Investigating the effect of knowledge management on the productivity of human resources of the education department of Boukan

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Accepted 25 May, 2015

Abstract

The present study was conducted to investigate the effect of knowledge management on the productivity of human resources of the Education Department of Boukan, West Azerbaijan, Iran. Knowledge management and the productivity of human resources were the independent and dependent variables of the study, respectively. In addition to these two variables, effectiveness, organizational environment, and education were also utilized as the moderating variables. The statistical population of the study was the personnel of Boukan’s education department. From among the personnel, 400 individuals were selected as the study sample; including 240 men and 160 women. The study sample was chosen through a nonrandom sampling method based on which the questionnaire was distributed. And descriptive and inferential statistical methods were utilized to test the study hypotheses. Spearman correlation coefficient was used to identify the type and rate of the relationship between knowledge management and productivity of human resources. The present study was an applied descriptive analytical survey that was conducted in a cross-sectional method. SPSS software was utilized to analyze the collected data. The results of the study indicated that there was a negative and significant relationship between knowledge dissemination variables and productivity of human resources. Moreover, there was a negative and significant relationship between knowledge storage variables and productivity of human resources. However, there was a positive and significant relationship between knowledge process and productivity of human resources and between knowledge transfer variables and productivity of human resources.

Keywords: Knowledge management; productivity of human resources; effectiveness; organizational environment; education

INTRODUCTION

Nowadays, most scientific communities and those who are aware of business and trade believe that only organizations that are equipped with better knowledge power and can create and disseminate new knowledge in addition to their current one can maintain their long-term advantage and competitive head start. Regarding the importance of knowledge and its role in organizational performance, Peter Drucker in his book “Managing in a Time of Great Change” states, “Knowledge has become a vital economic resource or even the only resource of competitive advantage” (Zhang Yung, 2012). Creating, transferring, and copying knowledge are easy; therefore,
knowledge in comparison with other organizational competitive resources has a strategic position (Henry et al, 2014). Therefore, studying the creation, maintenance, and application of knowledge as the most important phases of the knowledge management process in order to develop this valuable organizational resource has been taken into special account in recent decade. Knowledge management is based on the assumption that creation of appropriate infrastructures for disseminating, combining, and sharing knowledge in the organization causes the current knowledge to be enhanced and new one to be created. A review of the scholars’ views indicates that main activities of knowledge management are creation, dissemination, and application of knowledge. Knowledge creation focuses on the individuals’ and finally the organization’s capacity to innovate new solutions and ideas, and knowledge dissemination deals with knowledge transfer to a place where it can have the best application. Knowledge dissemination includes all processes of knowledge representation – or its devotion –and knowledge reception – or its collection. Knowledge application refers to usage of knowledge to cause a direct effect on business objectives (production of goods and provision of services). In the present study, the effect of knowledge management on the productivity of human resources of the Education Department.

**Literature and the theoretical framework**

Knowledge management is a commercial approach that deals with improving the organizations and enhancing the individual capacities of their human resources. To put it more simply, organizations can enhance their competitive benefits and advantages by classifying, selecting, utilizing, and storing knowledge. In accordance with the chain model of knowledge, the process of conducting knowledge management is composed of 5 main phases including knowledge acquisition and selection, knowledge creation, knowledge storage, knowledge internalization, and knowledge externalization (locher et al., 2009). Organizations need a means to assess the effectiveness and efficiency of their knowledge management so as to improve their performance. In their book, (Dvanport and Prosak, 2011) emphasize the importance of utilizing an appropriate method to measure success in conducting knowledge management projects. According to (Nonaka and Taguchi, 2012)’s theory (2011), two types of knowledge are created and shared by the individuals in an organization. The first type is explicit knowledge which refers to the instructions, scientific formulas, and so on. The other one is implicit knowledge which exists as attitude, idea, and/or experience in the individuals mind or the organizational culture. Converting implicit knowledge into explicit one with a regular format is not easily possible (Murray, 2010). A review of the literature indicates that most scholars in the field of knowledge management have focused on creation of implicit knowledge (Dolan et al., 2012). (Nonaka and Taguchi,2012) believes that implicit knowledge can be converted into explicit one. Knowledge Management System (KMS) refers to a type of information systems that are utilized to use organizational knowledge management (Robins and Stephen, 2013). In other words, KMS is based on information technology that is created to support the process of knowledge management in an organization. Recent advances in information technology has made it possible to store, process, market, and transfer knowledge. That is why many organizations are nowadays using KMSs. In terms of structure, KMS is composed of three main components of “the individual knowledge of the employees”, “knowledge storage or retaining resources”, and “knowledge ontology”. Utilizing KMS is a function of the quality of these three components (Madani, 2009).

Wu and Wang (2012) investigated the quality of KMS from two perspectives of “the quality of the system” and “the quality of knowledge or information”. To assess the system, they used the scale that is conventionally employed in information system studies. This scale assesses an information system from four aspects of sustainability, acceptable time to receive response, user-friendly environment, and ease of application. To assess the concept of knowledge or information, Wu and Wang invented a 2-dimentional scale composed of 11 items. These two dimensions are “content quality” and “meaning and Quality Content”. Content quality is a concept that was used in evaluating the quality of information systems; however, the concept of “meaning and appendix” is a new dimension that is proposed for KMSs. Advantages of setting up the process of knowledge management increase gradually in initial stages. This is due to unfamiliarity with the nature of the KMS, lack of enough ability to appropriately exploit the system, and the organization’s resistance or lack of tendency from the expert human resources to share knowledge. However, after a KMS has been adopted by an organization and the capacity of its human resources has risen in exploiting it, benefits increase faster up to the point that rate of interest decreases and inclines toward an upper level as it approaches toward development or investment of the competitors to implement similar systems. The importance of knowledge as a strategic competitive resource has attracted the attention of many organizations in recent years. Knowledge management creates a framework for these organizations based on which they can improve their innovation and flexibility toward changes. Adoption of knowledge management enables the organization to benefit from its knowledge resources in a more effective way whereby enhance its competitive advantage. Therefore, demand for employing “knowledge-based workforce” that is capable of
reasoning and making decisions to solve the problems of today’s organization is increasing. In this situation, by using KMSs, organizations attempt to boost the procedure of knowledge application in an appropriate way to better fulfill organizational duties. Effective factors in efficiency of KMSs is seriously focused on nowadays by the scholars and authors in the field of knowledge management. Proposing a means to assess the quality of knowledge and the KMS enables the user to make decision about effectively modelling, selecting, and exploiting the KMS based on the indices related to the components of the system.

Proposing an index to assess the performance of the KMS enables the user to assess the effects of different activities of the knowledge process on enhancement of the KMS’s efficiency and monitor the performance of the system over time. Identifying the effective factors in the user’s satisfaction with the KMS application makes an appropriate means for planning and designing the system available.

Significance of the study

Since economic enterprises and private and governmental organizations are the driving force of the national economy, the most significant question for nations is likely to be, “How can one open up the way for the development and success of the organizations in a way that they can prosper in the international competition? When an organization does not properly and extensively assess itself and the effectiveness of its activities at different stages, it will approach downfall and its survival will be at stake. Knowledge management has always been under debate. Time and spatial circumstances and variety of organizations and their complexities have caused a specific method appropriate to the conditions to be proposed in order to enhance the productivity of human resources.

The main reason for considering this issue in the present study is that knowledge management is one of the topics that have not probably been paid much or continuous extensive attention and the results of the studies have not been implemented well. Due to remarkable changes in knowledge management, the productivity of human resources in assessment of the performance is the main feedback that be extracted from this system. The present study is an attempt to investigate the effect of knowledge management on the productivity of human resources. According to the results of the study, in the end of the study strengths and weaknesses of the KMS of the Education Department of Boukan were identified and presented to the management in order to enhance the productivity and organizational performance.

Review of the literature

Domestic background

In his MA thesis entitled, “The relationship between the structure and culture and knowledge management in the Ministry of Labor and Social Affairs”, Asgari (2011) investigated the relationship of the two factors of structure and culture and the factors of creation and transfer of knowledge in the Ministry of Labor and Social Affairs. The results of this study indicate that there was a significant relationship between the mentioned organizational factors (structure and culture) and knowledge management in the Ministry of Labor and Social Affairs. To successfully implement knowledge management; therefore, the organization should be looked at as a total and organizational factors be taken into account.

Madani (2009) carried out a study entitled, “A comparison between the relationship between the system of performance assessment and productivity of human resources in Tax Administration and Telecommunication Corporation of Ardabil Province”. This study was aimed at evaluating the effect of the performance assessment system on the productivity of human resources. Performance was assessed based on the two dimensions of fairness and individuals’ awareness of their performance. The results of the productivity of human resources in these two organization indicated that there was a significant difference between the two organizations at different levels in terms of performance assessment and productivity of human resources. Moreover, Tax Administration had a higher level of average productivity than Telecommunication Corporation. This difference; however, is not significant.

Ne'mati (2005) conducted a study entitled, “The effect of performance assessment system on the productivity of human resources in detergent industries”. The results of this study showed that performance assessment system had a positive effect on productivity of human resources.

Tavakoli (2001) conducted a study entitled, “Identifying and prioritizing the effective factors in the productivity of human resources using MADM technique” in a jeans production company. The results of this study indicated management as the most important factor, followed by individual, cultural, social, and mental factors, and finally environment with the least significance.

The results of the studies conducted by Tavakolli (1994); FathAbadi (1994) showed that there is a significant relationship between increased motivation, responsibility taking, and high performance of the personnel.

The results of the study carried out by Monshizadeh (1994); Rostami (1998); Salimi (1998); Salehi (1994) also showed that there is a significant relationship between
assessment and feedback and the personnel’s performance. Ta’ali (1995) also indicated that there is a significant relationship between work life quality, as a factor of increased productivity, and the personnel’s performance and the costumers’ satisfaction. Mobin (1998) concluded that there is a significant relationship between decision making and performance.

Foreign background

(Ashtgartz and Salr, 2008) conducted a study entitled, “The effect of innovation and creativity on enhanced productivity of the personnel of (Dagly, 2013) Service Company”. The results of their study can be utilized in internalizing the productivity through creativity and innovation whereby a legal and flexible structure will be created that motivates managers and employees to improve the service procedures. It also gives the employees to take a chance to participate in state-of-the-art technological advances and changes and to present their ideas and suggestions; therefore, authorities can use their employees’ creativity and innovation. Moreover, courses can be held to make culture and create an appropriate creative and innovative organizational atmosphere. Therefore, the employees will be encouraged to present new and creative thoughts, and appropriate incentives should be assigned in order to internalize the culture of creativity and innovation in organizations and industries.

(1) (2004) conducted a study entitled, “the effect of the satisfaction among the employees and engineers of Co-Com Computer Software Factory on enhancement of occupational productivity of the human resources”. This study was aimed at investigating the effect of occupational satisfaction among the employees and engineers of Co-Com Computer Software Factory on enhancement of occupational productivity of the human resources. The results of this study indicated that the employees’ satisfaction can enhance occupational productivity up to 1.5 times. The results also indicated that occupational satisfaction can enhance the capacity of dealing with problems in critical situations and during environmental damages like international crises. It also can help the chief manager improve the situations.

In their study of Malaysian public organization, (Rowland and Syed, 2004) investigated the accessibility of knowledge management in Entrepreneurship Development Department of Malaysia. They also studied the relationship between human resources, issues, responsibilities, and technological dimensions and knowledge management in the organization. The results of this study indicated that the mentioned department does not have a special strategy of knowledge management. However, information and knowledge exist in this ministry which appears in its procedures and policies and databases. Another conclusion of this study is that the personnel of this ministry still feel that only the head of the department and the heads of the sectors are responsible for knowledge management in the organization. Only 48.3% of the personnel felt that knowledge management is the responsibility of all personnel. For a public services office to succeed, all personnel should take the responsibility of knowledge management.

(Lybotz and Chen, 2003) conducted another study of knowledge management in public organizations. In their study, they investigated how knowledge management can be created and what the culture of knowledge sharing is like. They figured out that how knowledge sharing was like in an organization and that knowledge sharing is a uniquely significant challenge in governmental organizations. They concluded that governmental agents are typically hierarchical and bureaucratic organizations that make knowledge sharing difficult. They stated that most of these organizations seem not to be willing to share their knowledge. They store their knowledge so that they can promote through the power they gain.

House Child et al. (2001) compared knowledge management in successful and unsuccessful organizations. They examined the experiences of knowledge management from four perspectives: (a) establishing proper conditions for knowledge (interest), (b) knowledge creation, (c) knowledge dissemination, and (d) knowledge application, each of which was examined based on some criteria. For instance, they examined creation of proper conditions for knowledge management along with “creation of motivation among the personnel to develop products and innovation”.

(Harpyaz, 1990) indicated that improving the work environment enhanced male personnel's performance and that improved interpersonal relationships and increased learning chances enhanced female personnel’s performance. Aker (1990); Schuster and Zyngym (1992); Baron and Greenberg (1993); Stern and Stewart (1993); Fireman (1994); Stan House (1995); Fenny and Metcalf; (1995); Hey et al. (1997); Merdesn et al. (2001); Merdesn and Richardson, (1992); Howell et al. (2000) reported that performance-based payment improved the personnel’s performance and the customer’s satisfaction.

Metcalf (1995); Griffin (1994); Schafer (1997), Greenburg and Baron (2000) indicated that there is a significant relationship between improving the work environment and the personnel's performance.

METHOD

The present study was a survey in terms of conduction, cross-sectional in regard with time, applied regarding nature, and extensive in regard with its scope. The
statistical population consisted of all personnel of the Education Department of Boukan. To determine the sample size, an initial study was separately conducted on 400 employees in order to specify they variance of the target quality (knowledge management), then Cochran formula with confidence level of 95% and probable accuracy of 5% was employed to determine the sample size to be 400 individuals. Appropriate stratified sampling was utilized, and categories were determined based on the individuals’ gender and field of study. The instrument of the study was a questionnaire. After the reliability and validity of the questionnaire was specified in the beginning of the study, it was used to collect required data in continuation. Finally, the researcher-designed questionnaire was once more reviewed by professors and experts, and it was revised accordingly. Therefore, the validity of the present study is content-based. To measure the reliability of the study variables, Cronbach’s Alpha was employed.

Theoretical definition

Knowledge management

Authors and scholars have defined knowledge management from various perspectives. Some of these definitions are presented here.

Rubritz

Knowledge management includes all methods and strategies through which organizations manage their knowledge assets. These methods and strategies include how to collect, store, transfer, apply, update, and create knowledge.

Larry Prusak

Knowledge management is an attempt to reveal hidden assets on the members’ mind and convert them into organizational assets in order for all employees of the organization to have access to.

Tom Davenport

Knowledge management is to discover, organize, and summarize the knowledge assets in a way that it improves the employees’ knowledge.

Productivity

1. The organization for Iran's national productivity defined productivity as a culture and an intellectual attitude toward work and life that is intended to make activities to reach a better life more intelligent.

2. Productivity is defined as the ratio of good production and services or a set of goods and services (output) to one or some data (input) effective in production of the goods or services. If only one datum such as human resources is placed in the dominator, it is called minor benefit. But if a set of data that are used in good production or service provision is placed, it is called total benefit.

3. Productivity refers to correct work that should be done all of the time. It is not something other than doing works correctly and constantly. In other words, productivity can be stated as the following equation:

\[
\text{Productivity} = \text{Efficiency} + \text{Effectiveness} + \text{Persistant in work}
\]

Effectiveness

"The rate of meeting organizational goals" is a common definition of effectiveness proposed by most management scholars. An organization can adopt various goals such as the employees' satisfaction, the customers' satisfaction, quality of goods and services and so on. It can be measured through the rate of goals met. Effectiveness is to pay attention to productivity or the correct or appropriate output. Effectiveness has the meaning of quality hidden in itself.

Education

Education and development mean to increase the employee’s professional abilities and skills in conducting assigned duties and actualizing a part of their potential capacities (Mirsepasi, 2002).

Organizational environment

In specialized texts of management, environment is referred to as phenomena around the organization, which normally includes factors like government, competitors, technology, employees’ supply and demand, costumers, and industry related to the system (Mirsepasi, 2002). In its attitude toward organization, environment assumes an organization as a system that converts data into outputs (open systems) and depends on environment for
its survival (Alvani and Danaeefard, 2005). Systematic attitude towards organization dates back to the proposal of the general theory of systems in the 60’s (Rezayian, 2009).

An open system is a system that exchanges energy, material, and data with its environment. And a totally closed system is one that neither receives any energy from its environment nor sends energy to it. Shortly, a system’s being open or closed is a relative issue and depends on the rate of its relationship with the environment (Rezayian, 2009).

Statistical population, the study sample and scope

The statistical population of the study was the personnel of Boukan’s education department in 2014. To determine the sample size, an initial study was separately conducted on 400 employees in order to specify they variance of the target quality (knowledge management), then Cochran formula with confidence level of 95% and probable accuracy of 5% was employed to determine the sample size to be 400 individuals.

Study variables and the method of measuring them

The present study’s dependent variable is knowledge management, and the independent one is productivity. Moreover, modifying variables such as effectiveness, organizational environment, and education are also taken into account.

Operational definition

The original title of the present study is “Investigating the effect of knowledge management on the productivity of human resources of the Education Department of Boukan”; therefore, in order to obtain the objectives and respond to the hypotheses, the processed of the Education Department of Boukan was investigated in regard with evaluating its performance. To examine the effect of knowledge management system on the productivity of human resources, Heresy-Goldsmith Model (Dolan and Simon, 2014) was utilized. Based on the components of this model, data collection was conducted from different sectors of the Education Department of West Azerbaijan Province. Afterwards, according to each hypothesis and the experts’ views, some indices were proposed for each hypothesis. After these indices had been extracted and localized, the effect of knowledge management on the productivity of human resources of the Education Department of Boukan was examined.

Based on the abovementioned explanations and the study’s objectives and hypotheses, a questionnaire was designed. Questions 7, 8, 9, 10, 11, 12, and 13 are related to the first secondary objective and the first hypothesis. Questions 13, 14, 15, 16, 17, 18, 19, and 20 are related to the second secondary objective and the second hypothesis. Questions 1, 2, 3, 4, 5, and 6 are related to the third secondary objective and the third secondary hypothesis. Questions 21, 22, 23, 24, and 25 are related to the fourth secondary objective and the fourth secondary hypothesis. Moreover, question 26 is an open question to elicit the personnel’s views and comments on other cases that can be effective in the productivity of human resources and are probably ignored in the questions. A sample of the designed questionnaire is presented in Appendix 1. Table 1. Moreover, questions on gender, education, and work experience were included in order to come up with better results. In addition, to obtain more exact measurement, the respondents were asked 2-option questions related to necessity of measuring knowledge management and the rate of their agreement with knowledge management, the results of which are presented in the form of tables and diagrams. In the present study, the analysis of the collected data was carried out through descriptive and inferential statistical methods, i.e. the scores obtained from the questionnaires were first summarized, then the mean score was calculated, and finally Pearson Correlation Coefficient test was used to analyze the hypotheses. Since the present study included 6 variables, MANOVA was employed using SPSS Software.

The study hypotheses

The present study was intended to examine the effect of knowledge management on the productivity of human resources of the Educational Department of Boukan. Therefore, following hypothesis was examined as the main hypotheses.

### Table 1. Allocation of numerical value to each item of the questionnaire

<table>
<thead>
<tr>
<th>Answer Option</th>
<th>Very Low</th>
<th>Lo</th>
<th>Average</th>
<th>High</th>
<th>Very High</th>
</tr>
</thead>
<tbody>
<tr>
<td>Numerical Value</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
</tbody>
</table>

Published by Basic Research Journal of Business Management and Accounts
Table 2. Kolmogorov-Smirnov test for the questionnaire

<table>
<thead>
<tr>
<th>Investigate Dimensions</th>
<th>Effective Components</th>
<th>Environmental Components</th>
<th>Educational Component</th>
<th>Knowledge Component</th>
<th>Sharing Component</th>
<th>Knowledge Component</th>
<th>Storage Component</th>
<th>Process Component</th>
<th>Knowledge Transfer Component</th>
<th>The Whole Questionnaire</th>
</tr>
</thead>
<tbody>
<tr>
<td>N.</td>
<td>400</td>
<td>400</td>
<td>400</td>
<td>400</td>
<td>400</td>
<td>400</td>
<td>400</td>
<td>400</td>
<td>400</td>
<td>400</td>
</tr>
<tr>
<td>Normal Mean</td>
<td>3.01</td>
<td>3.99</td>
<td>3.395</td>
<td>3.55</td>
<td>3.75</td>
<td>3.95</td>
<td>3.85</td>
<td>3.85</td>
<td>3.78</td>
<td></td>
</tr>
<tr>
<td>Parameters SD</td>
<td>0.983</td>
<td>0.963</td>
<td>0.244</td>
<td>0.941</td>
<td>0.891</td>
<td>0.870</td>
<td>0.856</td>
<td>0.704</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Maximum Absolute Estimate</td>
<td>0.098</td>
<td>0.101</td>
<td>0.373</td>
<td>0.108</td>
<td>0.085</td>
<td>0.061</td>
<td>0.084</td>
<td>0.069</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Differences Positive</td>
<td>0.057</td>
<td>0.082</td>
<td>0.373</td>
<td>0.108</td>
<td>0.074</td>
<td>0.046</td>
<td>0.065</td>
<td>0.041</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Differences Negative</td>
<td>-0.098</td>
<td>-0.101</td>
<td>-0.291</td>
<td>-0.102</td>
<td>-0.085</td>
<td>-0.061</td>
<td>-0.084</td>
<td>-0.069</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Kolmogorov-Smirnov</td>
<td>1.84</td>
<td>1.89</td>
<td>6.98</td>
<td>2.02</td>
<td>1.59</td>
<td>1.14</td>
<td>1.56</td>
<td>1.29</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Sig.</td>
<td>0.20</td>
<td>0.20</td>
<td>0.31</td>
<td>0.32</td>
<td>0.12</td>
<td>0.144</td>
<td>0.15</td>
<td>0.70</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Main hypothesis

There is a significant relationship between knowledge management and the productivity of human resources of the Educational Department.

Secondary hypotheses

1. There is a significant relationship between knowledge sharing and the productivity of human resources of the Educational Department.
2. There is a significant relationship between knowledge storage and the productivity of human resources of the Educational Department.
3. There is a significant relationship between knowledge process and the productivity of human resources of the Educational Department.
4. There is a significant relationship between knowledge transfer and the productivity of human resources of the Educational Department.

RESULTS

Sixty percent of the respondents were male and 40% were female, 17.66% had a diploma, 14.24% had an A.A., 25.35% had a bachelor’s, 17.37% had a master’s, and 2.27% had a doctorate, 14.2% had a work experience of between 1 to 5 years, 23.4% 6 to 10 years, 25.1% 11 to 15 years, 12.0% 16 to 20 years, 16.5% 21-25 years, and 8.8% 26 to 30 years, 80.6% needed knowledge management and 19.4% did not, 92.9% agreed with knowledge management and 7.1% did not.

Analysis of the study objectives and secondary hypotheses

Table 2. In this section, the results of data analysis of each of the four dimensions, i.e. the strategies of areas 1 to 4, are presented so that their significant effect on investment of the company during sanctions. In the first section, the results of the analyses are examined using univariate T-Student test and in accordance with the proposed hypothesis. Since the questionnaire is based on a 5-option continuum, 3 should be taken as the.

Before statistical analysis, it is necessary to ascertain that the data distribution is normal or not. In doing so, Kolmogorov-Smirnov test can be employed. According to the results presented in the following table, data distribution is normal; therefore parametric tests should be applied for data analysis. Data of this section (questionnaire section) are extracted, which are distributed among the same 400 participants that were described in previous sections.

Main hypothesis

There is a significant relationship between knowledge management and the productivity of Education Department of Boukan. Table 3 indicates the regression coefficients for knowledge management and the individuals' productivity. Pearson correlation coefficient between these two variables is 0.282 at a high level of significance (P=0.001), and since this figure is positive, it can be concluded that there is a direct relationship between the two variable, i.e., the more the level of knowledge management is, the higher the personnel's productivity.
Table 3. Regression coefficient of the subscales of knowledge storage and the personnel’s productivity

<table>
<thead>
<tr>
<th>V</th>
<th>Variable Coefficient</th>
<th>SD</th>
<th>Beta</th>
<th>T</th>
<th>Sig.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Constant Value</td>
<td>59.550</td>
<td>5.788</td>
<td>-</td>
<td>11.212</td>
<td>0.001</td>
</tr>
<tr>
<td>Storage</td>
<td>0.709</td>
<td>0.185</td>
<td>0.383</td>
<td>4.493</td>
<td>0.001</td>
</tr>
</tbody>
</table>

R^2 = 0.080, f = 11.25, sig = 0.001

Figure 1. Distribution of knowledge management and productivity

Table 4. The difference between male and female personnel in terms of knowledge management

<table>
<thead>
<tr>
<th></th>
<th>N.</th>
<th>Mean</th>
<th>SD</th>
<th>T</th>
<th>df</th>
<th>Sig.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Male</td>
<td>160</td>
<td>33.48</td>
<td>4.66</td>
<td>0.117</td>
<td>145</td>
<td>0.907</td>
</tr>
<tr>
<td>Female</td>
<td>240</td>
<td>33.38</td>
<td>3.62</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Is there a difference between male and female personnel in terms of knowledge management?

Data presented in Table 4 indicate that mean score of knowledge management among 29 women is 33.48 and that of 118 men is 33.38. This difference with the t value of 0.117 and degree of freedom of 145 is not significant at 0.05, i.e. the observed difference is arbitrary and there is no difference between men and women in regard with their knowledge management.

Is there any relationship between work experience, knowledge management, and productivity?

Table 5 above, the relationship between knowledge management and productivity is positive and significant. Therefore, the higher the level of knowledge management, the higher the productivity will be.

Secondary hypotheses

1. There is a significant relationship between knowledge sharing and the productivity of human resources of the Educational Department.
Table 5. Investigating the relationship between productivity, knowledge management, and work experience

<table>
<thead>
<tr>
<th></th>
<th>Knowledge Management</th>
<th>Productivity</th>
<th>Work Experience</th>
</tr>
</thead>
<tbody>
<tr>
<td>Knowledge Management</td>
<td>--</td>
<td>0.282**</td>
<td>--</td>
</tr>
<tr>
<td>Productivity</td>
<td>0.017</td>
<td>--</td>
<td>-0.064</td>
</tr>
<tr>
<td>Work Experience</td>
<td>--</td>
<td>--</td>
<td>--</td>
</tr>
</tbody>
</table>

Table 6. Correlation coefficient between entrepreneurship variables and problem solving capacity

<table>
<thead>
<tr>
<th>Variable</th>
<th>Entrepreneurship</th>
<th>Work Skill</th>
<th>Sig.</th>
<th>Relationship Type</th>
</tr>
</thead>
<tbody>
<tr>
<td>Knowledge Sharing</td>
<td>1</td>
<td>-</td>
<td>0.01</td>
<td>Positive, Poor</td>
</tr>
<tr>
<td>Productivity of Human Resources</td>
<td>0.146</td>
<td>1</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

As was seen in Table 6, there is a positive and poor relationship between knowledge sharing variables and productivity of human resources ($r=0.146$). Figure 2.

2. There is a significant relationship between knowledge storage and the productivity of human resources of the Educational Department.

As was indicated in Table 7, there is a positive and poor relationship between entrepreneurship variables and work skills ($r=0.125$). Figure 3.

3. There is a significant relationship between knowledge process and the productivity of human resources of the Educational Department.

As indicated in Table 8, there is a positive and significant relationship between entrepreneurship variables and planning capacity ($P<0.01$, $r=0.283$). Therefore, the hypothesis is accepted. Figure 4.

4. There is a significant relationship between knowledge transfer and the productivity of human resources of the Educational Department.

As observed in Table 9, there is a positive and
Figure 3. Distribution between knowledge storage variables and productivity of human resources.

Table 8. Correlation coefficient between entrepreneurship variables and planning capacity

<table>
<thead>
<tr>
<th>Variable</th>
<th>Entrepreneurship</th>
<th>Planning Capacity</th>
<th>Sig.</th>
<th>Relationship Type</th>
</tr>
</thead>
<tbody>
<tr>
<td>Entrepreneurship</td>
<td>1</td>
<td>-</td>
<td>0.01</td>
<td>Positive, Significant</td>
</tr>
<tr>
<td>Planning Capacity</td>
<td>0.283**</td>
<td>1</td>
<td></td>
<td></td>
</tr>
<tr>
<td>** 0.01</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Figure 4. Distribution of entrepreneurship variables and planning capacity.
Table 9. Correlation coefficient between knowledge transfer variables and productivity of human resources

<table>
<thead>
<tr>
<th>Variable</th>
<th>Entrepreneurship</th>
<th>Planning Capacity</th>
<th>Sig.</th>
<th>Relationship Type</th>
</tr>
</thead>
<tbody>
<tr>
<td>knowledge transfer productivity</td>
<td>1</td>
<td>-</td>
<td>0.01</td>
<td>Positive, Significant</td>
</tr>
<tr>
<td>of human resources</td>
<td>0.425**</td>
<td>1</td>
<td></td>
<td></td>
</tr>
<tr>
<td>** 0.01</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Figure 5. Distribution of knowledge transfer variables and productivity of human resources

significant relationship between knowledge transfer variables and productivity of human resources (P<0.01, r=0.425). Therefore, the hypothesis is accepted. Figure 5.

DISCUSSION AND CONCLUSION

Based on the main hypothesis of the study, i.e. "The relationship between knowledge management and the productivity of human resources of the Educational Department of Boukan", four secondary hypotheses were posed.

Secondary hypotheses

1. There is a significant relationship between knowledge sharing and the productivity of human resources of the Educational Department.
2. There is a significant relationship between knowledge storage and the productivity of human resources of the Educational Department.
3. There is a significant relationship between knowledge process and the productivity of human resources of the Educational Department.
4. There is a significant relationship between knowledge transfer and the productivity of human resources of the Educational Department.

The results of the study are separately analyzed.

1. For the first objective and hypothesis of the study, i.e. determining the relationship between knowledge sharing and productivity of human resources, collected data were analyzed, and it was concluded that the mean score extracted from the related questions was 3.35, and the P-value was below the predetermined value p<0.01. Therefore, the null hypothesis was rejected at a significant level of 0.05, and it was concluded that there is a negative and significant relationship between knowledge sharing and productivity of human resources, i.e. knowledge sharing does not affect productivity of human resources. And since the mean difference of this value is +3, it can be claimed that knowledge management
Table 10. The results of examination the hypothesis

<table>
<thead>
<tr>
<th>Hypothesis</th>
<th>Result</th>
</tr>
</thead>
<tbody>
<tr>
<td>There is a significant relationship between knowledge sharing and the productivity of human resources of the Educational Department.</td>
<td>Rejected</td>
</tr>
<tr>
<td>There is a significant relationship between knowledge storage and the productivity of human resources of the Educational Department.</td>
<td>Rejected</td>
</tr>
<tr>
<td>There is a significant relationship between knowledge process and the productivity of human resources of the Educational Department.</td>
<td>Accepted</td>
</tr>
<tr>
<td>There is a significant relationship between knowledge transfer and the productivity of human resources of the Educational Department.</td>
<td>Accepted</td>
</tr>
</tbody>
</table>

is not effective in increasing productivity of human resources.

2. Analyses were carried out for the second objective and hypothesis of the study, i.e. significant relationship between knowledge storage and productivity of human resources. The mean score of this variable was 3.55, with a p value of lower than the significant level (P<0.01); therefore, the null hypothesis was rejected. It can be concluded that knowledge storage has no effect on productivity of human resources. And since the mean difference of this value is +3, it can be claimed that knowledge management is not effective in increasing productivity of human resources. Since one of the responsibilities of management is to influence others to conduct duties according to the objective of the organization, motivation is an important aspect of this responsibility. Stewart states, “The actual goal of management is to motivate the group in order to use their potential to reach the goals.” Moreover, according to Steers and Porter, managers are responsible for providing an appropriate environment in which the personnel can develop their talents, and failure to do so causes desperation among the personnel and poorer performance, lower job satisfaction, and the employees’ resigning form the organization.

3. Data analysis for the third objective and hypothesis indicated a mean score of 3.75 for knowledge process, and the p-value was more than the assigned level (P<0.01); therefore, the null hypothesis was accepted at a significant level of 0.05. Therefore, it can be concluded that knowledge process is effective in productivity of human resources. And since the mean difference of this value is +3, it can be concluded that knowledge management available in Education Department of West Azerbaijan Province plays an important role in better understanding the work procedure and the individual’s role in actualization of the organizational goals. table 10

Justification of the results

Since the most important managerial tool of human resources in any organization is its knowledge management and it can be the most important device to assess and measure the individuals’ skills and activities in any organization, this system plays an outstanding role in actualization of the objectives of human resources productivity. The knowledge management available in Education Department of West Azerbaijan Province was designed based on 360-degree feedback model and has been employed since 2013. Based on this model, the collection of perceptions related to an individual’s behavior is assessed. The 360-degree assessment of the input data generalizes the feedback from a one-dimensional top-down approach to a multidimensional one (subordinates, colleagues, and customers), it can also be a limitless assessment method. In this regard, the concept of 360-degree feedback is appropriate to the theoretical approach of the organization.

In the 360-degree feedback assessment, at least three groups are used to assess the individuals’ performance.

A) Colleagues

In this section, three methods of evaluating the colleagues based on Ken and Lawler’s view can be mentioned:

Introducing the colleague

The members of a group determine a series of individuals that are classified to have a specific quality of performance dimension or placed at a higher level.
Evaluating the colleagues

The members of a group assess other members through an assessment scale and based on a series of personnel qualities or specific performance.

Ranking the colleagues

The members of a group classify one another from the best to the worst (as a continuum) based on one or some factors. Ken and Lawler state that the results of evaluating the colleagues indicate that this method boosts the accessibility aspects and validity and removes impartiality and negative attitudes from assessment methods.

B) Self-assessment

It refers to a process whereby an individual assesses his performance. In this process, the individual himself is the resource of assessment and interested in doing so. There are fewer studies on self-assessment compared to assessment by colleagues and subordinates. However, when this resource of assessment is used within the 360-degree feedback process, a series of issues needs to be examined. (Cardy and Dobenz) (1994) argue that self-assessment causes development and improvement of the productivity of human resources, which is resulted from the growth of teams and a high level of cooperation. However, (Baruch) (1996) states that self-assessment among multi-resource assessments is neglected more. In addition, (Albright and Looy)(1995) point out that individuals, regardless of the fact whether they do self-assessment in the formal structure of the organization or not, assess their performance. Therefore, it is necessary to recognize self-assessment as an element in the process of performance assessment so that individuals take the responsibility of their performances.

C) Assessment by the customers

An important resource, and one of the most important objectives, is the knowledge about the customers’ views, which is related to the management of extensive quality. According to the discussion provided for the 360-degree feedback model, it is clear that the results of the present study are in agreement with the assessment system used in Education Department. It also indicates how much the assessment system of the Education Department or any other organization can be effective in enhancing the level of productivity of human resources.

Suggestions

Practical suggestions

One of the most important issues in any research study is to provide suggestions and solutions. In the present study, based on the topic, the main question, and the objectives, it was concluded that by utilizing the 360-degree feedback model the Education Department of Boukan has been able to enhance the productivity of its human resources at different levels. Therefore, no specific suggestions can be made about the organization except for recommending it to continue utilizing the 60-degree feedback model. However, other governmental and private organizations and entities can be suggested to utilize new methods in order to increase the productivity of their human resources. In the present study, utilizing the 60-degree feedback model by the Education Department of Boukan to some extent could help increase the productivity of human resources. Other organizations especially centers that are dealing with people, such as courts and police stations, are suggested to utilize this model. Using this model, on the one hand, enhances the motivation of the human resources toward occupational promotion, encouragement, and punishment, and on the other hand, it can help the organization reach a higher level of dynamism.

A) Following suggestion can also be made:

1. During the process evaluating the knowledge management, mere consideration of the individuals‘ performance based on their work experience, education, age, etc. and comparing individuals with different qualities should be avoided.
2. Reward and praise after the assessment process can greatly help with increase in productivity of human resources; therefore, adopting mechanisms like promotion system is a vital and motivating issue.
3. Before assessment, it is better to examine the individuals’ weaknesses and the causes in order to clarify the origin of the poor performance, whether it is personal or related to organizational issues.
4. It is important for the evaluating individual or group to have sufficient support from the management so that he can conduct the process effectively. There is no doubt that without enough support or lack of authority, the evaluator’s performance will decrease.

B) Suggestions for future researchers

1. Investigating the role of education in the productivity of human resources,
2. Identifying the environmental factors effective in assessment system and determining its importance in improvement of assessment procedure,
3. Investigating the managers’ role in improving the personnel’s productivity,
4. Proposing solutions in order to enhance the personnel’s productivity, and
5. Investigating the role of the personnel’s attitude in implementing the personnel’s productivity in the organization.

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