



RESEARCH PAPER

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Examining the relationship between organizational performance, knowledge acquisition, and mental models and knowledge creation at ministry of oil Headquarter

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**Abstract**

Organizational learning guides the organization in order to create useful knowledge, to achieve organizational goals. Hence the Aim of This Research Is Development of a model for the promotion of knowledge creation through effective organizational learning. The Method Of Present Study Based On Objective Is Practical And In Terms Of How Data Collection Descriptive-Correlational. Statistical Population Of This Study Consists Of 1200 Personnel Of Staff Ministry of Oil, That With Using Kerjcie & Morgan Table And Simple Random Sampling Method, 293 Of Them Were Chosen; In Order To Measure The Research Variables Was Used Of Questionnaire. In Total, 293 Questionnaires Were Distribute And 280 Questionnaires Were Collected From The Respondents. Data Analysis On Two Levels: Descriptive And Inferential Statistics With Using Statistical Software SPSS and Lisrel Was Done. Research Findings Show Organizational Learning and Its Components (Knowledge Acquisition, Mental models and Organizational performance) Has a Positive and Significant Correlation on Knowledge Creation.

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## Introduction

Knowledge creation is a process that combines past and present events for an open and bright future to create new values (Ajdari *et al*, 2013). Knowledge creation processes enable companies to take maximum advantage of their human capital in order to win the competition. To do this, companies need specific knowledge creation mechanism for organizational knowledge creation. Companies require individuals, personal information, and knowledge within the organization and outside the individual mind that can be shared with others and processed throughout the organization (Chang *et al*, 2009).

In the current competitive environment that is described under titles of turbulent, rapidly changing, intense global competition, and high uncertainties (Zahra & George, 2002), competitive advantage is essential for all organizations to develop and maintain competitive condition over time. In this condition, responding to environmental changes and stakeholder demands at the same time requires high flexibility and speed. Achieving the necessary speed will be possible through organization's ability to create, maintain and apply knowledge (Sharkie, 2003). Therefore, knowledge is considered as an important intangible asset for companies (Garcia *et al*, 2007).

Knowledge creation is the key to further development. As a result, managers are challenged to identify and select those knowledge management practices that enable organizations to achieve complete knowledge creation and empowerment. It is believed that different organizational factors facilitate knowledge creation. Some of these factors are part of a systematic approach, others are derived from intuition; however, organizational learning guides organizations to create utilized knowledge in order to achieve efficiency and innovation objectives through experience sharing (Tabards *et al*, 2011). As Garcia *et al*. stated in their study, knowledge is provided through organizational learning and is

incontrovertible (Garcia *et al*, 2007). Organizational learning occurs when members act as learning agents, and react against changes in the internal and external environment of the organization by identifying and correcting errors and recording the results of this process, under personal perception and organizational patterns (Argyris & Schon, 1978).

## Research Objectives

1. Examining the relationship between mental models and knowledge creation at Ministry of Oil headquarters.
2. Examining the relationship between knowledge acquisition and knowledge creation at Ministry of Oil headquarters.
3. Examining the relationship between organizational performance and knowledge creation at Ministry of Oil headquarters.

The Aim of This Research was development of a model for the promotion of knowledge creation through effective organizational learning.

## Material and methods

### Research Methodology

The research population consists of 1205 staff working at Iran's oil ministry headquarter. Using simple random sampling and Morgan and Krejcie table, 293 of them were selected as research sample and responded and returned 280 valid questionnaires.

Data were analyzed in descriptive and inferential statistical methods. So that, descriptive statistics was used to analyze general questions of the questionnaire (demographic characteristics) and inferential statistics was used to analyze specific questions of the questionnaire.

In order to test the statistical distribution of sample, Kolmogorov-Smirnov method was used and one-sample t-test was applied to examine the status of

variables at Ministry of Oil headquarter. Hypotheses were tested using structural equation modeling and results were evaluated using independent two-sample t-test and ANOVA. For this purpose, SPSS.19 and LISREL statistical softwares were used.

The questions consisted of general and specific questions. General questions include questions about the respondent's characteristics (demographical), such as gender, age, work experience, organizational

position, and education level. Specific questions were provided in form of two questionnaires of Organizational Learning and Knowledge Creation calibrated based on a five-point Likert scale.

*Organizational Learning Questionnaire*

Organizational learning questionnaire was designed based on the Hayavi *et al*, (2012) questionnaire including three dimensions of knowledge acquisition, organizational performance, and mental models.

**Table 1.** Description of the variables, indicators, and items of organizational learning questionnaire (researcher-made).

Items	Indicators	Criterion variable
1. The staff know where and how to obtain required knowledge, expertise and information.	Knowledge acquisition	
2. Required skills are taught to staff to record information and experiences in knowledge management systems.		
3. Identification, collection, classification, summarization, and dissemination of knowledge are assigned to specific individuals.		
4. The staff can search their required information through several databases.		
1. The organization tries to provide timely services to customers and clients.	Organizational performance	<b>Organizational learning</b>
2. The organization emphasizes on providing new vocational methods.		
3. The organization emphasizes on continuous improvement in order to obtain better results.		
4. All functions and activities are carried out within the framework of laws and regulations.		
5. All staff are accountable for the work they do.		
1. It is believed that all activities should be based on national standards.	Mental models	
2. Staff believes that competition is good in it and leads to the development of society.		
3. Staff believes that the risk of entry of a cheaper and high-quality product to the market as an alternative can strengthen the industry.		
4. Staff respects rules and regulations as a factor to strengthen the industry.		
5. Staff believes that learning to educate required professionals is essential to improve the country's industry.		

**Results and discussion**

*Conceptual Definition of Research Variables*

**Knowledge creation:** Knowledge creation is a continuous and transcendence-seeking process where people gain new fields, perspectives and knowledge of

the world to extend their old boundaries to new ones. In fact, it is a journey "of being to becoming" where the micro and macro levels interact and changes occur at both levels (Tabarsa *et al*, 2011).

**Organizational learning:** Organizational learning is a set of organizational measures such as knowledge acquisition, information distribution, information interpretation, and memorization that affect positive organizational development whether in a conscious or unconscious way (Yaghoubi *et al*, 2010).

*Knowledge Creation Questionnaire*

Tseng knowledge creation questionnaire (2011) was designed with four aspects of socialization, combination, internalization and externalization.

**Table 2.** Description of the variables, indicators, and items of knowledge creation questionnaire (researcher-made).

Items	Aspects	Predictive variable
1. This organization emphasizes on collecting information from various websites. 2. This organization emphasizes on sharing experiences with providers and employers. 3. This organization emphasizes on interaction and dialogue with competitors. 4. This organization emphasizes on discovery of new strategies and market opportunities. 5. This organization emphasizes on creating a work environment that provides the opportunity to learn required skills and knowledge.	socialization	
1. This organization emphasizes on creative dialogue and discussion. 2. This organization emphasizes on the use of inductive and deductive thinking. 3. This organization emphasizes on the use of metaphor and allegory in the dialogues 4. This organization emphasizes on stresses on exchange of ideas and thoughts. 5. This organization emphasizes on personal beliefs.	externalization	
1. This organization uses scientific resources, computer simulations and anticipation for formulation of strategies. 2. This organization emphasizes on registering documents in new and updated ways. 3. This organization focuses on create databases. 4. This organization gives importance to statistical analysis and technical information to strengthen work force. 5. This organization gives importance to disseminating new ideas and concepts.	combination	<b>Knowledge creation</b>
1. This organization conducts workshop activities to develop working teams. 2. This organization uses teams as a model for sharing experiences and the results with other working units. 3. This organization emphasizes on seeking and sharing new values and ideas. 4. This organization emphasizes on disseminating views of managers through effective interaction with staff.	internalization	

*Research Reliability and Validity*

In this study, in order to determine the reliability of the organizational learning and knowledge creation questionnaires, Cronbach's alpha was used. The

results of Cronbach's alpha using SPSS.18 statistical software (PSAW) are shown in Tables 3 and 4.

**Table 3.** Results of Cronbach's alpha for organizational learning questionnaire (researcher-made).

Number of items	Cronbach's alpha	Independent variable
4	0.885	Knowledge acquisition
5	0.789	Mental models
5	0.919	Organizational performance
14	0.926	Organizational learning

**Table 4.** Results of Cronbach's alpha for knowledge creation questionnaire (researcher-made).

Number of items	Cronbach's alpha	Dependent variable
5	0.873	socialization
5	0.860	externalization
5	0.953	combination
14	0.942	internalization
19	0.946	Knowledge creation

As shown in Tables 3 and 4, the calculation results of Cronbach's alpha indicate high reliability of this tool.

**Results and discussions**

Descriptive statistical analysis results showed that 45% of respondents were male and 55 percent were female. 78% of respondents were employees, and 22 percent were managers. 18% of respondents were in the age group 20 to 30 years, 47% in the age group 31 to 40 years, and 35% in the age group 41 years and above.

6% of respondents had high school diploma and lower, about 14 percent had college degrees in

associate degree, 60 percent had bachelor's degree, 20 percent had master's degree, and 1% had doctoral degree.

15% of respondents had working experience of 5 years and lower, 26% had working experience of 6 to 10 years, 21% had 11 to 15 years of experience, 26% had 16 to 20 years of experience, and 11% had 21 to 30 years of working experience.

**Kolmogorov-Smirnov Test Results**

The distribution of the sample was analyzed using Kolmogorov-Smirnov distribution compliance test. As shown in Table 5, there is no reason to reject the claim that the distribution is normal, and Kolmogorov-Smirnov test for compliance of sample distribution with the theoretical distribution was non-significant ( $0.05 < \rho$ ).

**Table 5.** Kolmogorov-Smirnov test results.

	Organizational learning	Knowledge reation
Kolmogorov-Smirnov Z	0.966	0.690
Asymp. Sig. (2-tailed)	0.308	0.728

- Research variable distribution is normal.

*Results of t-test*

The organizational learning, knowledge creation, and their aspects at ministry of oil headquarter are summarized in Table 6.

**Table 6.** The one-sample t-test for mental models.

Standard error of the mean	SD	mean	N	variable
0.05442	0.91059	3.0514	280	Mental models
0.5356	0.89629	2.9670	280	Knowledge acquisition
0.05082	0.85034	3.2514	280	Organizational performance
0.04712	0.78854	3.0899	280	Organizational learning
0.05103	0.85382	3.0871	280	socialization
0.04650	0.77801	2.9414	280	externalization
0.05295	0.88604	3.0550	280	combination
0.05823	0.97435	3.01848	280	internalization
0.04314	0.72180	3.0671	280	Knowledge creation

Aspect's condition in the headquarter	Test Value = 3						variable
	Confidence interval of 95% good		Mean difference average	Sig. (2-tailed)	Degree of freedom	T	
	higher	lower					
Moderate	0.1586	-0.0557	0.05143	0.345	279	0.945	Mental models
Required	0.0724	-0.1385	-0.03304	0.538	279	-0.617	Knowledge acquisition
Moderate	0.3515	0.1514	0.25143	0.000	279	4.948	Organizational performance
Required	0.1827	-0.0028	0.08994	0.057	279	1.909	Organizational learning
Moderate	0.1876	-0.0133	0.08714	0.089	279	1.708	socialization
Required	0.0330	-0.1501	-0.05857	0.209	279	-1.265	externalization
Moderate	0.1592	-0.0492	0.05500	0.300	279	1.039	combination
Required	0.2994	0.0702	0.18482	0.002	279	3.174	internalization
Moderate	0.1520	-0.0178	0.06710	0.121	279	1.556	Knowledge creation

As shown in Table 6, given the significance level and maximum and minimum values, it was found that organizational performance, socialization, and internalization variables were in good condition in the headquarter, and the rest of variables were in the average condition.

*The Condition of Ministry of Oil Headquarter in terms of Organizational Learning*

One-sample t-test results showed that the Ministry of Oil headquarter is in an average level in terms of organizational learning, and in terms of knowledge acquisition, with an average of 2.9670 is also in an average level. This indicates that the organization's staff know where and how to obtain required knowledge, expertise and information, required skills and experience is taught to staff to record information and experiences into knowledge management systems, identification, collection, classification, summarization, and dissemination of knowledge are assigned to specific individuals, and all staff can search their required information through several databases.

Results also show that organizational performance is in good condition with an average of 3.2514. This indicates that this organizations tries to provide timely services to customers and clients, emphasizes on providing new vocational methods, and cares about continuous improvement in order to obtain better results, all functions and activities are carried

out within the framework of laws and regulations, and all staff are accountable for the work they do.

The mental models with mean of 3.0514 are in an average condition. This indicates that the organization believes that all activities should be based on national standards, Staff believes that competition is good in it and leads to the development of society and rules and regulations as a factor to strengthen the industry. They also believe that learning to educate required professionals is essential to improve the country's industry.

In general, findings evaluate the status of organizational learning with mean of 3.0899 in an average condition in the Ministry of Oil headquarters and further efforts are needed to improve the conditions.

*The Condition of Ministry of Oil Headquarter in terms of Knowledge Creation*

As mentioned before, the results of t-test showed that the Ministry of Oil headquarters is in an average condition in terms of knowledge creation.

In terms of socialization, with an average of 3.0871 the condition is moderate at the Ministry of Oil headquarter. This indicates that the organization partly emphasizes on collecting information from various websites, focuses on sharing experiences with providers and employers, gives importance to

interaction and dialogue with opponents and exploring new market opportunities and strategies, and pays attention to creating a working environment that will give partners the opportunity to learn the required skills and knowledge.

Results also showed that externalization with a mean of 2.9414 is in a moderate condition, which indicates that the company is partly assertive about creative dialogue and debate, accentuates on the use of inductive and deductive thinking as well as metaphor and analogy in the discussions, and concentrates on exchanging ideas and thoughts and personal opinions.

Combination with a mean of 3.0550 is also in an average condition. This indicates that the organization uses scientific resources, computer simulations, and anticipation to develop strategies, emphasizes on registering documents in new methods, gives importance to creating databases, and uses statistical analysis and technical information in strengthening the workforce as well as the disseminating new ideas and concepts.

The internalization aspect, averaging 3.1848, is a good condition, which indicates that the organization emphasizes on conducting workshop activities to develop team work, seeking for and sharing new values and ideas, and propagating managers' views through effective interaction with staff. The company also uses teams as a model for sharing experiences and results with other work units.

In general, findings evaluate the status of organizational learning with mean of 3.0671 in an average condition in the Ministry of Oil headquarters and further efforts are needed to reach an ideal conditions.

### Conclusion

1. Mental models have a significant positive relationship with knowledge creation at Ministry of Oil headquarter. Accordingly, it can be concluded that

mental models affect how the employees understand the organization and act as a foundation for knowledge and a main cognitive processes in change and learning that leads to knowledge creation.

2. Knowledge acquisition has a significant positive relationship with knowledge creation at Ministry of Oil headquarter. Accordingly, it can be concluded that the acquisition of required knowledge, skills, and information by staff prevents the obsolescence of knowledge in the organization.

3. Organizational performance has a significant positive relationship with knowledge creation at Ministry of Oil headquarter. Accordingly, it can be concluded that activities performed in the organization to develop organizational learning are related to knowledge creation development.

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