



## The Role of 5s in Learning Enrichment of Girls' High Schools in Area No 5, Tehran from "Teachers' View"

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**ABSTRACT:** The current study is generally intended to study on role of 5S system in learning enrichment of girls' high schools from Area No 5 at Tehran city from viewpoint of teachers. This investigation is of applied type from its objective aspect and it is of descriptive- survey based on methodology. Statistical population of this study comprises of all high school teachers, who were employed in area No 5 at Tehran city, i.e. totally 1483 participants. Sample size was computed according to Morgan's table as 377 respondents that were chosen by means of simple randomized sampling technique. Data collection tool, which used for this study, was 40- question standardized questionnaire where its scoring range was based on LIKERT Scale. To examine questionnaire reliability, Cronbach Alpha Coefficient Test was adopted. The value of questionnaire's validation is 0.94. In data analysis section, Kolmogorov- Smirnov test was initially utilized. With respect to abnormality of data, Chi- Square Non- Parametric Test and Friedman Test were adopted to test study hypotheses. Results of this study indicated that all components of 5s System play role in improvement of learning at high schools; however, with respect to Friedman test, it has been shown that in terms of order preference, these five elements are ranked respectively as follows: Shine (S3), then Sort (S1), Standardization (S4), Set (S2), and Sustain (S5).

**Keywords:** 5S System, Schools Learning Enrichment.

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### INTRODUCTION

In the field of science and practice, dynamism and survival require significant, contemplative and constant learning at world level and evaluation of its fulfillment is on training and education system and schools' onus. Educational officials discover requirements and formulate the objectives and provide teaching- learning facilities and remove the existing deficiencies in all educational levels, particularly in high schools because of its importance and special position in acquisition of skills by students. Revising of educational administration system together with daily need of society at different levels of goals and methods and tools makes this inevitable to follow modern approach toward educational administration either eventually or constantly (from quantitative, qualitative and composed aspects) that led to 5s. in fact 5 s stands for five Japanese words (Seiri, Seiton, Seiso, Seiketsu, and Shitsuke) which starts with letter 's' and each of them indicates one of five steps in implementation of this system for workplace organization (Hirano, 1996). This technique focuses on creation of a sorted, setting, shining, standardized and sustained environment (Sarkar, 2006; Suganthi& Samuel, 2004). By mental and practical change inside an organization, this system takes step toward progress (Hirano, 1996).

Symbols of 5 s in training and education system; or in other words, sorting, setting, shining, standardizing, and sustaining are seen in school environment. 5s has been known as the most effective strategy and stable pillar in foundation of reforming operation and improvement of productivity where through execution of these principles in different industries, commercial and industrial and servicing and educational organizations it has caused improving productivity, optimal utilization from manpower and work execution time, rising efficiency and eventually more profitability for the organization. Given that success in educational plans depends on their efficiency and adequacy so learning climate in these environments is one of the foremost known factors in this field. In fact, learning is central part of life for any individual. It also occurs even when we do not think about it based on this idea that behavior is not done in vacuity; thus, different ways of behavior are linked to matrix context. Jean Piaget has mainly emphasized on child's ability for perception of this world actively and he argues that children do not acquire information passively but they initially see, hear and feel what they observe in their surrounding world and then choose and interpret them (Lotf Ata, 2008). Learning contexts will comprise of the elements, which become meaningful along with each other. Features and

qualities of each of these elements effect on formation of different behaviors.

With respect to importance of 5s system and its favorable outcomes within workplace during previous studies and by considering this point it seems that such strategy has been rarely considered in education system and at the same time the importance the main mission of training and education system that is learning in students. The question that may be raised is that whether application of 5s may be positively effective on learning trend in schools. In this course, researcher intends to study on role of 5s system in order to improve students' learning trend and for this purpose through conducting field study and administration of questionnaire regarding the effect of this system on schools' learning enrichment this trend has been examined from teachers' viewpoint. In fact, in this study, researcher seeks for finding an answer to this essential question that: From teachers' view, could employing 5s system be effective on learning enrichment through girls' high schools at Area No 5 in Tehran City?

The findings indicated that 78% of the personnel knew concept of sorting (S1) relatively and only 14% of them were aware of its concept perfectly. 90% of respondents deemed setting order (S2) necessary in working because of some reasons including emergency of administrative works, works advancement, facilitation of conducting affairs, and regularly doing works etc. concerning to setting order (S2), 78% of personnel argued that this principle is observed in their workplace only to some extent. None of personnel comprehended standardization (S4) properly; especially visual management was an unexpected concept for them. And at last, all personnel considered working discipline (Sustaining) as essential element in doing works. SooraniNik (2008) dealt with determination of the impact of training of visual workplace system on consumption model of medical equipments used in Ayatollah Kashani Hospital at Tehran. Study population included 40 items from the used medical equipments that were selected to be used in hospitalization wards during second half of years 2007-8. The information form, which prepared by the given researcher, was tool for data collection in which quantity of the used medical equipment's were listed and selected based on their number and cost and they were collected and recorded within two six monthly intervals before and after medical training. Findings indicated that 30 requests were reduced for the used medical equipment's under this study after training visual workplace system within the environment of studied hospital. Willcoxon's statistical test showed that training of 5s system has affected on number of

request for medical equipment's. Pairwise t-test indicated statistically that training of 5s system was also effective on cost of the requested medical equipment's.

Masroor (2008) studied on the relationship among execution of visual workplace system with productivity in Agricultural Jihad Organization in Fars Province. In this survey, statistical population comprised of directors and deputies in this organization i.e. totally 86. Tool for data collection is another questionnaire for step- by- step execution of visual workplace system. The findings reflected there is significant relationship among execution of 5s system and rate of productivity in the given organization at level 0.01 and in average there is 0.56% difference among this condition after and before system execution.

There is a linear relation among components of 5s system (sort, set, shine, standardization, and sustain) and improving productivity while all phases have affected significantly on rising productivity and one could deem setting order as the paramount element of this system at 95% level of confidence that caused improving productivity.

- The most important text about 5s is a book called 5s: Five keys for realization of an environment with broad- based quality.

Aghaei (2011) conducted a study called "Review role of 5s system in empowerment of police personnel". This investigation was intended to examine feasibility for administration of 5s system for empowerment of police personnel through adoption of 5s approach. This study has purposed a suggested model by collection of librarian sources. The results came from this study showed that empowerment of police personnel is a strategy that has drawn remarkably attention from officials and practitioners in the field of Human Resources during recent years.

#### **Research Goal**

- Determination of 5s system's role in improvement of learning within girls high schools from Area No 5 at Tehran City based on teachers' view.

With respect to what mentioned, the current study is mainly aimed at testing the following hypotheses:

- Adoption of 5s system to learning enrichment in girls' high school from Area No 5 at Tehran City is effective according to teachers' viewpoint.

- Sorting of school is effective on learning enrichment in girls' high school from Area No 5 at Tehran City based on teachers' viewpoint.

- Setting order may effect on learning improvement in girls' high school from Area No 5 at Tehran City based on teachers' viewpoint.

- Shining may influence in learning improvement in girls' high school from Area No 5 at Tehran City according to teachers' viewpoint.

- Standardization effects on learning enrichment in girls' high school from Area No 5 at Tehran City based on teachers' viewpoint.

- Discipline and participation (sustaining) may effect on learning enrichment in girls' high school from Area No 5 at Tehran City according to teachers' viewpoint.

## **MATERIALS AND METHODS**

The present study is of applied type based on its objective and it is descriptive in terms of method and also is non-trial (non-provisional) according to controlling of variables. Similarly, gathering information in this study is of survey type. Statistical population includes all teachers from girls' high schools that employed in Area No 5 at Tehran City. According to Morgan's table, sample size was computed for public and non-profit high schools including 377 participants so that a list of all teachers from girls' high schools was received from Training and Education Organization (TEO) in Area No 5 at Tehran City, including 1483 respondents among which 377 teachers were elected as sample group (by considering loss coefficient) by means of simple randomized sampling technique. To gather the given information in this study, a standardized questionnaire was used so that through study on theoretical bases and history of investigation, the given items and elements were extracted for each of main variables and then codified within a format of 60-question inventory. Guided by advisor teachers and masters, those questions which lacked sufficient validity were omitted from this questionnaire at several steps and finally number questions reached to 40 in this questionnaire.

To determine test reliability, Cronbach Alpha Coefficient Test was adopted. Thus, in order to measure reliability of this test, Cronbach alpha coefficient was calculated by means of SPSS-15 software. To test this sample initially, 25 questionnaire forms were distributed among participants and then the value of Cronbach Alpha coefficient was computed to determine reliability value as 0.942 by means of the resultant data from this questionnaire and by the aid of SPSS-15 statistical software. So this figure shows that the used questionnaire has high validation and in other words high reliability for this test. In order to determine validity of questionnaire, Face Validity and Content Validity have been adopted

## **RESULTS**

For data analysis, initially test conditions were computed for conducting parametric tests in such a way that Kolmogorov-Smirnov Test was executed to determine normality of variables. Test results

indicated that the given variables lack the conditions needed for conducting parametric tests and for this reason Chi-Square Non-parametric tests were adopted in this regard.

Results came from Kolmogorov-Smirnov test showed that in 5s elements, the calculated z-value is significant at level 0.05 ( $\alpha$ ); namely, significance level is lesser than 0.05 for each of these elements ( $p < 0.05$ ). As a result, it can be implied that these elements were distributed normally. Namely, there was no sufficient reason to reject Null Hypothesis; accordingly, it requires adopting non-parametric test to examine hypotheses of this test. So they were used for this purpose.

Hypothesis I: Sorting is effective on learning improvement in girls' high schools from Area No 5 at Tehran City based on teachers' view.

The results came from Chi-2 test indicate that the observed value of Chi-Square ( $X^2=478.10$ ) is significant at alpha level 0.05 so Null Hypothesis is rejected (since rate observed Chi-Square is greater than Chi-Square given in this table). In other words, a significant difference is seen among observed frequency and the expected value. Consequently, it could be expressed at 94.7% level of confidence that Sorting is effective on learning improvement in girls' high schools from Area No 5 at Tehran City to great extent up to extremely level based on teachers' view.

Hypothesis II: Setting order may effect on learning improvement in girls' high schools from Area No 5 at Tehran based on teachers' view.

To test this hypothesis, Chi-2 test was adopted and the observed and predicted values of frequency were computed then chi-square value was calculated.

The results which have been obtained from Chi-Square test indicate that observed value of Chi-Square ( $X^2 = 177.11$ ) is significant level ( $\alpha=0.05$ ) so null hypothesis is rejected. In other words, a significant difference is observed among the observed frequency and the predicted frequency; as a result, it may be expressed with 81.7% level of confidence that the teacher believe in this point that setting order might effect on learning improvement in girls' high schools from Area No 5 at Tehran City at high to very high level.

Hypothesis III: Shining variable in girls' high schools may effect on learning improvement there at Area No 5 Tehran City according to viewpoint of teachers.

To test this hypothesis, Chi-Square test was utilized where both observed and the expected frequency values were obtained and then value of Chi-2 was calculated.

The results which were derived from Chi-Square test show that the observed value of chi-square ( $X^2 = 283.27$ ) is significant at level ( $\alpha = 0.05$ ) therefore Null

Hypothesis is rejected. In other words, a significant difference is seen among the observed frequency and its expected value. Thus it could be said with 93.1% level of confidence that teacher argue that shining variable (cleanness) might effect on learning enrichment within girls' high schools at Area No 5 in Tehran City at high to very high level.

Hypothesis IV: Standardization variable influences in learning improvement through girls' high schools from Area No 5 at Tehran City based on teachers' view.

In order to test this hypothesis, Chi- Square test was adopted and the values of observed frequency and the expected frequency were derived and then Chi- Square value was calculated.

The results came from Chi- square test indicated that the observed chi-2 value ( $X^2 = 263.52$ ) is significant at level ( $\alpha = 0.05$ ) and then Null Hypothesis is rejected. Namely, a significant difference is seen among the observed frequency and its expected value; consequently, it might be implied at 89.4% level of confidence that teachers believe in this point that standardization variable may effect on learning improvement within girls' high schools at Area No 5 in

Tehran City and at high to very high level.

Hypothesis V: Discipline and participation (sustaining) variable may effect on learning improvement within Girls' high schools at Area No 5 in Tehran City based teachers' viewpoint.

To examine this hypothesis, Chi- Square test was used and observed and predicted values of frequency were obtained and then chi- square value was computed.

The derived results from Chi- Square test do not show that the chi- square observed value ( $X^2 = 270.28$ ) is significant at this level ( $\alpha = 0.05$ ) therefore Null Hypothesis is rejected. In other words, a significant difference is seen among the observed frequency and its predicted value. As a result, it can be mentioned with 86.4% level of confidence that teacher believe in that discipline (sustaining) may effect on learning improvement within girls' high schools from Area No 5 of Tehran City at high to very high level.

Ranking (order preference) of impact of each of 5s elements on learning improvement within girls' high schools.

**Table 1.** The related frequency for impact of variable sorting on learning improvement in high school

Resides	The expected frequency	The observed frequency value	Percent	Description
-74.4	75.4	1	0.3	Very low
-69.4	75.4	6	1.6	Low
-62.4	75.4	13	3.4	Fair
119.6	75.4	195	51.7	Very high
86.6	75.4	162	43.0	Very high
		377	0.0	Very high
			100	Total

**Table 2.** The related Chi-2 test on impact of variable sorting on learning improvement in high school

Quantity	Chi- Square Coefficient	Degree of Freedom	Significance Level
377	478.10	4	0.001

**Table 3.** The related frequency for impact of variable setting order on learning improvement in high school

Resides	The expected frequency value	The observed frequency value	Percent	Description
-73.3	94.3	21	5.6	Low
-46.3	94.3	48	12.7	Fair
91.8	94.3	186	49.3	High
27.8	94.3	122	32.4	Very high
		377		Very high
			0.0	Very high
			100	Total

**Table 4.** The related Chi-2 test on impact of variable setting order on learning improvement in high school

Quantity	Chi- Square Coefficient	Degree of Freedom	Significance Level
377	177.11	3	0.001

**Table 5.** The related frequency for impact of variable shining on learning improvement in high school

Resides	The expected frequency value	The observed frequency value	Percent	Description
-87.3	94.3	7	1.9	Low
-75.3	94.3	19	5.0	Fair
70.8	94.3	165	43.8	High
91.8	94.3	186	49.3	Very high
		377	0.0	Very high
			100	Total

**Table 6.** The related Chi-Square test on impact of variable shining on learning improvement in high school

Quantity	Chi- Square Coefficient	Degree of Freedom	Significance Level
377	283.52	3	0.001

**Table 7.** The related frequency for impact of variable standardization on learning improvement in high school

Resides	The expected frequency value	The observed frequency value	Percent	Description
-84.3	94.3	10	2.7	Low
-64.3	94.3	30	8.0	Fair
78.8	94.3	173	45.9	High
69.8	94.3	164	43.5	Very high
		377	0.0	Very high
			100	Total

**Table 8.** The related Chi-2 test on impact of variable standardization on learning improvement in high school

Quantity	Chi- Square Coefficient	Degree of Freedom	Significance Level
377	263.52	3	0.001

**Table 9.** The related frequency for impact of variable sustaining on learning improvement in high school

Resides	The expected frequency value	The observed frequency value	Percent	Description
-86.3	94.3	8	2.1	Low
-51.3	94.3	43	11.4	Fair
65.8	94.3	160	42.4	High
71.8	94.3	166	44.0	Very high
		377	0.0	Very high
			100	Total

**Table 10.** The related Chi-Square test on impact of variable sustaining on learning improvement in high school

Quantity	Chi- Square Coefficient	Degree of Freedom	Significance Level
377	270.28	3	0.001

**Table 11.** Mean ranks relating to variables in Friedman Test

Variables	Mean Ranks
Sorting	3.12
Setting Order	2.57
Shining	3.25
Standardization	3.03
Sustaining	3.02

**Table 12:** Friedman test regarding the impact of 5s elements for learning improvement in girls' high schools

Quantity	Friedman's Coefficient	Degree of Freedom	Significance Level
377	84.48	4	0.001

**DISCUSSION**

According to 5s system approach, sorting means identifying necessary items from unnecessary, making definite decision and handling priorities to get rid of unnecessary items. Since numbers of students freshly enter into schools at the beginning of academic year while some other ones are graduated so it necessitates revising students' files to establish order and discipline aptly and appropriately and some unnecessary items to be distinguished from necessary documents and then after integration of these documents all of them to be inserted in students educational file all at once.

Among other, one can refer to compliant study with sorting impact. Setting order denotes putting objects in appropriate places neatly so that to use them at best. Setting order is a way toward finding

and application of the needed objects without useless searches. If anything is put in their suitable and certain place with respect to its application and by considering working quality and security then workplace will be always orderly and neat. When there is order and discipline in school environment and students behave according to certain rules so many problems will be avoided. For instance, that teacher who establish certain order and discipline in his/ her class so students will not behave out of such discipline; however, in the case of lacking order in behavioral plan, this may happen for the given teacher that the student comes and goes during period when teacher deals with teaching in the classroom and or he/ she may goes to class lately or leave it before completion of lesson.

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