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Validation scale for measuring organizational learning in higher educational institutes

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ABSTRACT

The purpose of the present study is to validate a scale for measuring the organizational learning of higher educational institutes. The population of the study included all the staffs who were employed in all branches of Islamic Azad University in Iran i.e., 420 branches and educational centers. The research sample consisted of 1662 staffs randomly selected from 96 branches and educational centers using stratified and cluster random sampling methods. The research instrument was the Watkins and Marsick's questionnaire of organizational learning which consisted of 3 scales. The obtained Cronbach's Alpha value was 0.90. The results of factor analysis and principal components analysis, using a varimax rotation, showed that building blocks of organizational learning includes individual level Items 1, 2, 3, 5, 6, 8, 9, 11, 12 and 13, group level Items 4, 7, 10, 14, 15, 18, 19, 23, 26, 27, 28, 29, 30, 33, 35 and 37, and organizational level Items 22, 24, 25, 31, 34, 36, 38, 39, 40, 41, 42, and 43.

Keywords: Organizational Learning, Universities, Varimax Rotation

INTRODUCTION

Today, universities can be considered as the heart of the dominating and successful civilizations. Because of profound changes which have affected our today's world, the universities, even more than ever, have been in the focus of prolonged international and social discussions which devote to the goals and ideals of universities as well as their roles in guidance and leadership [15].

The advent of information technology has imposed a new condition over the world of trade and business. Unlike industrial societies which are competing against more financial assets, post- industrial societies have based their main objective over accessing more updated knowledge, in a way that knowledge is, for them, the master key of world competition and organizational learning is regarded as the main competing benefit of the organizations. In a climate of accelerating change, organization scan not flourish without nurturing the seeds of learning. Established as a wellspring of value-producing knowledge, organizational learning is substrata to innovative, quality, and profitable products and services [3][21] [42].

In the face of increasing globalization and environmental complexity, the need to understand the ever-evolving puzzle of organizational learning and affiliated factors is critically conspicuous. 401 Organizational learning has

been propounded as a vital constituent of strategic management based on its influence on process improvement and innovation [16][48].

A number of definitions are presented by different scholars some of which are as follows: - Organizational learning is the development of new knowledge or insights that have the potential to influence behavior[46]. Organizational learning is defined as the capacity or processes within an organization to maintain or improve performance based on experience[10]. Organizational learning is the intentional use of learning processes at the individual, group and system levels to continuously transform the organization in a direction that is increasingly satisfying to its stakeholders[11]. Organizational learning is the creating, acquiring and transferring of distinctions and practices in the organization[14]. Organizational learning is the ability of an organization to gain insight and understanding from experience[33].

Organizational learning means the process of improving actions through better knowledge and understanding. [16]. Organizational learning is a process of detecting and correcting errors Argyris, [2]. In a study, Devereaux [9]. found out that promoting open communication, shared vision, inclusion, trust, collaboration, shared/distributed leadership, individualized support/encouragement, a learning focus, professional growth and development, talking about giving supports, maximizing student outcomes, maintaining visibility, modeling involvement, and modeling high performance expectations are leadership practices within role-negotiation that foster organizational learning. The results of Howard [23] also indicated a statistically significant relationship between the presence of an organizational learning culture, positive value expression, and organizational commitment. The theory of organizational learning and practices of a learning organization appears to be expressing values and promoting behaviors that create a positive working environment.

Studies show that organizational learning has meaningful relationship with the factors such as the job satisfaction and organizational commitment Hsu [24]. Krishna[29].; Wang[49] and Howard[23]. organizational change and innovation Wang [50]. Della Neve[8]. and Lin, [32]. organizational culture Garmon, 2004 ,organizational success Truran [47], and performance Photis [40]; Chen[6]; Forrest [17]; Xie [55]; Nordtvedt[37]; Hudspeth[25]; Moore[37]; and Galy [18]. One of the obstacles in institutionalizing organizational learning is believed to be the lack of effective leadership Joeong[27]; Beard[5]. Organizations ought to take into account the way leaders educate the staffs regarding the role of organizational learning. Leaders should create an atmosphere in which organizational learning finds its way in the organization. This can, finally, lead knowledge and information systems, which are of determining factors in any organization, into organizational learning under the leaders' support. The result of the study carried out by King [28] indicated that there was a relationship between leaders' behaviors and organizational learning. Devereaux [9]. also found out that the increase of open relationship, cooperation, individual support, focus on professional learning and growth and development are among the leaders' behaviors that can strengthen organizational learning through dialogue and negotiation. Leuci [30]. also underlined that organizational learning was a necessity for organizations' success. What it really is and how it can be used are among the major activities of managers in future. King [28] asserted that organizational learning is important to the success of quality-focused organizations since only through learning can organizations capture and retain the knowledge necessary to continually refine and improve business processes responsible for product and service quality. Consequently, organizational learning is an essential component of a comprehensive theory of quality management. Within this complicated world with such dramatic every day changes, organizations , especially higher education institutions, can merit comparison with others only if, with a unified and integrated identity, they are able to learn much quicker than their counterparts. Crossam et al. 1999 believe that organizational learning is multi-level consisting of individual, team/group, and organizational. Moilanen [36]. and Wang [49] also speculate that Watkins and Marsick's Dimensions of Learning Organization Questionnaire DLOQ is the most comprehensive one which covers the holistic whole/breadth. It includes 62 items with 7 dimensions. Marsick and Watkin's [51][52]. identify seven core practices at the individual, group, and organizational levels as follows:

1. Individual level

- Creating continuous learning opportunities
- Promoting inquiry and dialogue

2. Team/group level

- Encouraging collaboration and team learning

3. Organizational level

- Creating systems to capture and share learning

- Empowering people toward a collective vision
- Connecting the organization to its environment
- Providing strategic leadership for learning

Purpose of the Research

Regarding organizational learning variable as a guarantee to survive and a competitive advantage for universities, the present research is going to design a valid instrument which identifies the constructs which form the organizational learning, measure the variable of organizational learning in each of dimensions which form it, and find a way to strengthen the organizational learning in universities.

Research Questions

1. What are the indexes which construct the organizational learning in universities?
2. Which of these indexes has more contribution in forming organizational learning?

MATERIALS AND METHODS

The population of the study includes all the staffs who work in 420 branches and educational centers in 12 zones of Islamic Azad University.

Statistical Sample

In order to estimate the least volume of sample, $n = \frac{z^2\sigma^2}{d^2}$ formula was used. Regarding the minimum sample required for the staff's group which was estimated as 1662 people, the same number of questionnaires of organizational learning was administered to the staff in 96 branches and educational centers. In order to select the research sample, two methods of stratified and cluster random sampling were used.

Research Tools

To assess organizational learning, Watkins and Marsick's questionnaire was applied. This questionnaire consists of 43 items which are answered by choosing the alternatives of "strongly agree = 4", "agree = 3", "disagree = 2", and "strongly disagree = 1". The questionnaire includes 3 subscales of individual level Items 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, and 13, group level Items 14, 15, 16, 17, 18, and 19, and organizational level Items 20, 21, 22, 23, 24, 25, 26, 27, 28, 29, 30, 31, 32, 33, 34, 35, 36, 37, 38, 39, 40, 41, 42, and 43. In order to measure the validity of the questionnaire, 107 staffs were randomly selected from the Islamic Azad University, Roudehen Branch and the Cronbach's Alpha method was applied to the data obtained from the administration of the questionnaire to the sample. The obtained Cronbach's Alpha was 0.90. The researcher has used factor analysis and principal components analysis, using a varimax rotation in order to identify the underlying constructs of organizational learning.

RESULTS

In the present research, 850 subjects were male, and 599 subjects were female. Regarding the academic degree, 467 subjects had held Diploma or Associate Diploma, 832 subjects held Bachelor's degree, and 145 subjects held MA or Ph. D. degrees. Regarding the marital status, 346 out of them were single and 1058 were married.

Table 1: The summary of the statistical indexes related to the sample group in the organizational learning and its components n=1662

Variables	Indexes	Mean	Median	Standard Deviation	Skewness	Kurtosis
individual level		1.53	1.54	0.345	-0.250	-0.149
group level		1.43	1.42	0.451	-0.231	-0.164
organizational level		1.39	1.42	0.451	-0.243	-0.161
organizational learning total score		1.45	1.48	0.37	-0.287	-0.170

Based on the information given in Table 1, the different indexes of central tendency, variability and the distribution of the staff's scores obtained from the questionnaire of organizational learning and its 3 components show that the distribution of the staff's scores in the given variables have tendency toward normality. The first step in factor analysis process which is also its first assumption is Checking Missing Data. In this step, subjects number 34,129, and 247 including three persons altogether were eliminated from statistical analysis so that the factor analysis assumption under the heading of at least missing 0.02 could be observed in each subject. Hence, in this research no

item has been eliminated except three subjects. And the given situation shows that there is no need to omit some of the items and it is possible to follow the process of Factor Analysis while having all the items. The second factor analysis assumption denotes enough sample size. In this research, Kaiser- Meyer- Olkin KMO equals 0.97 consequently, the sample size is sufficient. The third factor analysis assumption is normality of multi-variation distribution known as sphericity. As the Approximate Chi Square equaled 100070.02 with the 903 degrees of freedom, it can be stated that the amount of the Approximate Chi Square is statistically significant and the given statistics is significant at least at the 0.999 level of confidence $\alpha = 0.001$. According to component matrix of items we can determine both the specific factor of each item and its position in the related factor based on loading factor. After studying table of component matrix precisely, the researcher used Rotation Method so that loading factor of each item can be determined stressing at recognition of each item in one of the 3 factors. Reiterating that in this research, the researcher has followed Exploratory Factor Analysis and has used Principal Component Methods from Extraction of Factors, varimax Method was applied table 2. According to varimax, the researcher was able to determine both the factor to which the item belongs after rotation and the position of each item in related factor with reference to loading factor. This table shows in which factor each item has been located after the rotation. For instance, Items 1, 2,3, 5,6,8,9,11,12 and 13 have been located in the first factor individual level .

Table 2: Rotated Component Matrix

	Component		
	1	2	3
var00001			.449
var00002			.527
var00003			.696
var00004			
var00005	.607		.477
var00006			.537
var00007			
var00008			
var00009	.614		
var00010			.498
var00011			.617
var00012			
var00013	.580		
var00014			
var00015			.567
var00018			.550
var00019			.515
var00022			
var00023	.413		
var00024	.438		
var00025	.679		
var00026	.484		
var00027			
var00028		.432	
var00029	.517		
var00030		.476	
var00031		.407	
var00033			
var00034			
var00035	.443		
var00036	.561		
var00037	.460		
var00038	.477		
var00039	.592		
var00040			
var00041		.428	
var00042	.553		
var00043		.464	
	.484	.589	
	.518	.599	
		.522	
		.519	.234
		.704	.179

Eventually, 3 factors have been extracted from rotation of factor analysis; in fact, organizational learning consists of 3 factors respectively as follows: individual level, group level, and organizational level.

Hence, emphasizing at the three-fold factors of organizational learning, items related to each factor have been summarized in table 3 respectively.

Table 3: Results of Factor Analysis of Organizational learning Construct

Factors	Index	Items
First Factor	individual level	1, 2,3, 5,6,8,9,11,12 , 13
Second Factor	group level	4,7,10, 14,15,18,19,23,26,27,28,29,30,33,35, 37
Third Factor	organizational level	22,24,25,31,34,36,38,39,40,41,42,43

DISCUSSION AND CONCLUSION

In this study, in order to assess the organizational learning, Watkins and Marsick's questionnaire was applied which contains 3 scales of individual level, group level, and organizational level. The 3 factors which were used to assess the organizational learning in this study agree with the theories and studies carried out in and out of Iran. Some of the similar studies done in the same field are as follows: Modaresizadeh[35]; Shahbazy [45]; Jalili [26]; tloshnodnia, 2006; Rashmeh[41]; Wang[49]; Amy[1]; Garmon, 2004; and Hudspeth[25]. Regarding the research background and the related theories, the three factors involved in organizational learning show that the organizational learning scale almost generally covers the underlying factors. Hence, it can be concluded that the results obtained from the administration of the tool and the level of organizational learning in universities determined by the application of the tool as well as its validity are generally acceptable. The increasing need of universities for determining the level of organizational learning from the one side and the lack of valid instrument of the organizational learning from the other side were the main causes of doing the present study. In addition, the research was done to identify the precise and complete dimensions, aspects and factors which make organizational learning through measuring the validity of a scale which was designed and administered to the staff of higher education institutions. In this way, it is possible to locate the theoretical position of organizational learning and identify the importance of the variables which have been introduced by different theories as the factors which form organizational learning. The ultimate purpose of the study, then, is to design and administer a valid tool which can determine the extent of organizational learning in higher education institutions. The function of higher education system in every society is to develop and present science to the society. It is considered a fundamental system which affects the other systems such as production, technical, economic, social and administrative systems. Therefore, it can be stated that the dynamism of the systems of every society, to a great extent, depends on the dynamism of the higher education system. At the present time, the degree of contribution of higher education in economic development has been widely identified both in the economies which rely on advanced technology and those of newly industrialized or developing countries. Higher education system, as the most important system in any society, is also comprised of organizations whose main foci are on "thoughts" and has a profound effect on cultural, political and religious affairs. Organizational learning is among the variables whose efficiency have been investigated and proved by various researchers Hedberg [16]. Senge[44]; Levinthal & March[31]; Nonak, 1994; Schwandt[42]; Crossan, Lane, &White[7]; Gephart et al [19]; Watkins & Marsick [53]; Schwandt & Marquardt [43]; and Driver, 2002 . Close attention to organizational learning is an absolute necessity within all organizations particularly higher education institutions. Many authors agreed that "... successful organizations that forge ahead in a rapidly changing business environment will do so through creating and sharing new knowledge" Argyris & Schon[4] ; Brown, 1999; Senge[44]; Petrides [38]. The result of the study conducted by Beard [5]. showed that the indices of organizational learning included identities, thoughts, common ideas, group working and group learning, sharing information and systematic thought, having leader, staff's skills, and competition. Miller 1996 also found out that the successful results of organizational learning are: successful financial and business performance, self-learning at individual and team/group levels, and group learning. Moreover, Duffy [13] indicated that the key to significance and high quality in fostering values, nurturing personal qualifications, and caring social values in strengthening team/group leadership lies in following organizational learning. The results of the studies conducted by Nordtvedt [37] and Lin [32] also clarified that using organizational learning and effective teaching in organizations would enhance the income, market share, profitability, and company's performance and played a leading role in the increase of innovation rate.

In the age of increasing changes and complexities, the concept of organization nowadays varies from the time when there were simpler relations among organizations. In our age, learning organizations are considered as the most successful ones since they are able to comply themselves with the characteristics of their age. Unlike the premature image, learning organization is not the one that holds instructional courses but it is a much deeper concept. Never-ending instruction is a need for all the staff through which they not only focus on learning, how to learn, and distributing knowledge, but also create new information and knowledge which should then emerge in their performance and behaviors. This would lead to institutionalizing teaching and organizational learning in all levels of the organization that can pave the way to have a continuous reform in the structures and processes which finally end up in efficiency and effectiveness of the organization.

CONCLUSION

Organizational Learning is one of the variables whose efficiency has been proved by various researchers. The results of this study are also in line with those of other research projects the breadth of which are mentioned in the previous sections. Furthermore, universities, as one of the social systems, have been recognized as the engine of inseminating knowledge and awareness as well as the center of directing the societies. They are the basic centers of thought and reflection. The questionnaire administered here also enjoys some psychoanalytic features, specifically construct validity. These are some of the reasons which lead the researcher to recommend that the same study be carried out not only in Islamic Azad University but in all other universities and its findings, in turn, be taken into consideration in those universities. Leaders are also urged to take practical steps towards materializing the principles of organizational learning since they guarantee the survival of the organization and are the only competitive benefits in the third millennium.

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