

**Research Article**

**STUDYING THE RELATIONSHIP BETWEEN ORGANIZATIONAL  
LEARNING WITH USING INFORMATION AND COMMUNICATION  
TECHNOLOGY (ICT) (CASE STUDY OF ISLAMIC AZAD  
UNIVERSITIES OF GOLESTAN)**

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**ABSTRACT**

The present study examines the relationship between dimensions of organizational learning using ICT in Islamic Azad Universities of Golestan. This research was an applied and its method is correlation-survey. The study population consisted of 946 employees and boards of Azad Universities of Golestan, the sample size of 274 subjects was extracted from Table krejcie and Morgan who were selected by simple random sampling. The gathering data tools were two questionnaires (organizational learning and using information and communication technology); their validity was confirmed by content method and their reliability was confirmed by using Cronbach's alpha 0.77 and 0.73. The results indicate that there is a significant positive relationship between the components of organizational learning and using ICT.

**Keywords:** *Organizational Learning and ICT*

**INTRODUCTION**

Organizational learning, places innovation and learning new knowledge in priority and emphasizes on the role of people in the development and application of new knowledge. Organizational learning offers an important way to achieve successful performance and to obtain competitive advantages for the organizations. Meler (1996) worked on learning assessment and says: Organizational learning is the acquisition of knowledge by individuals and groups who are interested to apply it in their jobs and influence others to do their tasks that are important for the organization correctly (Kandahar, Sharma, 2006). Organizations react to rapid changes, this means that in order to learn they expand the extent of their ability to better adapt to new conditions (Richard, 1999). Therefore organizations such as universities, which are the main producers of knowledge and the most extensive body of knowledge and in other words they are the axle and motor of development in any society, have not escaped from the changes of the present age and people must be prepared to face the changes by continuous learning and to have the ability to adapt to the changes and challenges of today they have a need to institutionalize learning within the organization (Jafari, 2006).

By entering different fields of human sciences, information technologies have challenged them and subsequently have caused need for strategies to catch up with them. Nowadays the use of information and communication technologies deals with collect, organize, store, and disseminate data such as audio, image, text or numbers using computer and communication tools (Turban *et al.*, 2006). If the university wants to set its mission, in order to achieve its objectives so it is forced to increase its competitive advantages and increase its abilities to deal with challenges and threats of the environment. The matter (OL) should not be ignored as a permanent benefit and a stable source (Eslambolchi, 2007). The main research question is: is there a significant relationship between organizational learning and using information and communication management in Golestan Azad Universities?

**Research Literature**

*Organizational Learning*

Learning is the main source of competitive advantage. Learning is for changing, in other words learning in each organization should change to positive change to become a habit. In this regard, successful organizations to achieve their goals and strategies have considered specific points on the top of their economic activities among them, commitment to customer service and customer-orienting thinking and

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having organizational culture having the insight should be named. The proper management of human resources is important such that other management issues are in subsequent stages and to develop human resources, creating the conditions to develop a learning organization is a basic necessity (Mirshahidi, 2009).

Learning means to strengthen knowledge by experience that is obtained by persuading of knowledge (Sobhaninezhad *et al.*, 2006). Jersey -Morals *et al.*, stated that the learning is a process has been analyzed by knowledge, abilities and thoughts. Learning includes knowledge acquisition, knowledge sharing, and knowledge application and also it can be generalized to new successes (Garcia, 2009).

Senge defines the four main elements of learning as follows:

- A) Performance: doing a task in the context of similar experiences
- B) Reflection: Finding your thoughts and actions and analyzing the performed tasks
- C) Communication: to create some ideas to organize them in new formats
- D) Decision: Preparation of procedures and approaches for action

By selecting the appropriate approach among the possibility of the association stage, Senge uses these four elements in the form of rings of individual, team and organizational learning (Liao, 2009)

According to Peter Senge the definitions of organizational learning are classified into two main groups: A) cognitive B) behavioral. In group of cognitive definitions, acquiring knowledge, understanding and new insights are mentioned. Although each definition in this group has discussed learning from the specific point of view, however, all the focus is on cognitive change and all of them have defined organizational learning as a process which consists of several stages. For example, some definitions of organizational learning are presented below:

1- The triple-stage process of Daft and Voik (1984): Organizational Learning has introduced a triple-step process by:

- A: Investigating and data collecting
- B: Interpreting information
- C: Learning by practical use of information.

2-Nonaka and Takochi (1995), introduce organizational learning as the mastery of knowledge related to its field of activity. In their view, the mastery of knowledge process (organizational learning) consists of triple stages:

- A. knowledge-acquisition (identifying and gathering useful information)
- B. the application of knowledge (practical application of knowledge)
- C. Transferring knowledge (distributing and publishing knowledge throughout the organization)

Regarding the different perspectives on organizational learning, the most important features of organizational learning can be stated as follows (Sobhaninezhad *et al.*, 2006):

1. The complex process (affected by the relationship between various factors within and out of individual environmental factors and factors inside and outside the organization)
2. Unscheduled (the texts of formal education, has not been pre-compiled)
3. Conscious and purposeful (attractive areas of learning and improving dominate all the individuals and groups and individuals and groups are trying to learn with care and curiosity and aligned with the organization's strategy)
4. Interactive and dynamic (always one person as a professor or student is not in a position of transferring skills and knowledge. But individuals, groups and organizations, receive the person information, experiences and knowledge and transfer it to others. This process makes continuous, fast and effective feedback at the individual, organizational, and group level.
5. Continuous (e.g., is not limited to a specific time and place like formal training)
6. Changing and growing (the mentioned interactions, dynamics and persistence, as well as feedback from the process gives it fruitfulness and entails evolution, development and continuous improvement of organizational learning)

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7. Considering influenced by or cultural resources used by people (this foundation can be the concepts of social structure and laws as well as the division of labor, tools and technologies common among members of an organization or alive community) (Sobhaninezhad *et al.*, 2006).

### **Types of Organizational Learning (Organizational Learning from Different Perspectives)**

Argyris and Shon have described triple types of organizational learning, or in other words, triple levels of learning as follows (Ceyda, 2011):

*1- Single-Loop Learning:* This type of learning is trying to solve the problems and eliminate the mismatch and coordinating actions and their results simply by changing the work. It ignores the fundamental problems and corrects objectives, strategies and the values and tries to maintain the status quo. Finally, individuals and organizations learn how to maintain the status quo and accepted standards and adapt them to their circumstances. Single-loop learning occurs when in the context of the organization's objectives and policies, errors are detected and corrected. Senge names single-loop learning, as adaptive learning, Fayol and Laise name it low level learning and Meison names it as non strategic learning.

*2- Double-Loop Learning:* In this type of learning, in addition of discovering and correcting errors, people investigate norms, processes, policies and targets to reform it. This type of learning considers not only observable facts but also it investigates their cause and the facts behind them. Double-loop learning occurs when an organization discovers and corrects errors and investigates the existing norms, practices, policies and aims and adjusts and modifies them. Senge names double-loop learning, as productive learning, Fayol and Laise name it high level learning and Meison names it as strategic learning.

*3- Triple-Loop Learning (Secondary Learning):* This type of learning can be described as learning to learn. In other words triple-loop learning is ability of learning about learning. If organizations are not aware that learning must occur, two forms of learning won't be done. This means that the knowledge of learning styles and processes and structures is a prerequisite for improving learning (Rahnavard, 1999). Triple-loop learning has also been called as "over learning ". At this level organizations learn how to learn (Tafreshi *et al.*, 2002).

### **Information and Communication Technology**

Information and communication technology is considered as one of the main axes of development in the world and many organizations in the world, have considered the development of information and communication technology as one of the most important development infrastructures (Biglari *et al.*, 2010).

ICT infrastructure in the first stage requires the existence of an information infrastructure include all communication devices such as telecommunications equipment, radio and television. Information infrastructure has been considered as ICT infrastructure that provides possibility of providing services and information services with good quality. Therefore Information and communication technology can be considered to consist of three main parts (Sakharavesh, 2003)

Information Infrastructure

Information technologies

Information Applications

### **The Role and Importance of ICT**

Nowadays, information and communication technology to coordinate with the rapidly changing business environment and obtaining flexibility is indispensable. With the most superficial look at the IT, each hardware or software to use to build, operate, or maintain applications of information technology tools, including decision support and transaction processing systems, IT infrastructure, servers, network and websites are considered (Benamati, 2008)

### **Impact of Information Technology on Organizations can be Summarized as Follows**

*1- Separating Work from Home:* Now it can be globally organized and locally work. Technologies such as the Internet, electronic mail, video conference, have caused people to have close cooperation free from geographical restrictions. Using information systems, many parts of the organization and the company can be eliminated. Communication technology has eliminated the geographical distance. Information

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systems have led companies and organizations to coordinate and manage their different parts scattered in different locations, and even with other organizations to carry out the necessary coordination as virtual organizations. In some cases, such organizations are called network organizations.

2- *The Reorganizing Process*: Information systems increasingly have changed manual processes to automated process. Electrical process has reduced operating costs by eliminating paper and manual processes (Lavdan, 1998).

3- *More Centralization or Decentralization*: According to the views of the organization management, using information technology can cause concentrating management in the organization. Managers who want to concentrate their decision making systems can use this technology to collect additional information and take more decisions that often lead to greater responsibility. On the other hand, managers who want to decentralize their decision making can utilize this technology to give more information to staff and members of the organization and increase the extent of their participation in decision-making and autonomy.

4- *Improving Coordination*: Perhaps one of the greatest achievements of IT is that managers are able to connect more with each other. When offices or shops are scattered around the world the computer systems create new communication channels that these managers can use them and can be as a group with group behavior. This technology helps managers to eliminate barriers and creates a group sense that occurs as a result of an organizational identity.

5- *More detailed description of duties*: By reducing administrative tasks, application of this technology makes the policies to be stated more precisely job description to be stated more detailed. Companies that use information technology will be more similar to service organizations. Management and administration posts should act more consciously and achieve the heaviest tasks and be ready to solve the problems (Daft, 2010).

#### ***Types of Information and Communication Technology (From Different Perspectives):***

ICT is not only the Internet but also includes any other tools that can be used alone or in combination with other tools to accelerate the process of change, so that prevent the unequal distribution of knowledge between rich and poor, educated and illiterate, urban and rural, male and female (Nath, 2001).

According to the definition of the United Nations Development Program, information and communication technology is "the cornerstone of the network world". ICT represents the combination of microelectronics, computer software and hardware, telecommunications, microprocessor, semiconductor and optical fibers making it possible to process and store data, and share large amounts of data through computer networks. The present ICT innovations make it possible to process and distribute information over communication networks (Chikonzo, 2006).

#### ***Hypotheses***

##### ***The Main Hypothesis***

There is a significant relationship between organizational learning and using ICT in organizations.

##### ***Secondary Hypotheses***

The First Sub Hypothesis: There is a significant relationship between individual skills and using ICT in organizations.

The Second Sub Hypothesis: There is a significant relationship between mental models and using ICT in organizations.

The Third Sub Hypothesis: There is a significant relationship between common goal and using ICT in organizations.

The Forth Sub Hypothesis: There is a significant relationship between Team learning and using ICT in organizations.

The Fifth Sub Hypothesis: There is a significant relationship between Systematic thinking and using ICT in organizations.

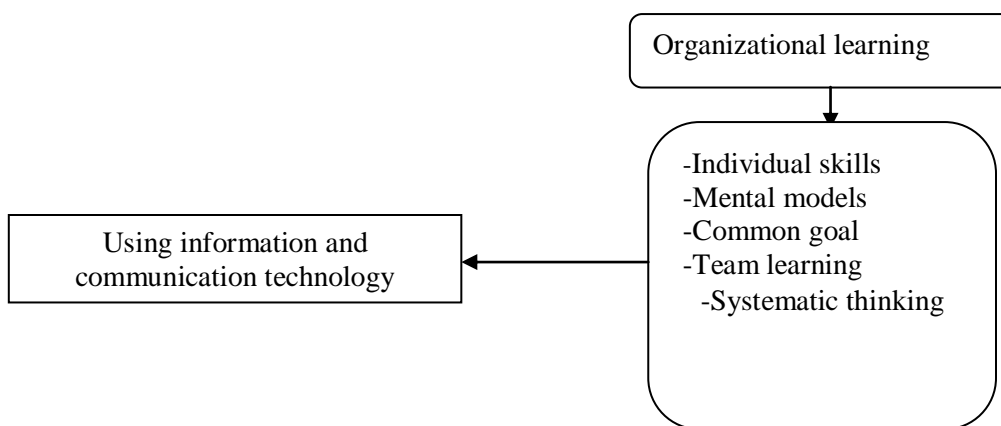
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**MATERIALS AND METHODS**

The present research is an applied one and has survey and correlation method. The study population consisted of 946 employees and universities boards of Azad universities in Golestan. The sample size of 274 subjects was extracted from Table krejcie and Morgan and they were selected by simple random sampling.

Data gathering tool included the standard questionnaire of organizational learning and the use of ICT. Tool validity has been determined by content reliability and their validity has been determined using Cronbach's alpha coefficient that for organizational learning questionnaire is a factor of 0.77 and for ICT questionnaire it is 0.71. To analyze the data, statistical methods, such as Spearman rank correlation coefficient test and Wilcoxon test was used.

**Theoretical Framework**



**Data Analysis**

**The Main Hypothesis**

H<sub>0</sub>: There is no relationship between organizational learning and using ICT.

H<sub>1</sub>: There is a relationship between organizational learning and using ICT.

**Table 1: Calculation of the relationship between organizational learning and using Information and Communications Technology**

		correlation	LO	Using ICT
Spearman's rho		Correlation coefficient	1.000	.197**
	LO	Sig. (2-tailed)	.	.001
		N	278	278
Using ICT		Correlation coefficient	.197**	1.000
		Sig. (2-tailed)	.001	.
		N	278	278

\*\* : Correlation is significant at the 0.01 level (2-tailed).

**Table 2: The output of Wilcoxon test**

		Using ICT-LO
Z		-13.408 <sup>a</sup>
Asymp. Sig. (2-tailed)		.000

a. Based on positive ranks.  
 b. Wilcoxon Signed Ranks Test

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*Secondary Hypothesis (1)*

H<sub>0</sub>: There is no relationship between individual skills and using ICT.

H<sub>1</sub>: There is a relationship between individual skills and using ICT.

**Table 3: Calculation of the relationship between individual skills and using ICT**

		correlation	Using ICT	individual skills
Spearman's rho	Using ICT	Correlation coefficient	1.000	.126*
		Sig. (2-tailed)	.	.035
		N	278	278
	individual skills	Correlation coefficient	.126*	1.000
		Sig. (2-tailed)	.035	.
		N	278	278

\*. Correlation is significant at the 0.05 level (2-tailed).

**Table 4: The output of Wilcoxon test**

	individual skills and using ICT
Z	-14.453 <sup>a</sup>
Asymp. Sig. (2-tailed)	.000

*Secondary Hypothesis (2)*

H<sub>0</sub>: There is no relationship between mental models and using ICT.

H<sub>1</sub>: There is a relationship between mental models and using ICT.

**Table 5: Calculation of the relationship between mental models and using information and communication technology**

		correlation	Using ICT	mental models
Spearman's rho	Using ICT	Correlation coefficient	1.000	.181**
		Sig. (2-tailed)	.	.002
		N	278	278
	mental models	Correlation coefficient	.181**	1.000
		Sig. (2-tailed)	.002	.
		N	278	278

\*\* . Correlation is significant at the 0.01 level (2-tailed).

**Table 6: The output of Wilcoxon test**

	mental models and using ICT
Z	-14.455 <sup>a</sup>
Asymp. Sig. (2-tailed)	.000

*Secondary Hypothesis (3)*

H<sub>0</sub>: There is no relationship between common goal and using ICT.

H<sub>1</sub>: There is a relationship between common goal and using ICT.

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**Table 7: Calculation of the relationship between common goal and using information and communication technology**

	Correlation coefficient	Using ICT	common goal
Spearman's rho	Correlation coefficient	1.000	.175**
	Using ICT	Sig. (2-tailed)	.
		N	278
		Correlation coefficient	.175**
	Common goal	Sig. (2-tailed)	.003
		N	278

\*\**. Correlation is significant at the 0.01 level (2-tailed)*

**Table 8: The output of Wilcoxon test**

Common goal and using ICT	
Z	-14.457 <sup>a</sup>
Asymp. Sig. (2-tailed)	.000

*Secondary Hypothesis (4)*

H<sub>0</sub>: There is no relationship between team learning and using ICT.

H<sub>1</sub>: There is a relationship between team learning and using ICT.

**Table 9: Calculation of the relationship between team learning and using information and communication technology**

	correlation	Using ICT	team learning
Spearman's rho	Correlation coefficient	1.000	.122*
	Using ICT	Sig. (2-tailed)	.
		N	278
		Correlation coefficient	.122*
	team learning	Sig. (2-tailed)	.043
		N	278

\**. Correlation is significant at the 0.05 level (2-tailed).*

**Table 10: The output of Wilcoxon test**

team learning and using ICT	
Z	-14.456 <sup>a</sup>
Asymp. Sig. (2-tailed)	.000

*Secondary Hypothesis (5)*

H<sub>0</sub>: There is no relationship between systemic thinking and using ICT.

H<sub>1</sub>: There is a relationship between systemic thinking and using ICT.

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**Table 11: Calculation of the relationship between systemic thinking and using information and communication technology**

	correlation	Using ICT	systemic thinking
Spearman's rho	Correlation coefficient	1.000	.191**
	Using ICT	Sig. (2-tailed)	.001
		N	278
		Coefficient correlation	.191**
	systemic thinking	Sig. (2-tailed)	.001
		N	278

\*\**. Correlation is significant at the 0.01 level (2-tailed).*

**Table 12: The output of Wilcoxon test**

	systemic thinking and using ICT
Z	-14.431 <sup>a</sup>
Asymp. Sig. (2-tailed)	.000

**RESULTS AND DISCUSSION**

In explaining the hypothesis of this study it can be said that components of organizational learning such as individual skills, mental models, common goal, team learning and systemic thinking affect using ICT by employees of the Azad University of Golestan and attention to each of these dimensions and key factors and efforts to supporting them by managers can further spread these components and therefore improves the performance of the organization. Employees go beyond their job responsibilities when they are satisfied with their jobs and consider their supervisors supportive and considerate. Finally today, organizations need effective and efficient employees in order to achieve its objectives for growth and development. And generally efficiency and effectiveness of organizations depends on the efficiency and effectiveness of human resources and staff. The result of this study is consistent with Shepard (2000), Demoksy and Sherlavej (2003), Sharifi (2008), Groker (2010), Taslimi *et al.*, (2005), Don and Harvey (2002) and Albrini (2006) and is not consistent with results so Shafaei (2001) and Ahmad (2007).

According to the results, we can say Managers can improve the competitive power as well as the creativity and innovation of the organization using information and communication technology by promoting Learning organization learning in organizations. Learning in organization is not for the sake of learning, but it is for the success and development of the organization. In the case of learning it and continuing commitment to it, the organization profitability will be increase and people change to the organization capital instead of the organization work force. Using information and communication technology is changing the organizations to network institutions and causes information flows within and outside the organization. This ability can be used to design and reshaping organizations, changing their structure, domain of operation, mechanism of control and reporting, training, process, products and services.

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