Examining the relation between knowledge management and employees' creativity  
(Case study: employees of telecommunications companies in Golestan Province)

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Abstract

In the present research, the effect of knowledge management has been studied on different aspects of employees' creativity in telecommunications companies in Golestan province. This study is a descriptive study that is done as a survey method and is correlation type. The statistical population is 500 employees of telecommunications companies in Golestan province. The sample size of 217 people is obtained through Morgan table that were selected through random sampling. In order to collect data, two questionnaires of knowledge management (Lawson, 2003) and creativity (Randsip, 1979) were used and the validity of the questionnaire was determined by using the Cronbach's alpha coefficient. To test hypotheses, the Spearman correlation coefficient was used. The results of the research hypothesis test showed a significant relation between knowledge management and staff's dimensions of creativity.

Keywords: knowledge management, Creativity Fluency, Creativity Elaboration, Creativity Originality, Creativity Flexibility.
Introduction
The most fundamental characteristic of the smart twenty-first century organizations is the emphasis on knowledge and information. Unlike the past organizations, today's organizations have advanced technology that requires the acquisition, management and exploitation of knowledge and information to improve efficiency, manage and track inexhaustible changes. Knowledge is a powerful tool that can create changes in the world and make the innovations possible. The importance of knowledge in today's complex global environment cannot be ignored. The organizations that know how to effectively acquire, distribute, and manage information will be the leaders of their industry. (Rahmanseresht, 2000)

Today, experts know the creativity as fundamental knowledge for any innovation and change. In the words of Ryhammar and Borlin (1999) the creation of new ideas and innovative products are the recognition features of humans. With such a view, creativity is interpreted as an important factor in accelerating scientific innovation and human technology. Studies also show that the creativity will be the center of new movements in the future and the use of creative thought. Accordingly, one of the serious and predictable challenges of human in the future is the issue of the use of creative minds and personalities in various fields of science, research, technology and health (1974Stein, 1991Ekvall, Jeffrey2001, Ryhammar and Borlin (1999) and Leach2001).

Importance and necessity of research
Knowledge management has the most important role in improving the production process and services. Knowledge management has a role both in the production of high quality and variety goods and also makes the manufacturing will be in a desirable route and method. Helix of knowledge, learning value shows the learning conversion process to value. According to this Helix, organizations must learn from the market and turn this learning into knowledge, and use this knowledge in production process and through it, create value. The role of knowledge management in innovation can also be examined from the perspective of production. Today, the organization's success is largely dependent on the ability to transform learning of a change to the knowledge that manifested in innovation and product manufacturing (Gheybi, 2013). Creativity as an important issue is important for knowledge management, institutions and generally for all communities because of its relation with the flexibility and production (Malek Zadeh, 2007). Creativity is a way of thinking that brings new ideas. Creativity consists of Creativity Fluency, Creativity Elaboration, Creativity Originality, Creativity Flexibility (Dehghani et al., 2013). The most important factor in the growth and progress of humanity in all fields is innovation and creativity. Creativity is an important factor in the survival of organizations in today's competitive environment. Each organization need different sources to achieve its goals and without a doubt the most important resource in any organization is the human resources in the organization. Many factors affect the performance of individuals in the organization, one of the things that strongly influence organizational behavior of each individual is the creativity. (Gheybi, 2013).
Problem statement
Organizations and companies are indispensable to become a creative and innovative organization in order to survive and have a competitive advantage to the extent that, they will be prepared in order to manage the rapid changes and profound transformations of the world. Based on this reasoning, the industrialized countries have a strong emphasis on the teaching creativity, and pay attention to the selection of creative, innovative and forward-thinking people that present innovative and creative approaches for complex issues. In general, in relation to managing knowledge and creativity of human resources in the organization, there are two strategies: The first strategy is optimal use of available technologies in the organization, to implement and better use of knowledge within the organization. The second strategy that is sometimes called knowledge, innovation is when the employees have enough knowledge of the values and standards of the organization and they are able to use their creative ideas in order to generate new and valuable products and services (Cheragh Cheshm, 2007).

Since knowledge is the most important asset of any organization, an organization that has this gift, will deal with challenges better and will act more successfully in competitive fields. Alert management attempts to use a tool that is called knowledge more and better to confront and deal with uncertainty factors, maintain situation and make creativity and innovation to develop their competitive field. This requires that the organization respects the knowledge management and places it among the priorities on their agenda as a strategic and essential need for leadership in the field of competition. In today's world, societies and organizations seek to gain sustainable competitive advantages. In this context, knowledge management is a useful tool for organizations to expand their investment, encourage innovation and reach a good performance to the greatest extent possible. Knowledge management is a new engine that can reduce the gap and distances, therefore, today's organizations and their effective management, by using the theory of organization and management science, perhaps are the greatest human progress, in the present century. As a result, they know the importance of management development and formation of relevant knowledge in balance with amazing technological advances, because, human technological developments resulted from his ability in the formation of entrepreneurial caused by creativity and innovation. Management will change the knowledge from the fancy way and turn it into a national asset, and provide economic, social, scientific, cultural, and ... development (Rahmanseresht, 2000).

The definition of knowledge management
Knowledge management is an interdisciplinary business model that with all aspects of knowledge includes creation, encryption, sharing and using knowledge to enhance learning and innovation in the context of an enterprise. Knowledge management deals with the technological tools and current organizational methods, including the production of new knowledge, gaining valuable knowledge from external sources, the use of knowledge in decision making, importing
knowledge in processes, products and services, coding information in documents and documentation, software and databases, facilitating the growth of knowledge, transfer of knowledge to other parts of the organization and ultimately the measurement of knowledge assets and knowledge management influence (Malek Zadeh, 2007). Knowledge management is the creative, effective and efficient use of knowledge and information available for the organization for the benefit of customers and therefore for the benefit of an organization. Knowledge management is using individual and collective experience and knowledge through the process of knowledge production, knowledge sharing and applying it by technology in order to achieve organizational goals (Adli, 2005).

**Knowledge Management Process**

**The production of knowledge**: knowledge comes from experience and skills of employees. Knowledge is created by the people and by identifying new ways of doing things or the development of science. Sometimes if there is no knowledge in organizations, external knowledge will enter the organization. All organizations create and use knowledge in the form of functions and organizational activities. Creating knowledge refers to the ability of organizations in developing ideas and innovative and useful solutions. Any organization creates new meanings and reality with the development and restructuring of previous and current knowledge through a variety of ways.

**Gaining Knowledge**: It is essential to meet current and predictable future needs and effective realization of the goals. Knowledge can be accessed through various functions, such resources within the organization and resources outside the organization.

**Knowledge organization**: In this process, a huge collection of knowledge, after entering the base must be stored and organized. Organizing process may be used anywhere in an organization. Place of this process may be physical or non-physical. However, often-physical locations, such as databases, provide the formal structure and shape of knowledge. The ultimate goal of this stage is helping members to access the necessary knowledge in decision-making processes.

**Knowledge storage**: the created knowledge must be stored in its original form in information bases. Many organizations use a variety of sources for recording and storing knowledge.

**Dissemination of knowledge**: knowledge dissemination is distributing or sharing of knowledge. Diffusion process is the distribution of knowledge to the activity points and even beyond, outside the organization. In other words, the transfer of organizational knowledge to anyone needs it. Several factors can contribute to this process, including communicational facilitating and corporate culture.
**Application of knowledge**: the most important process is the application of knowledge. Competitive advantage does not belong to organizations that have best asset, but it belongs to the organizations that use their knowledge in practice in the best way. Application of knowledge will eliminate the gap between knowing and doing and create an important feedback loop of learning by doing and application (Adli, 2005).

**The definition of creativity**
Creativity is the ability to apply knowledge to solve problem and innovation. Creativity does not always include new ideas and can be about the transfer of existing knowledge to new situations and putting them in different frameworks, or it could be about linking methods that have not been previously described (Rahimi, 2007). Creative thinking is thinking that the main characteristic of it is the ability to discard unnecessary assumptions and generating original ideas. Creativity is the ability or body or mind power to build or rebuild reality in a unique way (Rezaeian, 2005). Creativity is what leads to the creation of a new job, which at the time, it will be accepted by a group as a viable or useful or pleasing thing (Heidari, 2013). The creativity is organizing the elements into new combinations that respond to the specific demands that are useful (Abbas Zadeh, 2013). A creative process is said to any creative process that solves the problem usefully and innovatively. Creativity is essentially a controlled form of imagination that leads to the kind of innovation (Rezaeian, 2005). The creativity is a combination of the power of initiative, creativity, flexibility and sensitivity to ideas that enable the learner to think about productive and different outcomes rather than irrational thinking, that its result is personal satisfaction and possibly others' happiness (Adli, 2005).

**Creativity dimensions**
Guilford (1967) has considered the four elements of creativity, include:
Creativity Fluency: the ability to generate countless ideas by providing the answers and opinions about it.
Creativity Elaboration: the ability to add details or complete ideas.
Creativity Originality: the ability to generate ideas that are different from the typical ideas.
Creativity Flexibility: the ability to produce diverse and different ideas and offer new solutions.

**Research Hypothesis**
**First hypothesis**: There is a significant relation between knowledge management and creativity fluency.
**The second hypothesis**: There is a significant relation between knowledge management and creativity elaboration.
**The third hypothesis**: There is a significant relation between knowledge management and creativity originality.
The fourth hypothesis: There is a significant relation between knowledge management and creativity flexibility.

Conceptual Model of the Research
In this study, by considering different aspects of creativity, the following conceptual model is used:

![Chart 1: conceptual model](chart1.png)

Research history
A study was done by Nir, in 2011, entitled "The relation between knowledge management and creativity among Shiraz University Librarians" and its results showed a positive relation between the two variables of knowledge management and creativity of librarians. Another result of the study is a relation between culture components in knowledge management with creativity, but there was no significant relation between the components of technology and creativity of librarians.

Baladehi et al (2014), in a study entitled "Investigating the relation between knowledge management and staff's creativity of Mazandaran province police chief" have found a significant relation between knowledge management and staff's creativity. In addition, there is a relation between the knowledge management component, meaning knowledge production, knowledge acquisition, knowledge organization, knowledge storing, knowledge dissemination and application of knowledge and creativity of the staff.

Jourabchi (2008) has conducted a study entitled "study the effect of knowledge management on the performance of high school teachers in Tehran" and it was found a significant relation between the discovery of knowledge, teamwork in the classroom and the use of technology with the teachers' performance.

Asgari (2006) in a study entitled "The relation between structure and culture with knowledge management in the Ministry of Labor and Social Affairs" examined two factors of structure and culture with knowledge creation and transmission factors in the Ministry of Labor and Social Affairs. The results showed a significant relation between organizational factors with the knowledge management in the Ministry of Labor.

Samadian and Alavi (2010) have conducted a study entitled "The Impact of Knowledge Management on employees' creativity in Broadcasting (IRIB) in Tehran". The results show that
participation in knowledge, knowledge organizing, application of knowledge, assessment of knowledge; discovery and creation of knowledge have an impact on employees' creativity.

Fathi et al. (2005) in a study entitled "Implicit management roles in creativity and innovation" confirmed the positive role of tacit knowledge on organizational creativity and innovation. They believe tacit knowledge as an important stimulus in the process of creativity, innovation plays an important role as an organizational resource, and success factor plays in the organization. In this study, this role is cleared in innovation management, according to the type of creativity required, the type of interest and the particular structure of the organization, through the creation of the pattern, and as a result, the success of their creativity will be optimized. Hughes and Holbrook (1998) have conducted a study entitled "Evaluation of the correlation between knowledge management activities with innovation", and resulted a definite relation between the knowledge management practices and innovation in the industrial sector.

Research methodology
In terms of the goal, this study fits in the category of applied research and in terms of data collection; this study is among the fieldwork. The present study is a descriptive study that is conducted in survey method and is the correlation type. The statistical population of this research includes all employees of telecommunications companies in Golestan province, which based on the studies, there are 500 persons. In order to determine the sample size, the standard table of Krejcie - Morgan was used, and the numbers of 217 people were selected as the statistical sample by simple random sampling.

In this study, two types of questionnaires were used that included a questionnaire of knowledge management (Lawson) with 24 questions and creativity questionnaire (Randsip) with 50 questions were used and by using Cronbach's alpha coefficient, its reliability is tested. Data were analyzed by using SPSS software and to confirm or reject hypotheses of the research, the Spearman correlation coefficient method was used.

<table>
<thead>
<tr>
<th>Table: Reliability test</th>
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<tbody>
<tr>
<td>Result</td>
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<tr>
<td>Cronbach's alpha</td>
</tr>
<tr>
<td>Variable</td>
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<tr>
<td>Confirming its validity</td>
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<tr>
<td>0.921</td>
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<tr>
<td>Knowledge management questionnaire</td>
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<tr>
<td>Confirming its validity</td>
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<tr>
<td>0.882</td>
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<tr>
<td>Creativity questionnaire</td>
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</tbody>
</table>
Data analysis

Descriptive Statistics
44 percent of respondents are in the age group of 20 to 30 years, 20% are in the age group of 31 and 40 years and almost 36% are in the age group of 41 years and above. Also, 51% of respondents have bachelor's degrees, 49 percent are in master and above group. 47% of respondents were female and 53 percent were male.

Testing hypotheses
For all variables of this study, because the significance level is less than 0.5 (Sig <0.5) which means the distribution is not a normal, so the Spearman correlation test was used to test the hypothesis.

Table 2: Results of testing hypotheses

<table>
<thead>
<tr>
<th>Test results</th>
<th>Significance level</th>
<th>Level of error</th>
<th>Correlation coefficient</th>
<th>Variables</th>
<th>Hypothesis</th>
</tr>
</thead>
<tbody>
<tr>
<td>Confirmed</td>
<td>0.01</td>
<td>0.05</td>
<td>0.7</td>
<td>Knowledge management / Creativity Fluency</td>
<td>1</td>
</tr>
<tr>
<td>Confirmed</td>
<td>0.01</td>
<td>0.05</td>
<td>0.83</td>
<td>Knowledge management/ Creativity Elaboration</td>
<td>2</td>
</tr>
<tr>
<td>Confirmed</td>
<td>0.02</td>
<td>0.05</td>
<td>0.78</td>
<td>Knowledge management/ Creativity Originality</td>
<td>3</td>
</tr>
<tr>
<td>Confirmed</td>
<td>0.00</td>
<td>0.05</td>
<td>0.76</td>
<td>Knowledge management / Creativity Flexibility</td>
<td>4</td>
</tr>
</tbody>
</table>

Given the correlation coefficient and less than 5% of significant value, it can be concluded a significant relation at the level of 5% error between the variables of the investigation and all hypotheses are confirmed.

Conclusion and suggestions
According to the results of the analysis of data, it is concluded a significant relation between the various dimensions of creativity and knowledge management and this makes the importance of paying attention to knowledge management concepts and creativity for managers clear. The first
hypothesis refers to the claim that there is a relation between knowledge management and creativity fluency. This claim was confirmed at an acceptable level of statistical reliability, this result is consistent with the research of Guilford (1950), Torrance (1969) Rickards (1988), Freire (1996) and Care and Gagliardi (2006) about teaching creativity and they have argued that the creativity is teachable at the component level of (fluency, flexibility and originality). The second hypothesis refers to the claim that there is a relation between knowledge management and creativity elaboration, which are consistent with the results of Guilford (1950), Torrance (1969) Valach and Cogan (1965), Mansfield (1978) Ranco and Albert (1990). The third hypothesis refers to the claim that there is a relation between knowledge management and creativity originality that are consistent with the results of scholars, such as Torren (1969), Ranco and Albert (1990), Guilford (1967), Burke (2000), Latch (2001) who believe, the emergence of innovative ideas is consistent with the mind trained to produce ideas and skills in diversity of ideas, even with greater speed. The fourth hypothesis refers to the claim that there is a relation between knowledge management and creativity flexibility, which are consistent with the research of Guilford (1950), Torrance (1974) Valach and Cogan (1965), Mansfield (1978) Ranco and Albert (1990) and they believe, by increasing the ability to produce ideas, the diversity and change properties will naturally increase. In other words, every new idea is associated with a change compared to the old idea.

To improve and develop knowledge management and organizational creativity in the corporate communications companies, holding training courses, which meet the needs of employees, managers' help to employees in using their knowledge in the workplace, exchange of staff's information about successful work activities and good ideas with each other, the recognition of the importance of knowledge management in an organization for all employees, management commitment and full support of the creative staff, managers' welcome of variability in employees and giving reward to creative ideas, are recommended.
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