Investigate the Relationship between Intellectual Capital and Tendency to Innovation among the Faculty of the Shahid Chamran and Jondi Shapour Universities of Ahvaz

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ABSTRACT: This study is an applied research and in implementation of it, the descriptive - correlation method has been used. Population of the study includes 600 faculty members of Shahid Chamran and Jondi Shapour Universities of Ahvaz. The number of samples selected by stratified random sampling were selected among the community was 250 people. The tool consists of two intellectual capital measurement questionnaires by Bontis (1998) and innovation by Cools and Vanden Brook (2007). Cronbach's alpha of each of the questionnaires for questionnaire of intellectual capital and questionnaire of innovation 0.89 and 0.81 were obtained, respectively. And Pearson's correlation coefficient was used to examine the research questions. The components of intellectual capital (human capital, structural capital, relational capital) have the ability to predict tendency to innovation of faculty members. Each of the other components of the intellectual capital (human capital, structural capital, and relational capital) includes indicators and factors in the organization that affect the innovation in the organization, so each of these components can be relate to organizational factors which directly cause to improve and enhance the level of innovation in the organization.

Key words: Intellectual Capital, Human Capital, Structural Capital, Relational Capital, Innovation

INTRODUCTION

Today's organizations to survive in the new competitive paradigm, need to follow innovation seriously and through any way possible to achieve it. Therefore innovation as an essential innovation strategy in the present age goes up to be considered as the distinction factor of organizations and the condition of survival.

Organizational innovation is essentially a thinking -centered and knowledge-based process, and through the accumulation of knowledge assets can be enhanced and strengthened. Essentially innovation in the organization is a knowledge-based process and the result of the application of knowledge and intellectual capital and can say that the organizations which have desirable level of their intellectual capital are more innovative. This is because in such organizations due to intellectual organization and use of knowledge, learning is also more, and this in turn will seek new ways for doing things and generally innovation (Zarin Sabab, 2011).

The main advantage of measuring intellectual capital of the university, to gain valuable information and helpful and practical tips for managers of university. Report of intellectual capital can gives the data necessary to the managers to compare intellectual capital over the time and to help the managers decide to raise the level of intellectual capital and enhance the University's position in society (Hosseini 2010).

In the past decade the analysis of knowledge management and intellectual capital in NGOs has used and cause to increase interest of these issues in the government agencies such as universities and research centers. Main goal of universities is "produce and dissemination of knowledge and also to invest heavily in research and human resources (McGill and Terrence, 2004; Bahrami et al 2011).

Intellectual capital is a combination of intangible resources and activities that enable an organization to transform a set of human resources, financial and material that is capable of creating value for shareholders (Cools and Broecke, 2007). Analysis of classification of intellectual capital shows that in total, three main categories of human capital, structural capital, and relational capital as the constituent elements of intellectual capital have been accepted; these three elements have a mutual relationship and intellectual capital is created by the interaction between each of the elements (Bataineh, 2011; and Alavi and Qoreshi 2007). Intellectual capital is a set of knowledge-based assets that are specific to an organization and are among its characteristics and through adding value to the key stakeholders leads considerably to improvement of the competitive situation of the organization (McGill, 2006, and Fattah and Matlabi, 2011).

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There are several reasons for the importance and necessity of intellectual capital in post-secondary education. First, strategic interest of the nonprofit sector is focused on the mental resources and the ability to accept challenges imposed by the external environment is growing. Secondly, the stimulus intellectual capital is the key impeller to improving enterprise performance and competitiveness.

Thirdly, the intellectual capital measurement can be closer post- secondary education philosophy as ivory tower researchers to the actual needs of the public, and the Fourth, grading the investigative and post- secondary education organizations must be based on the fixed- objective and inclusive criteria. Moreover, instead of using traditional measures, intellectual capital empowers the connected point between universities and organizations based on y a common language and this is one of the most interesting causes to measure the intellectual capital. Final reason, intellectual capital will play a key role in the strategic human resource management (Salimi and Rasian, 2011).

In fact, post–secondary education of each country is as a human making organ that continuously with generation determinant new and cultural ideas, are defining the population's human and national identity. Therefore the claim that faculty members of universities is one of the active and determinant group in intellectual and scientific management of the country, it does not seem superfluous. By this, the importance of addressing how to accumulate the intellectual capital in the universities and their faculty as one of the main axes of their function becomes clear.

Innovation is not something that can be achieved overnight or with promulgating a new regulation to organization agenda and run. Innovations require new and creative look at issues surrounding and is deemed as a critical skill that its preparation demands certainly the subtle and accurate planning. Actually, organizational innovation is product of invest in intellectual, human and structural resources of an organization and benefits and asset accumulation resulting from it. As long as we do not know the right way to invest, not only to get a right value added but also will waste our assets. From here importance of the study on organizational intangible assets like intellectual capital is known.

Wong Studies (2004) in order to determine the dimensions of a learner organization in public educational institutions of Hong Kong showed that authorities attempted to create a shared vision among faculty and staff of educational goals, have created a positive attitude towards the training centers in the staff of this center (Fattah and Matlabi 2011).

The question that drew the researcher's mind is "could be encouraged and tended faculty more than more to innovation with increasing and strengthening the intellectual capital" in other word, "how much the intellectual capital increase assist to increase innovation in the organization?" Based on the literature presented in this chapter, intellectual capital with the three dimensions of structural capital, relational capital and human capital is one of the factors affecting innovation in organizations, especially in the university.
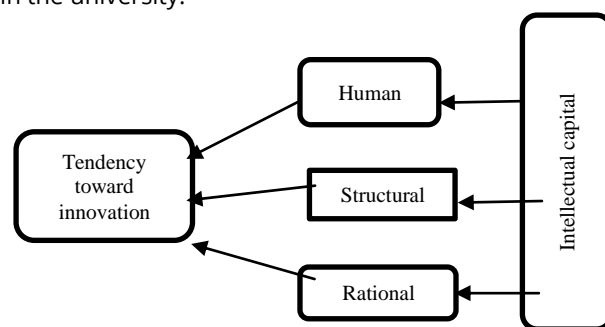
Research Objectives

The overall aim of the research: Examine the relationship between intellectual capital and tendency toward innovation among faculty of Shahid Chamran and Jondi Shapour Universities of Ahvaz.

Specific objectives:

Relationship between human capital and tendency toward innovation among faculty of Shahid Chamran and Jondi Shapour Universities of Ahvaz.

Relationship between structural capital and tendency toward innovation among faculty of Shahid Chamran and Jondi Shapour Universities of Ahvaz.

Relationship between rational capital and tendency toward innovation among faculty of Shahid Chamran and Jondi Shapour Universities of Ahvaz.

MATERIAL AND METHODS

This study is an applied research in terms of aim. Method of the research will be descriptive – correlational. It is descriptive because follows study of current status of phenomenon and is correlational because follows to explain relations between two variables of intellectual capital and innovation.

The population, sample and sampling method

The population of the research composed of faculty of Shahid Chamran and Jondi Shapour

Universities of Ahvaz, which included 600 people in the groups and schools who are working and based on Morgan's table a sample size of 250 people was selected.

Methodology and data collection

In this study, for data collection, two response packet questionnaires were employed that one of them, to measure intellectual capital by Bontiys (1998) and other, innovation questionnaire to measure faculty members' innovation rating by Cools and Vanden and Brocke (2007) have been used. Cronbach's alpha of each of the questionnaires, for the intellectual capital questionnaire and innovation questionnaire 0.89 and 0.81 were obtained, respectively. And Pearson's correlation coefficient was used to examine the research questions.

At part of descriptive statistics, indicators of the central distribution, tables and charts and indicators of comparative statistics like comparison of central and distribution parameters and also single variable regression test will be used, in case of normal distribution of data for research hypotheses, statistical test of parametric correlation and if there is a strong correlation, regression tests are used.

Test of study questions

The key question: Is there a significant relationship between "intellectual capital" and the "propensity to innovation" among faculty Shahid Chamran and Jondi Shapour Universities of Ahvaz? We first use the Pearson correlation to examine the relationship between the "intellectual capital" and the "propensity to innovation". As is clear from Table 1, the correlation between the two variables "intellectual capital" and "propensity to innovation" is equal to 0.404. Significant level of the correlation test is equal to zero and less than the amount 0.05.

As a result at level 95 the relationship between two variables "intellectual capital" and "willingness to innovate" is significant. Due to amount of the correlation, the relationship between two variables is direct and relatively strong.

Table 1. Correlation coefficient between the "intellectual capital" and the "propensity to innovation"

Variables	Amount of correlation coefficient	Significance level	Test Results
"Intellectual capital" and "propensity to innovation"	0.404	0.000	Relationship is Significant

Examine the first research question: Is there a significant relationship between "human capital" and the "propensity to innovation" among faculty Shahid Chamran and Jondi Shapour Universities of Ahvaz?

According to the results of the table, correlation coefficient between "human capital" and "knowing style" is equal to 0.173. Significance level is equal to zero and less than the amount 0.05. As a result at level 95% correlation between "human capital" and "Knowing style" is significant. According to the value of the correlation coefficient it specified that the relationship between the two variables is weak and direct.

The correlation coefficient between "human capital" and "planning style" is equal to 0.182. Significance level is equal to zero and less than the amount 0.05. As a result at level 95% correlation between "human capital" and "planning style" is significant. According to the value of the correlation coefficient it specified that the relationship between the two variables is weak and direct.

The correlation coefficient between "human capital" and "creation style" is equal to 0.535. Significance level is equal to zero and less than the amount 0.05. As a result at level 95% correlation between "human capital" and "creation style" is significant. According to the value of the correlation coefficient it specified that the relationship between the two variables is strong and direct. The correlation coefficient between "human capital" and "propensity to innovation" is equal to 0.453. Significance level is equal to zero and less than the amount 0.05. As a result at level 95% correlation between "human capital" and "propensity to innovation" is significant. According to the value of the correlation coefficient it specified that the relationship between the two variables is relatively strong and direct.

Table 2. Correlation coefficient between the "human capital" and the "propensity to innovation" and its three dimensions

Variables		Amount of correlation coefficient	Significance level	Test Results
Human Capital	Knowing Style	0.173	0.006	Relationship is Significant
	Planning Style	0.182	0.004	Relationship is Significant
	Creation Style	0.535	0.000	Relationship is Significant
	Propensity to innovation	0.453	0.000	Relationship is Significant

Examine the second research question: Is there are significant relationship between "structural capital" and the "propensity to innovation" among faculty Shahid Chamran and Jondi Shapour Universities of Ahvaz?

According to the results of the table, correlation coefficient between "structural capital" and "knowing style" is equal to 0.155. Significance level is equal to zero and less than the amount 0.05. As a result at level 95% correlation between "human capital" and "Knowing style" is significant. According to the value of the correlation coefficient it specified that the relationship between the two variables is weak and direct.

The correlation coefficient between the variable "structural capital" and "planning style" is equal to 0.255. Significance level is equal to zero and less than the amount 0.05. As a result at level 95% correlation between "human capital" and "planning style" is significant. According to the value of the correlation coefficient it specified that the relationship between the two variables is weak and direct.

The correlation coefficient between the variable "structural capital" and "creation style" is equal to 0.287. Significance level is equal to zero and less than the amount 0.05. As a result at level 95% correlation between "human capital" and "creation style" is significant. According to the value of the correlation coefficient it specified that the relationship between the two variables is weak and direct. The correlation coefficient between the variable "structural capital" and "propensity to innovation" is equal to 0.241. Significance level is equal to zero and less than the amount 0.05. As a result at level 95% correlation between "human capital" and "propensity to innovation" is significant. According to the value of the correlation coefficient it specified that the relationship between the two variables is weak and direct.

Table 3. Correlation coefficient between "structural capital" and "propensity to innovation" and its three dimensions

Variables		Amount of correlation coefficient	Significance level	Test Results
Structural capital	Knowing Style	0.155	0.014	Relationship is Significant
	Planning Style	0.255	0.000	Relationship is Significant
	Creation Style	0.287	0.000	Relationship is Significant
	Propensity to innovation	0.241	0.000	Relationship is Significant

Examine the third research question: Is there a significant relationship between "rational capital" and the "propensity to innovation" among faculty Shahid Chamran and Jondi Shapour Universities of Ahvaz?

To investigate the relationship between "relational capital" and "propensity to innovation" and its three dimensions Pearson's correlation coefficient was used. Results about the correlation are shown in the table below.

According to the results of the table, correlation coefficient between "rational capital" and "knowing style" is equal to 0.081. Significance level is equal to 0.199 and higher than the amount 0.05. As a result at level 95% correlation between "human capital" and "Knowing style" is not significant. The correlation coefficient between the variable "rational capital" and "planning style" is equal to 0.229. Significance level is equal to zero and less than the amount 0.05. As a result at level 95% correlation between "human capital" and "planning style" is significant. According to the value of the correlation coefficient it specified that the relationship between the two variables is weak and direct.

The correlation coefficient between the variable "rational capital" and "creation style" is equal to 0.371. Significance level is equal to zero and less than the amount 0.05. As a result at level 95% correlation between "human capital" and "creation style" is significant. According to the value of the correlation coefficient it specified that the relationship between the two variables is weak and direct.

Correlation coefficient between the variable "rational capital" and "propensity to innovation" is equal to 0.390. Significance level is equal to zero and less than the amount 0.05. As a result at level 95% correlation between "human capital" and "planning style" is significant. According to the value of the correlation coefficient it specified that the relationship between the two variables is weak and direct.

Table 4. The correlation coefficient between the "relational capital" and "propensity to innovation" and its three dimensions

Variables		Amount of correlation coefficient	Significance level	Test Results
relational capital	Knowing Style	0.081	0.199	Relationship is not significant
	Planning style	0.229	0.000	Relationship is significant
	Creations Style	0.371	0.000	Relationship is significant
	Propensity to innovation	0.390	0.000	Relationship is significant

DISCUSSION AND CONCLUSION

According to mentioned content and the results obtained, we note that there is a significant relationship between the variables of intellectual capital and innovation. Hence, based on the literature it can be said organizations for survival in the today's variable and unreliable environment must be able to adapt to an increasingly complex, fast-changing and growing.

Therefore, organizations should look to innovation as an essential strategy while recognizing environmental changes, to dream with them, identify influencing organizational indicators on innovation. Meanwhile, due to the increasing knowledge, role of knowledge and knowledge capital, organizations have realized as well as that investment and according to financial and physical capital in the today's world cannot be fruitful for them and should be more focused on intellectual capital and knowledge to ensure the viability and effectiveness of their performance.

Therefore innovation in the organization is a knowledge-based process and is the product of application of knowledge and intellectual capital, and the organizations which have the appropriate level of their intellectual capital, are more innovative.

Because in such organizations because of intellectual capital and using knowledge, learning would be more and this, in turn, will follow new and innovative approaches for doing tasks and overall organizational innovation.

As be addressed in this paper, according to the variables that were mentioned as factors influencing innovation, each of the components of intellectual capital (human, structural and rational capitals) involved factors and indicators of organization which are affected innovation in an organization, that can be known any of these components linked to organizational factors that directly will to enhance the level of organizational innovation.

Finally, organizations to be able to act in today's competitive and variable environment and respond to the new conditions with creative and innovative ideas, it is necessary to recognize, manage and measure intellectual capital, and managers must also identify, measure and manage these assets to enhance the components of intellectual capital (human, structural, relational) by informed and effective planning and to create effective interaction between these components, as this components involve many factors and indicators that affect organizational innovation. Well as all the mentioned research are in line with our results, it is suggested that in order to promote intellectual capital Shahid Chamran and Jondi Shapour Universities of Ahvaz, by boosting innovation and creativity in order to manage intellectual capital to take appropriate measures.

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