The Relationship between Knowledge Management Conversion Process and the Performance of Academic Staff Members of Physical Education of Kerman Province

1Mahdi Sharifi Moghaddam, 2Khatereh Karami, 3Zahra Keivani, 4Azam Raeisi Nafchi, 5Azam Norallah, 6Forough Naghavi

1Department of Physical Education, Kerman Branch, Islamic Azad University, Kerman, Iran.  
2Mas Sport management, Payame noor university rey beranch  
3Islamic azad university, shahrekord branch, shahrekord. iran.  
4Ms Sport management, shahrekord university,  
5Department of Physical Education, Moharakeh Branch, Islamic Azad University, Moharakeh, Iran  
6Department of physical education, Najafabad branch, Islamic Azad university, Najafabad, Iran

ABSTRACT

The present research sought to evaluate the relationship between the degree of realization of dimensions of knowledge management conversion process and the performance of academic staff members of physical education of Kerman Province in academic year of 2011-2012. Research questions were reviewed with dimensions of knowledge management conversion process (socialization, externalization, combination, and internalization) into account. The research methodology was descriptive-correlational. The statistical population consisted of 256 members of academic staff of physical education of Kerman Province. Out of this, 59 constituted the sample through stratified random sampling proportional to size. Data collection instrument was a questionnaire of knowledge management conversion process with 26 items and a performance questionnaire with 28 ones, the reliability coefficients of which were derived through Cronbach α to be 0.87 and 0.89 respectively. The results showed that there is a positive and meaningful correlation between knowledge management conversion process and performance. There was not seen any meaningful differences between the means of realization of knowledge management components of academic staff members on the basis of age, gender, educational branch, and employment status.

INTRODUCTION

Organizations are constantly affected by their environments, which are usually not much under their control. If an organization can recognize and control these environmental factors, it can sustain better. Today, due to scientific and technological evolutions, the environment of organization gets increasingly unstable and complex. Environmental factors threaten the life of organization. In such conditions winning and successful organizations are those which, while acquiring heightened awareness and knowledge of environmental factors and sustaining themselves, improve their growth and dynamicity and promote the increase in their performances. One of ways organizations can realize this is through managing knowledge. The emergence of the concept of knowledge management is said to follow the emergence of the concept of learning organization [1]. The concept of learning organization was first introduced by Peter Senge in The Fifth Discipline, giving him not only enormous influence in the area of knowledge management, but also providing a new paradigm for the theory of organizational management [1]. The term knowledge management includes different themes in the world of management. The reason for this attitude is transmission and movement of economic and production systems to knowledge-based societies. In this attitude knowledge, along with other sources like land, work, and capital, is a property [16]. Knowledge management should be seen an integrated managerial scheme which is focused on strategic objectives, progresses on the basis of business processes, and gets help from information technology [3]. Knowledge management, discovering and promoting the knowledge property of an organization, is related to a view which takes organizational objectives further. Knowledge which is managed is of tacit and explicit types [4].

Corresponding Author: Mahdi Sharifi Moghaddam, Department of Physical Education, Kerman Branch, Islamic Azad University, Kerman, Iran.  
E-mail: Mahdi.sharifi.moghadam@gmail.com
The operational process of knowledge management, like that of any other system, includes an input-output cycle, which is shown in figure 1.

Fig. 1: Knowledge management process.

Knowledge management seeks to collect, form, keep, and disseminate knowledge.

**Knowledge conversion process includes four modes:**

a. Socialization (tacit to tacit): The first component of knowledge conversion is sharing ideas: the interaction of tacit knowledge with tacit knowledge which is what occurs during dynamics of efficient teams and among colleagues with shared ideas. In this mode people talk about what is important to them and use the ideas of others.

b. Externalization (tacit to explicit): Ideas change into practical reality. The use of metaphors, allegories, and proverbs is among outstanding examples of this explicit to tacit knowledge interaction. In a team atmosphere, metaphors and allegories help people externalize the tacit knowledge (e.g. experiences, ideas, and beliefs) and make it explicit, and imagine a clear picture of others’ ideas.

c. Combination: In this mode, explicit knowledge which is already exchanged, disseminated, and documented in different knowledge formats, or was discussed about in briefings and group meetings, gets processed and then is categorized for the creation of new knowledge. In this mode knowledge, which is objective and explicit, can easily be expressed, documented, or transmitted.

d. Internalization (tacit to explicit): This refers to the process of converting explicit knowledge to tacit. This method helps group members express their imaginations of issues which need to be solved. Based on this, members try to work on the basis of good ideas. Internalization of these ideas is effective in the creation of understanding and development of a learning culture (learning through action).

Performance is usually measured with two criteria of efficiency and effectiveness. The former means properly doing things through saving resources and facilities, and getting the most output from the least data. The latter means doing what is right and achieving objectives [5]. Performance is the way of doing assigned duties and obligations; in other words, it is the job-related behavior which people show [6]. Dessler 1988) considers individual’s behavior, motivation, positive reinforcement, job enrichment, morale, organizational structure, inter-group relations, leadership in organization, learning and education, and organizational improvement and change among the most important factors of an organization’s performance [7]. Another researcher sees job performance as the function of motivation multiplied by ability.

\[ P = f(\text{motivation} \times \text{ability}) \]

There are models of human resource performance. One of these is Hersey and Goldsmith’s, which is shortened in ACHIEVE:

- Ability: refers to the knowledge and skill of employees in doing jobs;
- Clarity: The person should know and accept what should be done, when, and how;
- Help: refers to the organization’s help and support;
- Incentive: willingness to do obligations successfully;
- Evaluation: the feedback of daily performance and formal periodical observations;
- Validation: refers to legality and validity of managers’ decisions in relation with human resources;
- Environment: factors like competition, change, rules, and regulations.

In other words: \( P = f(A, C, H, I, E, V, E) \)

The success of any institute, especially university, depends to a large extent on the efficiency and effectiveness of members. In educational sciences performance means the observable behavior of teacher,
student, or the educational institute [9]. All educational organizations include knowledge in themselves and in daily routine process information and change it into knowledge, and form the basis of future decision-making and measures of the organization through mixing this with values, strategies, and experiences. What is important in this process is conscious creation of awareness and knowledge. Higher education institutes, as knowledge-based organizations, focus their major activities mainly on learning, as well as creating and disseminating knowledge. As an educational organization, university does much of the activities related to knowledge. Therefore, the position of knowledge management in higher education system should be stipulated, then, with the theory of the main components of knowledge management, a trend should be worked out for coordination of activities related to the processes of knowledge production and conversion, and in this way depict the value of intellectual capital for active and constant presence in human society [10]. Taking into account that members of academic staff are among the most effective factors in implementation of educational programs, their cognition, knowledge, and awareness in educational and research dimensions should be among top priorities of officials and decision-makers. Hence in this research, on the basis of assumptions of Nonaka’s theory, the position of knowledge management in universities of Kerman Province and its relationship with educational and research performances of academic staff members of physical education was studied. 

Research background:

An investigation of researches done in Iran and abroad about the performance of academic staff and its relationship with knowledge management did not show any research subjects exactly the same as the topic of this research. But following is a summary of the most similar researches done in Iran and abroad which are congruent with the subject of this article.

Halawi [11] did his Ph.D. dissertation under the title of “The success of knowledge management systems in knowledge-based organizations.” This research sought to develop a model which can be used to measure the success of knowledge management systems in knowledge-based organizations. A successful knowledge management system had the variables of the quality of system, the quality of knowledge, the quality of services, the willingness to use, and user satisfaction, which measured the success of knowledge management systems. Findings showed that this model has the potential to be used in studies on future knowledge management systems [11].

“Knowledge management in times of change: Tacit and explicit knowledge transfers” is another Ph.D. dissertation written by Hall [11]. This research is about the importance and challenges of knowledge management in times of great changes. The goal was to assess knowledge management in times of great organizational change by analyzing the impact of consolidation on knowledge management in Texas’s Health and Human Services agencies. The findings had both theoretical and practical implications for information management, knowledge management, and project management [12].

“Implementing knowledge management to support executive decision-making in a joint military environment” is the title of Ward’s Ph.D. dissertation [13]. Results showed that knowledge management initiatives managed the organization’s internal and external environments to enable and encourage information sharing that result in new knowledge generation, with effective presentation of knowledge to decision-makers [13].

Hossein-Gholi-Zadeh did a research in University of Mashhad under the title of “The relationship between knowledge conversion process and organizational culture”. The position of knowledge management in University of Mashhad was studied in relation with organizational culture on the basis of the main components of Nonaka’s theory, i.e. socialization, externalization, combination, and internalization. Findings showed that internalization in the area of knowledge management in University of Mashhad ranked highest, followed by socialization, externalization, and combination, respectively. Also, on the basis of findings, there was a meaningful relationship between organizational culture and internalization, externalization, and combination. But this relationship with socialization was not meaningful [14].

A research entitled “The relationship between teamwork and performance” was done by Gram. This was presented in the form of a case study on a successful company in the use of teamwork for quality innovations. Findings showed that teamwork played an important role in management and improvement of performance. Also, this research said that both performance and teamwork should be measurable.

Noorbakhsh [16] did a research under the title of “Evaluation of performance of educational and research councils of Shahid Bahonar University of Kerman.” In this research some of variables were objectives, leadership, the way of putting decisions into practice, clarity of subjects, cooperation of members, creativity and innovation, and trust in each other.

The results showed that objectives of councils were clear, attractive, and in coordination with objectives of members. There was leadership distribution in councils, enabling each of the members to be a leader if it was necessary. Members were active in decision-making, trusted each other, were creative and flexible, and respected each other’s ideas. Based on this one can say that educational councils were in good conditions [16].
Research methodology:

The present research is descriptive-correlation. The statistical population consisted of 256 members of academic staff of physical education of Kerman Province universities. 59 of them were chosen as sample through stratified random sampling proportional to size.

Sample size:

Because in this research the statistical population variance was not clear, it was necessary to do a preliminary study on a group of the population to estimate the variance of the sample. Therefore, a group of 30 people were chosen randomly and were given the questionnaire. After data were extracted, the variance of the size of the statistical population was estimated through the following formula:

\[
n = \frac{N \cdot t^2 \cdot S^2}{N \cdot d + t^2 \cdot s^2}
\]

where:
- \(n\) = sample size
- \(N\) = population size
- \(t\) = confidence level of 95 percent
- \(S^2\) = variance estimation
- \(D^2\) = desirable likely accuracy

Data collection instrument was a researcher-constructed questionnaire of knowledge management conversion process in the framework of “socialization, externalization, combination, and internalization” with 26 five-point Likert scale items, and a performance questionnaire in the framework of educational performance (educational activities of academic staff members) and research performance (research activities of academic staff members) with 28 five-point Likert scale items. The reliabilities of questionnaires were derived through Cronbach \(\alpha\) coefficient to be 0.87 and 0.89 respectively. Also, both questionnaires were verified for face and content validity by professionals. Data were analyzed at both descriptive (frequency, percentage, mean, and standard deviation) and inferential (correlation coefficient, variance analysis, and independent t) levels with Spss18.

Research questions:

Major question: Is there a relationship between components of management conversion process and educational and research performances of academic staff members?

Minor questions:
1. Is there a relationship between knowledge socialization and educational and research performances of academic staff members?
2. Is there a relationship between knowledge externalization and educational and research performances of academic staff members?
3. Is there a relationship between knowledge combination and educational and research performances of academic staff members?
4. Is there a relationship between knowledge internalization and educational and research performances of academic staff members?
5. Is there a difference between the degree of components of knowledge management conversion process and educational and research performances of academic staff members on the basis of demographic features (age, gender, academic level, educational branch, and employment status)?

Research findings:

Findings on the basis of research questions are presented in Tables 1 through 5.

### Table 1: The results of correlation coefficient of knowledge management process and performance of academic staff members of physical education of universities of Kerman Province.

<table>
<thead>
<tr>
<th>Variable</th>
<th>Frequency</th>
<th>(r)</th>
<th>Level of meaningfulness</th>
</tr>
</thead>
<tbody>
<tr>
<td>Knowledge management process and educational performance</td>
<td>59</td>
<td>0.24</td>
<td>0.001</td>
</tr>
<tr>
<td>Research performance</td>
<td>59</td>
<td>0.30</td>
<td>0.001</td>
</tr>
</tbody>
</table>

Analyses of findings for the major research question showed that correlation coefficient between dimensions of knowledge management process and educational and research performances of academic staff members were meaningful at the level of \(p<0.05\). The degree of relationship between the two variables of knowledge management and educational performance was \(r=0.34\) and that between knowledge management and research performance was \(r=0.30\), which show an average and direct correlation between these two variables.
Analyses of findings for the first research question showed that correlation coefficient between the degree of knowledge socialization and educational and research performances is meaningful at the level of $p<0.05$. The degree of correlation between the two variables of knowledge socialization and educational performance was $r=0.40$ and that between socialization and research performance was $r=0.43$, which show a linear and direct correlation between these two variables.

**Table 2:** The results of correlation coefficient of knowledge socialization and performance of academic staff members of physical education of universities of Kerman Province.

<table>
<thead>
<tr>
<th>Variable</th>
<th>Frequency</th>
<th>$r$</th>
<th>Level of meaningfulness</th>
</tr>
</thead>
<tbody>
<tr>
<td>Knowledge socialization and educational performance</td>
<td>59</td>
<td>0.40</td>
<td>0.001</td>
</tr>
<tr>
<td>Research performance</td>
<td>59</td>
<td>0.43</td>
<td>0.001</td>
</tr>
</tbody>
</table>

Analyses of findings for the second research question showed that there is a meaningful relationship between knowledge externalization and the degree of performance at the level of $p≤0.05$.

On the basis of the output to the Pearson correlation coefficient test, which was $r=0.65$ for educational and $r=0.60$ for research performance, there is an average and direct correlation between the two variables.

**Table 3:** The results of correlation coefficient of knowledge externalization and performance of academic staff members of physical education of universities of Kerman Province.

<table>
<thead>
<tr>
<th>Variable</th>
<th>Frequency</th>
<th>$r$</th>
<th>Level of meaningfulness</th>
</tr>
</thead>
<tbody>
<tr>
<td>Knowledge externalization and educational performance</td>
<td>59</td>
<td>0.65</td>
<td>0.014</td>
</tr>
<tr>
<td>Research performance</td>
<td>59</td>
<td>0.60</td>
<td>0.014</td>
</tr>
</tbody>
</table>

Analyses of findings for the third research question showed that the relationship between knowledge combination and the degree of educational and research performances were $r=0.17$ and $r=0.25$, respectively, at the significance level of $p<0.05$.

**Table 4:** The results of correlation coefficient of knowledge combination and performance of academic staff members of physical education of universities of Kerman Province.

<table>
<thead>
<tr>
<th>Variable</th>
<th>Frequency</th>
<th>$r$</th>
<th>Level of meaningfulness</th>
</tr>
</thead>
<tbody>
<tr>
<td>Knowledge combination and educational performance</td>
<td>59</td>
<td>0.17</td>
<td>0.001</td>
</tr>
<tr>
<td>Research performance</td>
<td>59</td>
<td>0.25</td>
<td>0.001</td>
</tr>
</tbody>
</table>

Analyses of findings for the fourth research question showed that the correlation coefficient between the two variables of knowledge internalization and the degree of educational and research performances were $r=0.70$ and $r=0.66$, respectively, at the significance level of $p<0.05$. Therefore, there is a correlation between these two variables.

According to results, the observed $F$ at the level of $p<0.05$ did not show a positive and meaningful correlation between mean dimensions of organizational knowledge management conversion process on the basis of age, gender, and educational branch. In other words, organizational knowledge management of academic staff of physical education of Kerman Province universities was the same for members of different ages, genders, and educational branches. The observed $F$ at the level of $p<0.05$ showed a positive and meaningful correlation between organizational management of members of academic staff on the basis of academic level (lecturer, assistant professor, associate professor, professor) and employment status.

Also, the observed $F$ at the level of $p<0.05$ did not show a meaningful difference between the means of educational and research performances of members of academic staff of physical education of Kerman Province universities on the basis of age, educational branch, and employment status. In other words, the performances of academic staff were the same for members of different ages, educational branches, and employment statuses. According to results, the observed $F$ at the level of $p<0.05$ showed a meaningful difference between the mean performances of members of academic staff of Kerman Province universities on the basis of academic level and gender.

**Discussion and conclusion:**

The analysis of findings of the research question showed that correlation coefficient between knowledge management conversion process and the degree of educational and research performances of members of academic staff has been meaningful at the significance level of $p≤0.05$. The degree of relationship between the
two variables of knowledge management and the degree of educational performance and research performance was \( r = 0.34 \) and \( r = 0.30 \) respectively, which shows average and direct correlation between these variables.

The analysis of findings of the first research question showed that the correlation coefficient between the dimensions of knowledge socialization and educational performance is meaningful at the significance level of \( p < 0.05 \). The correlation between knowledge socialization and educational performance was \( r = 0.40 \) and that between knowledge socialization and research performance was \( r = 0.43 \), which show linear correlation between these variables.

Members of academic staff try to make themselves familiar with personal information, thoughts, and beliefs of others which are based on their experiences. Inter-organizational networks are used favorably for cooperation and exchange of ideas about the job. The summary of experiences and what is learned is constantly provided in a coherent and written form to managers. In group activities, members share their work and life experiences and, through independent research teams, they share knowledge and information. Sharing personal information about job is considered part of each person’s duties and responsibilities.

Analysis of findings of the second research question showed that there was a meaningful relationship between the two variables of knowledge externalization and educational and research performances at the level of \( p < 0.05 \). On the basis of the output of Pearson correlation coefficient test, \( r = 0.65 \) and \( r = 0.60 \), these variables can be said to be averagely and directly correlated. This shows that members were willing to communicate their objectives with concrete examples, often encouraged each other to exchange ideas and beliefs about their profession, and used similes when expressing and explaining abstract and ambiguous concepts. They were encouraged to use information networks and bases to do their lawful duties.

On the basis of the analysis of the results of the third question, the relationship between knowledge combination and educational and research performances was \( r = 0.17 \) and \( r = 0.25 \), respectively, at the level of \( p < 0.05 \). These results showed that in relationships with others, members did not have much time to think about what was discussed, during formal meetings they were not much willing to organize ideas and results of discussions to make discussions easier, and do not know who to ask for information when they need it.

The analysis of findings related to the fourth research question showed that the correlation coefficients between the variables of knowledge internalization and the degree of educational and research performances were \( r = 0.70 \) and \( r = 0.66 \), respectively, at the level of \( p < 0.05 \). Therefore these two variables were correlated. The conditions of uncertainty of these factors were unknown and immeasurable. In the social atmosphere of university creativity and new thoughts are very important. Important organizational regulations and standards are recognized and saved, and when a new issue arises, it is usually solved with the use of personal experiences. Experienced people are encouraged to transmit their professional knowledge to the less experienced ones and cooperate with professionals of other fields in research teams when it is necessary. Growth, success, and development of entrepreneurship culture are emphasized, information is organized clearly and in an orderly manner to support decision-making, and cooperation is emphasized.

The observed \( F \) at the level of \( p < 0.05 \) did not show a positive and meaningful correlation between the mean dimensions of organizational knowledge management on the basis of age, gender, and educational branch. In other words, organizational knowledge management of academic staff members of Kerman Province universities was the same for different ages, genders, and educational branches. The observed \( F \) at the level of \( p < 0.05 \) showed a positive and meaningful correlation between organizational knowledge management of academic staff members on the basis of academic levels (lecturer, assistant professor, associate professor, professor) and employment statuses. According to results, the observed \( F \) at the level of \( p < 0.05 \) did not show a meaningful difference between the performances of academic staff members of physical education of Kerman Province universities on the basis of age, educational branch, and employment status. In other words, the performances of academic staff members were the same for different ages, educational branches, and employment statuses. According to results, the observed \( F \) at the level of \( p < 0.05 \) showed a meaningful difference between the means of performances of academic staff members of physical education of Kerman Province universities on the basis of academic level and age. In other words, the performances of academic staff members were not the same for different academic levels. As the results showed, age, educational branch, and employment status are not considered important factors in the performances of members of academic staff.

Knowledge management conversion process is considered a conscious strategy that develops, retrieves, and cooperates with professionals of other fields in research teams when it is necessary. Growth, success, and development of entrepreneurship culture are emphasized, information is organized clearly and in an orderly manner to support decision-making, and cooperation is emphasized.

As Nonaka (1995) sees it, guiding personal knowledge toward organizational objectives requires the creation of an environment based on knowledge sharing, evolution, and interaction among members. As he sees it, the success of any organization requires the involvement of all employees in executing it. With a general view to the findings of this research about the position of knowledge management and its relationship with educational and research performances of academic staff members of physical education of Kerman Province we can conclude that knowledge combination ranked first in the area of knowledge management, followed by externalization, socialization, and internalization, respectively. The results of analysis of findings of this research, taking into account the significant proportion of combination compared with internalization, showed
increased willingness of academic staff members to convert explicit knowledge to explicit, more than they were willing to cooperate in explicit to tacit knowledge conversion processes. Also, the significant proportion of externalization, compared to internalization and socialization, showed that academic staff members were more willing to convert tacit knowledge to explicit knowledge, and to make their personal information, experiences, and ideas explicit.

REFERENCES