



# **The Relationship Between Strategic Knowledge Management and Organizational Innovation (Case Study: Bushehr's Medical Sciences University and Health Care Center)**

**Parvaneh Rastgoo\***

Expert of Public Management, Vice-chancellor for Culture and Student Affairs, Bushehr University of Medical Sciences, Bushehr, Iran. \*Email: [p.rastgoo@bpums.ac.ir](mailto:p.rastgoo@bpums.ac.ir)

## **ABSTRACT**

The present study was aimed to examine the relationship between knowledge management and organizational innovation in Bushehr's Medical Sciences University and Health Care Services Center (2016). Research method was practical in terms of objective; and in terms of data collection method, it was descriptive-survey. The statistical population of the present study consisted of 301 employees working in educational assistance, research and technology assistance, and student and culture assistance of Bushehr's medical sciences university and health care services center; from them, 170 individuals were selected as sample size, using a Morgan table and a stratified random sampling method. Data collection method was based on two questionnaires: (1) Mostafavi's standard strategic knowledge management questionnaire (2013), and (2) Chupany's organizational innovation questionnaire (2011). In the following, the reliability and validity of the questionnaire were approved; after the distribution and collection of the questionnaires, data examination and hypothesis testing were done using a Pearson Correlation method and a regression method, through SPSS software. Finally, the results of the present study show that there is a significant relationship between strategic knowledge management and its dimensions with organizational innovation (production innovation, process innovation, and official innovation) in the studied sample, i.e., Bushehr's medical sciences university and health care services center.

**Keywords:** Organizational Innovation, Privatization, Strategic Knowledge

**JEL Classifications:** C32, O13, O47

## **1. INTRODUCTION**

In today's fast-forward world, survival requires organizations to enhance their specialized-technical knowledge, enhance their knowledge application methods, and balance economic systems and global markets. Realizing this is possible through research, development, innovation, and using global accomplishments. Innovation is considered as a crucial factor for organizations, which helps to achieve value and competitive advantage in today's variable and complex environment (Mirghafoori et al., 2013).

In fact, one of the factors increasing the importance of innovation is globalization. There is external competition for constant innovation in production, services, and segregated products. Additionally, advances in IT play an important role in accelerating

innovation. In today's knowledge-based economy, organizations increasingly move towards more efficiency, higher quality, and flexibility in order to maintain competitive advantage. Complexity, uncertainty and fast changes in competitive environments have made innovation necessary for development and survival in companies (Zhang, 2015).

On the other hand, innovation is highly important for organizations, because it can lead to sustainable competitive advantage for them. Many organizations face numerous problems in terms of competition; and such problems are the cause of high-speed changes in environments, especially technological changes. In line with this, managers and employees must be creative and innovative in terms of adaptability to fast changes, production lines, management styles, and production processes (Weerawardena et al., 2006).

Additionally, within the past two decades, organizations have significantly changed in line with globalization, becoming organizations which cannot focus (Shahrokhi et al., 2015).

According to Curzio and Fortis (2005), for competition in global economy, there are five pillars, three of which are education, research, and impartible infrastructures; investment in one of these three pillars is not possible without investing in the other three. The fourth pillar is innovation, and the fifth pillar is citizens' integrated approach to communication (science) (Curzio and Fortis, 2005). Based on the above-mentioned, it can be found that innovation is one of the bases of competition, stating its importance and position. Innovation leads to a number of advantages related to productivity improvement, cost reduction, and having access to new markets. These effects result in academic literature's interest in the identification of factors which facilitate and hinder innovation (Segarra-Oña et al., 2011).

In other words, idea innovation is a method or subject which individuals, groups, or systems consider as new. The novelty of ideas, objectively, dependent upon length of time, is not dependent upon the first application or discovery of it; but, it is the intellectual novelty and perception of idea that determines individuals or groups' reaction to it (Bigliardi and Ivo, 2009; Liao et al., 2008).

On the other hand, through their activities, organizations gain valuable experiences and knowledge, and they can use them in order to better do organizational processes. This knowledge, which is called organizational knowledge, includes experiences from doing different projects, whether successful or unsuccessful, facing new problems and professional situations, and/or innovations in order to accelerate work processes. Organizational knowledge is a valuable capital for an organization, which requires management (Ghobadi and Matiasen, 2016).

Knowledge management literature considers innovation as a vital factor for companies, which helps provide value and maintain competitive advantage in today's complex and dynamic environment. Innovations have a great tendency towards knowledge, expertise, and commitment in employees, as key inputs in the process of creating value; while firms can be more successful in responding to environmental changes as well as extending new capabilities if they have more innovations (Ranjit, 2004). As a factor, innovation is a new executive structure or system, a policy, a new design, or a new plan, a new service or product for an organization, which is obtained in two ways: (1) It is either applied in the organization, or (2) it is bought from external resources. Studies conducted by Nanoka in the production of new knowledge approve of knowledge as one of the requirements and pre-hypotheses of innovation and competition. Knowledge management systems help to become creative, leading to better innovation, through access and transference of new knowledge (Majchrzak et al., 2004).

Now, considering the abovementioned, in this research, we look for factors helping to improve and enhance innovation in knowledge-based organizations such as Bushehr's Medical Sciences University and Health Care Services center. On the

one hand, with a look at strategic plans of this university such as offering distance services based on electronic government, internalizing practical research in the health system, increasing employees' motivation through exploiting available opportunities, reducing system costs, providing a proper ground for increasing cooperation in decision-making and so forth, we can measure the importance of examining strategic knowledge management and innovation in this university. Since Joo and Lee (2009) believe that strategic knowledge management comprises strategic efforts to increase value for improving organizational effectiveness in business environment changes and social environments, it seems that one of the factors affecting innovation in organizations is strategic knowledge management, which will be discussed in the following.

Today, organizations look at their produced knowledge and the process of sharing it as a major capital, and they try to collect and maintain this knowledge (Obrenovic et al., 2016).

Knowledge management is a process which helps organizations to identify, select, organize, and propagate important information and skills, which are considered to be a kind of organizational memory and are usually available in an unorganized fashion. This enables organizations to solve problems, do strategic planning, and make dynamic decisions in an efficient and effective manner. Knowledge management emphasizes knowledge identification and proposition, so that it can be shared officially, and can be reused (Akbari and Dehghani-Sanich, 2010). In other words, knowledge management is a key strategy for achieving organizational success and survival in today's unpredictable and competitive environments, which has attracted a lot of attention. If individuals become capable of creatively using knowledge in organizations, they turn into a new pattern which helps them to redefine affairs and the way they must be done (Liu et al., 2005), which certainly helps organizations to become innovative.

In the late 1990's, "Knowledge Strategy" for the first time entered the area of management in order to answer the question, "What types of knowledge are important for organizations?" To start the implementation of knowledge strategy, managers require a framework which helps to learn about the area of strategic knowledge and to design a plan for it. Here, we must use business strategy. In other words, in designing knowledge strategy, organizational knowledge is in line with business strategy, which has been pre-defined. According to some scholars, concepts such as "knowledge strategy and knowledge management strategy" are completely dependent upon one another, they must not be considered separate from one another, because the stages of identifying organizations' strategic knowledge and the implementation of executive processes of knowledge management are done simultaneously. Knowledge management strategy in an organization must reflect competitive strategies. On the other hand, competitive strategies must be able to complete knowledge management strategy (Choi and Heeseok, 2004).

Since knowledge is considered to be the most strategic human resource, organizations must answer the question, "How can we manage organizational knowledge in an efficient and effective way

in order to have its advantages for realization of strategic goals in the organization?" Hence, an efficient and effective knowledge management system is considered to be a key competency in today's organizations, which can lead to sustainable competitive advantage. A very basic and considerable thing which leads to the introduction of a strategic approach in knowledge management is the fact that knowledge management must help organizations to move forward strategically and have strategic interactions with today's stressful and changing business environments. Knowledge and its management are meaningless and valueless when they are independent from strategic objectives. Therefore, organizational knowledge management must be the focus of attention in a macro level, in line with organizational strategic measures (Styhre, 2004). Hence, the concept of strategic knowledge management (knowledge management with a strategic attitude) can be considered as knowledge management, in line with strategic organization. According to the definition of knowledge management, one of the functions is to provide certain tools for the application of organizational strategic knowledge, considering the role of knowledge management in providing competitive advantage for the organization and its role in organizational goals. Realization of organizational goals must pay attention to strategic knowledge management as a competitive resource for the organization. The most important factor in the success of strategic knowledge management programs is to coordinate knowledge strategies and organizational strategies (Murray, 2003).

Based on the definition of knowledge management, one of the functions of strategic knowledge management is to provide certain tools for the application of strategic organizational knowledge in order to make accomplishments, considering the role of knowledge management in achieving competitive advantage for the organization and its role in organizational goals. Realization of organizational goals must look at strategic management as a competitive source for the organization. The most important factor in the success of strategic knowledge management plans is the coordination of knowledge strategies with organizational strategies. Strategic knowledge management refers to the organization's structures and processes, which are used in order to help achieve success, and form and share knowledge, in line with providing strategies and making decisions (Murray, 2003).

## 2. MODEL AND HYPOTHESIS DEVELOPMENT

The relationship between strategic knowledge management and innovation in Bushehr's Medical Sciences University and Health Care Services Center .

Today, with the complexity of competitions, innovation is considered as one of the main advantages for the survival of firms. All organizations require novel innovations for survival. Novel innovations radiate in the organization like a soul, and save it from death. The emergence of knowledge innovation does not only make organizations able to achieve competitive advantage, but it also provides a strong tool for enhancing organizational performance. Knowledge, as a major source of organizational

innovations and productivity, is highly important. The purpose of knowledge management is to form and organize an environment, in which individuals develop their knowledge, interact with one another, combine others' knowledge with their own knowledge, and finally apply it. Use of knowledge leads to innovation in organizations; hence, knowledge management is mostly known as the main source and reference of innovation, being considered as a necessity for innovation in organizations. In line with this, in their study, Daud and Yusoff (2011) stated that the combination of intellectual capital and knowledge management can facilitate performance improvement; and undoubtedly, innovation is one of the indexes of organizational performance enhancement. Johannessen (2010), in his study called "The Role of Management in Organizational Innovation," showed that innovation is part of knowledge management, which independently affects ideas, innovation, performance, discovery of competitive advantage, and other organizational goals. Additionally, Majchrzak et al. (2004) concluded that organizations have been able to improve innovation as well as organizational performance by implementing knowledge management strategies. Results of Safarzadeh et al. (2012) research show that personalization and coding of knowledge has a positive effect on innovation and organizational performance; in addition, these variables positively affect organizational performance through innovations. The findings of Yusefi's et al. (2011) research show that there is a significant relationship between knowledge management and innovation (product, process, gradual and basic). Therefore, companies' increasing attention to knowledge management has increased innovation. Mirfakhr Aldini et al. (2010) have also found that sharing knowledge among employees and timely distribution of news from the set of knowledge are related to all elements of innovation in performance; this shows that these two elements are more important than others in terms of favorable performance and innovation. Dehghani (2009) stated that organizations must provide an atmosphere where innovation and knowledge sharing happens, in a way that employees have a greater tendency towards sharing and using novel knowledge.

Considering the fact that Bushehr's Medical Sciences University and Health Care Services Center suffers from numerous annual financial and non-financial losses due to not examining the relationships between strategic knowledge management and innovation in different levels, this subject has been considered as an important weakness and challenge in the strategic plan of strategic development; and in fact, in Bushehr's Medical Sciences University and Health Care Services Center, this has been considered as a strong pillar of the country's scientific cycle which leads to costs of training, knowledge increase, and organizational learning for students, employees and faculty members; hence, efforts must be made in order to make the organization innovative through strategic knowledge management, including sharing knowledge and experiences with other individuals. It is important to pay attention to strategic knowledge management and organizational innovation, because not many studies have focused on them and because some organizations are trying to become innovative ones. In line with this, the present study is aiming to find an answer to the question, "What is the relationship between strategic knowledge management and organizational knowledge?" Based on the abovementioned, the following hypotheses are proposed:

Main hypothesis: There is a relationship between strategic knowledge management and innovation in Bushehr's Medical Sciences University and Health Care Services Center.

First subsidiary hypothesis: There is a relationship between making rules and knowledge coding with innovation in Bushehr's Medical Sciences University and Health Care Services Center.

Second subsidiary hypothesis: There is a relationship between privatization and innovation in Bushehr's Medical Sciences University and Health Care Services Center.

Based on the above hypotheses, the conceptual model of the research has been given in the following Figure 1.

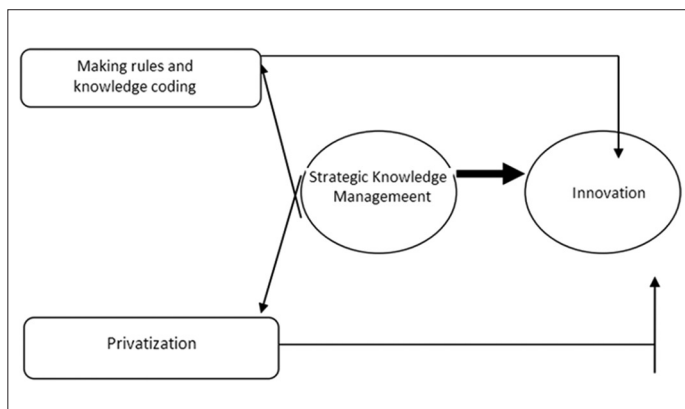
### 3. RESEARCH METHODOLOGY

The present research was practical in terms of objective; and in terms of data collection method, it was descriptive-survey. The statistical population of the present study consisted of 301 employees working in education assistance, research and technology assistance, student and culture assistance; from them, 170 individuals were selected as sample size, using a Morgan table and a stratified random sampling method.

In addition, in order to collect strategic knowledge management data, 8 questions were taken from Mostafavi's research (8 items, four of which are related to making rules and knowledge coding, and the other four are related to privatization). In order to have innovation in the organization, 17 questions were taken from Schiling's (2008), according to Chupany studies, including the level of tendency towards innovation in organizations in different dimensions (production innovation, process innovation, and official innovation).

It must be noted that all items were scored based on a five-point Likert scale (from 1 [I totally disagree] to 5 [I totally agree]). In order to determine reliability, each dimension of strategic management (making rules and coding knowledge, and privatization) including academic innovation has been given in the following Table 1, based on Cronbach's alpha coefficient calculated through SPSS software.

**Figure 1:** (a and b) Conceptual model of the research (adopted from research background and literature)



The reliability of research variables is approved, considering the fact that the value of calculated alphas is  $>0.7$  (Table 1).

### 4. FINDINGS

In this research, two methods are used: Descriptive statistics and inferential statistics methods. Descriptive statistics includes a frequency table, mean values, standard deviation values, and graphs; and after data normality measurement and normality approval, inferential statistics use a parametric Pearson correlation test and a regression test. In order to examine the normality of data, a Kolmogorov-Smirnov test was used, which made it clear that all research variables had normal distribution. In the following, research hypotheses are examined and tested. The relationships between predictor variables and criterion variable have been examined, and the results of the present research have been given analytically (Table 2).

Considering the correlation coefficient calculated for research variables (with 95% confidence and 170 respondents), it can be inferred that there is a positive and significant relationship between strategic knowledge management and its dimensions (making rules and coding knowledge and privatization) with organizational innovation and its dimensions (production innovation, process innovation, and official innovation). Therefore, the main and subsidiary hypotheses were approved, with 95% confidence. In the following, after examining the normality of error, and after examination of linearity, a multivariate regression test was used, results of which are presented in the following Table 3.

The results presented in the Table 3 show that fixed and variable coefficients (intercept, making rules, coding knowledge, and privatization) are significant in a 0.05 level. In other words, in the regression model, intercept, making rules, coding knowledge, and

**Table 1: Results of research variables measurement (questionnaire)**

Row	Variable	Corresponding items	Reliability
1	Making rules and coding knowledge	1-4	0.783
2	Privatization	5-8	0.824
3	Production innovation	9-13	0.777
4	Process innovation	14-19	0.804
5	Official innovation	20-25	0.794
6	Total	1-25	0.882

**Table 2: Coefficient of correlation between strategic knowledge management and innovation in Bushehr's Medial Sciences University and health care services center**

Number of sample members	Significance	Pearson correlation coefficient	Innovation
170	0.004	0.263	Making rules and coding knowledge
170	0.172	0.127	Privatization
170	0.000	0.498	Strategic knowledge management

**Table 3: Coefficients of strategic knowledge management components in the prediction of innovation in Bushehr's medical Sciences University and Health Care Services Center**

Model	B	SE	(Beta)	T	Significance
Intercept	81.164	4.656		17.433	0.000
Making rules and knowledge coding	0.512	0.134	0.280	3.384	0.000
Privatization	0.437	0.153	0.314	2.852	0.005

Criterion variable: Innovation

privatization are able to predict the significance of organizational innovation changes and its dimensions (production innovation, process innovation, and official innovation). Thus, based on the data given in the table, regression equation is as follows:

$$\text{(Making rules and coding knowledge) } 0.512 + \text{(privatization) } 0.437 + 81/164 = \text{Innovation (Y)}$$

Based on the above regression model, with a 1-unit increase in components such as making rules, coding knowledge, and privatization, 0.512 and 0.437 unit is added to innovation in Bushehr's Medical Sciences University and Health Care Services Center.

Beta standard coefficients for the evaluation of the share of the model's predictor variable are based on standard deviation. This means that for each unit of change in the standard deviation of making rules, coding knowledge, and privatization, we can predict that innovation in Bushehr's Medical Sciences University and Health Care Services Center will increase by 0.280 and 0.314 unit of standard deviation. Additionally, Beta coefficient makes it possible for us to compare the effect of several predictor variables on criterion variable (organizational innovation and its dimensions: Production innovation, process innovation, and official innovation).

## 5. CONCLUSION AND RECOMMENDATIONS

Considering the importance of academic innovation in the process of developing high education systems as well as the society, the present study focused on this subject, and it is aiming to examine the relationship between strategic knowledge management and innovation. Hence, in this section, a summary of research findings is presented, and then, considering research background and results obtained from the analysis of obtained data, certain recommendations are proposed. The results of this research show that there is a significant relationship between strategic knowledge management and innovation; these findings and a study conducted by Safarzadeh et al. (2012) called "Examination of the Effect of Knowledge Management Strategies on Innovation and Organizational Performance" concluded that knowledge privatization and coding have a positive effect on innovation and organizational performance. Furthermore, these variables have a positive effect on organizational performance through innovation; and there is a significant and positive relationship

between innovation and organizational performance. Yusefi's et al. (2011) study called "Examination of the effect of knowledge management on innovation" shows that there is a significant relationship between knowledge management and innovation (product, process, gradual, and basic). Therefore, organizations' increasing attention to knowledge management leads to an increase in organizational innovation. Mirfakhr et al. (2010) study called "Knowledge management, knowledge innovation, and innovation performance in small and medium-sized companies" shows that "sharing knowledge among employees" and "timely distribution of news" from the managerial set of knowledge management are related to all elements of innovation in performance; and this shows that these two elements in the process of achieving good performance and innovation are more important than others. In his study called "Knowledge management and its role in organizational innovation," Dehghan (2009) stated that organizations must provide an atmosphere where knowledge sharing and innovation are approved, in a way that employees have a greater tendency towards sharing and using their new knowledge. Jones (2010), in his study called "The role of knowledge management in organizational innovation," shows that each index of knowledge management separately leads to greater effectiveness in organizations. In fact, innovative measures in organizations include search, discovery, experiment, and development of new technology, products, and services, new production processes, and new organizational services and structures. Innovation is about implementation and development of new ideas. Examination of literature shows that innovation, as a factor, is a new executive system or structure, a policy, a new plan or program, and a new product or service for the organization, which is obtained in two ways: Either in the organization or through external resources. According to some authors and researchers, the process of innovation is mainly dependent upon knowledge, especially upon explicit knowledge (Borghini, 2005). New and valuable knowledge helps organizations to develop and produce new products, services, and processes, through converting general knowledge into specialized knowledge in an expert context. Knowledge management systems lead to creativity; on the other hand, they help increase innovation through quick access and transference of new knowledge (Yang, 2010). Additionally, effective knowledge management is a key success factor in the process of setting up production lines as well as producing new products. Hence, one of the factors which affect innovation in organizations is knowledge and knowledge management. Organizations' tendency towards knowledge management makes it possible to have access to products and services. In fact, knowledge helps produce creative thoughts and innovation in organizations, which is in congruence with findings obtained from studies done by scholars such as Majchrzak et al. (2004). Considering Bushehr's Medical Sciences University and Health Care Services Center, and considering the results of hypothesis examination, it is recommended that officials analyze these results, and use them as a guide to enhancement of strategic knowledge management in companies in order to exploit the advantages of innovation improvement. Based on the results of this research, strategic knowledge management dimensions (making rules, coding knowledge, and privatization) have a direct relationship with innovation. However, this relationship between all dimensions and innovation with performance is not the same;

by prioritizing dimensions affecting innovation and performance in organizations, within a regression analysis, the results of this research made it clear that making rules and codding knowledge have a stronger relationship with innovation than privatization. Hence, it is recommended that.

Based on research findings, it was made clear that there is a positive and significant relationship between rule making and knowledge codding with innovation in Bushehr's Medical Sciences University and Health Care Services Center. Therefore, we must reinforce and develop rule making and knowledge coding indexes in Bushehr's Medical Sciences University; and managers must have easy and quick access to necessary information and knowledge. In addition, they must pay attention to other variables od rule making and knowledge coding such as proper knowledge management (technical information, technical skills, problem-solving methods), documentation of project results and organizational meetings, and having access to necessary information through documents classified in different assistance sectors of Bushehr's Medical Sciences University and Health Care Services Center in order to become more creative and to increase innovation, as well as improving performance and efficiency.

Based on research findings, there is a positive and significant relationship between privatization and innovation in Bushehr's Medical Sciences University and Health Care Services Center. Therefore, we must develop the indexes of strategic knowledge management privatization in the organization. Thus, this university must provide necessary information with the help of experts; and it must pay attention to other variables of personalization such as easy in-person access to experts, access to information through talks and unofficial meetings, and use of all individuals' information and knowledge. Strategic knowledge management privatization must be reinforced in order to increase creativity and innovation as well as improve performance and efficiency in the organization, and it must pay more attention to the abovementioned factors.

## REFERENCES

- Akbari, M., Dehghani-Sanich, H. (2010), Principles of design, planning, and exploitation management of micro irrigation system in greenhouse plants. In: First Technical Workshop of Water Consumption Efficient Gradation with Green House Products Cultivation. p1-35.
- Bigliardi, B., Ivo, D.A. (2009), An empirical investigation of innovate determinants in food machinery enterprises. *European Journal of Innovation Management*, 12(2), 223-242.
- Borghini, S. (2005), Organizational creativity: Breaking equilibrium and order to innovate. *Journal of Knowledge Management*, 9(4), 19-33.
- Choi, B., Heeseok, L. (2004), Knowledge management strategy and its link to knowledge creation process. *Expert Systems with Applications*, 23, 173-187.
- Curzio, A.Q., Fortis, M., editors. (2005), *Research and Technological Innovation: The Challenge for a New Europe*. New York: Springer Science & Business Media.
- Daud, S., Yusoff, W.F.W. (2011), How intellectual capital mediates the relationship between knowledge management processes and organizational performance? *African Journal of Business Management*, 5(7), 2607.
- Dehghan, N.M. (2009), Knowledge Management and Its Role in Organizational Innovation. *Automobile Engineering and Dependent Industries Monthly*. Course 1, No. 10. p47-60.
- Ghobadi, S., Mathiassen, L. (2016), Perceived barriers to effective knowledge sharing in agile software teams. *Information Systems Journal*, 26(2), 95-125.
- Johannessen, L.C., Patsalos, P.N. (2010), Drug interactions involving the new second-and third-generation antiepileptic drugs. *Expert Review of Neurotherapeutics*, 10(1), 119-140.
- Jones, G.R. (2010), *Organizational Theory, Design, and Change*. Pearson: Prentice Hall.
- Joo, J., Lee, S. (2009), Adoption of the semantic web for overcoming technical limitations of knowledge management systems. *Expert Systems With Applications*, 36(3), 7318-7327.
- Liao, S., Fei, W.C., Liu, C. (2008), Relationships between knowledge inertia, organizational learning and organization innovation, *Technovation*, 28, 183-195.
- Liu, P., Chen, W., Tsai, C. (2005), An empirical study on the correlation between the knowledge management method and new product development strategy on product performance in Taiwan's industries. *Technovation*, 25, 637-644.
- Majchrzak, A., Cooper, L.P., Neece, O.E. (2004), Knowledge reuse for innovation. *Management Science*, 50(2), 174-188.
- Mirfakhr, A.H., Hatami, N., Hassan, T.F., Reza, K.M., Amir, R. (2010), Knowledge management, knowledge innovation, innovation performance in small and medium-sized companies. *Business Management Prospects Publications*, 2, 103-118.
- Mirghafoori, S.H.A., Hussein, S.T., Kariminia, M. (2013), Ranking of Factors Affecting Innovation Enhancement in Companies that are Dependent upon Development Centers, Using a Fuzzy Topsis Technique. *Technology Development Publications*, Course 9, No. 36. p19-28.
- Murray, P. (2003), New language for new leverage. *California Management Review*, 45(3), 59-77.
- Ranjit, B. (2004), Knowledge management metrics. *Industrial Management and Data Systems*, 10, 68-457.
- Safarzadeh, H., Tadayyon, A., Hor, M.M. (2012), Examination of the Effect of Knowledge Management Strategies on Innovation and Organizational Performance. *Science-Research Quarterly of Health in YAZD*, Course 11, No. 1. p76-86.
- Schiling, M.A. (2008), *Strategic Management of Technological Innovation*. New York: McGraw Hill.
- Segarra-Oña, M.V., Peiró-Signes, A., Albors-Garrigós, J., Miret-Pastor, P. (2011), Impact of innovative practices in environmentally focused firms: Moderating factors. *International Journal of Environmental Research*, 5(2), 425-434.
- Shahrokhi, F., Navidi, A., Shoghi, B. (2015), Effect of Organizational Wisdom on the Effectiveness of the Education System's Employees in the Central Province. *Educational Management Innovations Quarterly*, Course 11, No. 1. p61-75.
- Styhre, A. (2004), Knowledge management beyond codification: Knowing as practice concept. *Journal of Knowledge Management*, 7(5), 32-40.
- Weerawardena, J., O'Cass, A., Julian, C. (2006), Does industry matter? Examining the role of industry structure and organizational learning in innovation and brand performance. *Journal of Business Research*, 59, 37-45.
- Yang, J. (2010), The knowledge management strategy and its effect on firm performance: A contingency analysis. *International Journal of Production Economics*, 125(2), 215-223.
- Yusefi, E., Sadegh, F.J., Soleimani, M. (2011), Examination of the Effect of Knowledge Management on Innovation. *Innovation and Creativity Publications in Human Sciences*, Course 1, No. 3. p29-50.
- Zhang, H.P. (2015), An agent-based simulation model for supply chain collaborative technological innovation diffusion. *International Simulation Model*, 14(2), 313-324.