Investigating the Relationship between Components of Knowledge Management and Performance in Schools of Shahryar County by Using Path Analysis

Mohammadreza Karamipour
Assistance Professor
Educational Science Department Zanjan Branch
Islamic Azad University, Zanjan, Iran

Fatemeh Jafarpour
MA Of Educational Management,
Educational Science Department Zanjan Branch
Islamic Azad University, Zanjan, Iran

Abstract

In the present study, an attempt was made to investigate the relationship between processes of knowledge management and performance. In this study, components of creation, acquisition, organization, storage, dissemination and application have been used as the independent variables and it was assumed that it is related to the schools performance as the dependent variable. The main question is that how components of knowledge management affect the schools performance. This study deals with and answers this question by using the path analysis and closed questionnaire tools. The statistical population of this study is the teachers of schools in Shahryar County from among them, 350 persons were selected to answer the questions. Results show that all hypotheses were approved in significant level 5%. Suggestions were given at the end.

Keywords: knowledge management, schools performance, balance score card, Shahryar County

1. Introduction

Enhancing the quality of schools performance is one of the main objectives of education. Quantitative development without paying attention to the qualitative evolution can causes the education to face with crisis. In spite of all efforts and endeavors made by the education managers and planners in gaining the experiences and implementing the new global ideas and thoughts in society education, since effective qualitative factors and new needs are not identified and role of evolution process in management and planning is ignored, then they have not achieved the given objectives. Quality improvement in an organization increases its productivity and makes that organization to succeed in long-term. Nowadays, an increase in technology growth and industrial development in the world leads to huge changes and evolutions, especially in the recent times. This has caused the duty of educational system to become very important, complicated and widespread and therefore, more exact and deep attention towards to education quality in schools is one of the main subjects which have attracted the education Players (Sanjeri, 2005).

One of the important evolutions occurred during the recent decades is the appearance of concept of knowledge management and its application in today's organization. Nowadays, in postindustrial society, production is defined around the knowledge resources and physical assets have been replaced by the intangible and invisible resources, knowledge and information, as the resources and main factors of production. Currently, trends of knowledge management are widely recognized as a competitive advantage and most organizations have taken measures to design and implement the strategies of knowledge management. Knowledge management is defined as special and systematic organizational process for obtaining, organizing, maintaining, applying and sharing the knowledge. In the present study, the relationship between processes of knowledge management and schools performance is investigated.

2. Theoretical Fundamentals

2.1. Knowledge management

Knowledge management is a business paradigm and it is not surprising that it has attracted many researchers. Knowledge as the basis of knowledge management has been always an efficient source for social development. Entering the new century, society attention and people demand for information and knowledge is increased step to step. Therefore, society inevitably needs strengthening the information and knowledge management. Those countries which prepare themselves for the 21st century should pay serious attention to knowledge component and how it flows and operates and ensures its development through exact measures and increases its acceleration via continuous monitoring. Although needing effectively to knowledge management is generally accepted, but knowledge management is still an invisible and intangible concept and most writings are trying to discover this invisible issue (Darroch & McNaughton).

Different researchers have investigated various processes for knowledge management including creation, transfer and use (Spender, 1996), obtaining, transferring and using (Delong, 1997), identifying, obtaining, developing, sharing/disseminating, using and maintaining (Probest et al, 2000). Alavai & Lidner (2001) have investigated different properties of such models and introduced four processes of creation, storing/recovery, transfer and application. Shin, Holden & Schmidt (2001) also integrated different terms given by authors in describing the processes of knowledge management and then classified these processes into creation, storing, dissemination and application.

In recent years, some authors concluded that four dimensions of processes of knowledge management include knowledge acquisition, knowledge maintenance, knowledge conversion and knowledge application (Gold et al, 2001; Park, 2006). In regards to high number of researchers and different carried out researches, various models have been presented in the literature. Concerning this, there is no agreement on the processes of knowledge management. Knowledge management cycle has three to eight stages in different researchers' point of view.

These stages are in order and overlap each other. Framework forming this research includes two main dimensions of knowledge management and empowerments. In the present study, Lawson model was used for measuring the processes of knowledge management. Lawson presented a model by combining processes of three different processes in 2003 which is resulted from combining and refining the processes of knowledge management from three groups of researchers Vig (1997), Parikh (2001), Horovich & Armakast (2002) in accordance with table 7.2. On the basis of this model, knowledge management cycle is divided into six different processes: a) knowledge creation, b) knowledge acquisition, c) knowledge organization, d) knowledge storing, e) knowledge dissemination and f) knowledge application.

2.2. Performance

One of the most famous and known models of performance assessment system is the Balanced Score Card which was created by Kaplen & Norton in 1992 and then developed and enhanced. This model suggests that a series of balanced indices should be used in order to assess the performance of each organization so that senior managers can have a general look from four important organizational aspects. These different aspects make possible to answer four following basic questions.

1) How are the shareholders looked at? (financial aspect)
2) In which fields, should we act well? (internal aspect of business)
3) How do the customers' look at us? (customer aspect)
4) How can we continue the value creation and improvement? (learning and innovation aspect)

Balanced score card includes the financial indices which show the results of previous activities and additionally completes them by considering the non-financial indices as the prerequisites and driving force of future financial performance. Kaplen & Norton believes that through keeping informed of these four aspects, the problem with increase and accumulation of information is resolved by limiting the used indices. Managers are also obligated to focus only on a limited number of critical indices. In addition, using different performance aspects prevents the partial optimization.

The most important weakness in this approach is that it is designed for presenting a general view of performance to the senior managers of organizations. Therefore, it does not deal with the operating levels of organization, nor it has such capability. Framework of balanced score card has been created as a control and supervisory tool and it does not deal with improvement (Ghalayeni et al, 1997).

Therefore, the research conceptual model is given as below (figure 1):

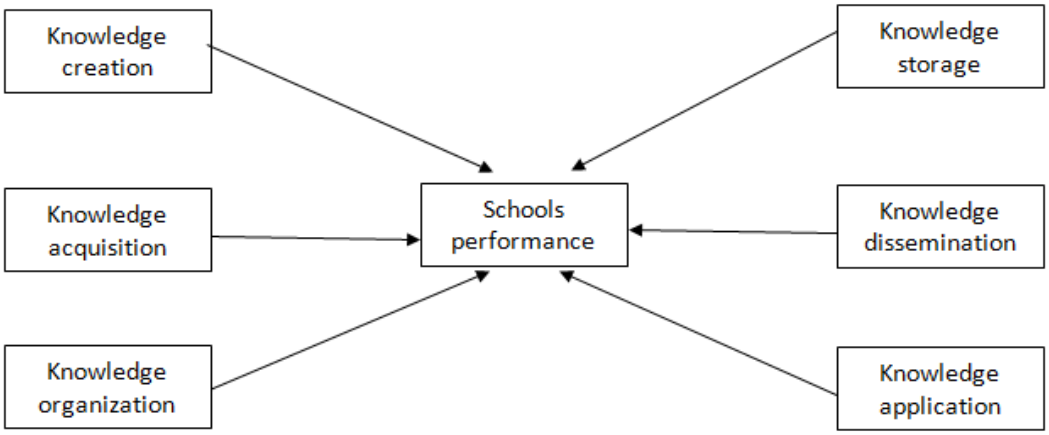

Figure 1; Research conceptual model

3. Research Method

Statistical population of this research includes all teachers of schools in Shahryar City. Since the population is limited, the limited population formula was used for calculating the sample volume. The statistical population consists of 1557 persons. 350 teachers were selected for sample society by using the limited population formula. Questionnaire with closed-ended questions is used for collecting data. Type of questionnaire is standard and it is distributed with presence of researcher. Research data are analyzed on the basis of concepts of descriptive and inferential (analytical) statistics. SPSS software is used for descriptive statistics and hypothesis tests and Amos is used for factor analysis within the framework of measurement models.

4. Analysis

After examining and approving the measurement patterns in the first step, structural equations suggested by Anderson & Jerbing (1988) have been used in the second stage for testing the hypotheses. In table No.1, general fitting indices of path analysis are given. Results of information given in table 1 are as follows:

Table 1: General fitting indices of path analysis

index	Value
Degree of freedom (DF)	26
Chi Square (CMIN)	63.403
P	0.067
Normalized Chi Square (CMIN/DF)	2.438
Goodness of Fit Index (GFI)	0.962
Mean Squares Root Residual (RMR)	0.028
Comparative Fit Index (CFI)	0.974
Root Mean Square Error of Approximation (RMSEA)	0.038

- Chi square index is one of the absolute indices. The less chi square (CMIN), the more satisfactory and better is pattern fitting developed by the researcher. If P value is more than 0.05, the chi square value is acceptable for pattern and it can be concluded that there is no significant difference between observed variance and covariance matrix and reproduced variance and covariance matrix. Since the P value for the aforementioned pattern is more than 0.05, it can be concluded that the chi square value for pattern is acceptable.

- One of the general indices is the normalized or relative chi square which is calculated through dividing simply the chi square value by the pattern degree of freedom and most often values 1-3 is known acceptable for this index. As seen in table, this value for research pattern is 2.438 which is appropriate and acceptable.
- GFI index is one of the comparative indices for which the value more than 0.95 shows a good fitting of pattern by the data. GFI for pattern is 0.962 indicating that there is no significant difference between observed variance and covariance matrix and reproduced variance and covariance matrix and this shows good fitting of pattern.
- Residual matrix is one of the important matrixes which can be used for both evaluating the general fitting (developed pattern) and partial fitting (parameter defined between two variables). Mean Squares Second Root Residual or RMR for the aforementioned pattern is 0.028 and it shows a low value indicating the low error of pattern and its acceptable fitting.
- Comparative Fit Index (CFI) is one of the comparative indices in which the values 0.9 – 0.95 shows the acceptability of pattern and values higher than 0.95 is interpreted as a good fitting of data towards the pattern. CFI value for the aforementioned pattern is 0.974 and it can be concluded that pattern is far away from one independence pattern and approaches a saturation pattern.
- Root Mean Square Error of Approximation (RMSEA) index like RMR index is based on the residual matrix analysis. Acceptable pattern with value 0.05 or less are for this index. Fitting of those patterns with values higher than 0.1, is estimated as weak. As seen in table 6.4, value of this index for pattern is 0.038 which also indicates the good fitting of pattern by data.

In regards to the above, it can be concluded that the general indices show good fitting of pattern by data or in other words, it can be said that the collected data support the pattern well. Pattern of structural equations together with the regression coefficients are given in figure2. In view of the above table, the research hypotheses were approved in the significance level of 5%. (Table 2)

5. Conclusion

Nowadays, knowledge is known as a key and valuable asset which is considered the basis of sustainable growth and secret of keeping the stable competitive advantage in an organization. Entering the new century, society attention and people demand for information and knowledge is increasing step to step. Therefore, society inevitably needs strengthening the information and knowledge management. Organizations have not been deprived of knowledge accumulation in such a way that in increase in information volume within organizations and necessity of using they have created a phenomenon named “knowledge management” in recent decades.

This issue shows the necessity of planning, organizing, leading and monitoring the organizational knowledge as well as managing the process of accessing the knowledge in a way that it would be efficient and effective. Concerning the different models presented in the field of knowledge management, this research has used a model consisting of six processes of knowledge creation, acquisition, organization, storage, dissemination and application. Organization should encourage and motivate the personnel for fostering the knowledge creation, gives them authority and independence, provides them with financial and human resources as well as the tools such as library and internet, increases the self-confidence and supports the informal communications. Converting the implicit and explicit knowledge to each other can create knowledge.

As a result, organization should provide an environment in which implicit knowledge of personnel should become explicit and transferred. Using four patterns of Nonaka and Takeuch can be helpful in creating the knowledge. Organization considers the ideas and viewpoints of personnel, takes rewards and incentives into account for them, and gives them feedback. Conducting the training workshop of innovation – creativity and right-brain thought and brainstorming can lead to creating new knowledge. Organization encourages everybody to collect the information. All personnel should be aware of any type of information which is possible to be helpful for organization so that they can acquire this knowledge while facing it.

On the other hand, organization should try to expand and promote the research activities among its personnel. Organization supports the collaboration between its personnel and outside people and encourages them to acquire the knowledge from the outside.

In order to acquire the knowledge, organization can use the outside experts, other companies, organization stakeholders, etc. attending the various conferences, newspapers; social gathering, recruiting the consultant, studying the magazines and related books, displaying the related films, recruiting the new people are all new ways to acquire the knowledge. A large number of these tools are required for acquiring the knowledge. Traditional tools include word processors, spreadsheets, email, and screening software.

New technologies such as sound recognition, joint working environment and video-conference are used for supporting the process of knowledge acquisition. For improving the process of knowledge organization, the organization should induce updating and applying the clear-cut policies for examining the existing knowledge. Organization should use the specific methods and mechanisms, especially information technologies, for filtering, summarizing, categorizing and listing different types of knowledge. It also should try to have three stages of knowledge organization including selecting and evaluating the knowledge, reorganizing and reselecting, specific programs and methods. Organization should identify the useful information through evaluating them and then encode the organizational operations based on the learning needs.

Schools through using the computer and information system support storing the knowledge and information. Also, using the magazines, publications, reports and brochures can be helpful in storing the knowledge. Creating the organizational memory is another way to store the knowledge. In the process of storing the knowledge, it is very important to pay attention to the experiences and document them for future usages. It is recommended to use the security and protection systems for keeping the organizational information and knowledge. Systems for storing the knowledge should have ability to present the required information exactly and clearly and allow accessing the information.

Knowledge should be stored not only based on the subject classification but also as per the leaning needs of personnel and organizational objectives for constant improvement and user expertise. By using systems such as internet, intranet, and automation and so on, organization facilitates the knowledge dissemination within the organization. Presenting reports from the organization to the personnel properly and correctly, establishing libraries, study hall, conducting conferences, regular meetings, training sessions and speeches, as well as job rotations and combining teams and forming group can all help to facilitate sharing knowledge in organization.
In the process of knowledge sharing, infrastructure role of culture cannot be concealed and knowledge sharing culture should dominate over organization. Implicit knowledge is transferred within the organization through people communication, especially informal communications.

As a result, organization should support the informal communications. Organization should induce the slogan "knowledge sharing is the power" instead of "knowledge is power". Organization creates a culture in which people have no fear of sharing the knowledge and in turn, they are rewarded. Trust and incentives are two main factors in sharing the knowledge. Knowledge application includes applying the knowledge for supporting the decision-making, action and problem-solving and finally it can lead to knowledge creation. By specific methods, organization develops the acquired knowledge and uses it for creating patterns and application in the future. Effective usage of knowledge includes using the knowledge of previous errors, using knowledge for solving the new problems, complying with the knowledge resource for problems, exploiting the stored knowledge for improving the effectiveness, using the knowledge for setting the strategic path and making knowledge sources accessible for solving the problem.

Managers should create conditions so that people use the existing knowledge. Working environment should advocate the application of new knowledge and it also should encourage the people as well as groups to access the intellectual properties of company. Organization should attempt to remove the obstacles of knowledge application resulting from organizational blindness, fearing of manifesting the weaknesses and public distrust towards the outside knowledge. Since most people in organization are not aware of knowledge and knowledge management, organization should try to make teachers aware of these concepts through conducting seminars, speeches and via newspaper, brochures and different catalogues in the field of knowledge management and related processes and provide an appropriate context for realizing the knowledge management.

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