MODELING ORGANIZATIONAL INTELLIGENCE BASED ON KNOWLEDGE MANAGEMENT

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ABSTRACT
The purpose of the present study was to provide a structural equation model of Organizational Intelligence based on Knowledge Management in universities. The population of the research included all employees of Islamic Azad University (Roudehen, Damavand, Pardis, and Bonehen branches and educational centers) in Iran, which a sample of 226 employees was randomly chosen. The research instruments were two questionnaires which were administered in universities. Albrecht (2003) organizational intelligence questionnaire which consisted of 49 items with three underlying constructs of strategic vision, shared fate, appetite for change, heart, alignment and congruence, knowledge deployment and performance pressure with Cronbach’s Alpha of 0.84, and Sallis and Jones’ (2002) knowledge management questionnaire which consisted of 42 items with ten underlying constructs of vision and mission, strategy, organizational culture, intellectual capital, learning organization, leadership and management, teamwork and learning communities, sharing knowledge, knowledge creation and digital sophistication for the organization with Cronbach’s Alpha of 0.86. The results of path analysis using LISREL software indicated that dimensions of knowledge management had a direct effect on organizational intelligence with the indices of 0.93. The model also showed that the factor of intellectual capital, leadership and management in knowledge management had the highest direct effect on organizational intelligence.

Keywords: Knowledge Management, Modeling, Organizational Intelligence

INTRODUCTION
Dynamic and rapid changes in the third millennium have led to the complexity of organization's activities, and thus the knowledge-seeking staff management and learning organizations are faced with challenges, so that this status cannot be managed with traditional principles.

Therefore, the organizations need to reengineer all components in compliance with such these conditions.

The establishment of knowledge management is considered as a new model which becomes operational due to various factors.

Seifollahi and Davari (2009) pointed out based on the research by scholars that the "knowledge management literature" is essentially based on the analysis under which the economies and societies have totally become the information and knowledge-based since about the mid 1970s, and thus the information, knowledge-based industries have been replaced by the manufacturing industries as the main wealth producers, and thus the post-industrial society is created.

The influential book, "The emergence of post-industrial societies" by Daniel Bell was first published in 1973 and shows the features of a post-industrial society in Figure (1).

Accordingly, Bell believes that not only the importance and role of knowledge and information is quantitatively increased, but also the type of knowledge is qualitatively changed.

In post industrial society, the theoretical knowledge is considered as the most important type of knowledge and this indicates the abstract knowledge and principles which can be developed or at least have roots in systems of rules and there is a framework for action.
The universities and research and training centers are pioneers in this field, which has played/will play an increasing role in the production and development of theoretical knowledge and provide the infrastructures of knowledge management in organizations using the enabler brain-ware.

Scientific Principles and Research Literature

Knowledge Management: The historical perspective of knowledge management refers to this fact that the knowledge management has been a historical requested. The knowledge including the wisdom and documented reasons is created by Western philosophers perhaps in thousand years ago. Furthermore, the Eastern philosophers have also a contribution as much as them in developing the knowledge, despite the fact that they have more emphasized on receiving the spiritual guides and religious life. All signs and symptoms of early modern era, called the knowledge era, are well felt now. In this era, the countries are evaluated and ranked in science production based on new knowledge and information they share on global networks and optimally apply. In this era, the knowledge-based economy is created and this is the characteristic of a new community called the post-industrial society. The knowledge management is rooted in some advanced business fields such as the Total Quality Management (TQM), Business Process Reengineering (BPR), information systems, and Human Resource Management (HRM). Based on the research by (Hayek, 1945) and (Bell, 1978), the knowledge management is introduced in organizational issues since a lot of years before 1990, despite the fact that it has been seriously raised in business from the early 1990s.

Historically, three generations of knowledge management can be distinguished from each other. The 1990-1995 Period is known as the first generation of knowledge management. During this generation, a lot of measures were based on defining the knowledge management, investigating the potential benefits of knowledge management for business and designing the technical projects of knowledge management. Furthermore, the advance in artificial intelligence research has the impact especially on conducting, expanding and storing the knowledge (Seifollahi and Naser, 2009).

The second generation of knowledge management appeared around 1996, so that most of the organizations considered the new organizational posts for knowledge management including the knowledge top manager. Different sources of knowledge management are combined and applied rapidly in everyday organizational issues. During this generation, the knowledge management studies have
presented different definitions of knowledge such as the business philosophy, and advanced systems, models, methods, practices and technologies.

The second generation of knowledge management emphasizes that the knowledge management is about the systematic organizational change where the managerial practices, measurement systems, and content management and tools need to be co-developed.

As a result of new perspectives and practices, the third generation of knowledge management is now emerging with new methods and results. According to (view and Karl et al., 1997) a difference with other generations of knowledge management is that the third generation of knowledge management is integrated with organizational philosophy, strategy, objectives, methods, systems and procedures and has been as the daily work for staff and a stimulus for them…". It seems that the third generation emphasizes on the link between knowledge and action (Paraponaris, 2003).

Peter (1992) believes that the knowledge and information is the main source of wealth in the post-capitalist society. He has observed three fundamental knowledge changes (revolution) during the twentieth century (Table 1).

Table 1: Three fundamental knowledge revolutions and changes

<table>
<thead>
<tr>
<th>Revolution</th>
<th>First Revolution</th>
<th>Second Revolution</th>
<th>Third Revolution</th>
</tr>
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<tbody>
<tr>
<td>Knowledge application</td>
<td>Tools, Processes and Products</td>
<td>Productivity</td>
<td>Management</td>
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</table>

The first revolution is the industrial revolution when the knowledge was applied to generate the tools, processes and products. The productivity is the second revolution when the researchers like Taylor and Ford sought to use knowledge for workforce.

The management revolution is the third revolution when the knowledge is applied for itself. This statement does not mean that the traditional factors of production are eliminated, but only their status is changed. Drucker says that as far as the knowledge is available, other factors of production are easily accessible.

The fourth wave of human historical life is creating with the entrance into the virtual era and new concepts such as the knowledge society, knowledge-based economy, and knowledge management, etc. The utilization of appropriate information tools and communication facilities proportional to new conditions is the cause of survival in this era.

(Buhan, 1999) believes that the information revolution has made a fundamental change in all aspects of contemporary human life with the emergence of digital resources and communication tools. The entry into the information era, the development of tools, and the applications of modern information and communication technology (ICT) have led to the formation of a new approach in education. Based on the MC. Buhan's theory, under which the "medium is the message", the information technology is as a new medium containing the messages and concepts for development of information society to the knowledge society and its speed and durability is done by the "management knowledge" concept in the fourth wave of human life.

In terms of the nature, the knowledge is the evolved content form of data and information. The data is the raw facts and is changed into the information if interpreted and evaluated. According to Power and Swart'e view (2004), the information is the understandable data for recipient and the knowledge is obtained from the cumulative accumulation of information and acquired skill from data by information recipient. Flynn (2004) believes that the knowledge is the result of human action, so that the people are at the organizational knowledge-creation center and they create the knowledge and exchange with each other.

Therefore, it is essential to understand the interaction and relation of data with information, knowledge and wisdom as shown in Figure (2).
(Nonaka, 1994) argues that the information in changed into the knowledge when it is interpreted by the people, integrated with their ideas and commitment and conceptualized. During this process, the role of human beings is very important; on the one hand, the knowledge is the result of human action and in the center of organizational knowledge-creation, and on the other hand, the human beings are responsible for knowledge management; in other words, the management of people who tend to create knowledge and share it with others. Within this framework, (Hute, 1997) argues that the knowledge management and intelligence include the organizational activities and processes which seek a combination of information processing in the field of data and information by enabling the organization in the field of staff innovation and creativity (Bihaket, 2000; Herder et al., 2003) consider the knowledge management as the process of creating, publishing, distributing, and applying the knowledge and the objective of knowledge management is to contain and apply the knowledge and information, and make the perfect access for all employees.

A new approach has been developed in explaining the concept of knowledge management; for instance, Stockdale (2006) believes that the organizational capabilities, based on the intangible assets of organization in the form of software, can be the characteristics for capability of organizational knowledge which is a new concept of knowledge management. These assets play the increasingly important roles in knowledge management cycle in which the knowledge is created, understood and developed. The role of intangible capital-social capital-is unique and it enhances the organizational readiness in establishing the knowledge management.

Holt (2000) defines the organizational readiness for knowledge management establishment as an essential prerequisite for an individual or organization in order to gain the opportunity and enhance the competitive advantage while facing the organizational change. Simon (1996) and Jansen (2000) believe that the managers should answer two basic questions in establishing the knowledge management in order to reduce the risk and uncertainty. First: What is the fundamental current ability of an organization for knowledge management? Second: What changes should be made before the start of KM activities. Therefore, it is essential to pay attention to the contexts of knowledge management establishment in successful implementation of various organizational factors such as the organizational structure, organizational culture, technology and human resources. Asili (2002) has identified the effective factors in knowledge management establishment and shown in Figure (3).
Figure 3: Effective factors in knowledge management establishment

Table 2: Key factors of knowledge management success

<table>
<thead>
<tr>
<th>No.</th>
<th>Experts</th>
<th>Key factors of success</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Wiig (1996)</td>
<td>Knowledge management processes, and knowledge creation, organization, transfer, conversion, retention and application</td>
</tr>
<tr>
<td>2</td>
<td>Davenport (1998)</td>
<td>Organizational and technical infrastructures, knowledge structure, governance of friendly culture and climate in organization, clear goals and common language, existence of multiple paths (for knowledge transfer, superior management support, and overcoming the motivational barriers)</td>
</tr>
<tr>
<td>3</td>
<td>Davenport, Prusak (1998)</td>
<td>Technology, knowledge creation, knowledge transfer, electronic knowledge bases, education, culture and leadership, trust</td>
</tr>
<tr>
<td>4</td>
<td>Mary (1998)</td>
<td>Knowledge availability, accurate and updated knowledge</td>
</tr>
<tr>
<td>5</td>
<td>Tresler (1998)</td>
<td>Management commitment, creating the motivation for knowledge distribution, culture, technology, teaching and learning</td>
</tr>
<tr>
<td>6</td>
<td>Finran (1999)</td>
<td>Appropriate culture, knowledge and information distribution, knowledge creation</td>
</tr>
<tr>
<td>7</td>
<td>Leibovitz (1999)</td>
<td>Knowledge management strategy, superior management support, culture of supporting the knowledge management, encouraging the staff to distribute knowledge bases, technology</td>
</tr>
<tr>
<td>8</td>
<td>Manasko (1999)</td>
<td>Knowledge groups, Monitoring the knowledge content, structural and technological support, improving the knowledge creation and distribution processes</td>
</tr>
<tr>
<td>9</td>
<td>Bassi (2000)</td>
<td>Knowledge learning, distribution, implementation, and application</td>
</tr>
<tr>
<td>10</td>
<td>Choi (2000)</td>
<td>Education, Staff participation in knowledge management processes, Team-building for staff empowerment, superior management support, organizational coercion, knowledge structure</td>
</tr>
<tr>
<td>11</td>
<td>Skyrme and Amidon (2000)</td>
<td>To have a compelling vision, knowledge leadership, knowledge distribution culture, intelligent learning and technical infrastructures</td>
</tr>
</tbody>
</table>
Alazemi and Zairi (2003) are among the researchers who have investigated different experts’ opinions about the critical success factors for implementation and establishment of KM systems; the results of this study are summarized in Table (2).

**Organizational Intelligence**

One of roles of present era for the management and employees in an organization is intelligence. Also, the management and employees try to apply human capital and organizational capital for developed efficiency and effectiveness in their organization. Therefore, these goals will not be available unless all of them in the organization use intellectual capital as optimum.

Albrecht (2003) designed a modal that includes Seven Key dimensions of organizational intelligence (OI):

1. **Strategic Vision:** strategic vision refers to the capacity to create evolve, and express the purpose of the enterprise and not to any particular vision, strategy, or mission concept in and of itself.
2. **Shared Fate:** a sense as “We're all in the same boat” creates a powerful sense of community and esprit de corps. Without a sense of shared fate, the psychological tone of the culture degenerates into a “Look out for number one” spirit.
3. **Appetite for Change:** Some organizational cultures, usually led by their executive teams, have become so firmly set in their ways of operating, thinking, and reacting to the environment that change represents a form of psychological discomfort or even distress.
4. **Heart:** Separate from the element of shared fate, the element of heart involves the willingness to give more than the standard.
5. **Alignment and Congruence:** In the intelligent organization the system, broadly defined, all come together to enable the people to achieve the mission.
6. **Knowledge Deployment:** Knowledge deployment deals with the capacity of the culture to make use of its valuable intellectual and informational resources.
7. **Performance Pressure:** It’s not enough for executives and managers to be preoccupied with the performance of the enterprise, i.e. its achievement of identified strategic objectives and tactical outcomes. In the intelligent organization, everyone owns the performance proposition, i.e. the sense of what has to be achieved and the belief in the validity of its aims.

**MATERIALS AND METHODS**

**Research Questions**

1. What is the structural model of organizational intelligence based on the knowledge management in the Universities (Roudehen, Damavand, Pardis, and Bomehen branches and educational centers)?
2. Which variable has the highest effectiveness on organizational intelligence?
3. How is organizational intelligence knowledge management effective on promoting organizational intelligence?
4. How much is the goodness of fit in this study?

**Method of the Study**

The research methods of the study are: library research to access the theoretical framework and the related literature; and the survey method to collect, classify, describe, and analyze the data. The population under investigation in this study consist of official staff working in the universities (Roudehen, Damavand, Pardis, and Bomehen branches and educational centers). Regarding the minimum research sample required for the staff’s group, 226 individuals were randomly selected, using simple random sampling method, and the same number of questionnaires were distributed among them.

The research instruments were as follows: organizational intelligence which was designed and developed based on the theory of Albrecht. The organizational intelligence questionnaire consisted of 49 items with seven underlying constructs of strategic vision, shared fate, appetite for change, heart, alignment and congruence, knowledge deployment and performance pressure with Cronbach’s Alpha of 0.84, and Sallis & Jones, knowledge management questionnaire which consisted of 42 items with ten underlying constructs of vision and mission, strategy, organizational culture, intellectual capital, learning
organization, leadership and management, teamwork and learning communities, sharing knowledge, knowledge creation and digital sophistication for the organization with Cronbach’s Alpha of 0.86. The results of the study were obtained through applying path analysis using LISREL software.

RESULTS AND DISCUSSION
The data collected from the administration of the instruments were analyzed. These data included the different indexes of central tendency, variability and the distribution of staff’s groups, the staff members’ scores obtained from knowledge management and organizational intelligence questionnaires and their related components. The distribution of the staff members’ scores in the given variables had tendency toward normality.

As shown in Figure 1, the Lambda rate of external latent variable of knowledge management components was 0.38 for leadership and management, 0.23 for teamwork, 0.12 for sharing knowledge, 0.23 for knowledge creation, 0.29 for digital sophistication, 0.11 for vision and mission, and 0.08 for strategy, 0.39 for organizational culture, 0.39 for intellectual capital, and 0.17 for learning organization whose accumulation form the knowledge management variable with the effectiveness rate of 0.93. It means that
93% of the variation in the dependant variable of intellectual capital, Leadership and management is explained by a collection of these indexes. The variable of collective action indicates the highest amount of internal consistency in the external latent variable.

The Lambda rate of internal latent variable of organizational intelligence components was 0.35 for strategic vision, 0.04 for shared fate, 0.27 for appetite for change, 0.41 for heart, 0.22 for alignment and congruence, 0.54 for knowledge deployment, and 0.03 for Performance Pressure. Their accumulation form the organizational intelligence variable. The validity of variable indicates the highest amount of internal consistency in the internal latent variable. Since the model's goodness of fit index is 0.92, it can be stated that it has an acceptable fit. The calculated index indicates the direct effect of knowledge management components on employees' organizational intelligence. Moreover, the model shows that the highest direct effect is related to intellectual capital, and Leadership and management. Table 1 presents the indexes related to the model's fit:

<table>
<thead>
<tr>
<th>Index</th>
<th>Rate</th>
<th>Interpretation</th>
</tr>
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<tbody>
<tr>
<td>Lewis-Tucker (Non-normed fit index)</td>
<td>0.92</td>
<td>High fit (more than 0.90)</td>
</tr>
<tr>
<td>Bentler-Bonett's (Normed fit index)</td>
<td>0.91</td>
<td>High fit (more than 0.90)</td>
</tr>
<tr>
<td>Hoelter</td>
<td>0.73</td>
<td>High fit (more than 0.70)</td>
</tr>
<tr>
<td>Root Mean Square Error (RMSEA)</td>
<td>0.042</td>
<td>High fit (equal to or less than 0.05)</td>
</tr>
<tr>
<td>GFI</td>
<td>0.92</td>
<td>High fit (more than 0.90)</td>
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</table>

The goodness of five fit indexes presented model’s fit and empirical data. Therefore, desirability adaptation is provided for the designed model and empirical data and can approve it as an appropriate model for the organizational intelligence. On the whole, it can be proposed that this proposed model has full fit since Lewis-Tucker’s non-normed fit index (0.92) and Bentler-Bonett’s normed fit index (0.91) were both higher than 0.90. Besides, Hoelter’s index (0.73) was higher than 0.70 and shows high fit. The root mean square error (RMSE) (0.042) was lower than 0.05 and goodness of fit (GFI) (0.92) was higher than 0.90 and indicate the new model’s fit.

**Conclusion**

The knowledge is now considered as the most important and valuable source in industrial economies. Furthermore, the knowledge is the most important economic asset which is available for organizations and is considered as their determining measure, profitability and sustainable advantage and these organizations are called the learning organizations.

The utilization of knowledge-based employees as the human capital is the difference between these organizations with other ones. The universities and research centers play the undeniable roles in educating the knowledge-based employees. Therefore, they achieve these goals and perform the main tasks when they establish the knowledge management system in their own structure.

The results of path analysis using LISREL software indicated that dimensions of knowledge management had a direct effect on organizational intelligence with the indices of 0.93. The model also showed that the factor of intellectual capital, leadership and management in knowledge management had the highest direct effect on organizational intelligence.

Based on the results of this study, the researchers are suggested applying this research questionnaire as well as other scientific models for testing the current study and comparing the results with findings of this study and then analysis.

**REFERENCES**


Research Article


