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Research Article

Investigating the Impact of Learning Organization on Implementing Total Quality Management in Karaj Telecommunication Company

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Abstract: The aim of this study is to investigate the impact of learning organization on implementing Total Quality Management (TQM). For this purpose, 110 people out of the statistical population of 1210 employees of Karaj Telecommunication Company have been selected using classified probable sampling to respond to the questionnaire of this survey. The tools used in this survey include (Marsick and Watkins, 2003) standard questionnaire of learning organization dimensions and Zhang's justified questionnaire related to TQM. The validity and reliability of utilized tools have been approved. In order to analyze the results, the SPSS software has been used. Correlation and multi regression analysis have been utilized for data analysis. Major findings imply that there is a positive and significant correlation between learning organization dimensions and seven dimensions considered for TQM, indicating that learning organization significantly impacts on TQM.

Keywords: Correlation, dimension, employee, learning, implementation, quality

INTRODUCTION

Considering intensive environmental changes in today's world, organizations encounter with environment that is continuously changing, followed by environmental uncertainty. Rapid growth of technology and diversity of products in intensive competitive environment, in spite of shortage of resources and problems of using human resources has forced small and large governmental and nongovernmental managers and manufacturing and service institutions to look for appropriate solutions for solving their organizational problems. What is essential for the survival of organizations in such conditions is an appropriate structure to adjust with environment. With the introduction of the learning organization theory suggested by Peter Senge, such organizations partially achieve this compatibility.

Having informational tools and appropriate telecommunication facilities compatible with new conditions, knowledge oriented and learning employees whose abilities are based on continuous quality are the prerequisites for survival (Gilbert, 1992). Numerous researchers have shown that organizational learning not only results in organizational innovation, but also results in competitive advantage. In the past two decades, TQM has been regarded as a managerial approach that results in better performance of organization. Considering these two points, those organizations which seek TQM, should concentrate on factors of organizational learning (Honarpour and Asadi, 2012). Nowadays, total quality management has become so important that most of the developed and developing countries have considered facilities and possibilities to perform it in their organizations in all dimensions from industry to training sections and have gained very good results by applying this approach (Rajaeepour *et al*., 2009). On the other hand, literature shows that implementation of TQM in 70% of American organizations has failed (Spechler, 1999) and among all endeavors, less than 35% of the plans have been successful (Harrington and Bark, 2000).

Nowadays, learning organizations are among innovative and active organizations that have created much dynamicity, creativity and evolution and have expanded the relationship between levels of management and organizational employees. These organizations are actually new organizations based on new knowledge and their employees act in various fields. Success of TQM is related to the ability of learning, absorption, adaptation and performing changes in organizational attitude and their integration in the organization. It seems that learning organization, considering the dimensions for which it is intended, can be appropriate for performing TQM and facilitates its implementation in the organization. Regarding the necessity of organizations to be learner and dynamic in today's world and the importance of quality as a competitive advantage, in this survey it is tried to

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investigate the relationship between learning organization and TQM.

Honarpour and Asadi (2012) in a research performed to investigate the relationship between TQM and learning organization concluded that organizational learning is a pathway for continuous improvement in organization and there is an interaction along with synergic effects between the two subjects and this interaction has considerable impacts on innovation and organizational performance. The existing gap in the relationship between organizational learning and total quality management in previous researches is removed in this study by a wider investigation of dimensions. According to a research performed by Lam *et al*. (2008) in Hong Kong a positive and strong relationship has been observed between the ability of organizational learning and the culture of TQM. This research emphasizes that rule orientation is an obstacle for creating the culture of TQM. Nadi and Damadi (2009) investigated the relationship between learning organization with TQM and knowledge management in Iran Insurance Company and concluded that there is a significant relationship between levels of learning organization with knowledge management indicators and TQM (except protection and leadership of top management of organization) and knowledge management has solely had direct impact on learning organization and TQM does not have such capability.

The relationship between organizational culture by establishing TQM in the schools of Semnan province has been investigated by Soleimani and Mohammadi (2009). The obtained results indicate that all organizational culture indicators including innovation and risk, punctuality, considering the result, considering members of organization, considering the team, impetuosity, stability and sustainability, have significant relationship with establishment of TQM in the schools of Semnan province and combination of organizational culture indicators as event variable has multi correlation with establishment of TQM. The two surveyors have mentioned in their survey that Mosadegh Rad (2005) in his survey in the hospitals of Isfahan province has concluded that if we want to realize TQM successfully, several factors are essential; they are protection and commitment of managers, efficient and strong management, qualitative organizing the long term goals, increasing employees' understanding about criteria and qualitative goals of organization, authorizing the employees and their optional participation. Zoualfaghari and Kalantari (2008) have investigated the establishment of TQM in Rodhen Azad University and have introduced the factors and indicators of management and leadership, employees, strategic relationship planning, organizational problems and socio-cultural indicators as the obstacles for establishment of TQM. Terziovski *et al*. (2000) has investigated the relationship between TQM and learning organization in five Australian companies. The theoretical framework of this survey was based on Peter Senge's principles and criteria of Malcolm Baldrige National Quality Award. The results show that the concepts and principles of TQM have caused the evolution of learning organization.

The main aim of this survey is to investigate the relationship between learning organization and TQM; and for this purpose, the Telecommunication Company which is one of the companies facing numerous technological changes in the environment and needs continuous improvement and abundant dynamicity to respond to these changes, has been considered for data collection and analysis.

LEARNING ORGANIZATION

Learning organizations are the phenomena proposed by Peter Senge in the beginning of 1990's. The reason of their appearance was because of the conditions, theories, change and evolution in organizational environments before that decade, so that all organizations began their widely endeavor for their survival and in order to save themselves from the turbulent environment, they had to get out of non-dynamic frameworks and transform into learning organizations. A learning organization has the least authority hierarchy, equal reward against equal performance, shared culture and flexible and compromising structure by which it can use opportunities and eliminate crisis.

Experts have proposed numerous definitions for the concept of learning organization. Garvin (1993) believes that learning organization is an organization that has the capability of creating, obtaining and transforming knowledge and justifies its behavior so as it reflects the new knowledge and viewpoints. Huber (1991) believes that learning organization learns over time to change and evolute its performance. An organization can be claimed to be a learning organization that can change and improve the range of its behaviors by relationship process. Alvani (2000) believes that learning organizations or in a sense, knowledge creator organizations are organizations in which creating new knowledge and awareness, innovations and initiatives is not a professional and special work, rather it is a kind of general behavior; a method performed by all members of organization. In other words, knowledge creator organizations are organizations in which anybody is a creative and knowledge creator human. In such organizations, thinking, team discussions and discovering new thoughts and theories are encouraged and innovators grow. Organizations should be able to apply that knowledge in their behaviors and performances and make it possible to improve and modify their activities by their help.

A learning organization is an organization that learns strongly and is team oriented and continuously

Table 1: Change in organizational paradigm (Marquardt and Reynolds, 1994)

Traditional bureaucratic organization	Learning organization
Short term goals	Individual and common sight
Tense and inflexible product	Flexible culture
Product oriented	Learning oriented
Regional emphasis	Global emphasis
Determining direction of organization by top management	Employee empowerment
Strict to rules and regulations	Risk oriented
Sheer analysis	Creativity, analysis and observation
Competition	Cooperation and collaboration

changes itself in a way that it can collect, manage and use information better with the aim of organizational success. According to Marquardt and Reynolds (1994), learning organization actually arises as change in organizational model and paradigm. In other words, learning organizations are located exactly against traditional organizational paradigm of bureaucratic organization. Appearance of this new organizational model has changed many of the basic concepts and dimensions of organization and management. In the traditional model of organization, short term goals are dominant, but in learning organization, individual and shared vision is dominant. In the bureaucratic model, tense and inflexible organizational culture exists, but in the learning organization, creativity culture, innovation and entrepreneurship, or learning culture dominate. The basic dimensions of these two organizational paradigms are addressed in Table 1.

Pedler *et al*. (1991) believes that a learning organization has the following features:

- Dominance of learning sprite all over the organization, encouraging its members to learn and develop their skills
- Development of learning culture increases the number of benefactors particularly customers of organization increasingly
- Having human resources development management unit that helps the employees according to a clear approach to choose appropriate job and learn accordingly

Garvin (1993) believes that learning organizations have the following features:

- Solving problems systematically
- Learning experience from the new approaches
- Learning from experiences of organization and past events
- Learning from other's experiences and best measures
- Effective and wide distribution of knowledge

Senge (1990) states five principles or skills necessary for organizational learning and introduces them as dimensions or principles of learning organization. These five principles include team learning, intellectual models, individual competency, common vision and systematic thinking (Heidari Tafreshi *et al*., 2002)

These five principles include three individual, team and organizational levels (Senge, 1990):

- **Individual level:** Intellectual models, personal skills
- **Team level:** Team working
- **Organizational level:** Common intuition and systematic thinking

Watkins and Marsick (1996a, b) considered seven dimensions for learning organization and believed that learning organization is designed based on these seven dimensions. These dimensions include:

- **Creating continuous learning opportunities:** Learning in organization is designed in their study so that they can learn while working.
- **Promoting inquiry and dialogue:** People obtain creative reasoning skills for stating their viewpoints and the hearing capacity and talent and asking questions about other people's viewpoints increases and organizational culture moves towards protecting questioning and providing feedback.
- **Encouraging collaboration and team learning:** The works are designed as team in the organization, so that people work with each other and learn together. This cooperation is regarded valuable by organizational culture and will be rewarded.
- **Establishing systems to capture and share learning:** High or low technological systems are created in the organization to create learning in the whole organization and to develop and combine it with work.
- **Empowering people:** People participate in establishing and performing a new and common viewpoint in organization, so that they are encouraged to learn what they are supposed to do.
- **Connecting the organization to its environment:** The organization has close relationship with its environment. People in organization can observe the impact of their study on all aspects of organization and use the information existing in the organization to arrange their working activities;

since the organization provides necessary information to the staff easily.

- **Providing strategic leadership for learning:** Leader in organization protects and supports learning and uses learning strategically.

Watkins and Marsick (1996a, b) believe that these seven dimensions like Senge's five mentioned dimensions include all individual, team and organizational levels of organization:

- **Individual level:** Creating continuous learning opportunities and promoting inquiry and dialogue
- **Team level:** Encouraging collaboration and team learning
- **Organizational level:** Establishing systems to capture and share learning and empowering people, connecting the organization to its environment, providing strategic leadership for learning

Total Quality Management (TQM): In 1980's organizational results have been considerably explained through identifying and adopting TQM. It has been observed that TQM has positive and competitive relationship with increasing productivity and reducing costs. In 1980's, TQM was converted into one of the competitive strategies as very attractive for companies which were looking for being significantly different from others. Academicians and industrialists acknowledged this attractiveness that TQM encourages organization to focus on customer's requirement by improvement process and considering improvement of costs, quality and customer's satisfaction. The foundation of TQM was based on active tracking of continuous improvement, understanding customers' attitude inside organization, training and development in all organizational dimensions.

Dean and Bowen (1994) have defined TQM as the philosophy or approach for management, whereby it can be recognized by its principles, procedures and techniques. Concentration on customer, continuous improvement and team working are three principles of it. Each principle is performed through some procedures including activities like collecting information about customer or processes of analysis. These procedures are supported by a wide set of techniques themselves. Since the beginning of Malcolm Baldrige National Quality Award framework in 1995, numerous researchers have based their literature of TQM on seven dimensions. These dimensions include leadership, strategy and planning, concentration on customer, information and analysis, employee management, process management and business performance (Jung *et al*., 2009).

According to Harrington *et al*. (2012), TQM not only results in increasing awareness and concentration of all employees on internal and external customers' satisfaction, but also by using it, managerial goals like customer satisfaction, more market share, higher production, zero wastes, reduction of costs percentage and increase of sale percentage in all aspects of organization are provided.

RESEARCH METHODOLOGY

Although in many investigations, Senge's five principles have been used, since Marsick and Watkins proposed different dimensions of learning organization that are more similar to the dimensions related to TQM, in this survey, these dimensions are used as learning organization indicator. The dimensions desired for TQM in this survey, considering its goal and the importance of these dimensions in organizational structure, are selected from 11 dimensions considered by Zhang (2000) for TQM. Zhang has chosen 11 dimensions of his research from three reference frameworks. These three frameworks have been introduced by Flynn *et al*. (1994), Saraph *et al*. (1989) and Ahire *et al*. (1996a, b) and the dimensions related to each framework are stated in Table 2. Ahire *et al*. (1996a, b) recommended the combination of three frameworks to be considered for future researches on TQM.

Major hypothesis of this survey is that "there is a positive relationship between learning organization and TQM".

Considering intended dimensions for TQM, the following seven minor hypotheses are stated and in these hypotheses, the relationship between learning organization and each of the seven dimensions are investigated:

- There is positive relationship between learning organization and performing leadership dimension.
- There is positive relationship between learning organization and performing vision and plan statement dimension.
- There is positive relationship between learning organization and performing evaluation dimension.
- There is positive relationship between learning organization and performing employee involvement dimension.
- There is positive relationship between learning organization and performing recognition and reward dimension.
- There is positive relationship between learning organization and performing education and training dimension.
- There is positive relationship between learning organization and performing customer focus dimension.

Statistical population of this survey includes all employees of Karaj Telecommunication Company. Since the company includes four large centers (including 70 employees), 15 medium centers

Table 2: Research framework

Dimensions	Source
1- Role of divisional top management and quality policy, 2- Role of quality department, 3-Training, 4- Product/service design, 5- Supplier quality management, 6- Process management/operating, 7- quality data and reporting, 8- Employee relations	Saraph *et al*. (1989)
1- Quality leadership, 2- Quality improvement rewards, 3- Process control, 4- Feedback, 5- Cleanliness and organization, 6- New product quality, 7- Interfunctional design process, 8- Selection for teamwork potential, 9- Teamwork, 10- Supplier relationship, 11- Customer involvement	Flynn *et al*. (1994)
1- Top management commitment, 2- Customer focus, 3- Supplier quality management, 4- Design quality management, 5- Benchmarking, 6- Internal quality information usage, 7- Employee empowerment, 8- Employee involvement, 9- Employee training, 10- Product quality, 11- Supplier performance	Ahire *et al*. (1996a, b)
1-Leadership, 2- Supplier quality management, 3- Vision and plan statement, 4- Evaluation, 5-Process control and improvement, 6- Product design, 7- Quality system improvement, 8- Employee involvement, 9- Recognition and reward, 10- Education and training, 11- Customer focus	Zhang (2000)
1- Leadership, 2- Vision and plan statement, 3- Evaluation, 4- Employee involvement, 5- Recognition and reward, 6- Education and training, 7- Customer focus	This survey

Table 3: Pearson's correlation coefficient

	Y1		Y2		Y3		Y4		Y5		Y6		Y7	
C	r	p	r	p	r	p	r	p	r	p	r	p	r	p
X1	0.850	0.001	0.758	0.001	0.805	0.001	0.802	0.001	0.803	0.001	0.794	0.001	0.830	0.001
X2	0.813	0.001	0.723	0.001	0.828	0.001	0.814	0.001	0.821	0.001	0.840	0.001	0.816	0.001
X3	0.863	0.001	0.818	0.001	0.787	0.001	0.763	0.001	0.789	0.001	0.811	0.001	0.815	0.001
X4	0.810	0.001	0.809	0.001	0.747	0.001	0.714	0.001	0.751	0.001	0.743	0.001	0.748	0.001
X5	0.797	0.001	0.710	0.001	0.818	0.001	0.774	0.001	0.810	0.001	0.794	0.001	0.812	0.001
X6	0.826	0.001	0.744	0.001	0.802	0.001	0.726	0.001	0.766	0.001	0.770	0.001	0.803	0.001
X7	0.853	0.001	0.787	0.001	0.770	0.001	0.736	0.001	0.769	0.001	0.750	0.001	0.777	0.001

r: Pearson's correlation coefficient; p: Significant level

Table 4: Correlation between learning organization and TQM dimensions

Y1		Y2		Y3		Y4		Y5		Y6		Y7	
r	p	r	p	r	p	r	p	r	p	r	p	r	p
0.865	0.001	0.866	0.001	0.866	0.001	0.816	0.001	0.845	0.001	0.834	0.001	0.835	0.001

(including 50 employees) and six small centers (including 30 employees), classified probable sampling method is used and based on this method, a sample of two large centers, six medium centers and three small centers are selected randomly and 110 people of the employees are selected from these centers. The tools used in this survey are two questionnaires:

- Marsick and Watkins's standard (dimensions of learning organization) questionnaire DLOQ in which seven dimensions of learning organization in forms of 43 questions are evaluated. The reliability coefficient of this questionnaire is 0.92.
- Surveyor's made questionnaire of TQM in which seven dimensions of TQM in forms of 39 questions are considered. The reliability coefficient of this questionnaire is 0.90.

RESULTS

In order to analyze the data, Pearson's correlation coefficient and multi regression analysis using SPSS software are applied. The obtained results are addressed in Table 3. Considering the results, there is significant and positive correlation between learning organization indicators (X1 to X7) and TQM indicators (Y1 to Y7). The highest correlation coefficient value is observed between X3 variable of learning organization (team learning and cooperation) and Y1 variable of TQM (leadership).

Table 5: Relationship between the two variables

	R	R^2	R^2 adjusted
CX2	0.866	0.751	0.748
CX2, CX3	0.908	0.824	0.821
CX2, CX3, CX5	0.931	0.866	0.862
CX2, CX3, CX5, CX1	0.937	0.878	0.873

Considering the data in Table 4, the highest correlation coefficient value is between learning organization and Y2 (vision and plan statement) and Y3 (evaluation).

Based on the findings in Table 5, in the first step, X2 (inquiry and dialogue) is entered into the equation and solely accounts for 75% of TQM changes. In the second step, X3 variable (collaboration and team learning) enters to the equation and along with X2 variable totally accounts for 82% of TQM changes. In the third step, X5 variable (employee empowering) enters to the equation and along with X2 and X3 variables totally accounts for 86% of TQM changes. In the fourth step, X1 variable (continuous learning opportunities) enters to the equation and along with X2, X3 and X5 variables totally accounts for 87% of TQM changes.

DISCUSSION

Regarding Table 4 that shows the results obtained from the relationship between learning organization and TQM dimensions, Pearson's correlation coefficient is higher than significant level (0.001<0.865) indicating

that the first hypothesis, stating that there is positive relationship between learning organization and leadership dimension is accepted, meaning that the learning organization can be an appropriate background for implementation of leadership dimension of TQM. The correlation coefficient is higher than significant level (0.001<0.866) indicates that the second hypothesis, stating that there is positive relationship between learning organization and vision and plan statement dimension is accepted, meaning that the learning organization can be an appropriate background for implementation of vision and plan statement dimension of TQM. The correlation coefficient is higher than significant level (0.001<0.866) indicates that the third hypothesis, stating that there is positive relationship between learning organization and evaluation dimension is accepted, meaning that the learning organization can be an appropriate background for implementation of evaluation dimension of TQM. The correlation coefficient is higher than significant level (0.001<0.816) indicates that the fourth hypothesis, stating that there is positive relationship between learning organization and employee involvement dimension is accepted, meaning that the learning organization can be an appropriate background for implementation of employee involvement dimension of TQM. The correlation coefficient is higher than significant level (0.001<0.845) indicates that the fifth hypothesis, stating that there is positive relationship between learning organization and recognition and reward dimension is accepted, meaning that the learning organization can be an appropriate background for implementation of recognition and reward dimension of TQM. The correlation coefficient is higher than significant level (0.001<0.834) indicates that the sixth hypothesis, stating that there is positive relationship between learning organization and education and training dimension is accepted, meaning that the learning organization can be an appropriate background for implementation of education and training dimension of TQM. The correlation coefficient is higher than significant level (0.001<0.835) indicates that the seventh hypothesis, stating that there is positive relationship between learning organization and customer focus dimension is accepted, meaning that the learning organization can be an appropriate background for implementation of customer focus dimension of TQM.

In a survey performed by Nadi and Damadi (2009) regarding investigation of the relationships between learning organization and TQM, they concluded that quality management does not have direct impact on learning organization, while in this survey it was concluded that there is significant relationship between them. Lam *et al*. (2008) in Hong Kong showed that there is a positive relationship between organizational learning and TQM. Innovative leadership is one of the indicators of organizational learning and learning organization results in creation of TQM. In this survey, leader's protection of learning was considered as one of the learning organization dimensions and existence of positive relationship between it and TQM is one of the results of this survey. In the study of Mosadegh Rad (2005) in the hospitals of Isfahan province, it has been shown that managers' protection and commitment and increase in employee understanding and empowering and involving employees are the factors of successful implementation of TQM. In this survey, leader's protection and employees involvement and empowering which are learning organization dimensions as well, have role in implementing TQM. Terziovski *et al*. (2000) studied the relationship between quality management and learning organization based on Peter Senge's model, while in this survey, Marsick and Watkins' model was used. Generally, in this survey more different dimensions compared with previous surveys have been investigated.

Based on the findings, practical suggestions can be addressed for the Telecommunication Company. In order to provide learning opportunities for people, the employees training procedures can be designed in a way that their educational needs are continuously recognized and trainings are considered according to these needs. Considering reward for people's learning causes their encouragement for upgrading their learning level. Holding discussion and dialogue meetings as one of the learning dimensions is important; in such meetings people are permitted to raise their viewpoints about their colleagues and higher individuals. People can be encouraged to perform activities as a team. In order to exchange information and awareness of organizational condition and to try for removing problems of organization and optimizing learning process, it is better to use mutual relationship technology like suggestions system and informational systems in the organization, whereby existing information becomes accessible for all members of organization easily.

CONCLUSION

In this study the impact of learning organization on performing TQM was investigated. For this purpose, the employees of Karaj Telecommunication Company were chosen as statistical population of survey. The results obtained from analysis of data indicates that there is a positive and significant relationship between desired indicators for learning organization and desired indicators for TQM and all hypotheses of survey are accepted.

As survey limitations, it should be noted that this survey is related to governmental organization of Karaj Telecommunication and it was performed in specific spatial and temporal dimensions, thus it might not be

generalized to other spatial and temporal dimensions. In this survey limited and specific indicators have been investigated. Evaluation tool in this method was questionnaire and other methods of collecting information like interview and etc., was not used. The existing regulations in Iran governmental organizations regarding permission of performing survey and providing information for surveyors are considered among limitations of this survey. The desired variables are more qualitative and considering quantitative variables can change the results.

Considering the findings and limitations of research, the following suggestions can be considered for future study:

- Evaluating the level of learning culture and its relationship with TQM in two or more private companies and investigating the associated results
- Comparing the obtained results of evaluating governmental and private organizations and stating the existing differences
- Comparing the obtained results of evaluating the level of learning culture and its relationship with TQM in private and governmental companies and stating common results in this respect
- Determining effective factors in improving organizational culture
- Using other evaluation tools in addition to questionnaire to reach more accurate results

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