A Structural Equation Model for Performance based on Knowledge Management

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Abstract

Objective: The purpose of the present study was to provide a structural model for performance in universities based on knowledge management. Background: The population of the research included all employees of Islamic Azad University (IAU) in Iran. 1906 employees were selected using stratified and cluster random sampling method. The research instruments were two questionnaires which were administered in 89 IAU branches and education centers: A researcher-made questionnaire for performance which was constructed based on the Hersey and Goldsmith’s (1980) theory with 48 items (α = 0.87) and Sallis and Jones’s (2002) Knowledge Management Questionnaire which consisted of 42 items with Cronbach Alpha of 0.97. Results: The results of path analysis using LISREL software indicated that dimensions of knowledge management had a direct effect on performance with the indices of 0.72. The model also showed that the factor of learning organization in knowledge management had the highest direct effect on the factor of incentive in performance. Conclusion: It was also concluded that the proposed model showed full fit.

INTRODUCTION

Higher education system is one of the most important and complicated products of human achievements. In addition, universities are social systems which have been known as the center of knowledge and information as well as thinking bases for leading societies. In today’s complex, competitive world, managing performance is necessary to guarantee organizational survival and universities competitive advantage.

Whether a company has good or bad performance depends on how competitive it is in the market [2]. Kaufman [39] argued that any index of organizational performance must distinguish the extent to which organizations are reaching their planned goals. Fortuin [27] treated indices of performance as measures of overall efficiency in different parts of the organization, measures whose aim is to help us understand whether and why managerial processes are meeting their intended goals. Eccles and Pyburn [26] argued that in normal circumstances if someone wants to understand whether enterprise assets are being used to increase stockholder value, financial indices should be used. They are appropriate indices for assessing this aspect of an organization's performance. According to Haworth, organizational performance is the result of several business factors: work processes, team/group communication and interaction, corporate culture and image, policies, leadership, climate for innovation and creativity, loyalty, and the economic and business environment [16]. An organization must constantly strive to improve performance. Traditionally, organizational performance was measured using financial data; however, financial measurements define the results of actions already taken and are usually reported at the end of projects, so there is no instant feedback when a problem occurs. In this sense, a single financial performance measurement could not support the continuous improvement and innovation of the organization [38]. Much research has found that traditional financial accounting measures such as return on investment, earnings per share, or return on assets yield limited results regarding continuous improvement and innovation [33,41]. Hersey and Goldsmith isolated seven variables related to effective performance management:

1. Ability (knowledge and skills): Ability refers to the follower’s knowledge, experience, and skill;
2. Clarity (understanding or role perception): Clarity refers to an understanding and acceptance of what to do, when to do, and how to do it;
3. Help (organizational support): Help refers to the organizational help, or support, that the follower needs to effectively complete the task;

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4. Incentive (motivation or willingness): Incentive refers to the follower's task-relevant incentive;
5. Evaluation (coaching and performance feedback): Evaluation refers to informal day-to-day performance feedback as well as formal periodic reviews;
6. Validity (valid and legal personnel practices): Validity refers to appropriateness and legality of human resources decisions made by the manager;
7. Environment (environmental fit): Environment refers to the external factors that can influence performance even if the individual has all the ability, clarity, help, and incentive needed to do the job [32].

In another study, Schulz and Jobe [56] mentioned that achieving high results in organizational performance improvement depends on knowledge management strategies. Similarly, Bierly and Daly [8] emphasized that knowledge management strategies play an important role in improving organizational performance.

Knapp [41] defined knowledge management as "the art of transforming information and intellectual assets into enduring value for an organization's clients and its people" (p.3). Darroch [21] defined knowledge management as "the process that creates or locates knowledge and manages the sharing, dissemination, and use of knowledge within the organization" (p.41). In their book entitled "Knowledge Management in Education", Sallis and Jones [54] offered a useful knowledge management self-assessment checklist with scoring elements such as:

1. Vision and mission: It refers to having vision as a knowledge-based organization and sharing it with the stakeholders and the mission as the knowledge creator and translating it into practical strategies.
2. Strategy: It refers to developing modeled scenarios and applying them in the management.
3. Organizational culture: It refers to the different dimensions of culture including the creating, centralizing, sharing, and recognizing organizational culture as a key competence.
4. Intellectual capital: It includes recognizing the value of intellectual assets and codifying its tacit knowledge.
5. Learning organization: Under learning organization, organization should create continuous learning, define skills to create new knowledge, recognize EQ and its influences encourage creative thinking, and promote action learning both for individuals and teams.
6. Leadership and management: In leadership and management, organizations are required to have senior-management support, have knowledge leaders and managers with appropriate leadership styles, and develop strategies for promoting middle-managers.
7. Teamwork and learning communities: Under teamwork and learning communities, organization should encourage learning communities and knowledge teams, establish trust, and recognize the need for intellectual autonomy.
8. Sharing knowledge: It signifies that organizations ought to collect, record major organization events, and share new information, and understand competitors’ knowledge management system.
9. Knowledge creation: It requires the organizations to recognize new knowledge, those known as experts, and turn it into service.
10. Digital sophistication for the organization: In terms of digital sophistication, organizations are to develop technologies among its employees by clear technological architecture, enhancing its knowledge, and devising virtual collaborative systems and/or communities (pp.125-129).

The results of a few studies in knowledge management literature indicated that knowledge management practices are positively associated with organizational performance, both qualitatively [23,49,51] and quantitatively [13,21,43,56,59,61]. More specifically, it was found that knowledge management practices are directly related to various intermediate measures of strategic organizational performance, and that those intermediate measures are, in turn, associated with financial performance. Based on this evidence, it was concluded that as long as knowledge management practices enhance intermediate organizational performance, positive financial performance will be resulted [46]. Fugate et al. [29] found that there is a strong positive relationship between this knowledge management process and operational and organizational performance. Huang and Li [33] found that knowledge management is, in turn, positively related to administrative and technical innovation performance.

Various studies have reported the consequences of effective knowledge management. For example, several studies found that good knowledge management practices could enhance organizational performance [45,34,48,16,12,65,29,33,63,36,11,40,4,68,24,15,37,70,44,66,44,61,13,21,44,49,56,64,23,59,51] and that knowledge management could create competitive advantages [4,57,17,19,52,55,3,9,56,7,18,31]. Other studies also indicated that effective application of knowledge management strategies has a significant relationship with variables such as innovation [43,40,36,33,30,28,49,50,10], change process [6,62], and productivity and effectiveness [67,35].

Objectives:

The purpose of the present study was to provide a structural model for performance in universities based on knowledge management.
1. What is the structural model of the performance based on knowledge management in universities?
2. Which variables have the highest effectiveness on performance?
3. How predictive is knowledge management for promoting performance?
4. How much is the goodness of fit in this study?

**MATERIALS AND METHODS**

*Method of the study:*

The research methods which were used in this study are: library research to access the theoretical framework and the related literature; survey method to collect, classify, describe, and analyze the data. The population under investigation in this study consists of official staff working in 420 branches and educational centers in 14 zones of Islamic Azad University in Iran. In order to estimate the least volume of sample, the formula was used. Since the minimum sample required for the staff’s group was estimated as 1906 people, the same number of questionnaires of knowledge management and performance were administered to the staff in 89 branches and educational centers. In order to select the research sample, two methods of stratified and cluster random sampling were used.

The research instruments were as follows: A researcher-made questionnaire for performance which was constructed based on the Hersey and Goldsmiths’ [32] theory with 48 items and underlying factors of ability, clarity, help, incentive, evaluation, validity and environment (α = 0.87) and Sallis and Jones’s [54] knowledge management questionnaire which consisted of 42 items with ten underlying constructs of vision and mission, strategy, organizational culture, intellectual capital, learning organization, leadership and management, teamwork and learning communities, sharing knowledge, knowledge creation and digital sophistication with Cronbach Alpha of 0.97.

These two questionnaires have been used in a number of studies [1,53,20,58,60,69]. Nevertheless, their reliability and validity have been approved through expert opinion and factor analysis. The results of the study were calculated through path analysis using LISREL software.

*Results:*

The data collected from the administration of the instruments were analyzed. These data included the different indexes of central tendency, variability and the distribution of staff’s groups, the staffs’ scores obtained from knowledge management and performance questionnaires and their related components. The distribution of the staffs’ scores in the given variables had tendency toward normality.

![Path analysis model for components of knowledge management and performance](image)

*Fig. 1:* Path analysis model for components of knowledge management and performance

As shown in Figure 1, the Lambda rate of external latent variable of knowledge management components was 0.72 for leadership and management, 0.73 for teamwork and learning communities, 0.67 for sharing knowledge, 0.76 for knowledge creation, 0.68 for digital sophistication, 0.70 for vision and mission, 0.81 for strategy, 0.81 for organizational culture, 0.80 for intellectual capital, and 0.83 for learning organization whose accumulation form the knowledge management variable with the effectiveness rate of 0.72. It means that 72% of the variation in the dependent variable of performance is explained by a collection of these indices. The
variable of learning organization indicates the highest amount of internal consistency in the external latent variable.

The Lambda rate of internal latent variable of performance components was 0.56 for ability, 0.59 for clarity, 0.82 for help, 0.86 for incentive, 0.51 for evaluation, 0.55 for validity, and 0.65 for environment, whose accumulation form the performance variable. The variable of incentive indicates the highest amount of internal consistency in the internal latent variable.

Since the model’s goodness of fit index is 0.92, it can be stated that it has an acceptable fit. The calculated index indicates the direct effect of knowledge management components on performance. Moreover, the model shows that the highest direct effect is related to learning organization, the component of knowledge management, on performance in incentive component.

The following table presents the indices related to the model’s fit:

<table>
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<tr>
<th>Table 1: Model’s fit indices</th>
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<tr>
<td>Index</td>
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<tr>
<td>Lewis-Tucker (Non-normed fit index)</td>
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<td>Bentler-Bonett’s (Normed fit index)</td>
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<td>Hoelter</td>
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<td>Root Mean Square Error (RMSE)</td>
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<td>GIF</td>
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The five goodness of fit indices presented model’s fit and empirical data. Therefore, desirability adaptation is provided for the designed model and empirical data and can approve it as an appropriate model for the performance.

Discussion:

The results of path analysis indicated that since model’s goodness of fit index is 0.92, it can be stated that it has an acceptable fit. The calculated index shows the direct effect of knowledge management components (0.72) on performance. The results of this study is in line with the research by Lee et al. [45], Huang [33], López-Nicolás, and Meroño-Cerdán [48] Cho [16], Chi et al. [12], Yang, and Chiu [65], Fugate et al. [29], Huang, and Li [33], Wang et al. [63], Jiang, and Li [36], Chen, and Huang [11], Kiessling et al. [40], Andone [4], Zack et al. [67], Deng [24], Cholip [15], Jian [37], Zhong [70], Lee et al. [44], Yang [66], Lee [45], Tanriverdi [61], Choi and Lee [14], Darroch and McNaughton [21], Lee and Choi [43], Massey et al. [49], Schulz and Jobe [56], Xie [64], Davenport and Prusak [23], Simonin [59], and Nonaka [51]. They have also found the significant relationship between knowledge management and its strategies with the performance.

Conclusion:

Knowledge management is now widely recognized as a competitive advantage and an increasing number of organizations are incorporating the knowledge management strategy [4, 5, 7, 17, 19, 25, 52, 55, 3, 5, 25, 9, 56, 7, 18, 31]. Knowledge management has been a critical factor for organizations looking to increase their productivity and effectiveness [67, 35]. According to Koulopoulos and Frappaolo [42], knowledge management is a critical business strategy which enables an organization to leverage its most precious resources, collective knowledge, talent and experiences to accelerate the rate at which it handles new market challenges and opportunities. Inkpen [35] propounded that organizations’ failure to create and manage knowledge as a critical asset may account for their declining performance. According to Wiig (1993), knowledge management is fundamentally the management of corporate knowledge and intellectual assets that can improve a range of organizational performance characteristics and add value by enabling an enterprise to act intelligently. Knowledge management is now considered as one way to start the process of changes [6, 62].

Lee [45] underlined the significance of knowledge management in managing scientific bodies in higher education institutes. Considering the results of the present study, the author suggests that the knowledge management indices including vision and mission, strategy, organizational culture, intellectual capital, learning organization, leadership and management, teamwork and learning communities, sharing knowledge, knowledge creation and digital sophistication be improved in Islamic Azad University and consequently upgrade its performance. To this end, knowledge management is to be supported by the university chancellor who has to face great challenges on the way to act according to the principles of knowledge management. There should be persuasive policies to change the university to a learning organization where knowledge teams are formed with experts from all fields of study. Attempt should be exerted to establish a process to collect and distribute knowledge to compete with other universities, identify new sources of knowledge and specialists to generate modern methods, provide facilities for everybody to have access to computer and internet, create a strong idea to view university a knowledge-based organization and disseminate it among all, plan a scenario for the university to move forward and follow the strategy to make the principles of knowledge management operational, reinforce the culture to innovate, learn and distribute knowledge and put it at the top of university’s agenda, and
recognize and utilize the intellectual capital in the university. Regarding the factor of learning organization which showed the highest impact for predicting performance in universities, it is suggested that universities develop learning culture among their staff, promote appropriate qualifications to perform knowledge management, and encourage the staff to think creatively about their work affairs even outside the workplace. Underlining the effective role of higher education in the economic, social, political, and cultural development, this study can be carried out in other universities all around the world so as to practically take giant steps to increase the performance.

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REFERENCES


