that it has been considered in all managerial models and standards and organizational excellence and the organizations have used different models in order to organize the work environment but discipline which is hidden in the culture of Japanese have caused the creation and development of a model for sorting, straightening, sweeping, standardizing and self-discipline in an organization. As a model of organizational neatness, these cases have been named "5s" (symmetry or work place 5s "Sort, Straighten, Sweep, Standardize, Self-Discipline"). The 5s (organizational neatness system) is a part of the concept

of Japanese thought of continuous improvement (Kaizen) which is defined as following: a set of standards and activities which emphasize on the creation of a sorted, straightened, swept, beautiful, pleasant and creative and keeping it in the form of a cultural/management system (AbbasiRaai *et al.*, 2013; Fillo, 2007). And, it is also designed with the aim of improving productivity, elevating quality and preventing from wasting resources and with implementing it, the efficiency and effectiveness of the organizations increase, too.

In general, the ultimate aim of 5s is waste prevention. Despite the fact that this system apparently is very understandable and simple and also doing its principles seems very simple but commonly, "organizations and units face many problems for implementing it practically. The reason is in its simple appearance and implementation complexities (Tavassoli, 2007). As the first step in achieving quality, 5s tries to obtain it in 5 steps. Swept, health and fresh environment in mental and psychological terms and creating motivation influence the employees; and no individual and social development is taken place in a dirty environment which has not discipline.

The 5s is one of the methods of quality elevation and achieving productivity which tries to present high quality product without wasting time or capitals with the participation of all employees and support of senior

Table 1: Five steps of implementation of 5s system

Seiri	Seiton	Seiso	Seiketsu	Shitsuke
Shortingout	Systematic	Shine	Standardizing	Self-discipline
Organization	arrangement	Cleanliness,	Standardize	Discipline
structurize	Neatness, Systematize	sanitize		

managers of the organizations in places like library which are in the direct contact with customers and referrers, in addition to facility in doing works desirably, neatness of the work place causes that the referrers find the library environment a safe environment far from noise and disorderliness and consider it as a suitable place for studying; and this causes increase in the number of referrers to the library and creation of the culture of studying in the society. So, with regard to the subjects mentioned, the current study deals with the possibility of libraries of Islamic Azad Universities of Mazandaran province in implementation of the 5s system.

**Neatness system of work environment or 5s:** The 5s is a technique which is used for establishment and keeping the qualitative atmosphere in an organization and its appellation is in five words in the form of five Japanese words (Shitsuke, seiri, seiton, seiso, seiketsu) (Barraza and Pujol, 2012) (Table 1). The 5s is the acronym of 5 Japanese words, these words are as following:

- Seiri: sorting out unnecessary objects from the essential ones
- Seiton: straightening and arranging orderly
- Seiso: whiteness and sweeping
- Seiketsu: trying to maintain the ideal conditions (standardizing)
- Shitsuke: being organized and self-discipline

There is a short description about 5s in the following (Ahmad, 2005): Seiri (sorting out unnecessary objects from the essential ones). The aim of sorting out is to manage the priorities and fighting with the causes of issues and problems. In this step, the necessary items are identified and separated from the unnecessary ones and the latter are removed from the work environment and minor repairs and eliminating defects are done. Unnecessary objects are not necessarily useless objects but are decided for according to their benefits. The decision may be granting it to the others, selling it, recycling, discarding or storing it in a farer place. Some criteria should be considered in order to diagnose the necessary objects from the unnecessary ones and separation be done according to those criteria. In general, fighting with the pollution causes, preventing from leaks

and repairing faults, organizing storages and removing dust are from the fundamental activities of this step. Due to its much impact on the next steps, this step is the most important step.

**Seiton (straightening and arranging orderly):** After sorting out the necessary objects from the unnecessary ones and removing the unnecessary ones from the work place, what remains must be established in a well-disciplined conditions. The result of implementation of this principle, i.e. straightening the work environment and tools and accessories and files, etc. is the easy and fast access to them; thus, the aim of the second step is eliminating the extra time for search for the objects. For straightening the objects, it is necessary to consider an appropriate place for them. One of the methods of straightening and appropriate placing of the objects is naming them. A name for each object and a name for the place of keeping it. Arranging the bulletin boards, folders, placards, preparing names for rooms and also signs indicating the responsibility of the employees, discipline of the tables, wardrobes and files, sorting and arranging rooms, storages and workshops, offices and the books of the library, appropriate storing of data in the computers, etc. are from the activities done in this step.

**Seiso (whiteness and sweeping):** After removing the unnecessary objects from the work environment and placing the necessary ones in their right places, it is the time of cleaning and sweeping them. In 2003, Kashani says that: "this "s" may be one of the most important criteria of the system due to different reasons. This criterion is related to everywhere, everyone and everything. Sweeping means cleanness of human, machine, tools, materials and work environment" (Ahmad, 2005).

Sweeping is a public duty and everyone has the duty of sweeping in every level of the organization he/she is. For sweeping, the responsibilities and duties of the people should be clarified. It must be noted that everywhere must be cleaned and swept, not just the places which are more exposed to be seen. Removing pollutions and dust from the work environment should be fully done. Sweeping is also considered as a kind of review. When sweeping, minor drawbacks are revealed, lost things are found and minor repairing need sare specified.

**Seiketsu (trying to maintain the ideal conditions (standardizing):** Are sweeping and sorting and straightening for just one time are enough? It is clear that

in order to have an ideal and clean environment, we should take action continually and with a determined plan. The aim of implementing this step is to maintain everything in an organized, disciplined and swept conditions even in personal grounds. Compiling and writing the methods and providing brochures and manuals are from the necessary actions. Standardization of methods is also necessary to have an ideal condition. Each organization can define some standards for itself. To this end, some actions must be taken:

- The first step is to find methods to be standardized
- The second one is to make an agreement with the employees to apply them
- The third step is to release the standards
- The fourth one is to apply standards and the fifth step is to improve them

**Shitsuke (being organized and self-discipline) (Education and culturalization) (systematizing):** Self-discipline and being organized mean to practice to where the people naturally do their work right. In this concept, discipline equals to changing false habits and creating ideal ones. "self-discipline and being organized are what you can see their appearance signs in the army and military barracks. Sometimes, the significance of this "S" is so much emphasized that they say the neatness system starts and finishes with politeness and courtesy. Addressing appearances and beautification of the spaces and different practices related to observance of discipline, time and preparation for facing with incidents such as fire and earthquake and compiling manuals are from the important activities of this step.

In general, 5s is designed from an intellectual and operational system with the aim of improving productivity, elevating quality and preventing from waste of resources. This system is an organized attempt to do gradual and continuous reforms which applying them increases the efficiency and effectiveness of the organization (Tavassoli, 2007).

**Academic libraries:** As the important information system which collects and transfers scientific information, library is the center of supplement of research data for professors, researchers and students. This will be realized when the academic library can quantitatively and qualitatively meet the needs of its clients. As a part of the higher education system and the scientific centers of collecting and transferring data and also as a center for

supplying the research facilities for the researchers, the role of academic libraries is clear. Therefore, the purpose of the library is also clear and it is achieving the great goals.

The libraries' authorities must be able to do their duties well in long-term or short-term plans and in the framework of purposes and duties of the mother organization and using human force and the appropriate physical facilities. Organization and management of the libraries should be in the way that provide the possibility of the most and the best use of the resources and services in order to achieve their goals. For the same end, using 5s system helps the realization of these purposes more and more.

**Research hypotheses:**

- There is a significant relationship between the observed mean of material arrangement (sorting out) index in 5s system of the academic libraries of Islamic Azad Universities of Mazandaran Province and the average scale
- There is a significant relationship between the observed mean of self-discipline index in 5s system of the academic libraries of Islamic Azad Universities of Mazandaran province and the average scale
- There is a significant relationship between the observed mean of sweeping index in 5s system of the academic libraries of Islamic Azad Universities of Mazandaran Province and the average scale
- There is a significant relationship between the observed mean of standardizing index in 5s system of the academic libraries of Islamic Azad Universities of Mazandaran Province and the average scale
- There is a significant relationship between the observed mean of education and culturalization (systematizing) index in 5s system of the academic libraries of Islamic Azad Universities of Mazandaran Province and the average scale
- There is a significant difference among the priority of facilities of 5s system of the academic libraries of Islamic Azad Universities of Mazandaran Province

**The conceptual model of research:** The 5s indices were used in this study which are indicated in the following in Fig. 1:



Fig. 1: The conceptual model of research

## MATERIALS AND METHODS

In terms of purpose, this study is an applicable research, because academic libraries benefit from its results; in terms of method, it is an analytical-survey study. This study is analytical because the analytical researches are appropriate for data with a little identity and inducing their meaning needs statistical calculations. The statistical society of this study includes all employees of libraries of Islamic Azad Universities Mazandaran Province in a number of 60 people. In this study, the census sampling method has been used due to the limited statistical society, in other words, the whole statistical society was selected as the sample volume. The methods of collecting data in this study are divided into two categories of library and filed methods. Library methods are used for data collection related to the literature of the subject and research background and filed method is used for data collection for confirming or rejecting the research hypotheses.

To collect data in this study, the pre-made questionnaire of Amini under the title of “environmental assessment of public libraries affiliated to the public library foundation of the country from the viewpoint of librarians based on the criteria of 5s neatness system.” This questionnaire consists of 77 5-option questions based on Likert scale from very high to very low and have been given the user society in personal form. After sending the questionnaires and receiving the responses, SPSS Software version 22 has been used in order to analyze the obtained data in the level of descriptive statistics; frequency percentage, mean and standard deviation have been used in the level of

descriptive statistics and single-sample t test and t-student test have been used to investigate data in the analytical statistics level and Friedman test has been used to rank the variables.

## RESULTS

In this part, we express and investigate the research hypotheses: The first hypothesis: There is a significant relationship between the observed mean of material arrangement index in 5s system of the academic libraries of Islamic Azad Universities of Mazandaran province and the average scale. The average of the obtained scores will be compared with the average point (3) to investigate the condition of the observed arrangement facilities in the 5s system on libraries of Islamic Azad Universities in Mazandaran. Single-sample t-student test will be used to do this test. the results related to this test are shown in Table 2.

Regarding to the Table 2, the significance level of the test (0.001) is  $<0.05$ . Thus, in the confidence level of 95% the null hypothesis is rejected and the research hypothesis is confirmed. The second hypothesis: There is a significant relationship between the observed mean of self-discipline index in 5s system of the academic libraries of Islamic Azad Universities of Mazandaran Province and the average scale. The average of the obtained scores will be compared with the average point (3) to investigate the condition of the observed self-discipline facilities in the 5s system on libraries of Islamic Azad Universities in Mazandaran. Single-sample t-student test will be used to do this test. the results related to this test are shown in Table 3.

Regarding to the Table 3, the significance level of the test (0.001) is lower than 0.05. Thus, in the confidence level of 95% the null hypothesis is rejected and the research hypothesis is confirmed. The third hypothesis: There is a significant relationship between the observed mean of sweeping index in 5s system of the academic libraries of Islamic Azad Universities of Mazandaran province and the average scale. The average of the obtained scores will be compared with the average point (3) to investigate the condition of the observed sweeping facilities in the 5s system on libraries of Islamic Azad Universities in Mazandaran. Single-sample t-student test will be used to do this test. the results related to this test are shown in Table 4.

Regarding to the Table 4, the significance level of the test (0.001) is lower than 0.05. Thus, in the confidence level of 95% the null hypothesis is rejected and the research hypothesis is confirmed. The fourth hypothesis:

Table 2: The results of t-student test for investigating the condition of the arrangement facilities index in 5s system

Result	Significance level	Freedom degree	T statistic value	Standard deviation	Mean
Rejection of null hypothesis	0.001	59	-13.956	0.439	2.20

Table 3: The results of t-student test for investigating the condition of the self-discipline facilities index in 5s system

Result	Significance level	Freedom degree	T statistic value	Standard deviation	Mean
Rejection of null hypothesis	0.001	59	-9.558	0.540	2.33

Table 4: The results of t-student test for investigating the condition of the sweeping facilities index in 5s system

Result	Significance level	Freedom degree	T statistic value	Standard deviation	Mean
Rejection of null hypothesis	0.001	59	-9.216	0.510	2.39

Table 5: The results of t-student test for investigating the condition of the standardization facilities index in 5s system

Result	Significance level	Freedom degree	T statistic value	Standard deviation	Mean
Rejection of null hypothesis	0.001	59	-10.524	0.493	2.32

Table 6: The results of t-student test for investigating the condition of the systematizing facilities index in 5s system

Result	Significance level	Freedom degree	T statistic value	Standard deviation	Mean
Rejection of null hypothesis	0.001	59	-9.193	0.545	2.35

Table 7: The results of Friedman test for prioritizing the condition of 5s system indices

Aspect	Prioritization	Significance level	Freedom degree	X <sup>2</sup> statistic value	Mean of ranks
Sweeping	1				3.31
Systematizing	2				3.03
Standardization	3	0.346	4	4.475	3.01
Self-discipline	4				2.95
Sorting out	5				2.71

There is a significant relationship between the observed mean of standardization index in 5s system of the academic libraries of Islamic Azad Universities of Mazandaran province and the average scale. The average of the obtained scores will be compared with the average point (3) to investigate the condition of the observed standardization facilities in the 5s system on libraries of Islamic Azad Universities in Mazandaran. Single-sample t-student test will be used to do this test. the results related to this test are shown in Table 5.

Regarding to the Table 5, the significance level of the test (0.001) is lower than 0.05. Thus, in the confidence level of 95% the null hypothesis is rejected and the research hypothesis is confirmed. The fifth hypothesis: There is a significant relationship between the observed mean of systematizing index in 5s system of the academic libraries of Islamic Azad Universities of Mazandaran province and the average scale. The average of the

obtained scores will be compared with the average point (3) to investigate the condition of the observed systematizing facilities in the 5s system on libraries of Islamic Azad Universities in Mazandaran. Single-sample t-student test will be used to do this test. the results related to this test are shown in table 6.

Regarding to the Table 6, the significance level of the test (0.001) is lower than 0.05. Thus, in the confidence level of 95% the null hypothesis is rejected and the research hypothesis is confirmed. The sixth hypothesis: There is a significant difference among the priority of facilities of 5s system of the academic libraries of Islamic Azad Universities of Mazandaran province. The Friedman test has been used in order to prioritize the condition of the facilities of 5s system indices in the academic libraries of Islamic Azad Universities in Mazandaran Province.

As it is clear from the data in Table 7, the significance level of Friedman test (0.346) is larger than the 0.05 value. Therefore, in the confidence level of 95%, the research hypothesis is rejected and the null hypothesis is confirmed.

## DISCUSSION

Today, effectiveness and efficiency are considered from the fundamental management purposes of any organization regarded to effective achieving of the visions and missions of the organizations. As a mission in the organizations, the managers investigate different aspects of an occupation and determine the features needed for qualifying for that job. On the other hand, this occupational discipline corrects the use pattern by itself. From the viewpoint of 5s, straightening (organizing) means to identify necessary objects from unnecessary ones, to adopt decisive decisions and apply priorities management to get rid of addressing the unnecessary objects. The results obtained from the first hypothesis of the study indicate that there is a significant relationship between the observed mean of material arrangement index in 5s system of the academic libraries of Islamic Azad Universities of Mazandaran Province and the average scale, so that the mean of this index is lower than the average scale. It can be interpreted that the unnecessary objects are not necessarily useless objects but are decided for according to their benefits. The decision may be granting it to the others, selling it, recycling, discarding or storing it in a farer place. Some criteria should be considered in order to diagnose the necessary objects from the unnecessary ones and separation should be done according to those criteria.

The results obtained from the second hypothesis of the study indicate that there is a significant relationship between the observed mean of straightening index in 5s system of the academic libraries of Islamic Azad Universities of Mazandaran Province and the average scale, so that the mean of this index is lower than the average scale. It can be interpreted that the major aim of this step is eliminating the extra time for search for the objects. For straightening the objects, it is necessary to consider an appropriate place for them. One of the methods of straightening and appropriate placing of the objects is naming them. A name for each object and a name for the place of keeping it. With arranging the bulletin boards, folders, placards, preparing names for rooms and also signs indicating the responsibility of the employees, discipline of the tables, wardrobes and files, sorting and arranging rooms, storages and workshops, offices and the books of the library, appropriate storing of data in the computers, etc., we can decrease the extra time to access to them.

The results obtained from the third hypothesis of the study indicate that there is a significant relationship between the observed mean of sweeping index in 5s system of the academic libraries of Islamic Azad Universities of Mazandaran Province and the average scale, so that the mean of this index is lower than the average scale. It can be interpreted that sweeping is a public duty and everyone in everywhere of the organization must consider sweeping as a part of his/her duties. Also, for sweeping, the responsibilities and duties of the people should be clarified and everywhere must be cleaned and swept not just the places which are more exposed to be seen. In fact, sweeping is considered as a kind of review. When sweeping, minor drawbacks are revealed, lost things are found and minor repairing needs are specified.

The results obtained from the fourth hypothesis of the study indicate that there is a significant relationship between the observed mean of standardization index in 5s system of the academic libraries of Islamic Azad Universities of Mazandaran Province and the average scale, so that the mean of this index is lower than the average scale. From this results, it can be interpreted that in order to have an ideal and clean environment, it is necessary to standardize the methods. Each organization can define some standards for itself. Preparing these standards can cause the created situation be maintained and not returned to the previous conditions.

The results obtained from the fifth hypothesis of the study indicate that there is a significant relationship between the observed mean of systematizing index in 5s system of the academic libraries of Islamic Azad Universities of Mazandaran Province and the average

scale, so that the mean of this index is lower than the average scale. From this results, it can be interpreted that education and culturalization (systematizing) in addressing appearances and beautification of the spaces and different practices related to observance of discipline, time and preparation for facing with incidents such as fire and earthquake and compiling manuals are from the important factors which can also influence the other factors. Public participation, including employees, manager and referrers in the activities related to the neatness and culturalization system and creating right habits in them are the most important purposes and criteria for the success of the establishment of neatness system in the libraries. In other words, we can claim that the neatness system has been established in the libraries when the employees, managers and referrers knowingly and continually apply the neatness system.

Also, according to the results of the sixth hypothesis, it was cleared that there is no significant difference among the prioritization of the facilities of 5s indices. It can be concluded that the 5s system indices of the libraries of Islamic Azad Universities in Mazandaran are in the same conditions. Therefore, it can be said that with the appropriate implementation of neatness system generally and especially applying indices based on the specified plans of this system in the libraries of Islamic Azad Universities in Mazandaran Province these cultural places will be helped advance the goals and prevent from wastes.

## CONCLUSION

The facilities of the studied libraries for implementation of 5s system are in the lower-middle level.

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