Knowledge Culture, Platform of Leveraging Idea Sharing, Building Innovativeness and Creativeness

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ABSTRACT

The goal of the this research is identifying practical substructures of knowledge culture that lead to opinion sharing leverage, developing innovation, and creation. Therefore, the measures of knowledge culture were modified through studying projects done and articles presented and finally through consultation with the field's experts. The research data were analyzed by SPSS through fuzzy approach. The research findings demonstrate that factors such as knowledge sharing and recording, plans for active cooperation in business related conferences and rooms for negotiation to exchange opinions and experiences, knowledge sharing as a power and knowledge speculation as a weakness, knowledge sharing benefits as the main priority for colleagues, encouraging co-workers' innovation and creation, showing collaboration and cooperation spirit while needing information and knowledge, etc. effect on building a knowledge culture.
KEYWORDS: knowledge culture, knowledge management, fuzzy approach.

1. INTRODUCTION

With the progress of modern sciences and more competitive becoming environment in the era of information achievements, knowledge management is being counted as one of the most important competitive advantages of technology oriented organizations. The importance of knowledge management is being regarded from the point of view of many management authors and researchers. Peter Drucker believes that knowledge is not only a source like labor force and capital, but also is the most vital source. Tofler also believes in what Drucker states, but expresses that knowledge is the most qualified source and a key to power change that is ahead us, therefore, it is essential that all organizations process the knowledge related to their environment and their internal situation [3]. According to Mezghani, et al (2015), scientific research team knowledge is embedded in unstructured documents including published articles, internal team reports, figures, tables and videos representing demonstrations. Thus, information is everywhere, heterogeneous and poorly organized which hamper knowledge exchange and sharing, and make information seeking is time-consuming [20].

In KM literature it is believed that knowledge culture is the base of effective knowledge management and organizational learning. Knowledge culture helps understanding why some drivers reach success and why some encounter failure, as it investigates organizational behavior patterns. Due to the subject "dynamic perspective" [15], KM is being counted as common basic beliefs in a group which leads perceptions, emotions and actions of the group members. Hogan and Coote quote from Homburg and Plflesser about knowledge culture that "organizational culture refers to the organizational values that are transferred through the observed behavioral norms and patterns" [6]. Organizational culture includes actions, symbols, values and hypothesis that members of the organization share together. Various studies show that cultural values effect on knowledge sharing. Culture establishes the organizational context for interaction and builds norms related to what is right and what is wrong. Therefore, it can affect the relationship between people and knowledge sharing among them [7]. Innovation strictly depends on the amount of knowledge available at the organization. Hence, to be assured of successful innovation, the resulted complexity has to be identified and managed through welfare explosion and access to knowledge [3].

According to these, the main research question is: "To which extent knowledge culture is effective in sharing ideas and making innovation and creation?"

1. RESEARCH LITERATURE

1.1. Knowledge management

Eisenhardt and Martin (2000) identify knowledge as the most important strategic resource for building sustainable competitive advantage [18]. Organizational KM is the key to prosper and progress in today's knowledge based world. KM is illustrated as official managing the knowledge to facilitate creation, access and reuse of knowledge via technology [16].In the present knowledge economy, knowledge is an essential strategic resource that enables firms to sustain competitive advantage in a dynamic market environment [17].

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According to Sami (2011), KM is a managerial philosophy which is observable in the behavior and actions of different organizations. Better performance is resulted by managing knowledge in interaction with people and groups. Also, to be efficient, KM requires information and knowledge to be stored, as this source is freely under authority of members of the organization for searching vital information, knowledge and best practices. Therefore, KM is a learned way for sharing knowledge and interaction. In addition, KM specifies the action path. Knowledge management must be known as an organizational process that is applied to reach best practices in relation to effective knowledge sharing and organizational learning, identifying and developing competencies and receiving skills and knowledge from people [7]. Castro (2015) states that Firms operating in high-tech and knowledge-based industrial markets should rely also on external relationships and networks in order to complement their knowledge domains and develop innovations in a better, faster and effective way [19].

There are a lot of obstacles to KM development such as educational systems, payment systems, human resources, organizational factors, structural factors, job factors, political factors, technical and technological factors and cultural factors. KM cannot successfully be applied without a proper cooperative culture based on trustworthiness. If culture do not fortify knowledge sharing and distribution, knowledge management will encounter challenges [1].

On the other hand, organizational culture is the source of values and beliefs that effect organizational behavior and includes basic hypothesis and shared values. Organizational culture helps apprehending patterns and disciplines in organizations. A common perspective in KM literature is that cultural qualifications impact upon knowledge sharing and the way of sharing it. Alavi, Kayworth & Leidner (2005) state that organizational values influence KM behavior and consequently on KM outcomes [9]. Organizational culture contains systematic series of common definitions among organization members that differentiates one organization from the other. As well, Robins states that organizational culture causes enhancement in degree of commitment and behavioral consistence of staff. As commitment and consistent relation of organization members are the factors of knowledge share and transfer, organizational culture plays an important role in knowledge management [2].

Schein (1992) regards organizational culture as an invisible but very strong social force. Practical evidence demonstrate that organizational culture distinctly influences market based behaviors, market and financial performance, staff perspective and organizational effectiveness. Furthermore, it has much profound effect on KM and organizational effectiveness than strategy and organizational structure [6].

Grundstein (2008) [14] declares that the general model of KM consists two main parts:

1) Elements containing socio-technical environment and value adding processes 2) operational elements, which emphasize on infrastructural elements and consists of managerial guidelines, hoc infrastructures, general processes of knowledge management, organizational learning processes, methods and supportive measures. Thus, among organizational KM enablers, not only information technology, but also organizational culture has been emphasized [13].

Parent, et al concluded that knowledge sources, organizational culture and people are specifically important in implementing management processes / knowledge transfer [11]. Zhang, Ordonez de Pablo & Xu (2014) quote from Hofstede (2001) that "culture is a mental group programming that differentiates members of one group from the other" [12].

Mueller (2014) has identified the cultural prerequisites for knowledge sharing among project based teams and has recognized novel cultural elements which are essential at knowledge sharing among project teams. As commitment and consistence of the relation between organization members are factors of knowledge sharing and transfer, organizational culture has a significant role in knowledge management. Due to the fact that culture is mentioned as a system of common concepts, these common concepts help organization members to understand deepness of knowledge concepts to be shared [8].

1.2. Knowledge culture

Knowledge culture supports knowledge processes and the staff view knowledge sharing as a natural activity in their daily business [4]. This culture contains building trust, facilitating collaboration and sharing knowledge.KM activities must be counted as the vital way in every successful organization that suggests needing knowledge culture [10]. Innovation is a key to success in today's competitive world. Studies show that innovativeness is impressed by external and internal factors and is counted as a principle power of the organization to protect its long term competitive situation [2].

Shared cultural values are able to raise coordination, internal controls, focus on common goals, motivation and recognition that can positively effect on company's performance. KM drivers will be successful only when they are orchestrated with the organization's cultural perceptions. This issue caused invention of words such as "knowledge culture", "learning culture", and "knowledge friendly culture". All these demonstrate a common perspective in KM literature and it is that cultural features effect on knowledge sharing and how to share knowledge [9].

2. RESEARCH METHODOLOGY

To avoid much complexity, alternatives of each question in the questionnaire were modified by a 5 alternative Lickert scale as Table 1. In order to measure the reliability of this research, Cronbach alpha coefficient is used. The 0/73 α demonstrates the high correlation of the research's questions. In other words, the reliability of this test is high.

The research questionnaire is designed with the purpose of acquiring experts' ideas about the extent of their agreement to each level and the containing actions. Hence, the experts presented their agreement through verbal variables such as very

low, low, average, much and very much. With defining the qualitative variable domain, the experts have responded to the questions with the same point of view. These variables are defined in triangular fuzzy numbers as fig. 1 and table 2 [5].

Table 1. Applied Lickert scale in the questionnaire

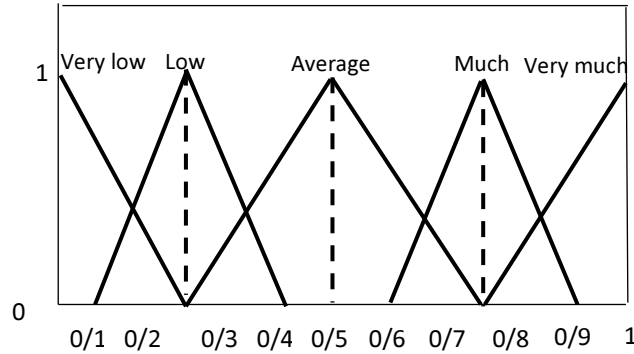| Completely disagree	disagree	Without opinion	Agree	Completely agree
1	2	3	4	5

Fig. 1. Defining linguistic variables

Table 2. Triangular fuzzy numbers

Qualitative number	Triangular fuzzy number (m, α, β)	Definite number (x)
Very much	(1,0/25,0)	0/9375
much	(0/75,0/15,0/15)	0/75
Average	(0/5,0/25,0/25)	0/5
Low	(0/25,0/15,0/15)	0/25
Very low	(0,0,0/25)	0/0625

The fuzzy alternatives were changed to deterministic numbers through fuzzy logic concepts and the formula of transferring fuzzy numbers to deterministic Minkowsky numbers (Table 2).

Formula (1): Minkowsky Formula $\quad x = \frac{\beta - \alpha}{4}$

Primarily, the research questionnaires containing 13 measures were sent to the identified expert group and the degree of their agreement with each was gathered.

Formula (2): $\quad A^{(i)} = \left(a_1^i, a_2^i, a_3^i, a_4^i \right), \quad i = 1, 2, 3, ..., n$

Formula (3): $\quad A_m = \left(a_{m1}^i, a_{m2}^i, a_{m3}^i, a_{m4}^i \right) = \left(\frac{1}{n} \sum a_1^{(i)}, \frac{1}{n} \sum a_2^{(i)}, \frac{1}{n} \sum a_3^{(i)}, \frac{1}{n} \sum a_4^{(i)} \right)$ erts' opinions.

3.1. Descriptive statistics

The descriptive statistics of the sample is as follows.

Table 3. Frequency distribution on basis of sex

	Frequency	Frequency percentage	Valid percent
Male	50	%81/96	%81/96
Female	11	%18/03	%18/03
Total	**35**	**%100**	**%100**

Table 4. Frequency distribution on basis of job position

	Frequency	Frequency percentage	Valid percent
Chief	3	%4/91	%4/9
Project manager	10	%16/39	%16/4
Bachelors	31	%50/8	%50/8
Masters	17	%27/9	%27/9
Total	**61**	**%100**	**%100**

Table 5. Frequency distribution on basis of educational level

	Frequency	Frequency percentage	Valid percent
B.S	7	%11/47	%11/47
M.S	34	%55/73	%55/73
PhD	20	%32/78	%32/78
Total	**61**	**%100**	**%100**

Table 6. Frequency distribution on basis of job background

(years)	Frequency	Frequency percentage	Valid percent
2	2	%3/3	%3/3
3	4	%6/6	%6/6
4	4	%6/6	%6/6
5	6	%9/8	%9/8
6	4	%6/6	%6/6
7	4	%6/6	%6/6
8	6	%9/8	%9/8
9	2	%3/3	%3/3
10	4	%6/6	%6/6
11	5	%8/2	%8/2
12	5	%8/2	%8/2
13	4	%6/6	%6/6
14	3	%4/9	%4/9
15	2	%3/3	%3/3
16	5	%8/2	%8/2
25	1	%1/6	%1/6
Total	**61**	**%100**	**%100**

Table 7. Results of counting responses

		Measures	Degree of agreement				
			Very low	Low	Average	much	Very much
Measures of Knowlede Culture	1	Knowledge record and share	4	24	14	17	2
	2	Existing programs for active coordination in conferences relative to business and other negotiation places for sharing ideas and experiences	14	13	24	8	2
	3	Showing cooperation and collaboration spirit when needing information and knowledge	1	14	16	27	3
	4	Sharing knowledge as strength and speculating it as a weakness.	0	19	10	20	12
	5	People's enthusiasm to participate in required seminars and didactic	9	11	19	14	8
	6	Knowledge sharing advantages as the main priority for the workers	1	8	13	32	7
	7	Technology application to enhance storing and publishing pace	10	15	11	23	2
	8	Preparing a plan for knowledge acquisition and learning	3	4	7	34	13
	9	Encouraging innovation and creativity in staff	4	8	21	19	9
	10	Paying attention to staff knowledge sources in developing work activities when evaluating staff performance	10	7	11	25	8
	11	Past experience and knowledge helping further decision making	9	17	17	17	1
	12	Studying root causes of failure	7	14	24	15	1
	13	Existing programs for active coordination in conferences relative to business and other negotiation places for sharing ideas and experiences	1	11	5	33	11

Further to the results from table 7, all the actions are approved by the research sample.

Table 8. Average of experts' opinions

			Degree of agreement		
	Measures		**Triangular fuzzy number**		**Defused average**
			α	β	m	x
Measures of Knowledge leverage	1	Knowledge record and share	0/166	0/174	0/454	0/456
	2	Existing programs for active coordination in conferences relative to business and other negotiation places for sharing ideas and experiences	0/159	0/207	0/381	0/393
	3	Showing cooperation and collaboration spirit when needing information and knowledge	0/178	0/170	0/569	0/567
	4	Sharing knowledge as strength and speculating it as a weakness.	0/186	0/136	0/602	0/589
	5	People's enthusiasm to participate in required seminars and didactic	0/172	0/176	0/504	0/508
	6	Knowledge sharing advantages as the main priority for the workers	0/180	0/155	0/647	0/640
	7	Technology application to enhance storing and publishing pace	0/146	0/179	0/467	0/475
	8	Preparing a plan for knowledge acquisition and learning	0/175	0/134	0/704	0/693
	9	Encouraging innovation and creativity in staff	0/189	0/168	0/586	0/580
	10	Paying attention to staff knowledge sources in developing work activities when evaluating staff performance	0/156	0/164	0/557	0/559
	11	Past experience and knowledge helping further decision making	0/157	0/190	0/434	0/442
	12	Studying root causes of failure	0/173	0/198	0/454	0/460
	13	Existing programs for active coordination in conferences relative to business and other negotiation places for sharing ideas and experiences	0/173	0/132	0/672	0/661

In table 8, the triangular fuzzy averages are counted by formula (3) and then defuzzied through Minkowsky Formula (formula (1)). The resulted definite averages demonstrate the extent to which the sample experts agree with each measure.

Table 9. Estimating average, median and mode of knowledge culture

Variable	Average	Minimum	Maximum	median	mode
Knowledge culture	7/04	2/38	11/25	7/25	9/56

The average, minimum average, maximum average, median, and mode of knowledge culture are estimated in table 9. As it can be seen, the average is 7/04, the median is 7/25, and the mode is 9/56.
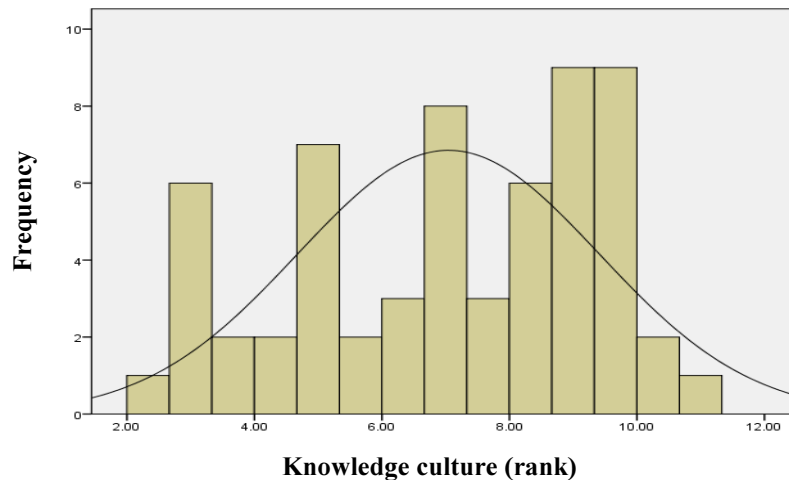

Fig. 2. Frequency distribution of knowledge culture in the sample

3.2. Inferential statistics
3.2.1. Normality test
Kolmogorov Smirnoff test is used to test the normality of the distribution of knowledge leverage.

Table 10. Kolmogorov Smirnoff test for the variable knowledge culture

variable	frequency	average	Std.devariation	Kolmogorov Smirnoff z	Significant level
Knowledge culture	61	7/04	2/36	1/08	0/18

The information in Table 10 shows the significance of 0/18 for the practical substructures of knowledge culture and because it is higher than 0/05, therefore the distribution is normal.

Table 11. One – Sample T Test to measure the average comparison of practical substructures of knowledge leverage

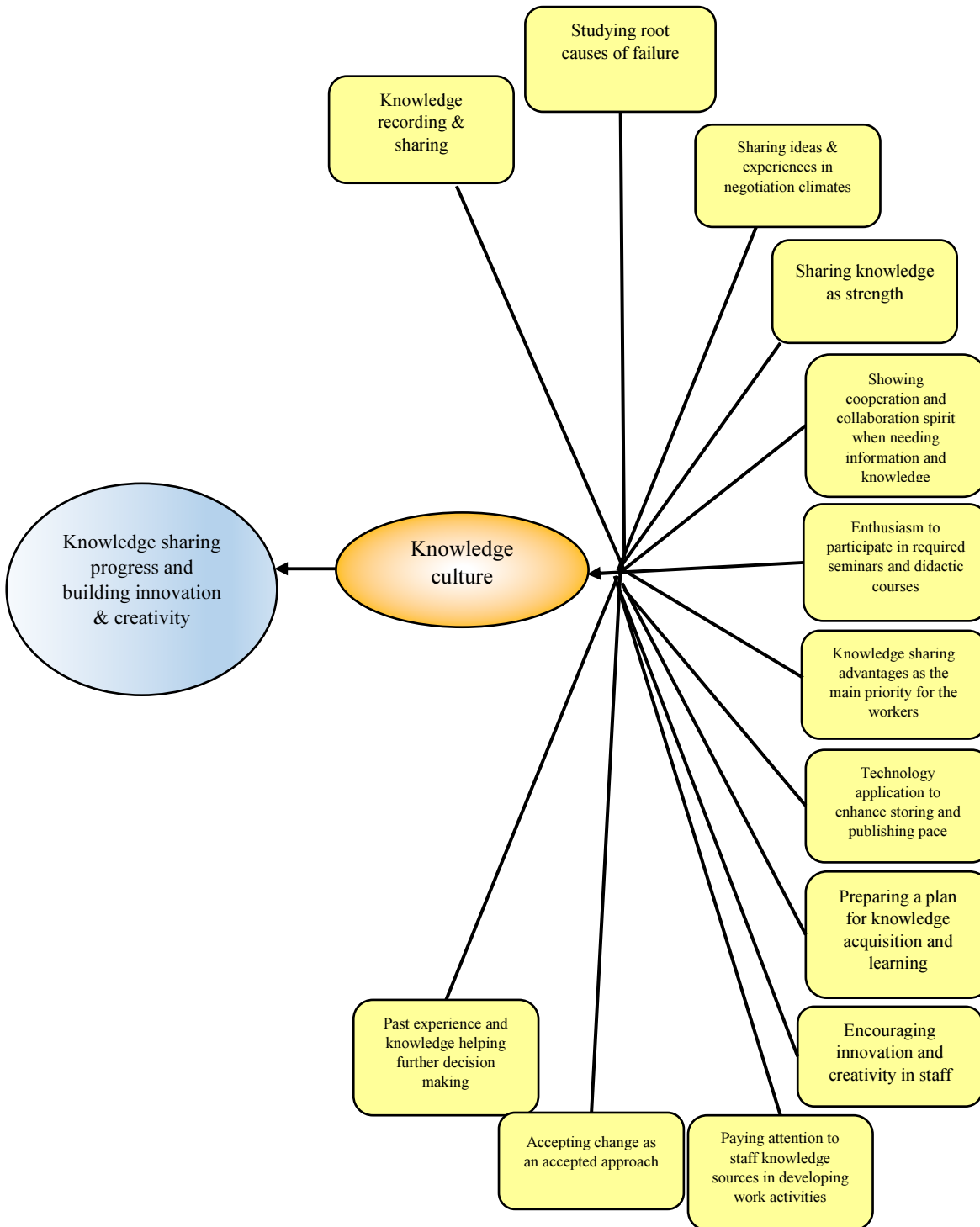| variable	frequency	Average	Std.deviation	Degree of freedom	t	Significance
Knowledge culture	61	7/04	2/36	60	23/23	0/000

Fig. 3. Research model

As it is presented in Table 11, the average is 7/04, the std.deviation is 2/36and the std.error mean is 0/30. Due to t =23/23, df = 60 and Sig= 0/000 that is less than 0/05, it can be resulted that the researcher's claim is acceptable in the error level of less than 0/05 and we can state that there is a significant difference. The research findings demonstrate that practical substructures of knowledge culture include Knowledge record and share, existing programs for active coordination in conferences relative to business and other negotiation climates for sharing ideas and experiences, showing cooperation and collaboration spirit when needing information and knowledge, sharing knowledge as strength and speculating it as a weakness., people's enthusiasm to participate in required seminars and didactic, knowledge sharing advantages as the main priority for the workers, technology application to enhance storing and publishing pace, preparing a plan for knowledge acquisition and learning, encouraging innovation and creativity in staff, paying attention to staff knowledge sources in developing work activities when evaluating staff performance, past experience and knowledge helping further decision making, Studying root causes of failure, existing programs for active coordination in conferences relative to business and other negotiation places for sharing ideas and experiences and each of these measurements can lead to knowledge culture. The research model is presented in figure 3.

4. DISCUSSION & CONCLUSIONS

As it was mentioned in the literature review, the practical substructures of knowledge culture have an important role in managing organizational knowledge. According to the statistical tables achieved from analyzing the research's data, the practical substructures of knowledge leverage in information technology industry include the items mentioned in the previous part.

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