



The Role of Human Capital Development and Innovation in Healthcare organizations of Markazi Province in Iran

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ABSTRACT

Introduction: Increase of environmental challenges inevitably changes our methods; challenges such as rapid change, diversity of workforce, globalization, evolution and transformation of business and family roles, lack of skills and emergence of service sector affect not only the organizational structure but also the nature and functional role of business. In response to these environmental challenges and in order to increase the efficiency and effectiveness and ultimately the productivity, the organizations have shifted toward two facilitators: human capital development and innovation. The aim of the current study is to survey the correlation between these two facilitators.

Method: This research is a descriptive-analytical survey. The current research population includes all experts and managers of healthcare organizations of Markazi Province in Iran in January 2015. The statistical population consisted of 650 individuals; 180 individuals were chosen as the statistical sample using Cochran's formula. In terms of data collection method, this is a descriptive-bivariate correlative type research. Library and internet resources developed based on the variables were used for collecting data related to theoretical concepts and extracting primary elements and indicators. Cronbach's alpha test has been used for confirming the validity and reliability of the questionnaire (0.863) which indicates a high reliability. The number of collected questionnaire was 180 and they have been analyzed using Spearman correlation.

Results: According to t-statistic in all hypotheses which is out of the range of -1.96-1.96, it could be said that human capital development, healthcare management, infrastructure of official institutions, infrastructure of unofficial institutions and knowledge (education) management development have a significance effect on innovation at significance level of 95%. As a result, all research hypotheses were confirmed.

Conclusion: Innovation in inputs results in increased efficiency of employees especially in educational sections of the organization. According to the creative problem-solving process in ideal situation (truth finding-finding ideas and solutions), the organization can deal with the changes imposed on the system and reach the goal of more efficiency.

Keywords: Human capital, Innovation, Healthcare organizations of Markazi Province in Iran

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Introduction

Nowadays, innovative organizations are considered as successful organizations. They must regularly revitalize and improve themselves in order to create a long-term growing life for themselves and their members. Innovation includes very important concepts such as learning organizations, knowledge-creation organizations, and teaching methods. Thus the main aim of this research was to survey the role of human capital and innovation in healthcare organizations of Markazi in Iran. In 1954, Louis brought the concept of economic development along with unlimited density of workforce in the economic literature; but the term human capital was not that much studied until the time of SicilPingo (1956) due to its negative aspects (which was used as a production factor the same as machinery) (1). After that the term human capital was

used in neoclassical researches of Mincer (2). In a study published in the journal of political economy in 1958, Mincer surveyed the investment in human capital and personal income distribution; then, Schultz exponentially helped developing this subject; but human capital was flourished by the activities of Gery Becker (3). In 1963, Gery Becker published a book entitled "human capital" which became a standard reference for many researches that had been conducted in this field.

Peter Hutz (1998) introduced human capital by time, experience, goal and capabilities of one of the family members that could have a role in the production process. In most cases, the organizational success depends on individuals having high levels of qualifications; in such conditions these individuals become the invaluable capitals for the organization. In other words, the human capital could be considered as one of the production factors

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that could have a high value added for the organization and the society (4).

The new definition of human capital introduces it as a set of features, life experiences, knowledge, creativity, innovation and energy selected by individuals for investing in their work (5).

In today's chaotic world, the leading companies have figured out the importance of paying attention to their employees; they have found out that by more emphasis on keeping and developing the human capital they can be at the top of the world economy (6).

Human capital is considered as a key for economic growth of societies and it is an important and necessary capital helping the economic growth and development; from this point of view, it could be compared with physical capitals and assets of the organization (7).

Since the capabilities and skills of individuals help the performance and efficiency of the organization, any kinds of costs related to its training and development is considered as a long term investment benefitting the organizations for a long time. This is because of the fact that in today's changing and extremely competitive environment we could reach the competitive advantage only with the help of creative and innovative human capital (8).

As a result, organizations must turn into dynamic and learning organizations so that their employees could flourish their abilities and have the ability to adapt with changes in the competitive environment.

Thus paying attention to the importance of human capital is accompanied by the following results:

- Investing in human capital is considered as one of the main elements of an organization and it results in promotion in the employees' status (9).
- By investing in human capital, the employees achieve the required knowledge and skills for producing new productions and services (10).
- It affects the employees' efficiency in the work environment (11).
- It results in the inner strength of the company in obtaining competitive advantage (12).
- It results in efficiency in national economy (it has an effect on the efficiency of the national economy) (5)
- It results in the growth of national economy (6).

Also innovation is considered as a response of the organizations to market changes to guarantee their survival and growth in the competitive environment. In a time when everything is changing and the rivals are trying to increase their market share through gaining competitive advantage, paying attention to innovative aspects is one of the methods of increasing the competitive advantage in dynamic world of business. In this era, it is important to sustain the innovation for survival and progress in order to prevent recession and failure from happening. The survival condition in the extremely volatile world of business is paying attention to the environmental changes of innovation and understanding different aspects of innovation in business. Innovation could be considered as a unique change based on new ideas; thus, innovation is a kind of change but not every change is considered as

innovation (13)

Porter and Stern stated that companies must create a set of new products and processes in order to use more technologies and at the same time guarantee their survival. Drucker has emphasized that each organization needs fundamental skills and that is innovation. Innovation is a multi-faceted story (14). Maravelakis has surveyed organizational innovations based on product, process and executive innovations. Researchers have found out that most researches in the field of innovation focus on the product innovation in manufacturing companies. From the organizational perspective, the real success of the innovation takes place in the market. Creating innovative market criteria for helping companies transfer good ideas and products toward appropriate sales and revenue seems to be necessary. Changing rules and regulations related to strategic innovation is the key factor for success of many market managers; additionally, companies must try to create the appropriate culture, structure, stimuli, systems and processes in order to facilitate innovation. It must be noted that innovation does not necessarily result in more sales for the company (15)

Many researches have been conducted in this field. Shee (2001) concluded that industrial countries use creativity and innovation of human capital for the advanced technology because they want to gain access to many potential markets; but new industrial countries use human capital and innovation because their aim is using low-cost inputs such as workforce and land so that they could export their products to the third-world countries and prevent exponential production costs in their own country (10)

In an article entitled "Human Capital, Creativity, Innovation, Production and Growth Structure", Seicony and Papiano (2006) surveyed whether high levels of creativity and innovation of human capital match more quickly with the economic growth by the help of facilitating technology or not. International theories point to the accumulation of human capital as one of the important factors of growth in capital industries; also, Seicony and Papiano found out significant positive effects of the levels of human capital and size of human capital on production and employment growth for capital industry of Italy. They tested the effect of the levels of human capital on the growth of industries' sensitivity toward human capital and found out that the production growth in industries showing sensitivity toward their staff's training was more than other industries ignoring the level and quality of staff training (4)

Ramos et al (2009) surveyed the role of supplementary training in an article entitled "regional economic growth, human capital, creativity and innovation". Their study evaluated the correlation between human capital and regional economic growth in European Union by the use of different human capital indicators. In this study, different human capital indicators achieved through partial statistics in the census were used. They evaluated the GDP per capita during 2000 to 2005 on the inner surface of GDP per capita and human capital variable for 229 regions in Europe and realized that the recent economic performance of Europe had a close relationship

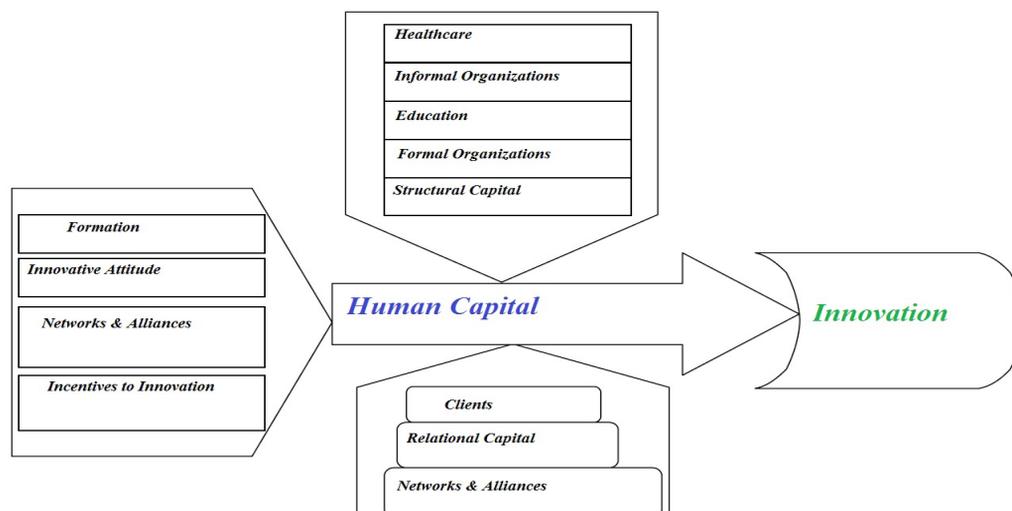
with increased level of supplementary trainings. In fact, it seems that the supplementary training scales have a stronger and more related performance compared to the existing traditional scales of capital in a regional economy. In a political perspective, their results indicate that even when the skilled workers are unable to find their appropriate job, they are generally more profitable than their unskilled colleagues (16)

Surveying the effects of human resources on innovation, Mcduffy (1995) has used three indicators of recruitment, service compensation, situational barriers and education for showing innovative methods of human resources. Mcduffy explains how integrity of a set of human resources' methods definitely depends on the improvement of productivity. Also, Ichnusky et al. (1997) surveyed the productive effects of innovative practices. They used different indicators of innovative practices such as incentive payment, recruitment and selection, team work, flexible work allocation, job security, communications and education and they declared that compared to traditional methods such as detailed job description, strict work rules and hourly payment with restricted and accurate monitoring; these innovative practices provide higher levels of productivity and efficiency. Moreover, 4 other dimensions of human resources such as recruitment, education, performance evaluation and service compensation can be used.

Collins and Clark (2003) surveyed the relationship between strategic methods of human resources including education, performance evaluation and reward and the performance of 73 meta-tech businesses in the field of innovation in a field study. Survey results showed that innovative social network of senior managers adjusts these relationships.

Cori and Krane (2003) used a case study method to survey the effect of strategic methods of human resources such as performance management, recruitment and selection, staff engagement and career development on increased amounts of sharing innovative activities inside the company.

Figure 1. The research conceptual model



Reference: Researcher's studies and also Stewart & Braun (2009)

They declared that human resources' methods could improve the amount of sharing innovative activities in institutions having task-oriented structure and culture. Studying the effects of new human resource management methods on institutions' innovation in different sections, Larson and Fouse (2003) categorized 9 human resource management variables including interdisciplinary working groups, quality circles, employees' suggestion data system, programmed job rotation, responsibility delegation, performance-related payment, inter-organizational education and outside-organizational educations in two human resource management systems. Their findings show that innovation performance had a correlation with the first system in four production sections and wholesale section, and ICT had a relationship with the second system.

Thus the current research surveys the role of human capital and innovation in healthcare organizations of Markazi Province in Iran with the help of the following model. This model is inspired by the research conducted by Stewart and Braun (2009) and also by the researcher's studies (which has been mentioned in the previous studies). In this model, all factors affecting the organizational innovation are discussed in three different boxes.

Methods

This research is a descriptive-analytical survey. In descriptive methodology, the population could be surveyed and tested through survey. Descriptive survey describes specific phenomena in specific environment.

The research population includes all experts and managers of public and private sectors of healthcare organizations in Markazi Province with a total of 340 individuals. 180 individuals were chosen as the sample, using Cochran's formula.

In this research, the questionnaire was used for collecting the data.

The questionnaire included 44 questions. Different resources were used for surveying the role of human capital development on innovation in Markazi Province. In this research, a questionnaire with closed questions was used; also, Likert scale was used. Furthermore, Cronbach's alpha was used for measuring reliability.

As the Table 1 shows, the results obtained from the analysis of data through SPSS, version 22, showed that total calculated alpha coefficient was equal to 0.863 and since it is bigger than 0.7 and is significant, it could be concluded that the questionnaire has the required reliability.

Table 1. Variables, number of questions and reliability coefficient

Variables	No. of questions	Acceptable level	Cronbach's alpha coefficient
Regional health management	6	0.7	0.81
Infrastructure of official institutions	6	0.7	0.75
Infrastructure of unofficial institutions	5	0.7	0.80
Knowledge management (training)	5	0.7	0.84
Creating knowledge and innovation	5	0.7	0.77
Preserving and organizing knowledge	5	0.7	0.89
Sharing knowledge and value added	4	0.7	0.83
Using knowledge	4	0.7	0.79
Regional innovation	4	0.7	0.86
Cronbach's alpha of total questionnaire			0.863

Table 2. Hypothesis test by the use of t-statistics

Predictor variable	Path coefficient (β)	t-statistic	Total coefficient of determination (R ²)
Human capital development	0.886	15.273	0.555
Healthcare management	0.217	3.01	0.715
Infrastructure of official institutions	0.398	14.36	0.37
Infrastructure of unofficial institutions	0.477	4.25	0.801
Knowledge (education) management	0.114	3.77	0.75

(Dependent variable: innovation)

Results

Therefore, 40 females and 140 males answered the questions.

In terms of marital status, 108 individuals were married and 72 single. In terms of education, 38 individuals had PhD, 59 master's degree and 83 had bachelor's degree. In terms of managerial position, 15 individuals were managers, 48 middle managers and 117 were experts.

According to t-statistic in all hypotheses which is out of the range of -1.96-1.96, it could be concluded that human capital development, healthcare management, infrastructure of official institutions, infrastructure of unofficial institutions and knowledge (education) management development have a significance effect on innovation at Sig. level of 95%. As a result all, research hypotheses are confirmed.

Regarding the above mentioned table and significance levels (0.000), all research hypotheses are accepted at a confidence level of 99%.

The current research result is consistent with the findings of Randult (2007), Bartel, Sanker, Howel and Wolf, Heat et al. (2010).

Discussion and Conclusion

Organizations need new thoughts and ideas to survive and preserve their positive and constructive role; in this way, they guarantee their dynamism through new ideas; in other case they will be eliminated thus, the organizations' resistance against different environmental changes results in their elimination and even they won't be able to keep their current status. Nowadays, modernism, creativity and innovation in organizations are considered as an appropriate strategy for adapting organizations with their complicated environment. In fact, the motto "without creativity you will be destroyed" is a serious warning for the organizations.

One of the factors affecting creativity in an organization is providing the ground for creating a culture in which the employees try to grow their talents and reveal their ideas so that they affect each other's ideas and complete them and consequently the organization will benefit from this progress. One of the requirements of creation of new ideas is having a quiet environment in the organization so that the employees can think. Creativity needs both individual's talent and appropriate environment (17).

One of the serious challenges of today's managers is lack of appropriate use of thoughts, intellectual power and potential capacities of the human resources. In most organizations, the employees' capabilities are not well used and managers are unable to use their potential capabilities. In other words, although the individuals have the capability of revealing more creativity and innovation, due to some reasons these capabilities are not properly used. Organization evolution management scientists consider human resource empowerment as a strategy affecting human performance; they believe that human resource empowerment is one of the attitudes of the new era which is now used by the organizations and in fact it is a response to the vital need of contemporary management.

Table 3. Spearman's test for all hypotheses

Education	Unofficial institutions	Official institutions	Health	Innovation	Human capital development			
0.767**	0.765**	0.894**	0.842**	0.739**	1.000	Correlation coefficient	Human capital development	Spearman's rho
0.000	0.000	0.000	0.000	0.000		Sig. (2-tailed)		
180	180	180	180	180	180	N		
0.479**	0.473**	0.578**	0.666**	1.000	0.739**	Correlation coefficient	Innovation	
0.000	0.000	0.000	0.000		0.000	Sig. (2-tailed)		
180	180	180	180	180	180	N		
0.590**	0.554**	0.748**	1.000	0.666**	0.842**	Correlation coefficient	Health	
0.000	0.000	0.000		0.000	0.000	Sig. (2-tailed)		
180	180	180	180	180	180	N		
0.671**	0.700**	1.000	0.748**	0.578**	0.894**	Correlation coefficient	Official institutions	
0.000	0.000		0.000	0.000	0.000	Sig. (2-tailed)		
180	180	180	180	180	180	N		
0.740**	1.000	0.700**	0.554**	0.473**	0.765**	Correlation coefficient	Unofficial institutions	
0.000		0.000	0.000	0.000	0.000	Sig. (2-tailed)		
180	180	180	180	180	180	N		
1.000	0.740**	0.671**	0.590**	0.479**	0.7676**	Correlation coefficient	Education	
	0.000	0.000	0.000	0.000	0.000	Sig. (2-tailed)		
180	180	180	180	180	180	N		

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

Regarding the increasing importance of human resource in organizations as a valuable organizational capital and regarding the necessity of obtaining the required abilities for better performance, the organizations must provide opportunities for emergence of potential talents. The survival of organizations depends on the partial competitive advantage; for reaching this partial advantage it is necessary for the organizations to provide better high quality products and services compared to their competitors and the organizations must add creativity and innovation to their products and services so that the customer satisfaction is achieved. Based on this fundamental hypothesis, it is believed that creativity happens when the organizations have knowledgeable, motivated and empowered human resources (18).

Also, organizational managers and programmers expert in long-term planning are completely aware of the important role of human resources in growth and development. Thoughtful managers know that organization means a set of employees with different spirits, interests, thoughts, knowledge and physical conditions on which the organization is dependent. The organizational survival and its flourish depend on factors such as creativity, innovation and development that could lead to increasing influence of the organization on the society. Increasing innovation in organizations could result in improving quantity and quality of services; reducing costs; preventing from waste of resources; reducing bureaucracy; increasing efficiency and productivity; and increasing motivation and job satisfaction.

Since the main work of the individuals happens in organizations and management is the factor for creation of innovation, and efficiency in organizations is defined by the dimensions of inputs and outputs and the simple formula of $\text{output} \div \text{input} = \text{efficiency}$, and since we know that by improving this ratio the organizational efficiency increases, with a specific level of inputs we can reach a better output. Innovation in inputs results in an increase in the efficiency of employees especially in educational sections of the organization. According to the creative problem solving process in ideal situation (truth finding-finding ideas and solutions), the organization can deal with the changes imposed on the system and reach more efficiency.

Suggestions achieved from research hypotheses and limitations

- Managers of the province must create the required opportunities for the job promotion of all individuals
- Managers must welcome the creativity of human power
- All types of insurance (life, medical, ...) must be provided for the human power in organizations/companies
- Cultural activity and consultation services at organizations/companies must be available for manpower
- Trying to keep the qualified and talented manpower and being sensitive toward different cultures in order to create more cohesion in organization and work environment
- Giving freedom of action in the methods of doing tasks and also providing opportunities so that the employees can use their individual judgement and creativity that could result in increasing the employees' efficiency

It must be taken into account that there were some limitations in this study including:

- 1-Inability to inform the audience about the importance of the research in the structure of the society and university
- 2-Lack of research activities within the companies
- 3-Data collection tool in this research was a questionnaire which surveyed the individuals' attitude rather than the reality
- 4-Negative attitude of some of the managers of Markazi Province toward questionnaire distribution because they thought this might have a negative effect on their employees' work.

Conflict of Interest

None Declared.

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