

RELATIONSHIP BETWEEN LEARNING IN THREE LEVELS AND INNOVATIVE PERFORMANCE WITH ATTENTION TO ENTREPRENEURIAL CULTURE

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ABSTRACT

The aim of this research was to examine the relationship between learning in three levels (individual, group and organizational) and innovative performance with attention to entrepreneurial culture. Statistical population include all of the firms in technology parks and incubators of Tehran (30) and Beheshti (15) university as comprehensive universities and Elm-oSanat (15) and Sharif (15) university as industry universities in Tehran city. One manager and two employees from every firm (75 managers and 150 employees) were the statistic population and among them 199 (69 manager and 130 employees) answered the questionnaires. Instruments used in this research are the entrepreneurial culture, learning and innovative performance questionnaires. The data was analyzed by means of Pearson correlative and two way ANOVA. Findings reveal that there is meaningful relationship between learning (in all levels) and innovative performance and entrepreneurial culture can empower this relationship as both independent and mediator variable.

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KEY WORDS

learning, innovative performance, entrepreneurial culture, technology parks, incubators, learning organization

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INTRODUCTION

Complexity of today's world with high rate of change and its accelerating increase requires us to feel the needs for flexibility and change more than ever [1,2,3]. In such situation, only one thing is certain and that is "change". Today's changing world for small and large organizations, which are fighting for survival and hunting transient opportunities and scarce resources, has created a situation which leads us towards entrepreneurship [4] and cause major changes in all aspects of their work and every time they have the ability and the willingness to change their strategy again and again in order to achieve competitive advantages or ability of competitive suggestions with higher quality and less expense [5] because the result of extensive research shows that companies with an entrepreneurial approach have better performance than firms without an entrepreneurial approach [6]. Also, with an inevitable movement towards globalization, the business becomes more complex and uncertain; accordingly customers and their needs are constantly changing. Thus, the organizations have to learn more in order to move toward innovation through producing new products and entrepreneurial activities. In addition, to gain competitive advantages, organizations must learn to use innovative function because, as Kordnaeej et al. [7] thought, the only way to achieve competitive advantage, is innovation and for being innovators, one must maximize learning at individual, group, and organizational levels in an organization (34). Of course, the Matlay and Fletcher [8], as cited in Matlay and Mitra [30], believed that competitive advantage occurs under three conditions of organizational learning, innovation, and knowledge management. Managers should invigorate the decentralized and entrepreneurial organizational culture [4] like fresh blood into the vessels of organization as a living organism because most probably learning and innovation in an entrepreneurial context are the only way that organizations can ensure their durability in the third millennium. That is why entrepreneurship is the basis of all the great changes and improvements that humanity has ever achieved [9].

Increasing attention and emphasis to transferring knowledge and technology out of universities leads to creating and using various mechanisms. One of these mechanisms is science and technology parks and business growth centers [10]. Growth centers and technology parks are among places where young entrepreneurs with low capital are supported to nurture in them spirit of entrepreneurship, managerial thinking, and the power of exposure to the changing world out of the university to be safe from defeat in the beginning of the way. Thus, supporting these

centers and parks which are in a way the birthplace for job and technology can promote the culture of entrepreneurship and innovation in the country and inject it from growth centers into organizations and factories. This way, one can leave the best, greatest, and deepest impact on current crucial situation of entrepreneurship. It can also be concluded that the current disorganized economic situation is partly due to neglecting categories such as innovation and entrepreneurship in such a way that if enterprises, organizations (including small, medium, and large), and craftsmen learn how to internalize innovative in their organization in the shadow of an entrepreneurial organizational culture, they could better coordinate themselves with economic strong fluctuations and survive in the global competitive arena because, as Beugelsgijk[11] states, organization which has suitable economic growth can benefit from a culture which is called entrepreneurial culture. Governing this type of culture needs to spend money, time, energy and, most important of all, having a long-term vision and a broad leadership insight. But since they need a knowledge-based economy in all around the world for all countries, it is essential to use innovation and entrepreneurship. With a little contemplation, it is clear that spending a lot of time and expense is worth it comparing to the benefits derived from it, such as strengthening the growth centers and technology parks, organizations and companies particularly at the economy and the support of entrepreneurs who ultimately led to expandable innovative performance.

To achieve this goal and by doing some measures such as investing for innovation and learning, considering rewards to innovators [12], managers encourage innovative ideas. But what could be useful in this way, on the one hand, is identifying and solving problems of entrepreneurs and growth centers and technology parks, and, on the other hand, is identifying and analyzing variables and affecting factors on entrepreneurship and innovation. This article is intended to assess the relationship between learning and innovative performance in companies which are in growth centers and technology parks in the University of Tehran and ShahidBeheshti university as two comprehensive universities and Sharif Industrial university and University of Science and Technology as two industrial universities. Moreover, an entrepreneurial culture can also be defined as an independent variable (here it is assumed as the second independent variable that can impact effectiveness of learning on innovative performance according to the following pattern. [Figure- 1] Therefore, in this study, the effect of learning and organizational entrepreneurial culture is considered as a fixed effect and interactive.

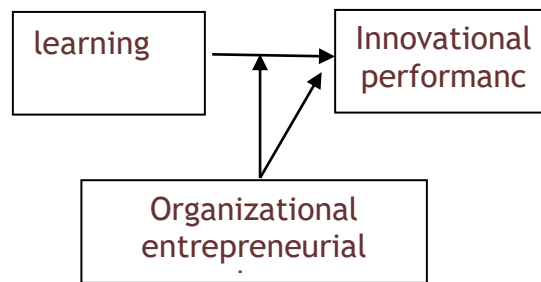


Fig:1. Model of 3 variables in current research

MATERIALS AND METHODS

Variables and their relationship with each other Learning

OL (organizational learning) is the reflection of high intelligence and ability of productivity learning innovational performance organizational entrepreneurial culture figure1 : model of 3variables in current research that is the result of existing opportunities and commitment to continuous improvement in the organization, as cited in Hazrativiri , [13]. Metsuno et al. define organizational learning as how organizations learn. It refers to the mechanisms that increase possibility of learning and knowledge enhancement in organizations (As cited in Maatofi et al.[14] Knowledge management, learning organization, and organizational learning can be named as three dimensions of learning . In a new classification by Matlay and Mitra[15], knowledge and innovation are

introduced as an entrepreneurial dimension. Organizational learning is part of the management theory which is explained by several factors:

First, the ability of organizations to transfer from production to capital and then work force and finally to intellectual capital. Second, globalization and accelerating business which has an emphasis on organizations' knowledge about the environment; and finally, the most important source of competitive advantage that refers to the organization's capabilities for knowledge creation and its management and learning faster than the competitors [16].

Organizational learning is a process that includes individual, organizational, and inter-organizational levels. Regarding different levels of learning (individual, group, organization), Matlay believes that in addition to organizational learning other levels of learning when exposed to important and critical issues also can prevent stress and pressure. Although Matlay believed that organizational learning can be an alternative to the whole individual and group learning, Matlay argued that individual learning in small firms can be useful more than group learning [17]. Kersten also regards the group learning as one of the efforts that managers do for learning in their company.

Innovative performance

Dehghan et al., [18] states that innovation means creating something new. Innovative is introducing a technological change unit, and indeed the creation of a product, service or a new method. Innovation, according to Schumpeter's (1952) definition in the mid-twentieth century, is an essential component of entrepreneurship [19]. Also for Drucker innovation is an idea, method, or a subject which is regarded as new by an individual, a group or a system' opinion [20]. As far as the human behavior is concerned, the recency of the idea in objective term is not a matter of time and does not depend on the first use or the time of its discovery but the novelty of idea which is determined by the reactions of a person or group against it.

Innovative performance includes new products, improvement and procedures and new methods in production. Creating Innovation and implementation of a product (goods or service), or a new and completely improved process, is a new marketing method, or a new organizational method in business activities, workplace, organization or external relations. According to Schumpeter innovative is a combination of existing knowledge and organizational learning, but Koght & Zander believed that innovation, in addition to the existing knowledge, refers to creating new knowledge. [21]

RESULTS

Entrepreneurship and entrepreneurial corporate culture

Entrepreneurship is a process of identifying opportunities, innovations to use opportunities, and the venture to create value . Entrepreneurial can be considered as an activity that helps to create employment and add value to the capital or production and the supply of any new product or service [22].

Of course, prior to entrepreneurial culture, one should reach to an understanding of the importance of organizational culture. Organizational culture is one of the most important concepts in the literature related to organizations. Almost all successful organizations in the world have a strong organizational culture. Thinking about the hidden aspect of definitions, which are presented by the scholars in the field of organization, leads us to an understanding of its wide range of effects. A few of the definitions are enumerated below:

- A set of values and norms and common ideas [23];
- An ideology and a lever) to indicate what people should do;
- A tool to facilitate change and create sustainable change , improving the organization and main stimulus of organization success
- A tool for powerful social control
- Shared system of meanings ; In addition, Morgan considered the concept of daily rituals as a subset of organizational culture. [24]

Entrepreneurial culture is a subculture of total dominant social culture and organizational culture. Based on the interaction of culture and society, entrepreneurship culture is influenced by other fields of culture, such as values, ethics, religion and political beliefs. Entrepreneurial culture, is a set of values, attitudes, and creative behaviors and innovations that constitute entrepreneurs identity [25].

Entrepreneurial culture is a shared system of members' beliefs, values and norms of an organization, including giving value to creativity and tolerance of creative people and has ten dimensions: venture, tolerance of creative deviation, fruitless invasion, purposefulness and valuable work, risk taking, open communication, cooperation and collaboration, Innovation, hyperactivity, speech, recreation [26]

DISCUSSION

Review of the literature

In the relationship between these variables, Huang and Wang argued that an organization requires a high degree of entrepreneurial orientation and learning mechanisms to create an environment in which there are mutual relationships between employees and organizations to facilitate learning and innovation. Senge believes that organization knowledge is a combination of internal and external knowledge of organization [27]. Knowledge gained from these two, when applied, is called innovation that ultimately leads to the competencies and advantages for the organization [28].

Bavarsad et al. did a study about relationship between innovation, organizational learning and organizational performance and concluded that organizational learning is affected by innovation. Ganji et al in an article called examining the relationship between organizational entrepreneurship (learning and innovation) and organizational performance in the industrial firms in Lorestan province found that there is a direct link between organizational innovation and learning and innovative performance [29]. Javanmard noted in his dissertation that there is a relationship between components of organizational learning and organizational performance in the companies accepted in Tehran Stock Exchange [30].

The results of another research carried out about the role of organizational learning in the relationship between innovative performance and total quality management (TQM) by Mobasher Amini et al., [31] were indicative of a strong relationship between learning and innovative performance.

Javanmard and Sakha'i in a research investigate the relationship between organizational innovation and performance in the industries concluded that individual's skills have positive relationship with organizational performance and there is a direct and positive relationship between interpersonal skills and organizational learning and innovation [4]. Hurly and Hort showed a positive relationship between innovation and learning. [32]

Lavvaf and Hashfy showed that avoidance of innovation has a negative impact on organizational performance. They also concluded that organizational learning has a direct relationship with and effective on innovation and learning on performance. Moon et al. in a study under the title of "Organizational innovation: A contingency framework in 1998" concluded that development of learning in various forms (individual, team, and organizational) was an important factor in organizations economic success and is known as one of the most important indicators of and innovation performance [Figure-2]. Lundvall also consider knowledge as the most strategic source and learning as the most important process in the organization that are simultaneously affective in creating innovation. [33]. Barney (1991), considering innovation as one of the most important ways to achieve competitive advantage, classified the following model to describe the relationship between resources, innovation and the innovative performance. [34]

In [Figure-3] As a result of their study, Chen et al. offered the following models and also stated that learning and innovation performance are two different concepts: the first one emphasizes on the importance of knowledge attraction and the second one emphasizes on changing organization in future: [35,36]

Research hypotheses

- There is a relationship between innovative performance and learning.
- There is a relationship between entrepreneurial culture and innovation performance.
- There is a relationship between learning and the entrepreneurial culture.
- Learning and entrepreneurial organizational culture, either separately or in aggregate have an impact on innovative performance.
- The industrial universities outperformed the comprehensive universities regarding the mean index of their scores..

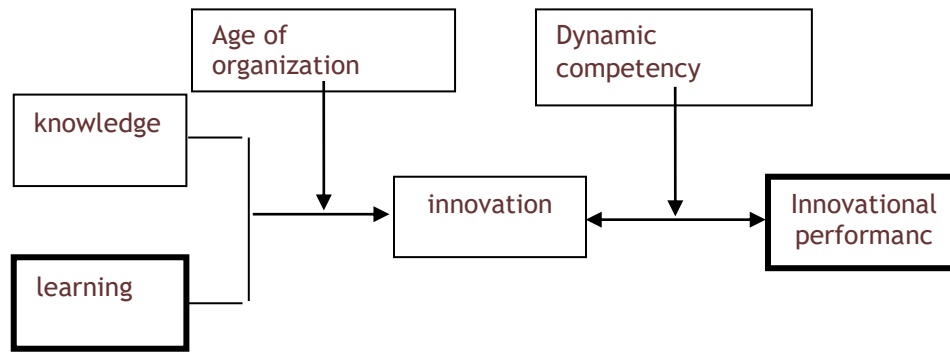


Fig:2. Berney model for relationship between sources innovation and performance

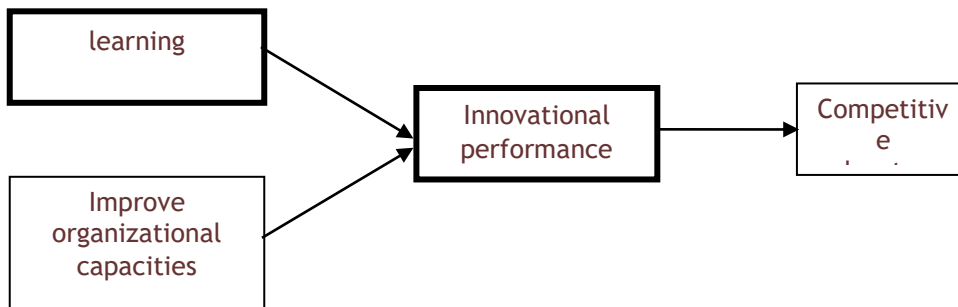


Fig: 3. Chen et al model for variables related with competitive advantages

METHOD

The population of this study included all companies located in, both University of Tehran and ShahidBeheshti University as comprehensive universities and both Sharif Industrial University and University of Science and Technology as technical universities. In [Table- 1] Using stratified random sampling method, managers and two of their staff were selected to administer the questionnaires for three variables of the study. 88 percent of the questionnaires were answered and returned. The following table illustrates the steps taken for the distribution and collection of questionnaires:

Table: 1 . process of distribution and gathering of questionnaires

R	university	Firms		Society		Gathered questionnaires	
				manager	Employee	manager	Employee
1	Tehran	30	30	60	29	53	
2	Shahidbeheshti	15	15	30	14	28	
3	Sharif	15	15	30	12	24	
4	Elm-o- sanat	15	15	30	14	26	
	Total	75	75	135	69	130	
		Total	225		199		

To collect data about the entrepreneurial organizational culture, entrepreneurial organizational culture questionnaire designed by Maguire at George Washington University in 2003 was used. Its reliability coefficient was 0.76. To gather information about individual, group and organizational learning, a questionnaire with the same name was used. The reliability coefficient was calculated to be 84.7 (%). Innovative performance questionnaire Catherine et al with the reliability coefficient 80.3 was also administered to collect data about innovative performance .

RESULTS AND CONCLUSIONS

First hypothesis:

The results in [Table- 2] show that the correlation between learning and innovative performance is so low that it can be ignored. Therefore, the first research hypothesis is rejected:

Table: 2. Pearson correlation for relationship between learning and innovational performance

N	correlation	Sig (2-tailed)
199	-.068	.337

According [Table- 3], there is a relationship between entrepreneurial organizational culture and innovative performance and the second research hypothesis can be confirmed:

Table: 3. Pearson correlation for relationship between entrepreneurialculture and innovational performance

N	Correlation	Sig (2- tailed)
199	-.144	.042

The data displayed in [Table -4] reveal that there is a relationship between learning and entrepreneurial organizational culture. This can reject the null hypothesis. The third research hypothesis is also confirmed:

Table: 4. Pearson correlation for relationship between entrepreneurial culture and learning

N	correlation	Sig (2- tailed)
199	.400	.000

In[Table- 5] also, to analyze the interaction of three variables under investigation, two-way analysis of variance was used to observe the fixed effects of independent variables (learning) and the mediator variable (entrepreneurial organizational culture), and to study the interaction of these two variables. The results of analyzing the data in the following table showed that the independent and mediator variables have an impact on dependent variables separately and in aggregate. Hence, the null hypothesis is rejected and the proposed model is approved:

Table: 5. Tow way ANOVA for fix and interaction effects

variable variable	df	Mean square	F	sig
Learning	41	160.669	3.967	.002
entrepreneurialculture	48	110.534	2.729	.013
entrepreneurialculture * learning	91	104.955	2.591	.015

[Table-6]Examining and comparing the scores of universities revealed that industrial universities outperformed the comprehensive ones not only in the innovative variable but also in all other variables; therefore, the hypothesis is confirmed. The scores of the universities are summarized in the [Table-6] below:

Table: 6. Mean of university marks of three variables

University	Variables	Entrepreneurial culture	Innovational performance	Learning (individual, group, organizational)
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Tehran	71/62	97/69	94/81
Shahibbeheshti	61/77	98	85/65
Sharif	75/64	95/78	92/54
Elm- o – sanat	69/13	102	96/02
Sum of comprehensive universities	133/39	195/69	180/46
Sum of industrial universities	144/77	197/78	188/56

can also be concluded from the results that learning at all levels, including individual, group, organizational and inter-organizational, always leaves a positive impact on the organization. Subsequently, the innovative performance is one of the organizational variables that takes the positive effects of learning. Besides learning, the entrepreneurial atmosphere should also be supported in the organization. As organizational culture is well-defined in management books, it can be a facilitator of change and a guide for behavior. Thus, entrepreneurial organizational culture can imagine an atmosphere to facilitate the process of entrepreneurship, and give courage to employees to move towards discovering the unknown.

According to the results obtained from the data analysis, the researcher can confirmed the hypotheses related to the relationship between learning, innovative performance, and inevitable impact of entrepreneurial organizational culture. Therefore, managers must ensure that if they wisely support the entrepreneurial organizational culture in their organization and facilitate the learning process, they will have innovative and creative employees and dynamic organization.

CONFLICT OF INTEREST

None

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None

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