

Feasibility Study of Leadership and Organization Using Japanese Lean Thinking in Iranian Schools

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Abstract

The aim of this study was to investigate the feasibility of leadership and organization using lean thinking in the schools from the perspective of teachers and principals. Methodology of study was descriptive-survey and population of study included all teachers and principals of Maku city schools in academic year of 2011-2012. Their number was 501 that 222 of them were selected as sample of study using randomized sampling method. Data of study were collected by researcher-made questionnaire consisting of 30 questions in five areas of strategic planning, employee involvement, decision-making, Kaizen (continuous improvement) and education. The validity of questionnaire was confirmed using face validity using expert teachers' views and its reliability was calculated through Cronbach's alpha and it was found 0.94. AMOS 18 and SPSS19 statistical software was used to analyze data. The conceptual model of study showed an acceptable fit of leadership and organization model of lean thinking with each of components through first order confirmatory factor analysis. To test the hypotheses of study, one-sample t test was used. The results of this analysis showed that strategic planning, increased employee involvement, kaizen (continuous improvement), and improved management approach to education are possible in educational centers ($P \leq 0.001$), but there is no potential to improve decision-making power in educational centers ($P > 0.05$). In general, we can conclude that through strategic planning, involving employees in decisions and practices, continuous improvement of processes and working methods, we can pave the way for leadership and organization in lean thinking in schools.

Keywords: Lean Thinking, strategic planning, employee involvement, decision making, continuous improvement (kaizen).

Introduction

Lean thinking approach is powerful approach to improve the efficiency and quality of process, that each of them contains a set of specific tools and principles acting as strong management systems in order to provide products or services with high quality and based on customer demand. Undoubtedly, with use of tools, principles and methods related to lean theory in education in order to reduce errors, enhancing working processes and the ability to create value and eliminating wastes, we will experience enormous changes in the educational system and teaching-learning processes and achieving good, perfect, and efficient results and realization of qualitative and optimal education objectives. The period in which we are living is customer-oriented and audience-oriented period so that level of success of any organization has direct correlation with their attention to customer and his demands. In this regard, to meet customer needs, it is essential to improve the organization level comprehensively (Taghizadeh and Tari Avaranghi, 2010). Education of each country as base organization will be successful when it recognized these changes and made decisions immediately with proper planning and improved the organization in the course of changes. This happens when communicative distance between teachers and school principals and senior managers of education organization is reduced and they provide necessary educations in order to improve the skills and knowledge of employees through precise assessments, and involves them in the design of future prospects of education and determining the working indicators and standards of the company. Optimum use of human resources capacity and minimizing the wastes help to continuous improvement. Is also promotes the lean thinking culture at all education processes by minimizing the improving the managers' authorities. With a focus on fundamental principles, lean thinking approach tries to guide companies and organizations into sustainable improvement and develops creation of value in organizations (Barfrushan and nosrati, 2010). In the method that philosophy of continuous improvement was used, it is tried that waste of time, capital, human resources, equipment, and educational spaces to be minimized using team work culture and utilization of available resources to be maximized, the point that our education system faces with serious challenges and problems at all dimensions. The most important advantage of lean production is establishing a sense of accountability among all employees of organization. Of course, accountability means freedom of action in the work rather than accountability to higher authority. In this approach, employees experience more challenge in the working process. As a result, they can show their creatively and through teamwork, they can obtain various skills in addition to continuous improvement (Seyed Hosseini and Bayat Tork, 2005). It seems that concepts such as accountability, freedom of action, teamwork, continuous improvement and ongoing reform processes and functions have been neglected in our educational system, and abundant economic problems, mismanagements, and lack of expertise in decisions has imposed irreparable damages to this system. According what was said above, it is required that lean manufacturing culture to be discussed. Lean manufacturing means basic industrial of the system that can be used to remove wastes, reduce variability of suppliers, customers, and internal resources and processes. For the first time, Womack and Jones (1991) used Lean Manufacturing word to describe the Toyota Production System (Mostafa, Dumrak & Soltan, 2013). Later, however, this approach has become popular in the US and Europe, and it was

welcomed by many factories and it is now used globally by organizations and industries (Srichan et al., 2013).

National Institute of Standards and Technology in the US Commerce Department defines "lean" as follows: "a systematic solution to identify and eliminate waste and without value added through continuous improvement and initiating the manufacturing as soon as customer needs "(Esmaeili Givi, 2006).

Lean Thinking is a five-step thought process proposed by Womack and Jones (Womack and Jones, 1996) guide managers in the lean transformation course. The five steps are:

1. Specifying the value from the final customer perspective (population, industries and organizations, families, students, etc.), separately for each type of service
2. Identifying the value stream: identifying all steps in the value stream of each family, services and removing the steps that do not create value, wherever possible
3. Flow: The establishment value creating steps in a close sequence so that services to be provided for customer easily.
4. Pull: After creating flow, the possibility is created so that consumer can pull out the value from the previous step.
5. Perfection: After determining the value, experience and value stream analysis, eliminating steps do not create value and establishing the flow and pull system, repeating this process to achieve to perfection where the full value is created without waste (Shook & Vinskey, 2009).

Lean philosophy includes multiple and effective factors including information technology, human resources management, suppliers, organization and leadership, comprehensive quality management, suppliers management, purchasing and logistics systems, production process management, etc. (Seyed Hoseini and Bayat Tork, 2005). According to research carried out, "organization and leadership" investigated in this study has great importance, because a lean system requires a committed leadership with a particular discipline, who can play the change agent in the lean process and use his capabilities to guide and lead and organize people to be lean (Blanchard, 2011).

Organization and leadership are divided into various factors, including strategic planning, employee involvement, performing the tasks based on regulations, approach of management to human resources, decision-making power and concentration, continuous improvement (kaizen), managers' approach to education, and so on (Seyed Hoseini and Bayat Tork, 2005). Among the various factors of organization and Lean Thinking leadership in the research, strategic planning, involvement, decision making, continuous improvement, were used to feasibility study of lean thinking in organization and education in Iranian schools. Each of these components is briefly defined below.

Strategic Planning: According to Peter Drucker (2008), strategic planning is a continuous systematic and risk-taking decision-making process with maximum knowledge and awareness, systematically organizing of attempts and efforts that are needed to make these

decisions, and it measures results of these decision-makings against expectations through systematic and organized feedback.

Involvement: according to Davis, involvement is mental and emotional engagement of employees within group situations that motivate them to contribute to the goals of the group and make them to feel accountability to achieve them (Tusi, 2003). In fact, consultation, participation, brainstorming, and honoring teamwork led to integration of thoughts and capabilities to perform all works and task in the best way, and if organizations want to achieve such result, they have to create motivation and attract the involvement of employees (Fakharian et al., 2014).

Decision-making: Griffith thinks that decision-making is synonymous with management and he believes that all aspects of management functions and organizational aspects can be explained in terms of decision-making. Allocation of resources, communication networks, formal and informal communications and realizing the organizational goals are controlled through decision-making mechanisms. Therefore, decision-making is the key to understand the organizational complexities and management functions (Alaghebandan, 2009).

Continuous improvement: Continuous improvement of a value stream or an individual process to create further value and reduce the waste that is available at two levels of managers and team works (Shook & Vinskey, 2009).

Education: according to Robbins, education is an experience based on learning to create relatively stable changes in person so that enables him to do tasks and improve his abilities, change skills, knowledge, approaches, and social behaviors. Therefore, education means changing the knowledge, approach, and interaction with coworkers (Seyed Javadeen).

Womack and Jones (2003) suggest that lean principles can be applied in any organization so that different organizations have used lean manufacturing principles and frameworks and they have achieved to useful results. For example, research Chalice (2007), and Dart (2011) studies have showed that lean thinking can have positive effects in health care. Examining the concepts and potentials of lean thinking framework in school safety in Thailand, Serischi et al (2013) concluded that lean management tools might be effective way to confront with issues related to safety in schools. They pointed out that lean management tools in addition to Thailand should be used in every school where cost, bureaucracy, waste and inefficiency harm the management processes. In his thesis, Longer (2011) examined the application of lean thinking to improve processes in higher education institutions in England. Results of his studies indicated that lean thinking can be used in higher institutions, while the results obtained in this area is less significant compared to what was used in the manufacturing. Emiliani (2004) examined the improvement of business departments' courses through application of lean thinking principles and methods. The results showed high levels of students' satisfaction, clearer expectations, less uncertainty about the discussions and assignments, standard forms of assignments, delivering the individual and group assignments during the semester, and better time management inside and outside the classroom. Flumerfelt (2008) states that nowadays the common voice of educational leaders is that although the lean philosophy may not be an appropriate as manufacturing plan for educational system in the first glance, experiences of Industrial Revolution in USA have shown that using industrial management theories in the education has been accepted with its

normalization and it could develop the organizational effectiveness. Meanwhile, He refers to Frederick Taylor's scientific management theory (1911) pointed out and confirms the effectiveness of its application in the educational system. Finally, in answer to the question whether lean philosophy is proper for educational systems or not, he said: "Yes, but lean philosophy should be understood and carefully applied as a system ."

Taghizadeh et al (2011) examined the Tractor Manufacturing Company compliance with the principles of Lean Thinking. Their results showed that the index of specifying the value in the studied companies is the best status and the index of perfection has the worst status. Esmaeili Givi (2006) in examining the functions of the basic components of lean manufacture concluded that lean technique should be used beside other techniques, such as Six Sigma engineering so that in addition to using advantages of this technique, disadvantages of this technique to be reduced. Seyed Hosseini and Bayat Tork (1384) examined the lean manufacturing factors in manufacturing organizations. The results showed that the organization and leadership are the most important factor in achieving lean manufacturing. In this regard, though development of strategic planning, issues such as proper organization and leadership, proper distribution of power, delegation of authority to lower ranks of the organization, forming teams solving the problems for continuous improvement, performing operations in integrated way and strengthening all components in the intimate environments along with discipline and without fear of discrimination. Womack and Jones (2003) believe that lean thinking is counter-intuitive and therefore it is hard to understand it in the beginning. Although, it has shown successful application in the industry around the world, however, few studies have been conducted about it in the field of industry, manufacturing factories, and service organizations. Movement to be lean in Iran is still in its infancy and there is long way to achieve and sustain it. Experience shows that implementation of lean thinking in Iran is feasible and just need to understand the crisis of organization, will, and the necessary knowledge and ability to perform teamwork. Feasibility study actually means the ability of a program or an activity to be realized in a variety of levels, provided that the initial and primary conditions to be provided to implement it. For this purpose, the successful implementation of this program (leadership and organization in Lean Thinking method) in the country requires that authorities of education to provide the necessary conditions in this regard. Thus, this study aims to introduce lean thinking components used in schools and education and examine the application of lean thinking in the schools, and evaluate the feasibility of strategic planning, involvement in decision-making, continuous improvement and educational approach.

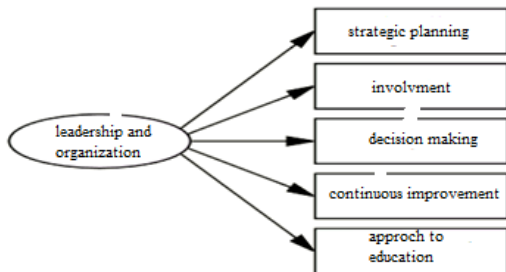


Figure 1: Conceptual model of study

Research hypotheses:

1. Strategic planning in educational centers is feasible.
2. It is feasible to increase the employees’ involvement in educational centers.
3. It is feasible to enhance the decision-making power in educational centers.
4. Continuous improvement in educational centers is feasible.
5. Improvement of management’s approach to education in educational centers is feasible.

Methodology

With regard to the nature of the research subject, it is descriptive-survey study, and as goal of study is objective description of characteristics of the studied subject, the current study examines the components of organization and management in educational centers from the perspective of teachers and managers. Population of study included male and female teachers and principals of Maku city in the academic year of 2011-2012 at three levels of elementary, secondary, and high school. According to the statistics obtained from education management of Maku, the population of study was 501 people that 222 of them were selected as sample of study by using Krejcie and Morgan table. The sample of study was selected using stratified random method that included 197 teachers and 25 principals. Detailed information related to sample is provided in Table 1.

Table 1: sample group separately in terms of duty, educational level, and gender

	Elementary	70	female	42
			male	28
	Secondary	47	female	24
197			male	23

	teachers	High	80	female	36
		school		male	44
222	people	Elementary	9	female	5
				male	4
25	principals	Secondary	8	female	4
				male	4
		High	8	female	3
		school		male	5

To collect data, researcher-made questionnaire of "Lean Thinking Leadership and Organization" containing 30 questions was used. The questionnaire included components of (strategic planning, employee involvement, decision-making power and concentration, continuous improvement or kaizen and management approach to education), each consisting of six questions. Questions were scored on a Five-point Likert scale from very high to very low in which very high scored five, high scored four, moderate scored three, low scored two and finally very low scored low. To assess the validity of questionnaires, we consulted with several professors' views. In order to estimate reliability, total 35 questionnaires were distributed in a pilot study among teachers and school principals in Maku. After gathering the data, Cronbach's alpha coefficient was calculated using SPSS software. Cronbach's alpha for the whole questionnaire was 0.95 and for strategic planning, involvement, Decision Making, continuous improvement, and education was 0.95, 0.81, 0.89, 0.93, 0.90, and 0.93, respectively.

Findings

To determine whether the data confirm the conceptual model depicted in Figure 1, first order confirmatory factor analysis was used by Amos 18 software. This approach relies on a theoretical and empirical basis. Here, researchers are aware that there are several factors (Stevens, 2009). In fact, confirmatory factor analysis is used to test the likelihood that a particular assumed factorial structure is supported or confirmed or not. If the data supported the assumed factorial structure, data will be different significantly from factorial model assumed. However, data supports model, the difference was not statistically significant (Kramer, 2003). The final model obtained (Figure 2) and results of this analysis are presented in Tables 2 and 3.

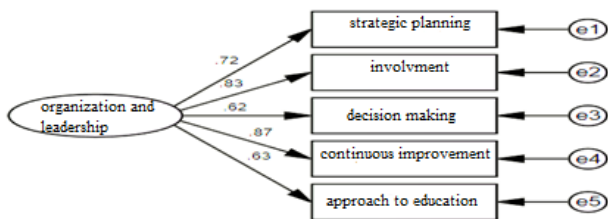


Figure 2: Confirmatory factor analysis of the first order component of leadership and organization of Lean Thinking

Table 2: Estimated made to examine significant difference between parameters and zero value

Parameter	estimation		Critical ratio	P
	Non-standardized	standardized		
Lambda x	1.00	0.72	-	0.001
	1.18	0.83	11.32	0.001
	1.15	0.62	8.61	0.001
	1.33	0.87	11.65	0.001
	1.52	0.63	8.67	0.001

As seen in Table 1, each of the five scales of strategic planning, involvement, decision making, continuous improvement and education had high correlation (0.60) with scores of lean thinking leadership and organization ($p < 0.05$), so that continuous improvement (kaizen) with impact coefficient of 0.87 had the greatest weight in defining this latent variable. In contrast, decision-making with impact coefficient of 0.62 had correlation with lean thinking leadership and organization scores. Therefore, it had less weight in the definition of this latent variable.

Table 3: fit indices of first order confirmatory factor model of components of lean thinking leadership and organization

Developed model Degree of 5-freedom	Acceptable range	Persian equivalent	Abbreviation	index
1.00	0.90-1	Comparative fit index	CFI	Comparative
1.00	0.90-1	Tucker-Lewis index	TLI	
0.50	0.50-1	Parsimony Normed Fit Index	PNFI	Parsimony
0.50	0.50-1	parsimony Comparative fit index	PCFI	
0.001	0-0.08	Root mean square error of estimate	RMSEA	
1.00	0.95-1	Goodness of fit index	GFI	Absolute
0.99	0.95-1	adjusted goodness of fit index	AGFI	
1.77	Dependent on sample size	Chi-Square value	Chi-Square	
0.88	Dependent on sample size	Significance level	P	

Table 3 shows comparing of model based on i goodness of fit indices. Accordingly, if CFI and TLI comparative indices are greater than 0.90 and parsimony indices of PNFI and PCFI are larger than 0.50 and RMSEA is smaller than 0.08, and absolute indices of AGFI and GFI are larger than 0.95, and Chi-square is non-significant, the model will have desirable and appropriate fitness. To test the hypotheses stating that strategic planning, employee involvement, decision making, continuous improvement (kaizen) and management approach to education in educational centers are feasible, one-sample t-test was used and the results of this the analysis is presented in table 4.

Table 4: one sample t-test to investigate differences in mean scores of subscales in subscales of leadership and organization of lean thinking with criterion mean (18)

variables	Means difference	Standard error of means difference	t	df	P	Confidence distance for means difference
						minimum maximum
strategic planning	2.03	0.30	6.75	221	0.001	1.43 2.63
employee	2.05	0.31	6.67	221	0.001	1.44 2.65

involvement							
decision making	-0.08	0.40	-0.20	221	0.84	-0.87	0.71
continuous improvement	2.17	0.33	6.57	221	0.001	1.52	2.82
management approach to education	3.64	0.52	6.97	221	0.001	2.62	4.68

As seen in Table 4, the value of t calculated for each of the subscales of strategic planning, employee involvement, continuous improvement and management approach to education was 6.75, 6.67, 6.57, 6.97, respectively, that is statistically significant ($0p < 0.05$). However, the value of t calculated for subscale of decision-making was -0.20 that is not statistically significant ($p > 0.05$). To understand the difference of means of these subscales clearly, Radar Diagram shown in Figure 3 was used.

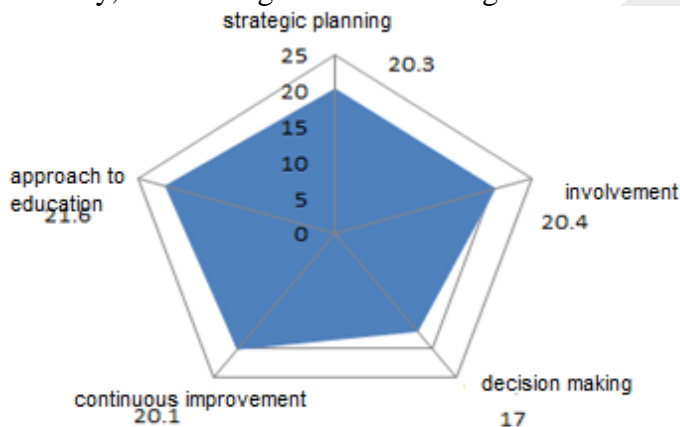


Figure 3: Radar graph for comparing the average in measures of leadership and organization Lean Thinking

Discussion and conclusion

Research results showed that:

Strategic planning in educational centers is feasible. According to the results of this study, this hypothesis is confirmed. This result was in line with results of studies conducted by Kenderi (2008) and Kernaeech (). Therefore, it is required that due to growing use of technology and uncertain environmental factors, internal and external environments of education centers to be recognized so that costs and priorities to be predicted, objectives, services, resources required to be identified, and appropriate strategy to be adopted with higher certainty about budget, human resources, etc.

Schools are human building and society building institutions. In addition, any change in any society without a change in education is not possible. Considering these two points, it is

worth to note that nowadays planning has no place in our schools, and most of planning are around holding the meetings, courses, and exams, while there is no thinking behind strategic planning to bring change in schools. Content of textbooks has been designed in a fixed way for entire country by Education Ministry, and local and provincial requirements are not considered in them. Most decision-makings are centralized and significant authority has not been delegated to schools in major decisions. Therefore, school factors have no much familiarity with planning process and its importance especially in strategic planning area. Relying on obtained results, strategic planning in schools is feasible. At first, it is necessary to provide the necessary conditions, including changes thinking in the country's education system, practical decision making and announcing it to schools, and necessary supports to implement these plans in schools. In this regard, the science related to strategic planning process (development of goals, values, essays, identifying the internal and external stakeholders, SWOT analysis "analysis of strengths, weaknesses, opportunities and threats", examining the current plan and program in schools, planning to move toward the desired status and designing the implementation plan and its follow up) should be trained and we should try to achieve this goal. It is feasible to increase the employees' involvement in educational centers. By confirming this hypothesis and its consistency with results of Razavi and Saeedi (2006) and Seyed Hosseini and Bayat Tork (2005), growth and expansion of recommendations system and encouragement of employees to offer comments and views and creativities in schools can be considered and used as a vital element to increase lean thinking implementation and involvement. Japanese lean thinking follows continuous improvement in all working processes by relying on maximum involvement and using all the capabilities of the people. What prevails in our schools is that no benefit is used from the capabilities, capacities, power of thought, experience, knowledge and skills of people in order to create new change. Instead, the only useful work that is done by employees and managers is performing will not produce new and useful only to the managers and employees are doing the daily routine affairs and teachers are usually involved by repeated lessons without any motivation and morale. The cause of this routine lack of morale by teachers should be found in their lack of involvement in the planning and their involvement in activities in which they play no role. Without use of thought and creativity they have no way just be obedient to implementation of the decisions. School is sacred environmental and teachers are professional people with thought. It is necessary to provide conditions so that school employees, ranged from principals to students, to be involved in allocation and the process of planning, decision-making and implementation of decisions.

-it is feasible to enhance the decision-making power in educational centers. This hypothesis was not confirmed based on results of study. This result is relatively in line with results of Hadavand (2009), showing that principals in educational centers face with several challenges such as accountability and responsibility regarding the budget and investments and its consequences. Therefore, it is required that they have more freedom of action and decision-making authority in providing and spending for educational issues and making necessary changes in line with solving the educational problems in schools. It seems that lack of confirmation of this hypothesis relates to lack of authority by schools' staff in the decision-making process.

Adoption, implementation and follow-up of decisions to achieve the objective require making culture and involving the individuals in the decision-making process. If this authority is given for schools so that they adapt participatory decision-making procedure to make decisions in the presenting the courses, syllabi, content of textbooks, teaching methods, curriculum, educational planning, start and end of semester, it seems that schools can adopt appropriate decisions based on local and national requirements and their facilities and conditions. As it is feasible to enhance decision-making power in educational centers, it is necessary that officials have more reflection in this regard.

- The continuous improvement in educational centers is feasible. This hypothesis confirmed based on the results of the study is consistent with results of study conducted by Sadr Sadat (2009). As improvement is permanent and continuous, all employees of a, and as improvement requires that it is measured accurately, proper management of it require designing an evaluation system of proper performance. Continuous improvement can be studied from different angles in schools, since it consists of chain rings that if growth of one of them is not in line with other processes, the chain will be broken. Backgrounds prone to continuous improvement can be examined from the human, financial and material, equipment, rules and regulations, buildings and educational spaces, optimal interaction with the community, families, organizations and industries, culture and organizational atmosphere dimension. In human dimension, those working in schools, ranging from principals to service forces, should provide the conditions for continuous improvement by receiving necessary trainings, skills, knowledge, experience, recognition power and decision-making, leadership and management power, the ability to interact, encouraging their people, so that they can use this capability in empowering students and improve other processes. As long as the necessary funding is not provided, necessary improvements in equipment, buildings and educational spaces cannot be achieved. In a school where rules and regulations are not facilitator in improving the human force and the culture governing on organization does not stimulate the continuous improvement, the continuous improvement will not be achieved. Therefore, we cannot expect that schools to meet current and future scientific requirements of families and industries. Continuous improvement is the thinking to create improvement at all school processes in all days.

-It is feasible to improve the management approach to education in educational centers. The confirmed hypothesis is in line with research conducted by Naveh Ebrahim (2006). Therefore, it seems to be necessary to pay close attention to in-service educations and use their effectiveness to create ability and flexibility in employees. In addition, proper feasibility study of these educations, the presence of principals in these courses and measuring their effectiveness are emphasized. The necessity of continuous improvement is holding continuous educations and providing sufficient knowledge for people in their careers. Nowadays, in all developed organizations of the world, education is an investment and a considerable part of the annual budget is spent in investment in education, because investment in human capital of organizations is followed by knowledge, skills, creativity and innovation, discovery and invention of new tools leading to lasting benefits to many organizations. In cases in which principals, teachers, school staff, students, parents, societies, industries and organizations do not update their knowledge constantly through training and

education, a scientific gap can be seen in them. The same phenomenon is seen in our society. Development has not been occurred in all institutions at same time. Parents have the knowledge that their children believe that it is old. Contents of textbooks in schools provide the theoretic knowledge that traditional industries and organizations are far away from that, while theoretical ideas of universities are not effective and useful for traditional industries and organization. This pure theoretical education is due to lack of facilities and conditions to receive empirical and applied education. Through continuous education in schools, all people will gain skills required to do in modern world and be prepared for illusory future.

Conflict of Interest

The authors declare that there is no conflict of interests regarding the publishing of this paper.

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References

Alagheband, A, (2009). Theoretical foundations and principles of educational management. (Fifth edition), Tehran, Ravan publication.

Barforoosh, So and Nusrati, A. (2010). Lean Thinking, gateway to the land of Sigma. Comprehensive site management
www.modiryar.com/index-management/modern/modern-all

Blanchard, K, H. (2011). Who Killed Change? (Translation by Jalal Dashti). Tehran, Azmoon Publications

Esmaili Givi (2006). Investigation of fundamental functions and components of Lean Thinking. Scientific articles of Educational Management. Tadbir Monthly, No. 174, pp. 44-41.

Fakharian, J, Shahamat, N, Amyryanzadh, M. (2014). The relationship between participatory management style and organizational commitment and mental health among high school teachers. New Approaches in Educational Management, Volume 5, Issue 17, pp. 234-221.

Hadavand, S. (2009). Instruments for monitoring the quality of education. Monthly policy nineteenth year, No. 204, pp. 62-57.

Kandri, I (2008) simulation, helping managers to decide, Tadbir Monthly, nineteenth year, No. 199, pp. 49 -52.

Keordnaech, A. Azar, A. Niakan Lahiji, N. (2010). Planning of organizational effectiveness in the public sector: A Case Study of Iran customs. Economic Research, Volume 10, Issue 2, pp. 114-91.

Naveh Ebrahim, A, Abdi, A. (2006). Validation, strategy to create a learning universities. The first National Conference on Management and Organizational Leadership, Tehran, Iran.

Razavi Amiri, Z. and Saeedi, Z. (2006). Evaluation and development of the proposed model CIPP. Tadbir Monthly, Issue 172, pp. 48-44.

Sadr Sadat, A (2009) presenting a model for evaluating the performance of staff of Iran's national oil company. Journal of human resource management in the oil industry, Volume II, Issue 3, pp. 114-98.

Seyed Hosseini, SM, Bayat Tork, A. (2005). Evaluation of lean manufacturing factors in non-continuous manufacturing organizations, issue nine, Number 2, pp. 86-59.

Seyed Javadeen, R. (2003). Fundamentals of Human Resource Management. Tehran: Tehran University, School of Management.

Shock, J and Whiskey, Ch (2009). Lean manufacturing culture (translated by Azadeh Rad Nejad and Kazem Mutabian), Tehran: Amuzeh Publication

Taghizadeh, H. Tari, Gh. Orangi, S. (2010). Examining the manufacturing organizations' compliance with the principles of Lean Thinking (case study: Iran Tractor Manufacturing Company-Tabriz). Industrial Management, Volume 5, Issue 11, pp. 52-41.

Tusi, M, (2003). Participation and participatory management. Tehran: Industrial Management Institute.

- Chalice, R. (2007). *Improving healthcare using Toyota lean production methods: 46 steps for improvement*. Milwaukee, WI: Quality Press.
- Cramer, D. (2003). *Advanced quantitative data analysis*. UK: Open University Press.
- Dart, R. C. (2011). Can lean thinking transform American health care? *Annals of Emergency Medicine*, 57, 279-281.
- Drucker, P. F. (2008). *Management (Revised Edition)*. New York: Harper Collins Publisher.
- Emiliani, M.L. (2004). Improving business school courses by applying lean principles and practices. *Quality Assurance in Education*, 12 (4), 175-187.
- Flumerfelt (Ed.), *White papers. The Pawley Lean Institute*. Available: Flumerfelt, S. F. (2008, April). Is lean appropriate for schools? [Electronic version]. InS. <http://www4.oakland.edu/?id=4709&sid=12>.
- Langer, T. (2011). *The application of Lean thinking for improving processes in higher education institutions: Evidence from three UK case studies*. Dissertation, Queen's University Belfast.
- Mostafa, S. Dumrak J. & Soltan H. (2013). A framework for lean manufacturing implementation. *Production & Manufacturing Research: An Open Access Journal*, 1 (1), 44-64.
- Srichai, P. Yodmongkol, P. Sureephong, P. & Meksamoot, K. (2013). Managing School Safety in Thailand: Assessing the Implications and Potential of a Lean Thinking Framework. *SAGE Open*, Available from <http://sgo.sagepub.com/content/3/2/2158244013489985>.
- Stevens, P.J. (2009). *Applied multivariate statistics for the social sciences*. New York: Taylor & Francis Group.
- Tusi, M. A. (2003). *Participation and participant management (system to accept and review proposals)*, Tehran: Industrial Management Institute.
- Womack, J.P. & Jones, D.T. (2003). *Lean Thinking: banish waste and create wealth in your corporation*. UK: Simon and Schuster. Available from <http://www.books.google.com>.