Evaluating the Implementation of Knowledge Management in Offices of Youth and Sport in Iran: Fuzzy logic method

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Abstract

The "purpose" of the research is to evaluate the implementation of knowledge management from the perspective of employees in offices of youth and sport in Kerman (Iran) province using the theory of fuzzy logic. The "research Method" is descriptive and application in purpose which is studies in a statistical population of so people via census." Tool for measuring data" is standard questionnaire of Chung et al (2005) whose validity is confirmed by experts and its reliability is calculated by Cronbach's coefficient Alpha as 86%."Data analysis" is conducted using theory of fuzzy logic (fuzzy average (triangular) and defuzzification)."Research result" suggests that the implementation of knowledge management is weak in said offices and also there is a noticeable difference between current and desired state of factors affecting implementation of knowledge management.

Keywords: Implementation of knowledge management; fuzzy set; defuzzification

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Introduction

According to growth of changes and increased competition, effective knowledge management is of great importance in organization. Nowadays, knowledge is a basic stimulant force for achieving success in businesses. Organizations are knowledge-oriented and paying more attention to the minds instead of hand forces. Need to promoting knowledge is increasing and we behave it as the other intangible sources, systematically and the searching in the domain of knowledge management is being used in improving and reinforcing the competition *(Wong et al., 2005; Mehrara et al., 2012a; Razaghi et al., 2013b).* The metaphor of transferring knowledge from hands into brain and changing information into knowledge and finally, into works or a determined output with added value means that variety, creativity, technology and knowledge-oriented of organization is an inevitable choice for the organizations in 21st century *(Mitchell, 2007; Razaghi et al., 2013c).*Several organizations hope that they can manage their investments and increase their benefit by implementing knowledge management in their business. Nevertheless, making decisions for implementing knowledge management is often difficult for organizations. Maintenance or degradation of an organization, however, can depend on such decisions thus it is necessary to define inner and outer perspective of organization before reaching a general consensus on implementation of knowledge management*(Andrew,et al,2001).*The most important purpose in implementation of knowledge management are profit maximization, improvement of customer services, minimizing production cycle and achieving a competitive environment .Knowledge management also acts as stimulus which necessitates organization changing procedures and practices *(Mitra,et al.,2005; Razaghi, et al., 2013c).*In implementing the projects of knowledge managers, organizations usually follow one of these three purposes: 1)To reveal organization knowledge and represent it in organization 2)To develops knowledge culture by encouragement and integration of some behavior like knowledge sharing in organization and 3)to build knowledge infrastructure used an technical system and also as a means for people communications and encouragement for interaction and colleagues *(Mohammad,et al.2009; Mehrara,et al. 2012b).* However, knowledge can't be easily monitored and evaluated and an organization must effectively manage its knowledge so as to take full advantage of the invisible knowledge hidden in

systems structure and employee of organization. Therefore, one of the main concerns of knowledge management is how to implement if optimally.

Review of Literature

According to the growth of knowledge management in all conducted researches, now several factors and researches are determined about knowledge management. Some of these factors which take a role in implementing knowledge management are mentioned here: Davenport et al. (1998) have evaluated 31 projects in 23 companies amongst which 18 were successful, 5 failed and 8 projects were under implementation. These factors are: senior management support, transparent communication, connection to economic performance, different channels of knowledge transfer, motivation incentives for uses, knowledge friendly culture, and story organizational and technical infrastructure, flexible and standard technical knowledge structure. Pauleen and Mason (2002) consider cultural and management factor on the biggest barrier to knowledge management implementation. Naghib (2003) showed that the most important factor in knowledge management implementation is correct combination of human participation and technical tools and peoples attitude toward different aspects of knowledge management is an important prerequisite in knowledge management projects. Davel and Snyman (2007) in a research state that organizations interest or lack of interest in power culture can affect implementation of knowledge management. Sarrafizade (2007) believes that information technology and supporting it can be related to knowledge management implementation. Tools like internet, intranet, extranet, etc can strengthen knowledge management. Eva et al (2009) state in a research that formalization reduces uncertainties and improves assistance and cooperation among personnel as it can from interaction structure. Zheng et al (2010), in a research about "relationship of organizational culture, structure, organizational strategy and effectiveness: in the role of knowledge management", were done this study for determining a relationship between knowledge management and organizational culture, structure, organizational strategy and effectiveness and shown that the knowledge management has a relationship with organizational culture and effectiveness and also with strategy and organizational structure. Smith and Mike (2010) were done a research about the success of knowledge management by focusing on the efficiency of knowledge management and their results showed that individual sources such as organizational structure has a different relationship with organizational efficiency. Razaghi et al. (2013c) were done a research

about the presentation of a suitable model for knowledge management establishment in sport organizations and their results showed that for establish knowledge management in sport organization, we need 3 part : part one, we must evaluate position of management, environment and resourses as input. Part two, we using knowledge share culture, learning culture, and organizational affiliation culture in organizational culture; human resources understanding of knowledge, employee training, appropriate incentives and motivational factors, and using full capacity of human in human resources; communication channels, organizational open space, and organizational structure flexibility in organizational structure; providing knowledge perspective, supporting knowledge management projects, and targeting knowledge transfer in strategy; and leading and IT infrastructure, database, and e-commerce technology development are as a process, probably we can change tacit to explicit this part called output.

According to the feat that the main purpose of this research is to evaluate implementation of knowledge management, in order to acquire such objective the following question are stated:

1) To what extent are the (effect of cultural, employee involvement, benchmarking, management leadership and support knowledge structure, performance measurement, Information system infrastructure, employee empowerment, employee training and education and valuable teamwork) factors on implementing knowledge management in said organizations?

2) How is the difference between current state and desire state for the implementation of knowledge management in said organization?

Thereby a conceptual model is presented.
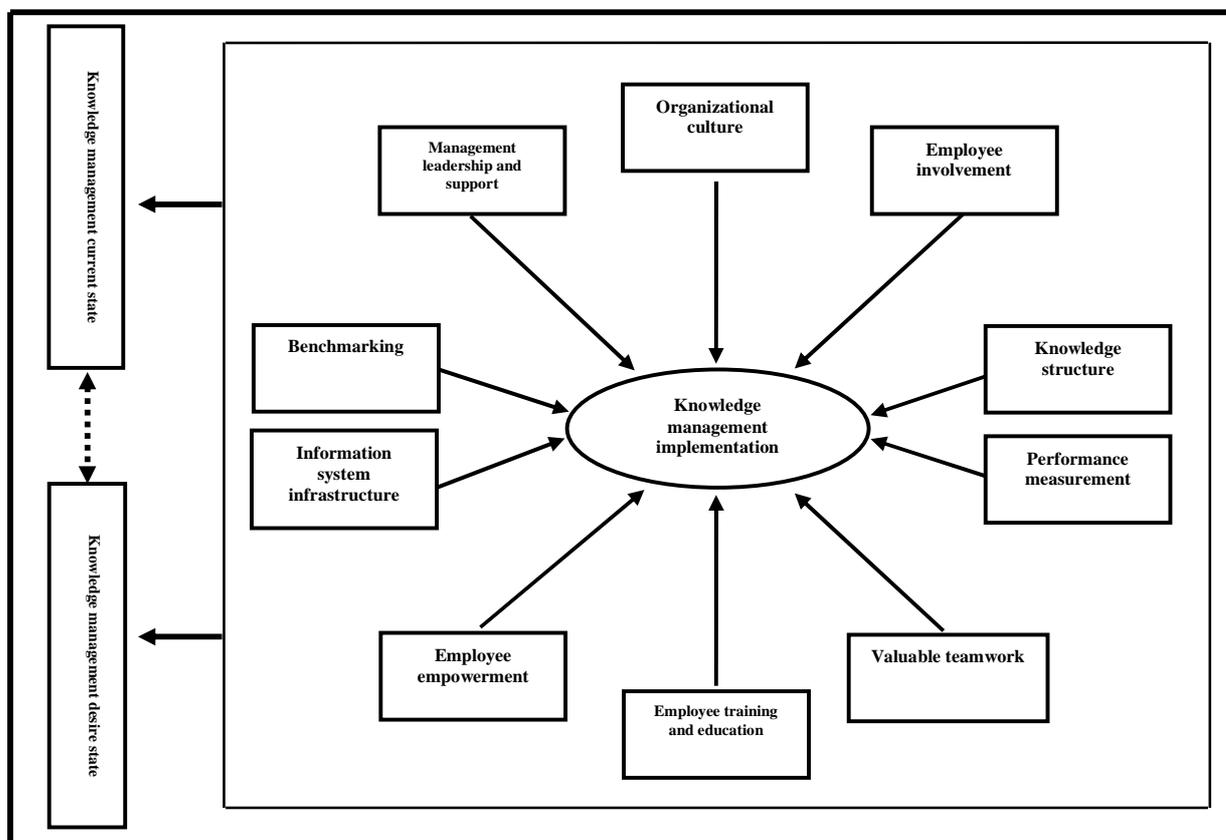
Figure1. Conceptual model for implementation of knowledge management.

Methodology

This research is descriptive and application in purpose. For data collection, standard questionnaire of Chung et al (2005) is used which involve 32 items and 10 index or scale (Employee training and education, Employee empowerment, Information system infrastructure, Benchmarking, Valuable teamwork, Performance measurement, Knowledge structure, Management leadership and support, Organizational culture and Employee involvement). Statistical population of all employees of office of sport and youth in Kerman (Iran) province including 80 persons and the sample is considered equal to statistical population. Questionnaires validity, content and face are confirmed by experts. After validity confirmation, the Questionnaire is implemented for reliability

calculation. Its reliability is calculated by Cronbach's coefficient Alpha as 87% which suggests used tools internal consistency.

For data analysis, the theory of fuzzy sets is used. For fuzzification of variables, relation (1) and figure (2) are used.
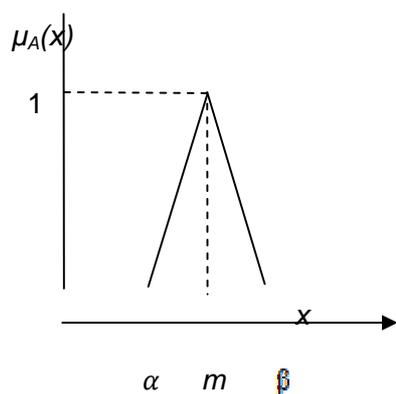
$$\mu_{A(x)} = \begin{cases} \dfrac{x-\alpha}{m-\alpha} & \alpha < x < m \\ 1 & x = m \\ \dfrac{\beta-x}{\beta-m} & m < x < \beta \\ 0 & Other \end{cases}$$

Figure 2. Triangular number representation function argument.   **Relation 1.** Triangular

For fuzzification, employee training and education, employee empowerment, information system infrastructure, benchmarking, valuable teamwork, performance measurement, knowledge structure, management leadership and support, organizational culture and employee involvement are used in an opinion spectrum with equal distances. Fuzzy numbers are represented on linguistic and fuzzy number in table and figure (3)

Table 1. Lingnistic variable and equivalen Fuzzy number of each linguistic variable t.

Fuzzy number	Importance
(0,0,0.2)	Very low
(0.1,0.2,0.3)	Low
(0.1,0.35,0.5)	Mediate–Low
(0.4,0.5,0.6)	Mediate
(0.5,0.65,0.8)	Mediate-High
(0.7,0.8,0.9)	High
(0.8.1,1)	Very high
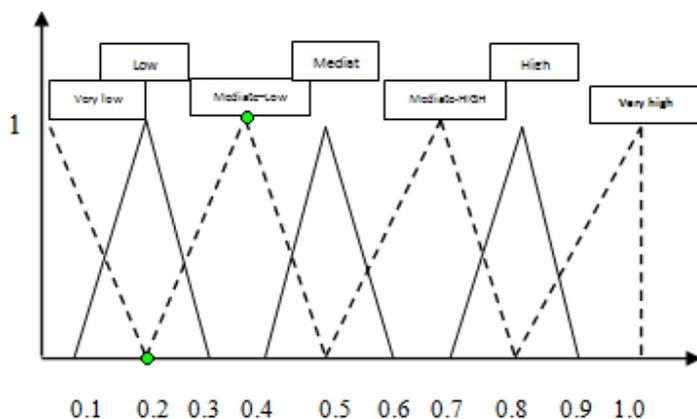
Figure 3. Converting linguistic variable to equivalent fuzzy numbers.

For data analysis fuzzy average (triangular) and defuzzification on shown in relation (2) & (3) are used.

Relation 2.

$(m_\alpha^1, m_m^1, m_\beta^1)$

$(m_\alpha^2, m_m^2, m_\beta^2)$

$\vdots$

$(m_\alpha^n, m_m^n, m_\beta^n)$

$$\textit{Fuzzy average} = \left\{ \frac{m_\alpha^1 + m_\alpha^2 + \cdots m_\alpha^n}{n}, \frac{m_m^1 + m_m^2 + \cdots + m_m^n}{n}, \frac{m_\beta^1 + m_\beta^2 + \cdots m_\beta^n}{n} \right\}$$

Relation 3.

$$COA = \frac{(\beta - \alpha) + (m - \alpha)}{3} + \alpha$$

Results

Table 2. Fussy average and average after defuzzification for factors on implementing knowledge management.

variable	fuzzy average	Average after defuzzification
Organizational culture	(0.247,0.35,0.482)	0.446
Management leadership and support	(0.213,0.293,0.44)	0.315
Employee involvement	(0.326,0.421,0.55)	0.432
Employee training and education	(0.17,0.245,0.395)	0.271
Valuable teamwork	(0.216,0.303,0.436)	0.318
Employee empowerment	(0.235,0.327,0.45)	0.337
Information system infrastructure	(0.196,0.29,0.42)	0.302
Performance measurement	(0.26,0.343,0.475)	0.359
Benchmarking	(0.278,0.373,0.503)	0.384
Knowledge structure	(0.34,0.44,0.56)	0.446

Table (3) states fuzzy average and the average after defuzzification. In order to evaluate implementation of knowledge management in said organization, fuzzy average is used and then fuzzy numbers are converted into absolute numbers using defuzzification and the state of said organization in implementation of knowledge management is regarded as weak.

Table 3. The difference between current state and desire state for the implementation of knowledge management.

Variable	current state	desire state	difference between current state and desire state
Organizational	0.446	1	0.554

culture			
Management leadership and support	0.315	1	0.685
Employee involvement	0.432	1	0.568
Employee training and education	0.271	1	0.729
Valuable teamwork	0.318	1	0.682
Employee empowerment	0.337	1	0.663
Information system infrastructure	0.302	1	0.698
Performance measurement	0.359	1	0.641
Benchmarking	0.384	1	0.616
Knowledge structure	0.446	1	0.554

Discussion and Conclusion

Today competitive pressures in sport organization for athletes training and support with the purpose of developing political, economic etc infrastructures is so increasing that quality promotion, and fulfilling instant requirement of athletes' and citizens is not only an option but also a strategic necessity .The role that can be assigned to knowledge management implication is "change". Change within the organization is effective by absorbing new knowledge on hand and administration on the other hand. But modern organizations are mistaken in their knowledge management. Major part of their effect is devoted to visible knowledge management while main part of knowledge is invisible that can be very useful in productivity and excellence of organizations *(Halbwirth & Toohey, 2001; Reilly & Knight, 2007; Provvidenza & Johnston, 2009; Razaghi et al. 2013c; Berman, Down & Hill, 2002; Korstanje, 2012; Yfantidou etal. 2011).* Managers using different factors such as improving employee training and education, employee empowerment, information system infrastructure, benchmarking, valuable teamwork,

performance measurement, knowledge structure, management leadership and support, organizational culture and employee involvement can implement knowledge management more effectively in their organizations. This research calculates above said factors, using fuzzy numbers set and the result of evaluation states that above said factors are not in a good condition in said organization and the difference between current state and desire state in knowledge management implementation is very noticeable and it seems as if according to the importance of this matter, such organizations with low level of knowledge management implementation need planning and emphasizing on effective factors based on priority.

According to the result of this research it is suggested that:

1) Training and development of effective infrastructure in knowledge transfer.
2) Knowledgeable human resource development as the key element in knowledge management system.
3) Design and deployment of required information system as knowledge management system infrastructure
4) Promotion of participatory for knowledge sharing and quality development to be considered.

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