THE RELATIONSHIP BETWEEN ORGANIZATIONAL CULTURE AND KNOWLEDGE MANAGEMENTIN GOVERNMENTAL ORGANIZATIONS of EAST AZERBAIJAN PROVINCE

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ABSTRACT

This study investigates the relationship between organizational culture and management in governmental organizations of East Azerbaijan province. The main question of the research is that is there a relationship between organizational culture and knowledge management in governmental organizations of East Azerbaijan province? The research method is descriptive and inferential. The statistical population of the research also includes employees of governmental organizations of East Azerbaijan province that use provincial funds and is obtained through Krejcie Morgan tables. To collect research data in order to measure organizational culture, Denison questionnaire and in order to measure structure of knowledge management, a researcher made questionnaire based on Jashapara model have been used. This study intends to explain the science reasons behind it and the need to the relationship between organizational culture and knowledge management. Findings showed that there is a relationship between organizational culture and knowledge management in governmental organizations of East Azerbaijan province.

Keywords: Management, Knowledge Management, Culture, Organizational Culture, Organization

INTRODUCTION

Today, organizations focus on intangible and intellectual asset that is called "knowledge" as a crucial factor. To achieve reserved organization knowledge is not possible without learning. Believes that prior knowledge measures, organizations should have a detailed look at their own organizational culture because organizational culture as a key factor presents in knowledge management scene. The ability of use of information and technology and innovation management capabilities and processes in turn relies on the ability of latent learning within the organization. A knowledge management system within a learning organization must be able to coordinate learning and work activities of individuals with each other and also should include sufficient motivates and incentives for involving all members and attract them to engage in inter-organizational activities. According to conducted studies, one of the main obstacles to deploy knowledge management in organizations is organizational culture and discuss about culture change is the most important aspects of any knowledge management system. Therefore, the necessity of attention to organizational culture is because of the impact that culture has on all aspects of the organization. Organizational culture can drive the organization forward or stop and this potential power is because of the impact that culture has on behavior. So, if it is asked to study the reasons of success and failure in organizations, organizational culture should be investigated. Because an open organizational culture that encourages sharing and transfer of useful ideas and experiences is the key success factors of knowledge management. Accordingly, this study investigates the relationship between organizational culture and knowledge management in governmental organizations of East Azerbaijan province.

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Statement of The problem

The world with a variety of standards is constantly exposed to unpredictable developments and changes. Alvin Toffler believes that entering to twenty-first century as an era of Meta-theory will be attractive to humans when current human can tolerate the changes of that century and appear courage in front of it. This ideal phenomenon would be possible to realize conditioning that modern human ready to such changes in the world of posterities. It also needs to knowledge, skills, insights and dynamics. Life in the New World needs to understand and identify skills to use these tools. Without knowing such a tool, life and competition would be very difficult and require the loss of many opportunities in the daily life of individuals and communities (Sadeghi and et al., 2011). One of the tools that can assist organizations to achieve these objectives is knowledge management. Knowledge management means knowledge creation, knowledge acquisition, knowledge storage, knowledge dissemination, knowledge sharing, and finally knowledge application. An organization should identify needed knowledge, acquire and storage it in order to use it in needed situations. Therefore, the knowledge management includes the processes of knowledge creating, knowledge validating, knowledge forming, knowledge distributing and of its scientific application in an organization (Bhatt, 2000). In other words, organizational culture affects all aspects of organization and based on common beliefs and values, empowers organizations and also impacts on individual behavior attitudes, motivation, job satisfaction and commitment of human resources, design organizational structures and systems, setting goals, developing and implementing policies and implementation strategies etc. only by study, change and create a proper and flexible organizational culture, pattern of interaction between people in the organization can be changed and knowledge management can be applied as a competitive advantage. Therefore, organizations need to provide an environment of sharing, transfer and conflict knowledge among members and train individuals in order to make their interactions a sense (Sadeghi et al., 2011). Therefore, given that today the most important of competition world is the change, lying on organization individuals as the most important assets of organization, in order to improve purposes, organizations and corporates have to encourage them to know, understand and provide new ideas and knowledge and practical application of them. This activity requires that the organizational culture as a former of personality of organizations that effects on the behavior of employees will be knowledge-culturist culture and supporting knowledge-based activates. The main barrier to effective implementation of knowledge management is lack of culture of knowledge sharing and lack of understanding of the numerous benefits of knowledge management among employees. In addition, studies show that knowledge-based culture that includes values and beliefs of organizational members about the concepts of information and knowledge is one of the most important factors in the success of knowledge management (Pauleen, 2002). Given the above, the relationship between culture and knowledge management is inevitable. For this purpose, present study investigates the relationship between culture and knowledge management in governmental organizations of East Azerbaijan using McCarthy model.

Theoretical Literature of the Research

Organizational Culture and Organizational Management

Organizational culture is the dominant behavioral pattern between people in an organization emerged based on values, beliefs, habits and supported by the majority of people and affected by factors such as monitoring, control, communications, collaboration, conflict, cooperation, respect for social values and soon (Hassanlu, 2011). Smircich 1982 defines organizational culture as: "Organizational culture is a set of key values, guide beliefs and consensus that are common in members of an organization and reveal substantial and unwritten part of organization. In this regard, Stephen (2000) introduced seven features as the essence of corporate culture:

- 1- Autonomy: The degree of responsibility, independence and opportunities that are given to the individual in the organization.
- 2- Structure: The rules and regulations governing the organization.

- 3- Support: The support level that are provided by management staff.
- 4- Similarity: The similarity and homogeneous level of members with organization as a whole.
- 5- Reward performance: The amount of reward allocation, such as overtime, salary, incentives, etc., for the way of performance of organization's members.
- 6- Conflict tolerance: conflict between employees and their tendency to honesty and truth about tolerance and conflict resolution.
- 7- Risk Tolerance: Risk levels of employees in performing affairs

According to Edgar Schein, organizational culture is formed in response to two major challenges that every organization faces to: 1) external stability and integrity and2) internal unity and survival. External stability and integrity is related to the position of organization in environment, which is how the organization can face with environmental changes (Edgar Schein, 2004). Therefore, the management of organizational culture means to knowingly and consciously work on the culture, socialization of individuals related to it, protect, development or real change of it. Three components of organizational culture management are: 1- To exploit existing culture, 2- To train the organizational culture and 3- To change the organizational culture. In addition to these three factors, management of organizational culture in support of culture plays an important role through 1-Procedures for selection 2-High level management activities and 3-Socialization practices (Ansari, Ghasemi, 2009). Management of organizational culture is the process that constantly seeks to identify existing culture and desired organizational culture and in order to change the existing culture and develop desired values and behavior patterns, this process is also affected by the culture of organization environment (Ali Ahmadi, 2004). But one of the major problems have attracted the attention of many researchers is how to measure organizational culture. Some researchers believe that the deep level of organizational culture as a significant sense, semiotics, underlying beliefs and assumptions can be examined through clinical or ethnographic methods not analogical methods. However, many researchers have been satisfied analog measurement of values and behavioral norms in the field of organizational culture. For example, one of the earliest assessment tools of organizational culture is that organizational culture questionnaire that Cook and Lefreti have provided based on measurement of perceptions related to behavioral norms. The questionnaire classified cultural styles into 12 into three main categories. These three categories include structural style and impressionable style/defense and aggressive/defense style.

Knowledge Management

Wigge (1999) and Prusak(2001) claim that the origins of knowledge management backs to three thousand years BC. For the first time, in 1986, Karl Wigge cited "knowledge management" in his book. But before him, Peter Drucker, Toffler and others implicitly had heralded the emergence of this phenomenon. The effects of Seyoubi and subsequently Bachman, Nonaka and Wigg caused that corporates and organizations and industrial scientists pay attention to big investments; which is the investments while generating the majority of added value of good, were not managed, organized and planned (Afzareh, 2005).

Table 1: The steps of knowledge management development

Decade	Progress of knowledge management
1970	Knowledge management was introduced.
1980	Given the importance of knowledge management, related publications were ascending.
Early of 1990	The activities of U.S., European and Japanese companies intensified in the area of knowledge management.
Mid of 1990	International networks of knowledge management emerged.
End of 1990	Knowledge management became a part of the corporate business activities.
Third	Large European corporates allocated about 55 percent of their income to knowledge
Millennium	management.

Present era is the era of rapid change and development of the knowledge. Every five and half years, the rate of knowledge doubles while its average life is less than four years. In such situation, knowledge is considered as a valuable strategic resource and asset that requires management. If we add "Fierce competition in global markets" to above condition, the importance of managing organizational knowledge as a competitive advantage in current knowledge-based economy would double (Jalali *et al.*, 2007). Therefore, knowledge management is identifying, taking, organizing, and processing practices of information in order to create knowledge which is then distributed and in other words, prepared for others to use for creation of more knowledge (Rading, 2004). In relation to knowledge management, has identified eight specific advantages of knowledge management that are:

- 1- To prevent loss of knowledge: it enables organization to protect their critical technical expertise and avoid the loss of critical knowledge, which is caused by retiring, downsizing or firing employees and making changes due to human memory.
- 2- To improve decision making: it identifies the type and quality of required knowledge for effective decisions and facilitates access to the knowledge; as a result, faster and better decisions can be made at lower levels of the organization.
- 3- Flexibility and adaptability: It allows employees to have a better understanding of their work and discuss innovative solutions, work directly under the supervision and need less intervention. As a result, employees can be activated in multitasking situations and organization can enhance staff morale.
- 4- Competitive advantage: It enables organizations to understand customers, market, point of views and competition in order to identify gaps and competitive opportunities.
- 5- Asset development: it improves the ability of organization to invest for the legal protection of intellectual assets, otherwise, it may cause invention recording, trademarks, leases, copyright of works and trade secrets not used at the right time and led to less legal protection and reduced the market value for intellectual property.
- 6- Increase of product value: It allows organizations to apply knowledge in the products and services. As a result, the perceived value of the product or directly proportional of the amount and quality of knowledge in the product will be increased.
- 7- Customer management: It enables organization to increase focal attention and customer services. Customer knowledge results in faster response to questions, suggestions and complaints of customer. It also ensures consistency and better quality of customer services. Solutions to common problems are easily accessible.
- 8- Deployment investments in the sector of human capital: It conducts through empowering to participate in learned lessons.

Knowledge management has two major goals (Wigge, 1997). 1- To make actions of activities of organization smart as more as possible in order to viability and overall success. 2- Understand the value of the best knowledge assets of organization.

A study has conducted by Alipour (2012) aim to determine influencing factors on knowledge sharing within and between departments of Islamic Azad University. Technological capabilities, organizational culture, organizational structure, the status of knowledge documentation, administrative control, organizational interaction, communication interdependence and motivational techniques are among organizational contextual factors and trust to administrator, perceived organizational support are among perception factors all were examined as independent variables. The results show that the trust to administrator through documenting knowledge effects on knowledge sharing within and between groups. Technological capabilities and perceived organizational support were the factors influencing knowledge sharing between groups. Similarly, material and immaterial motivational techniques have impact on knowledge sharing within the group. In this regard, a study entitled how the relationship between the environment and organizational structure mediated by knowledge management has conducted by Lin *et al.*, (2012). This study examine show knowledge management capability helps organizational structure encounter to environmental uncertainty. In fact, this study presents and tests an integrated model to

examine the relationship between environmental uncertainty, knowledge management capability and organizational structure. Data were collected from 161companies. The results of the analysis of structure equivalence supported knowledge management capability as a mediator between environmental uncertainty and structural features.

MATERIALS AND METHODS

Research Method

This project is applicable in terms objective and is correlational descriptive in term of nature and methodology of the study. The statistical population of the research includes employees of governmental organizations of East Azerbaijan province and used provincial funds that based on statistics of governor office of East Azerbaijan is 1200 people. To determine the sample size, of Krejcie and Morgan tables are used. According to 5% accuracy degree and 95% confidence level, sample sizeis291people, that 243of the sample is collected and tested. In this study, library and internet search method is used to collect the results of previous researches, as well as comments related to the topic of study. In addition, to collect research data in order to measure organizational culture, Denison questionnaire and in order to measure structure of knowledge management, a researcher made questionnaire based on Jashapara model have been used. To assess the validity of questionnaire, the opinions of experts and specialists have used. To do this, the questionnaire provided for three of the professors and professionals of management field that according to their opinions, content validity and apparent validity of the questionnaire is sufficient. To investigate there liability of the survey questionnaire, the Cronbach's alpha is used. At this stage, 20 questionnaires provided for sample people as a pre-test; after collecting the questionnaires, Cronbach's alpha coefficient was obtained from the following table, which shows there liability of the survey.

Table 2: Cronbach's alpha coefficients

questionnaire	variable	Question numbers	Question quantity	Cronbach's alpha coefficient
Organizational culture	Organizational culture	1-20	20	0.85
	Knowledge management	1-20	20	0.76
	Knowledge creating	1-7	7	0.81
Knowledge management	Knowledge organizing	8-10	3	0.70
	Knowledge exchange	11-15	5	0.71
	Knowledge application	16-20	5	0.80

To measure knowledge management, a researcher made questionnaire based on Jashpara model (2004) is used that is based on the four dimensions of knowledge creation (7 questions), organizing knowledge (3 questions), knowledge exchange (5 questions), and applying knowledge (5 questions) that are total of 20 questions have been developed in five options Likret scale. To measure variable of organizational culture, Denison questionnaire has been used. Number of questions include 20 questions has been developed in five options Likret scale. The data analysis method, first required data from the statistical population has obtained using distribution of questionnaires among members of sample data and then data has collected, classified and summarized. To check the normality of data, "Kolmogorov -Smirnov" test is used. After

that, in addition to provide descriptive findings of statistical sample, research hypotheses have been examined using Pearson correlation coefficients. Pearson correlation's formula is as follows:

$$r = \frac{n\sum xy - \sum x\sum y}{\sqrt{n\sum y^2 - (\sum y)^2}} \frac{1}{\sqrt{n\sum x^2 - (\sum x)^2}}$$

Data Analysis

According to the collected data were analyzed, the analysis was presented in two parts: descriptive statistics and inferential statistics. In descriptive statistics, descriptive indicators of organizational culture and knowledge management have been investigated. In inferential statistics, first the distribution of data related to variables and then test hypotheses are discussed.

A) Descriptive Statistics

A).1- Descriptive measurements of organizational culture

For organizational culture variable, average, mean, standard deviation, skewness, kurtosis, minimum and maximum values are calculated and the histogram is plotted. Scores are changeable between 1 and 5. The mean of organizational culture is 3.55, minimum value is 2.2 and maximum value is 4.6.

Table 3: Descriptive measurements of organizational culture

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	No.	average	mean	standard deviation	skewness	kurtosis	minimum	maximum	
Organizational culture	234	3.55	3.60	0.52	- 0.46	- 0.34	2.20	4.60	

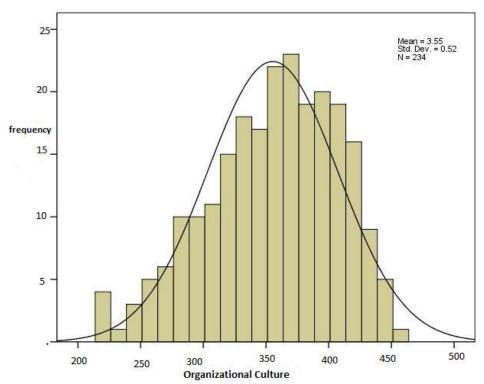


Figure 1: Frequency distribution of organizational culture variable

A) 2- Descriptive Measurements of Knowledge Management

For knowledge management variable, mean, median, standard deviation, skewness, kurtosis, minimum and maximum values are calculated and the histogram is plotted. Scores are changeable between 1 and 5. The mean of knowledge management is 3.59, minimum value is 2.10 and maximum value is 4.56. The mean of knowledge creating is 3.52, minimum value is 1.80 and maximum value is 5.0. The mean of knowledge organizing is 3.32, minimum value is 2.0 and maximum value is 4.7. The mean of knowledge exchanging is 3.75, minimum value is 1.90 and maximum value is 5.0. The mean of knowledge application is 3.75, minimum value is 1.73 and maximum value is 5.0.

Table 4: Descriptive measurements of knowledge management

Tuble 4. Descr	No.	average	mean	standard deviation	skewness	kurtosis	minimum	maximum
Knowledge management	234	3.59	3.63	0.53	- 0.28	-0.61	2.10	4.56
Knowledge creating	234	3.52	3.50	0.61	-0.12	-0.07	1.80	5.00
Knowledge organizing	234	3.32	3.25	0.57	0.25	-0.43	2.00	4.70
Knowledge exchange	234	3.75	3.80	0.66	-0.54	-0.07	1.90	5.00
Knowledge application	234	3.75	3.82	0.78	-0.39	-0.66	1.73	5.00

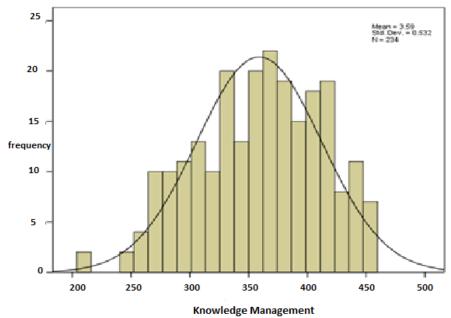


Figure 2: Frequency distribution of knowledge management variable

B) Inferential Statistics

B). 1- Investigate the Normality of Distribution of Data Related to Research Variables

In order to investigate the normality of distribution of variables scores, Kolmogorov-Smirnov test has used. In this test, null hypothesis means normality of variable distribution. If the test significance level is greater than 0.05, the null hypothesis is confirmed and we conclude that the distribution of the interest variable is normal.

Table 5: The results of Kolmogorov-Smirnov test to investigate normal distribution of scores

Variable	Quantity	Kolmogorov–Smirnov statistics	Significance level
Organizational culture	234	1.259	0.083
Knowledge	234	0.906	0.385
management			
Knowledge creating	234	0.980	0.292
Knowledge organizing	234	1.332	0.058
Knowledge exchange	234	1.233	0.095
Knowledge application	234	1.218	0.099

Given the significant levels achieved concluded that organizational culture and knowledge management variables and their components are normally distributed (significance level is greater than 0.05).

B). 2- The Main Hypothesis of the Research: There is a Relationship between Organizational Culture and Knowledge Management In Governmental Organizations of East Azerbaijan Province.

To test this hypothesis, the Pearson correlation test was used. The null hypothesis in this test is when the correlation coefficient is zero (no linear relationship). If the significance level of test is less than 0.05, the null hypothesis will be rejected. In this case, there is a linear relationship between the variables. In this test, Pearson correlation coefficient is 0.74 and the significance level of test is 0.001. Given the significance level of Pearson test is less than 0.05, the hypothesis of no linear correlation between variables is rejected. It means there is a direct linear relationship between organizational culture and knowledge management in governmental organizations of East Azerbaijan province.

Table 6: Pearson correlation test for knowledge management and organizational culture

		Organizational culture
Knowledge management	Correlation coefficient	0.740
	Significance level	0.000
	quantity	234



Figure 3: Pearson correlation test for knowledge management and organizational culture

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CONCLUSION

This study has investigated the relationship between organizational culture and management in governmental organizations of East Azerbaijan province. Based on the findings of hypothesis test, the results can be presented as follows:

The main hypothesis of the research: There is a relationship between organizational culture and knowledge management in governmental organizations of East Azerbaijan province.

In this test, Pearson correlation coefficient is 0.74 and the significance level of test is 0.001. Given the significance level of Pearson test is less than 0.05, the hypothesis of no linear correlation between variables is rejected. It means there is a direct linear relationship between organizational culture and knowledge management in governmental organizations of East Azerbaijan province. In order to compare these results with other studies conducted, the results of this study comparison with results from other studies have discussed. Martin (2000) states in are search that organizational culture and influencing factors such as leadership, organizational culture, processes and incentives (bonuses), are among success factors of learning organizations and knowledge management. Fahi (2000) in a research concluded that due to weak organizational culture, there is less likely that organizations can implement knowledge management. Holotezi (2002) concluded that there is a significant relationship between knowledge management and organizational culture. Perrin(2005) concluded that the most effective tools for knowledge exchanging, sharing and exchange between employees is use of email and internet and organizational culture aligned with the knowledge management that due to improper and timely use of this tool, knowledge exchange between financial institutions will be delayed and people are not able to meet their needs in the context of work knowledge timely. Kari (2008) has shown that to implement knowledge management, organizational culture is one of the very strong assumptions that are closely associated with knowledge management. Wah (2008) has reported a significant correlation between organizational culture and knowledge management. Kahn Gus (2006) showed that in organizational culture, knowledge management maybe a strategic effective innovation and led to long-term success, develop values, and contribute to increased profit ability of competitions. Kermani (1384) showed that a strong organizational culture and employee meetings is helpful to participate and exchange of knowledge between them and the use of existing incentives (financial and spiritual) for applying updated knowledge, development training classes, distribution, exchange and sharing knowledge across organizations. Jafari Farsani (1389) showed that dimensions of organizational learning culture have positive effects on employees to play knowledge role in the organization. Considering above statements and investigations conducted, we can conclude that this study is consistent with the results of works of Martin (2000), Fahi (2000), Holotezi (2002), Perrin (2005), Kari (2008), Wah (2008), Kahn (2006), Kermani (1384) and Jafari (1389) and has theoretical supporting. In other words, the findings of this study support the views expressed in this area.

Recommendations

- 1- To provide a culture of continuous learning with an emphasis on Human Development through education as a process to improve and enhance abilities, increase knowledge and awareness and change attitudes and attitude of staff particularly with respect to jobs have been a lot of changes in the past few years, such as audit, shopping, advertising etc.
- 2- To provide a healthy competitive culture by offering reward and job promotions for employees who voluntarily out of the organization participate in occupational training programs are related to the areas of their job in order to maintain and strengthen their motivation and make healthy and constructive competition feeling for other employees.
- 3- To provide a culture of clear and detailed information through the preparation of catalog, brochure, billboard about the latest changes in the field of employment issues in the organization and install them in crowded places such as attendance systems, self-services etc. in order to inform employees.

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4- Organizational culture is a macro and meta-organization concept, therefore, is an ongoing process and it is necessary to pay attention to employ, deploy and run it with the other constituent variables and to be non-linear (be as a process) that this consideration influenced the attitude of the managers of organization.

5- The results showed that there is a relationship between organizational culture and knowledge management in governmental organizations of East Azerbaijan province and their components. Therefore, it is recommended to provide the conditions of knowledge management by strengthen organizational culture among employees.

REFERENCES

Afrazeh A (2005). Knowledge management (concepts, models, measurement and implementation) Tehran.

Ali Ahmadi A et al., (2004). Understanding the culture: the culture of the organization and its management (Tehran, Publication of knowledge production).

Ali Pour Z (2012). Providing a model of the factors influencing knowledge sharing Departments Islamic University. *Information Technology Management* **4**(10) 96-116.

Ansari Ranani Gh and Ghasemi Namaghi M (2009). Evaluating knowledge management effect on differentiation competitive strategy creation via organization value chain. *Research Change Management* 1(2) 1-20.

Bhatt GA (2000). Resource based perspective of developing organization capabilities for business transformation. *Knowledge and Process Management* **7**(2) 9.

Cohen D & Prusak L (2001). *In Good Company: How Social Capital Make Organizations Work* In Vilanova & Josa (2003), Social capital as a managerial phenomenon, Working Paper, Department of Industrial Engineering and Management. Tamper University of Technology.

Ghasemi B (2009). Management of Organizational Behavior (Tehran, Sepahan publication).

Hassanlu H (2011). The relationship between organizational culture and the desire to assess the quality in Faculty of Social and Behavioral Sciences, Faculty of Psychology and Educational Sciences at Tehran University.

Jalali SMJ, Afrazeh F, Nezafati N (2007). Software Design and Application of Knowledge Management System (Case Study in the Islamic Republic of Iran Ministry of Road and Transportation) *International Conference on Industrial Engineering.*

Lin C, Wua JC and Yen DC (2012). Exploring barriers to knowledge flow at different knowledge management maturity stages. *Information & Management* 49 10-23.

Moorhed, Griffin, Gregory and Ricky (2008). *Organizational Behavior* translated by Seyed Mahdi Alvani *et al.*, (Tehran, Morvarid publication).

Nonaka I and Takeuchi H (1995). The Knowledge Creating Company (Oxford University Press, Oxford).

Nonaka Ikujiro *et al.*, (1998). The knowledge creating: How Japanese Companies create the Dynamics of innovation. *Harvard Business Review*.

Pauleen D and Mason D (2000). Newzealand knowledge management: barriers and drivers of knowledge management uptake. *Journal of Knowledge Management* **8**(5) 23-54.

Rading Allen (2004). Knowledge Management: Success in the Global Economy, Based on the Information translated by Mohammad HosseinLatifi (Tehran, Samt publication).

Sadeghi A *et al.*, (2011). A case study: the association between organizational culture with management knowledge in Hasheminezhad hospital – Tehran. *Hospital* **10**(2(37)) 1-8.

Schein E (2004). *Organizational Culture* translated by MohamedEbrahim Mahjoub (Tehran, Kherad Publication).

Schein EH (1997). Organizational Culture & Leadership (Zed Jossy Bass, Sanfrancisco).

Smircich L and Morgan G (1982). Leadership: The management of meaning. *Journal of Applied Behavioral Science* 18.

Research Article

Stephen P Robbins (2000). Management Today (San Diego State University).

Wigg K (1997). Establish, Govern, and Renew the Enterprise Knowledge Practices (Schema press, Arlington, TX).

Wigg K (1999). Successful knowledge management. European Management Journal 4.

Wigg K (2000). The intelligent enterprise and knowledge management. Available: www.ecz.edo/decenter/ok