

## **ORGANIZATIONAL LEARNING AND ORGANIZATIONAL INNOVATION**

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### **Abstract**

The aim of this paper is to explore how organizational learning approaches can affect organizational innovation by its related indices in TONDGUYAN PETROCHEMICAL COMPANY (TPC). To do this, the research focused on its related factors with the roles of organizational components such as external environment and perceptions of the organizational staff. The study used correlation coefficient for its variables and descriptive-analytic methodology. The statistical population included the employees (experts) who are working at TONDGUYAN PETROCHEMICAL COMPANY in Iran. Based on a regional classification of TPC samples from three cities were randomly selected about 80, when the Cochran formulas of calculating size samples were used. Then, the affordable number of respondents (experties) was randomly selected in terms of frequency of employees at the TPCs. The results show that there is a significant positive relationship between organizational learning (OL) as independent variable and organizational innovation(OI) as dependent variable.

Keywords: Learning progress; Employees' perceptions; New ideas; Innovation culture.

### **1. INTRODUCTION**

During the past two decades, there has been increasing interest in the process of learning within the organizational context, encouraged by the belief that learning and innovation are essential to survive in competitive market and dynamic environments [1]. In other hand, one of the most serious challenges facing a company, particularly a high-technology firm, is how to manage innovation process and its tendency as the organization evolves [2].

Several researchers have been mentioned that organizations should have the ability to engage in organizational learning processes to reach the long-run competitive advantage, by encouraging innovation, particularly within dynamic and competitive environments [3], [4], [5], [6], [7].

In fact, achieving successful innovation is not simple for most organizations as it innately cannot easily be interpreted [8].

Organizational innovativeness is a complicated phenomenon. Conventional researches on organizational innovativeness have explored the determinants of an organization's propensity to innovate. Although researchers have analyzed the influence of individual, organizational and environmental variables [9], [10] many of the researchs focused on organizational structure [11].

As Keegan and Turner (2002) managers play an important role in creating and facilitating innovative environment. Managing innovative ideas is an important step towards effective organizational innovation [12]. It is a strong predictor for the realization of innovative ideas and management of organizational innovation [13] as innovation begins with top management who believe organizational innovation is the way to survival. Top management with an effective leadership style also creates an environment for innovation within the company. It should be able to inspire and motivate the entire work force and encourage involvement, development and learning for the employees [14].

Christensen (1999) describes the management of innovation as an overriding responsibility of today's managers. Product innovation, for instance, entails developing new goods and services. Managing such innovation may help firms meet or even drive changing market demands. Likewise, process innovation

involves creating or improving methods of production, service or administrative operations. Effective process innovation may enhance organizational efficiency and responsiveness [15].

In regard to the factors affecting organizational innovation, as the literature showed, organizational learning plays an important role to create an innovative environment within organizations [15].

McGourty and Hovland (2003) found that an organizational learning may be modified by specific management practices through strategic direction, employee selection, rewards and recognition, employee deployment, support of idea generation, and multifunctional teaming to encourage innovative behavior [16][21][22].

Idea generation and innovation are two interrelated factors at the organizational environments. Innovation starts with ideas and therefore is regarded as an important variable of the innovation capacity of the organizations. The way individuals and organizations collect, disseminate, exchange, and use knowledge influences idea generation. Additionally, management of the flow of technological information leads to generating ideas effectively as an important part of an organization's innovation capacity [17] , [18] . According to Peters (1982) and Pinchott (1985) middle managers play an important role in informally encouraging employees to innovate and take risks. These middle managers provide political and organizational support for "skunk work" activities that result in innovative ventures [19] .Kanter (1985) and Quinn (1985) also noted the importance of middle managers in promoting autonomous or informal corporate entrepreneurial activities. Middle managers can do this by providing rewards (mostly intrinsic) that allow employees to experiment with, and explore the feasibility of, innovative ideas [19] .Innovation involves the transformation and exploitation of existing knowledge. It requires employees to share information and knowledge. As Nonaka (1994) suggests, innovation occurs when employees share their knowledge within the organization and when this shared knowledge generates new and common insights, in a process of divergence and convergence and new key capabilities enhance innovation in the firm. In conclusion, organizational learning results in development, acquisition, transformation and exploitation of new knowledge, which in turn foster organizational innovation [20].

Obviously, many organizational and environmental factors may affect on organizational innovation, but this research has mainly focused on the one important factor including organizational learning. Reviewed in the literature, management and learning affect on the other organizational aspects, therefore it is vital to know how this factor affects organizational innovation as well as how managers and policy makers should prepare necessary conditions, facilities, and innovative environments for changing organizational learning in organizations.

## **2. PURPOSES AND OBJECTIVES**

The main purpose of this article is to explore how organizational learning (OL) through its indices can affect organizational innovation in TONDGUYAN PETROCHEMICAL COMPANY (TPC). The sub-objectives in this study are:

- To describe demographic profiles of the respondents,
- To determine the employees' perceptions of TPC towards the organizational learning,
- To assess the level of organizational innovation, and
- To analyze the relationships among organizational learning indices with organizational innovation.

### 3. METHODOLOGY

The study has used correlation coefficient and descriptive-analytic methodology. The statistical population included the employees (experts) who were working at TONDGUYAN PETROCHEMICAL COMPANY in south of Iran (N=720). Thus, three cities were randomly selected. Then, the sample size was randomly selected in terms of frequency of employees at the TPCs. The estimated size samples were 180 (n=180), based on the Cochran formula for calculating size samples.

The research collecting data tool was a questionnaire which initially developed according to an extensive review of literature and finalized after both the pre test and the face validity process. Questionnaire reliability estimated by calculating Cronbach's Alpha via SPSS software that is shown in the table 1.

Table 1. Results of reliability coefficient from SPSS software

Variables	Cronbach's Alpha
Organizational learning	0.877
Organizational Innovation	0.879

Face validity of the questionnaire were also assessed by a panel of both petrochemical experts in TPC and some faculty members at different universities. Some changes made to the questionnaire as a result of review by panel of experts.

The questionnaire consisted of two separate parts. The first part included some questions about the organizational learning as independent variable. The second part included the questions for the level of organizational innovation as dependent variable. A Likert-type scale ranged from 1 (very low) to 5 (very high) used to quantify the responses in all parts.

The data were collected by field interviewing when using the questionnaire. Descriptive statistics i.e. frequencies, valid percents, the means, and standard deviations used to describe and analyze data. Spearman correlation test was also employed to determine whether or not relationships between independent variables and the level of organizational innovation as dependent variable are significant or not.

### 4. DATA ANALYSIS

#### 4.1 Hypotheses Test

Hypotheses have been tested and evaluated by inferential statistic and the results were shown.

Table2 shows the results of regression analysis of the organizational learning on organizational innovation.

Table2. Analysis regression between independent variable and dependent variable

model	$\beta$	Sig	r
Organization learning	14.36	0.00	0.522

**Main hypothesis:** *Organizational Learning Affects Organizational Innovation Level.*

Since significant level test in independent variable (organizational learning) is less than 0.05. We can say that, organizational learning affects organizational innovation level. The impact of organizational learning on organizational innovation level is direct; because of Beta value is positive. This hypothesis is confirmed by research.

Regression equation of the test is as follows:

$$y = 14.36 + 0.232x_1$$

This model is significant at 95%.

## 4.2 Findings analysis

Demographic profile of the respondents showed that the average age of respondents is 38.7 years (with SD=8). Respondents had an average of 14 years of experience in their organization. About level of education, a majority of the respondents (68.3%) were at Bachelor science or higher Level on related fields.

The following parts present findings about the quality of organizational learning based on the employees' perceptions:

### 4.2.1 Organizational learning

As shown in table 3, there is a moderate support from management for employees for learning ( $\mu=3.338$ ). In the organization, personnel were not encouraged to expand their capacity to achievement ( $\mu=2.305$ ) and the organizations confidence in learning progress in moderate ( $M=3.138$ ). Based on workers perceptions, innovation culture that encourage them to learn more for innovation was in moderate level ( $\mu=3.027$ ) and the total mean ( $M=3.355$ ) shows the organizational learning is suitable for facilitating and developing innovation in organization.

Table 3: Employees' perceptions of the organizational learning

Organization learning indices	n	SD	Mean
Organizational support	180	0.879	3.338
Strategic guide	180	0.948	3.500
High confidence in organization	180	1.055	3.138
Innovation culture	180	1.169	3.027
Learning organization	180	1.033	3.355
The index measuring learning performance	180	1.216	3.222
Suitable organization structure for learning	180	1.803	2.305
<b>total</b>	<b>180</b>	<b>0.879</b>	<b>3.355</b>

Scale: 1=very low, 2=low, 3=moderate, 4=high, 5=very high

### 4.2.2 Measuring organizational innovation

In this study, the level of organizational innovation as dependent variable was measured with some indicators related to innovative environment in organization . As indicated in table 3, respondents assessed the level of innovation environment between medium and high but not very near to high ( $M=3.727$ ).

Table 4: Employees' perceptions of organizational Innovation suitable environment in organization

Organizational innovation indices	n	SD	Mean
Encouraging people to do work in new way	180	,96781	3,7278
Ability to challenge with work	180	,80501	3,6667
Encourage employees to submit their ideas	180	,82702	3,5899
Opportunity to provide new ideas	180	,99063	3,2278
Appreciat new ideas	180	,99152	3,2111
Encourage employees to solving problems	180	1,01294	3,2278
Attention from management to provide ideas about how to improve products and services	180	,96575	3,3500
Value for new ideas	180	,97924	3,1556
<b>total</b>	<b>180</b>	<b>,80501</b>	<b>3.7278</b>

Note: 1 = very low, 2 = low, 3 = moderate , 4 = high, 5 = very high

#### 4.2 Correlation coefficient between variables

Table 5 shows the results of using Spearman correlation test to determine a relationship between organizational learning and organizational innovation as dependent variable. As shown, positive significant relationship at 0.05 levels shown between Organizational learning and organizational innovation. Also a positive significant relationship found between the organizational learning and the level of organizational innovation in statistical sample's organizations. According to this finding, it can be suggested that the better organizational factor such as organizational learning are; the higher level of organizational innovation will be.

Table 5 Relationship between independent variable and organizational innovation

Organizational learning	
Organizational innovation	*r= 0.522 Sig=0.000

\* : significant relationship at 0.05 level

### CONCLUSIONS AND IMPLICATIONS

Based on the findings of the study, the following conclusions were drawn and recommendations made:

Organizational learning as an important organizational factor were not supportive for facilitating suitable

environment for organizational innovation. Moreover, a rather low level of organizational innovation was observed as well as a positive significant relationship found between organizational learning and organizational innovation. Accordingly, this indicates that existing organizational environment is not suitable enough to improve organizational innovation at different levels of the organization. Therefore, it is recommended that structures and rules of the organization should be modified based upon an organizational innovativeness by supportive culture

Therefore, it is necessary the managers and other policy makers realize how organizational learning should be modified in order to facilitate organizational innovation.

Finally, in regard to modify the organizational structure towards organizational innovation, the following suggestions are given:

- Improving organizational innovation by creating climate based on informal relationships,
- Shifting from current planning systems to decentralized and new planning systems,
- Applying participatory decision making approaches in which all stakeholders involve,
- Making informal control and monitoring without complicated organizational hierarchy,
- Making available training programs about organizational innovation process for both employees and managers employees' and managers' awareness as well as changing their attitudes towards organizational innovation through affordable educational programs.

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