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The Effect of Knowledge Management on Organizational Innovation with the Mediating Role of Organizational Learning (Case Study: Agricultural Bank in Iran)

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Abstract

Nowadays, intelligent and knowledgeable employees, who can lead an organization towards a sustainable competitive advantage, are among the most important assets of the organization. Innovative effort in an organization results from investment in the learning process and improvement of human resource management and knowledge management. This research aims at evaluating the impact of knowledge management on organizational innovation with regard to the mediating role of organizational learning. The population of the research consists of all Agricultural Bank employees in Ardabil Province that, using Morgan sample table, the sample size was determined to be 140 subjects who were selected based on availability sampling method. Data analysis was done using structural equation modeling and AMOS software. Data collection tool was a standard questionnaire the validity of which was confirmed by experts and scholars and its reliability was evaluated using confirmatory factor analysis. The results show that knowledge management has a positive effect on organizational learning. However, the impact of knowledge management on organizational innovation was not confirmed. Organizational learning also has a positive effect on innovation. Finally, given the indirect effect of knowledge management on organizational innovation, it can be said that learning is the moderating variable between knowledge management and organizational innovation.

Keywords: Organizational Behavior, Knowledge Management, Organizational Innovation, Organizational Learning

JEL Classification: M21, M53, D83

1. Introduction

In recent years, knowledge management has been one of the most interesting and most challenging issues of business management. Accordingly, knowledge is the most important strategic resource of the company or organization, and knowledge-based resources usually are considered to be inimitable and socially complex. Thus, heterogeneous knowledge resources and capabilities of firms are the most important determinants of sustainable competitive

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advantage and superior organizational performance. Moreover, this knowledge is tacit and emanates from organizational culture, policies, procedures, records, documentation and employees (Candra, 2014). To achieve sustainable competitive advantages, firms seek different sources for the acquisition of new knowledge. Thus, knowledge management is considered to be one of the most important issues of business management in today's world (Shebagavalli, 2013). Knowledge management is a process through which organizations can identify, select, organize, publish and transmit important information and skills that are part of the history of the organization and can be found in an unstructured form in the organization (Torban, 2006). On the other hand, in the late twentieth century, the world witnessed vast changes in all areas of business; so that, nowadays, increased competition, information technology development, the quality of goods and services, customer orientation, inefficient administration of the public sector have been challenged by the process of globalization all around the world. Organizational innovation is one of the most effective strategies to overcome these challenges (Anvari et al., 2012). Innovation refers to the process of the development and improvement of products, services, processes and markets with the aim of increasing value (Marins, 2008). Like many functions, innovation is a management process which requires hard tools, rules and procedures and is used by the organization to achieve its long-term goals (Davila, 2012). Finally, learning, as another variable examined in this research, is a relatively permanent change in knowledge and skills of employees that comes from experience (Col covet, 2009). Organizational learning is one of the strategic tools for achieving long-term success in the organization (Argote, 2013). Organizational learning is a field of knowledge in the theory of the organization that evaluates learning models and theories and the adaptation of the organization (Liao, 2010). To achieve excellent performance in the organization, knowledge management and organizational learning are used together (Al-Hakim and Hassan, 2013). The use of knowledge management and organizational innovation processes in interaction with the surrounding environment can increase the creation and learning of knowledge in the organization and improve organizational performance.

According to what was said, this research intends to examine the impact of knowledge management on organizational innovation with the mediating role of organizational learning, in Ardabil Agricultural Bank. Considering the extent and variety of activities and tasks of the Agricultural Bank such as providing investment deposit of granting financial facilities to agricultural and industrial works (building storepit, aviculture and livestock farming, and lending for the purchase of agricultural and industrial machines), it can be said that it is important to attract people's deposits for investment. Thus, it is absolutely necessary to conduct such studies in the field of banking. To this end, within the framework of theoretical foundations, the next section is dedicated to the importance and dimensions of knowledge management, organizational innovation and organizational learning and their relationship with each other. Next, empirical background of the research will be examined. Then, research methodology will be discussed and, finally, after data analysis, conclusion and recommendations will be offered.

2. Literature review

2.1. Knowledge management

The maintenance and development of competitive advantage is one of the biggest concerns of organizations. Nowadays, there is a strong emphasis on knowledge as a factor of organizational success and competitiveness. When an organization's employees resign or leave the organization for any reason, organizational success is reduced. As a result, organizations try to manage knowledge more effectively and efficiently in order to improve their performance

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(Salavati and Haghnazar, 2010). The complexity of the concept of the knowledge and the existence of different approaches to knowledge management is the reason for the lack of a single attitude towards knowledge management. Knowledge management has been studied in several principles (Yang, 2010). Knowledge management, as a goal-oriented and systematic application, is known as a measure for directing and controlling tangible and non-tangible knowledge assets of the organizations. This measure aims to use existing internal and external knowledge of these organizations to enable the creation of new knowledge, value creation, creativity and progress (Yang, 2004). From the viewpoint of Bass, knowledge management is the process of creation, registration, refinement, dissemination and application of knowledge (Oliveira, 2006). These five factors in the area of knowledge management provide an organization with the ground for learning, feedback and relearning which usually are used to create, record, refine, disseminate and revive functionalities of the organization (Bhatt, 2000). In this research, the following dimensions are used to measure knowledge management:

- **Knowledge Creation:** Knowledge comes from the experiences and skills of employees. Using different methods to develop and restructure the present and previous knowledge, any organization can create new realities and meanings (Yaghoubi et al., 2011). Operational indicators of knowledge creation include: the importance of the value of knowledge creation, the existence of an appropriate mechanism to convert tacit knowledge into explicit knowledge, the level of using external knowledge, encouragement of the organization to create knowledge, rewarding and encouraging the employees' innovation and new ideas, open talk about the organization's experiences and failures, and the formation of learning groups in the organization (Anvari-e-rostami et al., 2009).

- **Knowledge Registration:** The created knowledge should be stored in databases in its primary form. Many organizations use various sources in order to capture and maintain the knowledge (Yaghoubi et al., 2011). Operational indicators of knowledge registration include: the use of knowledge bases and databases to store and maintain knowledge, key employees for the registration and maintenance of knowledge, the existence of knowledge storage policies and procedures, the use of databases to record the knowledge, and the use of databases for the documentation of successful and unsuccessful experiences.

- **Knowledge Refinement:** New knowledge must be placed in a practicable context, where human insight or tacit knowledge is recorded and reformed together with explicit knowledge (Yaghoubi et al., 2011). Operational indicators of knowledge refinement include: knowledge updating mechanisms in the organization, necessary mechanisms for a timely record and provision of information, the existence of computer systems for the collection, refinement and storage of the knowledge (Anvari-e-rostami et al., 2009).

- **Knowledge Dissemination:** Knowledge should be accessible to anyone in the organization so that it can be used at any time and place. New technologies such as teamwork, Internet, Intranet and other technologies can contribute to the dissemination of knowledge (Yaghoubi et al., 2011). Operational indicators of knowledge dissemination include: the creation of knowledge dissemination policies and procedures in the organization, the use of Internet technologies, office automation, teamwork and joint conferences, easy access to knowledge for all levels of employees, holding regular meetings for the exchange of information among employees, the publication of the creative works of innovative employees via the Internet, electronic magazines and so on (Anvari-e-rostami et al., 2009).

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- **Knowledge Application:** In general, organizational knowledge should be applied in line with the organization's products, services and processes. If an organization cannot easily determine the proper form of knowledge in its right place, it will be faced with difficulties in the competition arena (Yaghoubi et al., 2011). Operational indicators of knowledge application include: the application of information, skills and abilities of employees in doing things like ICDL, the use of Internet networks, extranet, office automation, the reduction of the referral of citizens by using new information systems or services (IVR and websites), the creation of a place for knowledge management in organizational structure, the use of new ideas of employees in organizational processes, and paying attention to the sale of organizational knowledge (Anvari-e-rostami et al., 2009).

2.2. Organizational innovation

The concept of innovation was first introduced by Schumpeter in 1934. It was proposed as the process of creating new brands, products, services and processes and a factor which has impact on economic development. Since then, several scientists have described it differently as a concept for the long-term survival of organizations and, hence, it has been considered a key factor in organizations (Mirkamali et al., 2012). In the theories of economic development, it is about one century that innovation is considered to be the driving force of economic growth and development. In recent years, with the advent of the knowledge-based economy, innovation has found a more crucial role in the evolution of social and economic structures to the extent that in some articles, today's advanced economies are referred to as innovation-based economies. Moreover, in the last half-century, policy makers have been increasingly interested in the development of knowledge-based innovation as the driving force of economic development (Nasrollahi et al., 2011). Today, with the complexity of competition, innovation is considered one of the main advantages of companies. In order to survive, all organizations need new and innovative ideas that like a soul are blown into their bodies and save them from annihilation and destruction. The emergence of innovation not only enables organizations to gain a competitive advantage over competitors but also provides them with a useful tool to improve organizational performance (Deghan Najm, 2009). In other words, nowadays, factors such as environmental changes, technological advances and increased competitors have caused endless conflict and competition among organizations. This is despite the fact that, adopting more innovation, organizations will be more successful in responding to environmental changes and developing new capabilities that will help them to achieve higher performance (Ardekani et al., 2011). In this research, after reviewing scientific research conducted in the field of organizational innovation and models mentioned in this regard, the components which have been more common among scholars and experts have been selected as the components of the research. The components of administrative innovation, service innovation and process innovation have the most frequency and are considered in this research as the main components of organizational innovation. They are as follows:

- **Service Innovation:** service innovation provides a means of production and refers to the development and provision of new and improved products and services. In fact, it can be said, productive innovation means that to what extent the organization is pioneer in providing new services, allocating financial resources to research and development and so forth (khane et al., 2009). Operational indicators of service innovation include: being a pioneer in the provision of new services (products), attempt to develop new services in the form of training individuals and teams in the organization, and the development of products for new groups of special customers (Chupani, 2012).

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- **Process Innovation:** process innovation provides a tool to maintain and improve quality and cost savings and involves the adoption of new or improved methods of production, distribution or service delivery. In fact, process innovation means that to what extent the organization adopts new technologies and tests new ways of doing work (Abdi and Amatsenin, 2014). Operational indicators of process innovation include: changes in production and service processes, finding new ways and methods for doing things, and being pioneer in providing new methods of production (Chupani, 2012).

- **Administrative Innovation:** Administrative innovation refers to the new procedures, policies and organizational forms. In fact, administrative innovation means that to what extent managers use new management systems to run the organization (Abdi and Amatsenin, 2014). Operational Indicators of administrative innovation include: search for new administrative systems, the use of new administrative systems, and the creation of new structure and relationship within the organization (Chupani, 2012).

2.3. Organizational learning

Senge (2009) suggests that organizational learning is the key to the success of organizations. Thus, if the most successful organizations are faced with poor learning capabilities, they cannot benefit all of their abilities in today's ever-changing environments. Therefore, in the near future only those organizations will be successful that are able to use the full capabilities and learning potentials of all individuals at different levels of the organization. In other words, most organizational learning capabilities will be improved by environmental changes (Bahadori et al., 2012). Buchle and Probest (1997) define organizational learning as follows: the ability of an organization as a whole in detecting errors and correcting them, as well as the change of the knowledge and values of the organization so that new skills of problem-solving and new work capacities can be created. Ganse also defines organizational learning as the acquisition and application of knowledge, skills, values, beliefs, and improvement attitudes in order to maintain, grow and develop the organization (Rahimi et al., 2012). To measure organizational learning, Gomes and his colleagues used the literature and conceptualization method, and extracted four factors of organizational learning and called them organizational learning capabilities (Kim, 1993). The method they used was structural equation modeling and their previous researches were based on Gah and Richards model. The factors they extracted include managerial commitment, system perspective, openness and experimentation, and knowledge transfer and integration; to measure these capabilities 16 items together with Likert scale were used and the respondents were the managers of organizations (Kim, 1993). Organizational learning capabilities used in this research are explained below. They have been extracted from the literature, particularly the models offered by Gomes et al and Gah and Richards.

- **Managerial commitment for organizational learning:** Management must understand the importance of learning and provide the organization with this culture that acquisition, creation and transfer of knowledge are fundamental values in the organization. Management should explicitly express the strategic nature of learning as organizational learning is a valuable tool for achieving long-term results. Operational indicators of managerial commitment for organizational learning include: support employees' request for leaning and training, provide learning opportunities for employees and managers by the director, use individuals' knowledge in decision-making, equal and fair treatment for members regardless of their rank, support helping each other in the process of learning, pay compensation for learning, create an appropriate culture of learning for acquisition, creation

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and transfer of knowledge, provide the organization's environment with conditions for carrying out projects, and participate in scientific circles (Aghdasi and Khakzar, 2009).

- **System perspective:** Different individuals, sectors and areas of the organization should have a clear view of the organization's goals and know how to develop these goals. Operational indicators of system perspective include: develop employees' skills in line with organizational goals, have a clear vision of the goals of the organization, encourage employees to find solutions to problems, recognize the importance of learning for all employees in the organization, have a systematic thought (employees understand not only their work but also its connection with other jobs in the organization), the relationship of learning and development plans with organizational goals and mission, and develop necessary and systematic processes for learning (Aghdasi and Khakzar, 2009).

- **Openness and experimentation:** creative learning or double-loop learning needs open space and is concerned with internal and external new ideas and views. Moreover, this kind of learning causes personal knowledge to be renovated, expanded and improved. Operational indicators of openness and experimentation include: create an appropriate atmosphere to implement new theories and ideas, create an appropriate atmosphere for open discussion about the errors and mistakes (detecting and correcting errors), effective measurement of training courses, and the availability of learning information for employees (Aghdasi and Khakzar, 2009).

- **Knowledge transfer and integration:** the fourth capability refers to two fully related processes of transfer and integration of internal knowledge which happen simultaneously instead of being continuous. The efficiency of these two processes returns to previous absorption capacity. Absorption capacity, that is the ability to identify, acquire, digest and apply knowledge, can help remove barriers of knowledge within the organization. Operational indicators of knowledge transfer and integration include: the use of management information systems for employees' learning, sharing knowledge and experiences of individuals with colleagues in the organization, exchange of employees' information about successful work activities and good ideas of each other, interaction with research centers, universities and consultants, the use of past work experiences in solving problems, provision of experiences and work practices through holding discussion sessions, sharing organizational knowledge with all members, willingness and participation of members to cooperate with and help the colleagues to improve working methods, and the use of databases (Aghdasi and Khakzar, 2009).

3. Conceptual model and hypotheses development

Peter Drucker believes that knowledge is the key to organizational success, because value is created through innovation and production, and learning is the ability to advance the use of knowledge (Nekouei Moghadam and Beheshtifar, 2008). Thus, the first hypothesis is as follows:

H_1: knowledge management has impact on organizational innovation.

The relationship between knowledge-based approach and organizational learning is important as knowledge-based organizations and economies need to build strategic capabilities in order to create knowledge based on intangible assets (Vaseniska, 2013). If an organization has a strong motivation for learning and organizational innovation, it will create structures and processes and, through balanced and complementary efforts, will achieve and combine knowledge both from inside and outside of the organization (Liao and wu et al., 2010).

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Working in organizations is a continuous learning process and learning is at the center of all training activities. Most trainers or supervisors provide information and assume that learning occurs through providing this information and are sure about it. However, may studies of innovation have shown that learning and innovation will be improved through integrating internal and external knowledge (Anvari et al., 2013). Karvin claims that in many schools, learning is a process which unfolds over time and is associated with knowledge acquisition, deeper understanding and performance improvement (Aghdasi and Khakzar, 2009). Thus, according to what was said, the second and third hypotheses are as follows:

H_2: knowledge management has impact on organizational learning.
H_3: organizational learning has impact on organizational innovation.

Working in organizations is a continuous learning process and learning is at the center of all training activities. Most trainers or supervisors provide information and assume that learning occurs through providing this information and are almost sure about it. However, learning occurs when the received information is understood internally (Mathis and Jackson, 2007). Alegr and Chiva define organizational learning as a process through which the organization learns and this learning refers to any change in organizational models which improves and maintains the performance the organization. According to them, organizational learning capability is a set of tangible and intangible resources or skills used by the organization to achieve new competitive advantages (Alegr and Chiva, 2008). Organizational learning, as a mediating variable, plays a role between knowledge management and organizational innovation. Additionally, this process has been considered as a system in which knowledge management is the input, organizational learning a key process, and organizational innovation a vital output (Liao and Wu, 2010). Hence, the fourth hypothesis is as follows:

H_4: Organizational learning has an influential mediating role in the relationship between knowledge management and organizational innovation.

Dimensions of knowledge management in this research consist of knowledge creation, knowledge registration, knowledge refinement, knowledge dissemination and knowledge application. Dimensions of organizational innovation include service innovation, administrative innovation and process innovation. Dimensions of organizational learning variable include managerial commitment, system perspective, openness and experimentation, and knowledge transfer and integration. According to the first to fourth hypothesis, conceptual model of the research is shown in Figure 1.

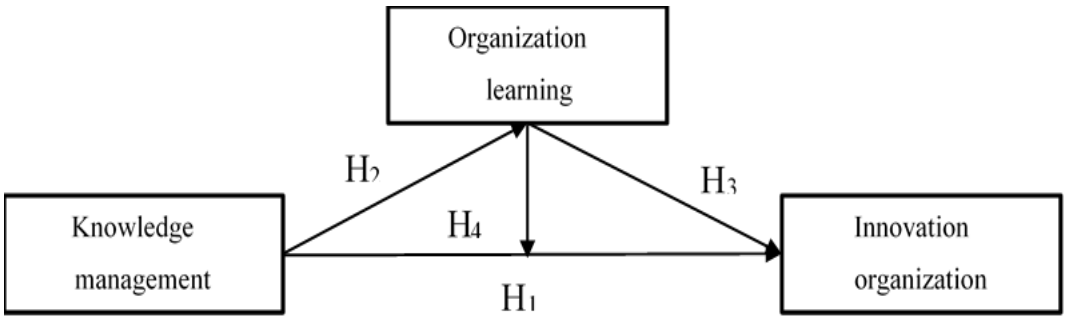

Figure 1: Conceptual model of the research (Abdi and Amatsenin, 2014)

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4. Research background

Domestic and foreign empirical literature of the research is summarized in Table 1.

Table 1: The empirical background of the research

Authors' name	*Research title*	*Results*
Yaghoubi et al (2011)	Studying the relationship between the components of organizational learning and knowledge management among the personnel of selected hospitals in Isfahan	The dimensions of organizational learning and processes of knowledge management were identified and then the relationship between independent and dependent variables was examined. The results showed that the relationship was significant.
Saedi and yazdani (2010)	Providing a process model for the implementation of knowledge management based on organizational learning in Iran Khodro	This research, through expressing Iran Khodro experiences, evaluated the periods of knowledge development and its relationship with loop learning. This process model shows that knowledge management development is realized through a four-loop learning process so that organizational resources are improved through this process and changed into pivotal capabilities and competencies of the organization.
Hassanbeigi (2011)	A thesis entitled "providing a model of key success factors of knowledge management in order to increase organizational learning and capacity in Iran Airports Company"	In this research, the key success factors of knowledge management which are in common with success factors of innovation and organizational learning were identified and selected as independent variables of the research and their effect on creativity development and organizational learning, as dependent variables, was examined. The results indicated that out of seven key success factors for knowledge management, the factors of knowledge-based strategies and policies and human resource management enhances creativity and organizational learning simultaneously.
Liao and wu (2010)	Relations between knowledge management, organizational innovation and organizational learning	Learning is considered as the mediator between knowledge management and organizational innovation. Moreover, for these researchers, this process is like a system.
Abdi and Amatsenin (2014)	The effect of knowledge management on organizational innovation with the mediating role of organizational learning	Innovation is the irreparable part of knowledge management. Moreover, without organizational learning capability of an organization, knowledge management principles cannot be maintained properly. The results show that organizational learning, as a mediator, influence the relationship between knowledge management and organizational innovation.

5. Methodology

In terms of objective, the current research is an applied research and in terms of data collection and analysis, it is a correlational descriptive-survey research; because, it describes the situation of variables and the relationships among them and, using statistical analysis techniques, tests and explains simultaneous relationship between the variables.

The research population consisted of all employees of Agricultural Bank in Ardabil province (n=230) that, using Morgan sample table, the sample size was determined to be 140 subjects. Accordingly, 160 questionnaires were distributed that some of them were not completed and, hence, were excluded. For data collection, two methods were used: library method was used for the formulation of the research literature and field method for the collection of statistical data. The tool used for data collection was standard questionnaire. Table 2 shows the resources used for setting each variable of the questionnaire.

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Table 2: The resources used for setting the questions of the questionnaire

Variable	*Number of questions*	*Resource*
Knowledge management	24	Rostami and Shahaei (2010)
Organizational innovation	12	Abdi and Amatsenin (2014)
Organizational learning	16	Gomes et al (2009); (Aghdasi and Khakzar, 2009)

For data analysis, the methods of Kolmogorov–Smirnov test, confirmatory factor analysis, path analysis model and structural equation modeling were used. Normal distribution of the data related to each of the variables was checked using Kolmogorov–Smirnov test. The measurability of the research variables was evaluated by the questions of the questionnaire and using confirmatory factor analysis. In this research, before testing the original model and the research hypotheses, using confirmatory factor analysis, the measurability of the research variables were tested by the questions of the questionnaire. Structural equation modeling has the ability to test the conceptual model in the form of relationships between the variables. This method allows the researcher to analyze the data with respect to measurement error. Using structural equation modeling is associated with important advantages the most important of which include estimation of multiple relationships, measurability of latent variables, calculation of measurement error, the impact of linearity, and testing the relationship of the fake and unreal structures of the research model (Davari and Rezazadeh, 2014). In this research, structural equation modeling was used to test the main hypothesis. Finally, path analysis is another advanced statistical method by which both direct and indirect effects of each independent variable on the dependent variable can be detected. Therefore, the most important advantage of path analysis method is that it can identify both direct and indirect effects of each independent variable on the dependent variable. In this research, path analysis method was used to test the sub-model of the research. For data analysis and the implementation of the mentioned statistical methods, SPSS and AMOS software were used.

6. Results

6.1. Demographic characteristics of respondents

The results of the demographic characteristics of the sample members are shown in the Table 3.

Table 3: Demographic characteristics of respondents

Demographic characteristics	*Category*	*Percent*
Sex	Male	85
	Female	15
Age	23-35 years	36.4
	36-50	56.4
	50 and over	7.1
Education	Diploma	12.9
	Bachelor's degree	57.1
	Master's degree	28.6
	Ph.D.	1.4
Organizational position	Banker	41.4
	Senior Banker	16.4
	Branch officer	4.3
	Expert	12.1
	Master	6.4
	Office staff	19.3
Work experience	Less than 5 years	10.7
	5-10 years	19.3
	10-15 years	29.3
	15-20 years	11.4
	20 and over	29.3

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As Table 3 shows, in terms of sex, 15% of the respondents are women and 85% are men. In terms of age, 36.4% of the respondents are between 23 and 35-year-old, 56.4% are between 36 and 50-year-old, and 7.1% are 50 and over. In terms of education, 12.9% of respondents have diploma, 57.1% bachelor's degree, 28.6% master's degree, and 1.4% Ph.D degree. In terms of organizational position, 41.4% are bankers, 16.4% are senior bankers, 4.3% are Branch officer, 12.1% are experts, 6.4% are masters, and 19.3% are office staff. Finally, in terms of work experience, 10.7% have less than 5 years of work experience, 19.3% between 5 and 10 years, 29.3% between 10 and 15 years, 11.4% between 15 and 20 years, and 29.3% over 20 years.In the reminder of this section, first, using Kolmogorov–Smirnov test, normal distribution of data in the research variables will be checked. Then, the results of the first order confirmatory factor analysis will be presented. Finally, using path analysis method, the research hypotheses will be tested.

6.2. Testing normal distribution of the data

In order to verify the claims made about the distribution of the data of a variable, Kolmogorov-Smirnov test (KS) is used. In this test, the null hypothesis includes the claims made about the type of data distribution, that is, normal distribution (Momeni and Fa'al Ghayoomi, 2013). The results of Kolmogorov–Smirnov test are shown in Table 4.

Table 4. Kolmogorov–Smirnov test

Variable	*Mean*	*SD*	*p-value*	*Result*
Organizational learning	3.2478	0.61819	0.190	Normal
Management commitment	3.1714	0.76075	0.117	Normal
System perspective	3.4143	0.84901	0.060	Normal
Outdoor Experimentation	3.1304	0.81215	0.315	Normal
Transfer and integration	3.3357	0.75732	0.92	Normal
Organizational innovation	3.747	0.59721	0.142	Normal
Service innovation	3.7814	0.67723	0.004	Non-normal
Administrative innovation	3.7857	0.69399	0.051	Normal
Process innovation	3.6381	0.76961	0.002	Non-normal
Knowledge management	3.3902	0.55965	0.752	Normal
Knowledge creation	3.3286	0.64688	0.169	Normal
Knowledge registration	3.2586	0.75006	0.156	Normal
Knowledge refinement	3.4443	0.65484	0.114	Normal
Knowledge dissemination	3.2971	0.83087	0.186	Normal
Knowledge application	3.6804	0.7014	0.005	Non-normal

The results of Table 4 show that some variables do not follow a normal distribution as the level of significance for these variables is less than 0.5. Thus, for normally distributed variables parametric tests are used, while for non-normal variables nonparametric tests will be used.

6.3. Validity and reliability of the questionnaire

In the present research, to investigate the validity of the questionnaire, two methods of content and construct validity were used. To ensure the validity of the questionnaire, the viewpoints of experts and university professors of the University of Medical Sciences were used. Using the comments and opinions of these experts, required edits were applied to the questions of the questionnaire in several stages and, thus, it was ensured that the questionnaires measure the features intended by the research. Construct validity, using first order confirmatory factor analysis, was calculated in AMOS software the results of which will be offered in the following. Before testing the original model and the research hypotheses, using factor analysis method, it was assessed that to what extent the questions of the questionnaire can measure the

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research variables. Figure 2 and Table 5 show the results of the first order confirmatory factor analysis done by AMOS software based on the research questionnaire.

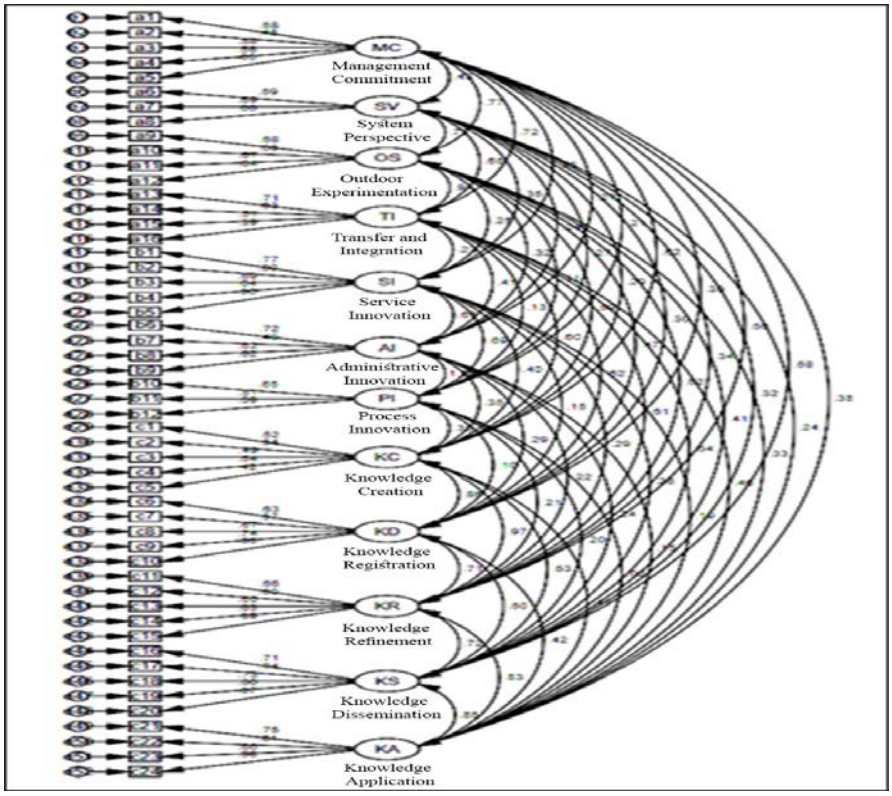

Figure 2: The results of the first order confirmatory factor analysis

Table 5: The results of the first order confirmatory factor analysis

Variable	*Question*	*Standard coefficient*	*Critical factor*	*p-value*
Management commitment	Managers frequently involve employees in the process of decision-making.	0.581		
	Employees' learning is considered as investment or cost.	0.542	4.286	***
	Managers are always looking for new methods of work in the organization.	0.576	5.144	***
	Employees' learning capability is considered as a key factor in the organization.	0.582	5.184	***
	Innovative ideas are encouraged in this organization.	0.653	5.588	***
Systemic vision/ system	All employees have a general knowledge about the goals of the organization.	0.593		
	All employees contribute to achieve the overall goals of the organization.	0.687	5.588	***
	All constructive sectors of the organization communicate with each other and work together in a coordinated way.	0.65	5.375	***
Outdoor experimentation/ openness and experimentation	In the organization, experimentation and innovation are encouraged as a way to improve work processes.	0.677		
	This organization follows what other organizations do in this sector of industry and uses those experiences and techniques which seem to be useful and interesting.	0.657	6.83	***
	Experiences and ideas provided by external sources are used as a useful tool for learning in this organization.	0.672	6.963	***
	Part of the organization's culture is that employees can insist on their views and provide their suggestions regarding the procedures and methods of their work.	0.636	6.633	***

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Table 5: The results of the first order confirmatory factor analysis (cont.)

Transfer and integration	Errors and failures at every level are always discussed and analyzed.	0.706		
	Employees can talk with one another about ideas, programs and activities that may be useful for the organization.	0.635	6.893	***
	If a problem occurs in the organization, employees can solve it through previous recorded experiences.	0.511	5.583	***
	In this organization, there are some tools (such as logs, office automation, database, etc.) that maintain the last years' learning even if the employees are replaced.	0.391	4.293	***
Service innovation	In this organization, new services are offered regularly.	0.775		
	In this organization, management is always striving to provide customers and clients with new services.	0.804	9.254	***
	In this organization, representation of new products and services are always considered valuable and important.	0.69	7.921	***
	This organization sees its survival in the new service and new customers.	0.643	7.347	***
	Providing new products and services leads to the satisfaction of the members of the organization.	0.562	6.354	***
Administrative innovation	Delegation of authority leads to the increase of new ideas in the organization.	0.724		
	Informal division of labor is the cause of creativity and innovation in the organization.	0.494	5.404	***
	Independence and freedom of employees in work will lead to innovation.	0.62	6.771	***
	Participation in decision-making leads to innovation in the organization.	0.616	6.725	***
Process innovation	The organization's flexibility provides the member with freedom and latitude and can provide a ground for innovation.	0.654		
	Standardization of work processes and procedures results in providing new ideas and suggestions.	0.511	5.405	***
	Acceptance of new ideas in the organization, as opposed to performing instructions, is the factor for the growth of innovation.	0.592	6.158	***
Knowledge creation	The organization has some mechanisms for the creation and acquisition of knowledge from different sources such as employees, customers, other organizations and competitors.	0.521		
	The organization encourages the exchange of ideas and knowledge among individuals and groups and has some processes to do this.	0.542	5.094	***
	The organization rewards employees for new ideas and knowledge creation.	0.488	4.741	***
	If necessary, the organization hires new employees who have the required information.	0.541	5.091	***
	The organization, to improve knowledge and awareness of the members of the organization, holds different training programs and seminars.	0.421	4.248	***
Knowledge registration	The organization documents individuals' knowledge and skills.	0.635		
	New knowledge applied in the organization is described and written step by step by the experts.	0.572	5.603	***
	The organization reacts to the ideas and opinions of employees and encourages them for developing, recording and documenting these ideas.	0.671	6.349	***
	In the organization, successes and failures are evaluated, documented and learned from for future actions.	0.739	6.8	***
	The organization has some mechanisms to uptake and transfer knowledge from employees, customers and other organizations.	0.529	5.253	***
Knowledge refinement	New ideas, insights and knowledge are welcomed in the organization and, if necessary, they will be used for redesigning processes and working methods of the organization.	0.664		
Knowledge refinement	Members are evaluated and rewarded for the development of new knowledge and providing and testing new ideas.	0.594	6.391	***
	The organization has some systematic policies to check the status of their knowledge. Employees are required to update their knowledge.	0.595	6.405	***
	The organization has some processes for applying the knowledge learned from the experiences and using knowledge resources to overcome the challenges and problems.	0.628	6.717	***
	Knowledge is distributed informally in the organization (in the hallway, friendly and informal meetings, intimate conversation).	0.394	4.359	***

*** means significance at the level of 0.001

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According to the results, since the significant level of all the items is above 1.96, none of the items are removed in confirmatory factor analysis. Also, standardized coefficients are significant and coefficients of error are normal. As a result, first order confirmatory factor analysis will be confirmed and it can be said that all of the items have the ability to measure the research variables.

6.4. Testing the research hypotheses

In order to verify the main hypotheses, path analysis method was used based on AMOS software. Path coefficients and significance of the relationships between parts of the model are shown in Table 6.

Table 6: Path coefficients of the main model of the research

Hypothesis		*Standard coefficient*	*SE*	*CR*	*P*	*Result*
H1	KM---> OL	0.554	0.078	7.838	***	Confirmed
H2	KM---> OI	0.132	0.102	1.373	0.17	Unconfirmed
H3	OL ---> OI	0.242	0.093	2.521	0.012	Confirmed

*** suggests that p-value is less than 0.001

The results of Table 6 show that all paths, except the one for the relationship between knowledge management and organizational innovation, are significant in the main model of the research. In this regard, knowledge management, with standard coefficient of 0.554, has a positive and significant impact on organizational learning. Therefore, the first hypothesis is confirmed. Knowledge management has no significant and positive impact on organizational innovation. Thus, the second main hypothesis is not confirmed. Organizational learning, with standard coefficient of 0.242, has a significant and positive impact on organizational innovation. Hence, the third main hypothesis is also confirmed.

Finally, to test the fourth hypothesis regarding the mediating role of organizational learning in the relationship between knowledge management and organizational innovation, indirect effects of variables on each other should be examined. In order to evaluate the indirect effects of the research variables, bootstrapping method was used in path analysis. Table 7 shows the results of the indirect effects of variables.

Table 7: Indirect effects of the variable of the main model

Variables	*Indirect standard coefficient (significance)*	
	Knowledge management	*Organizational learning*
Organizational learning	---	---
Organizational innovation	0.134 (0.013)	---

The results of Table 7 show that knowledge management, with standard coefficient of 0.134, has a significant indirect effect on organizational innovation. Thus, it can be said that organizational learning is the mediating variable in the relationship between knowledge management and organizational innovation. Additionally, since the variable of knowledge management has no direct effect on organizational innovation (see Table 6), it can be said that the type of mediating variable and mediating relationship is complete. Accordingly, the fourth hypothesis is confirmed. Finally, Table 8 shows fit indices of the main model.

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Table 8: Fit indices of the model

The type of fit index	*Index*	*Model*
Absolute	NPAR	6
	DF	0
	P (greater than 0.05)	---
	CMIN (Chi Square)	0
	AGFI (greater than 0.9)	---
	GFI (greater than 0.9)	1
Relative	TLI (greater than 0.9)	---
	NFI (greater than 0.9)	1
	CFI (greater than 0.9)	1
Thrifty	PNFI (greater than 0.5)	0
	PCFI (greater than 0.5)	0
	RMSEA (smaller than 0.08)	0.393
	CMIN/DF (smaller than 5)	---

As the degree of freedom is zero in the above table, it can be said that the main model of the research is a saturated model. Hence, because of the zero degrees of freedom, it is not possible to improve the indices to the desired extent (Ghasemi, 2011). Thus, fit indices, in general, show the appropriateness of the estimated model.

7. Conclusion, recommendations and limitations

Knowledge management is a relatively new topic raised in the field of management science. This new method of management was quickly welcomed by management specialists, and wide effort was made to exploit the potential of individuals' knowledge in organizational efficiency. Knowledge management is a method based on which one can achieve hidden findings of individuals' knowledge which has a substantial value in many cases. This management method tries to encourage the spirit of participation and integration in organizations and discuss the system of collective thinking and the sharing of ideas extensively. Relying on techniques, extracting information findings and the knowledge of individuals, and saving and publishing them, managers try to achieve a knowledge that can help them in organizational efficiency. Accordingly, this study examined the impact of knowledge management on organizational innovation with the mediating role of organizational learning among the Agricultural Bank staff in Ardebil. The findings suggest that knowledge management has a significant and positive impact on organizational learning. Thus, the first hypothesis was confirmed. Given the significant effect of organizational learning on organizational innovation, it can be claimed that this part of the research has a significant and positive convergence with the findings of Argon Cora et al in their research entitled "the role of leadership and organizational learning in organizational innovation and performance"; it is also in line with the research conducted by Garcia Morales et al under the title of "implications of organizational innovation and organizational learning in entrepreneurship". The research findings also suggest that knowledge management has no significant and positive impact on organizational innovation. Hence, the second hypothesis is not confirmed. As the hypothesis of the impact of knowledge management on organizational innovation is not confirmed, it can be said that this finding has no convergence with the research of Taleghani et al entitled "the relationship between knowledge management and innovation in an insurance company. It seems that the relationship between these two variables needs more research in the various institutions and different statistical populations. Other research findings indicate that organizational learning has a significant and positive impact on organizational innovation. Therefore, the third main hypothesis is confirmed. Given the impact of organizational learning, as mediator, on the relationship between knowledge management and organizational

innovation, it can be concluded that this result is in line with the findings of Wu and Liao in their research entitled "relations between knowledge management, organizational innovation and organizational learning". This result is also in line with the finding of Abdi and Amatsenin in a research entitled "the effect of knowledge management on organizational innovation with the mediating role of organizational learning".

One of the main results of the research was the significant impact of knowledge management on knowledge learning among the Agricultural Bank staff. Therefore, it is recommended that in its policies to enhance learning in its subordinate staff, the bank should use knowledge management channel, that is, by adopting efficient policies related to knowledge management including documentation of experiences, optimization of reward methods, and the increase of available knowledge resources for employees and so forth, the bank can affect the learning level of employees. Moreover, serious effort should be made in different fields of knowledge management including knowledge creation, knowledge registration, knowledge refinement, knowledge dissemination and utilization of this knowledge so that, through holding learning courses and increase of knowledge for the purpose of knowledge creation and development of scientific savings, the intended bank can move toward required learning. In addition, the preservation of the created knowledge (explicit and implicit) together with documentation of the bank personnel experiences is an important step towards knowledge registration and knowledge application. Furthermore, another important finding of the present research is the ineffectiveness of knowledge management on innovation of employees. Based on this finding, it is recommended that bank policy-makers note the fact that for the formation of ideas and the adoption and implementation of new ideas in processes, products and services, desire for change through the adoption of new technologies, resources, skills and management systems and finally through employees' creativity, they have to use systems of innovation and creative ideas and people through the internet, magazines, holding joint meetings and conferences and application of this information, ideas and innovations of employees in the bank processes as a competitive advantage and a useful tool to improve the performance of the bank. Another finding of the research is the significant impact of organizational learning on organizational innovation in the agricultural bank employees; therefore, dimensions of organizational learning including managerial commitment, system perspective, openness, and transfer and integration, as subsets of learning, can improve organizational innovation or, rather, service, administrative and process innovations. It is recommended that managers increase managerial commitment to organizational learning through supporting and caring about learning and training, creating the ground for the employees' learning, creating a suitable culture of learning for the creation and transfer of knowledge, developing employees' skills toward the goals of the bank, and encouraging employees to learn the ideas and innovations in processes, products and services of the bank. Moreover, changes in individual learning levels should be considered as another indicator to improve the intended action through holding learning courses. Also, based on the fourth hypothesis regarding the mediating role of organizational learning in the relationship between knowledge management and organizational innovation, it is recommended that managers, in order to achieve the goals and perspectives of the bank, emphasize the importance of organizational learning as a key of success and a strategic tool, and use employees' learning capabilities at different levels of the bank so that they can provide the bank with the ability to overcome threats and eliminate weaknesses. Likewise, the necessary conditions should be provided for the learning and training of employees at different levels in line with empowerment and enrichment of their occupational conditions, creation, procurement and transfer of their knowledge through learning, the use of ideas, creativity and innovation of employees, and preparation of the proper ground for innovation in order to promote the bank

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condition, develop performances and achieve the goals and perspectives of the bank. Thus, bank management, through costing to increase optimal management of knowledge, can train some stronger and more knowledgeable employees (knowledge learning) and enhance innovation among the bank employees.

It is recommended that future researches conduct this research at a larger scale in all branches of the Agricultural Bank in Iran in order to enhance the generalizability of the results. Considering the mediating role of organizational learning, this research evaluated the impact of knowledge management on organizational innovation. However, other factors such as organizational citizenship behavior, organizational structure and employees' entrepreneurial level may have effect on organizational innovation. Thus, banking industry needs to examine the impact of these variables on innovation so as to offer a better model in this area. It is recommended that future researchers use the model of this research for service companies and other organizations and compare the obtained results. Finally, it is recommended that future researchers examine the impact of demographic characteristics on the relationship among knowledge management, organizational learning and organizational innovation.

Small population and non-generalizability of the results of the research to the country's banking industry is the most important limitation of this research. Moreover, owing to the heavy volume of work and banking operations in some branches as well as the lack of the culture of participation in research activities in some branches and among some employees, they did not dedicate enough time to answer the research questions. The unavailability of some new resources or the difficulty of providing foreign articles and the university's lack of subscription in some databases reduced the access to new materials. The use of self-evaluation tool (questionnaire) is another limitation of this study as some of them may have been responded with bias.

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