

Knowledge Management and Organizational Resilience Organizational Learning as a Mediator in Iranian Public Organizations

Ali Asghar. Fani¹ Hasan, Danaee Fard² Hossein.Yakhkeshi³

1.Associate Professor, Faculty of Management, Tarbiat Modares University, Tehran, Iran

2.Professor, Faculty of management, Tarbiat Modares University, Tehran, Iran

3.Msc, Faculty of management, Tarbiat Modares University, Tehran, Iran

Abstract

The purpose of this study is to report the findings of the mediating effect of organizational learning in the relationship between knowledge management and organizational resilience. The study adopts a cross-sectional design to collect data used to carry out mediation analysis. As samples of the study 28 Iranian public organizations were selected. The survey was conducted among middle and senior managers and respondents were asked to express their opinions concerning roll of organizational learning as mediator in relationship between management and organizational resilience. Knowledge management and organizational learning as well are effective on increasing organizational resilience. However, in terms of mediating role of organizational learning findings were not similar to the result of previous studies. Organizational learning as mediator cannot have effective roll in increasing organizational resilience. Utilizing a cross-sectional design along with questionnaire is one of the limitations of the study. The results may be different in the private sector. A future research strategy that may overcome this limitation is one that involves longitudinal studies in which flow of study variables can be viewed over time. In addition, applying objective data, measures, archival data for some variables, may lead in more objective results.

Keywords: Knowledge Management, Organizational Learning, Organizational Resilience, Public Section Organizations

1. Introduction

In the present era which turned to a global village, called “Information Age” by Shapiro and Varian (1999) and “Third Industrial Revolution” by Thurow (2003), most organizations are suffering from globalization of the forces, economic changes and any change in the work force. According to KPMG, 40 % of the companies that suffer from major businesses disorder, leave their business within 2 years since they were unable to recover from the long-term effects of a crisis. Data from the past decade note that 80 % of all businesses that have a major not could be recovered. Almost 40 % of the organizations without business recovery plan went out of business after a major disaster; and 93 % of companies experiencing significant loss of data failed within five years (Devargas, 1999; Cocchiara, 2005). Irving and Anderson (2004) in their study found that 50 % of the organizations without business continuity and recovery plans go out of business after a major disaster. Curtis (2008) cites that of all companies that experience disaster, 65% fail, 40% not re-opening, and 25% closing within 2 years (Schweber and Bouchard,2011). The public sector organizations of Iran are no exception. Evidence shows that labor productivity in Iran is low comparing other Asian countries, about 1.99 %. In countries like China the number is 14.4, Korea 6.1 %, Malaysia 6 %, Thailand 5.4 %, Taiwan 5.7 %, Japan 4.5 %, and Singapore 4.1 %. Failure of organization results in losing its market share and farewell and causes decreasing citizenship satisfaction and society will suffer as well. Therefore, organization in order to coup with threats and turning them into opportunity and guarantee its progress in the environment must be resilient. If we can understand how to respond to challenges with resilience, economic recession would not be unbearable or destructive. Even if most of life events such as natural disasters, crime, illness, economy, etc. we can control them by the way we are responding to them and can choose it with resilience. Resilient organizations are able to maintain positive adjustments under challenging conditions, because they are dealing with serious and severe challenges and overcome those (Sutcliffe & Vogus). Mafabi et al (2012) suggest that trying to deal with the problems makes organizations adaptable, competitive and valuable for society. But the key question is why some organizations remain in adverse conditions and even progress, while others destroyed.

In a world that the only stable factor in it is change itself, appropriate structural, technological and humanistic context is essential. Technology is a necessary condition but not sufficient, because would be the new technology, by other companies sooner or later, therefore, cannot create sustainable competitive advantage. However, knowledge and accurate knowledge management can meet needs of such companies. Because, can make knowledge an enormous power of low force. As Christensen and Raynor (2003) bluntly state “Resources are usually people or things – they can be hired and fired, bought and sold, depreciated and built” but the only irreplaceable capital an organization possesses is the knowledge and ability of its people. Liao (2002) states that

knowledge is fluid like water, once knowledge is no more shared and updated, then stagnation of water could cause the water death and the loss of its nourishment. It means that updating knowledge is the source of power and causes employee enrichment. Updating knowledge requires learning.

There are many definitions of resilience in a wide variety of academic fields including material science, ecosystem, psychology, organizational studies, social sciences, political sciences, healthcare and etc. These definitions pertain to different levels of analysis, ranging from the individual to the global level. Many studies have been conducted in various disciplines and fields, including psychology (Luthar et al., 1997; Werner and Smith, 2001), social sciences (Fraser et al, 1999; Saleebey, 2001) and education (Benard, 2004; Henderson and Milstein, 2003) healthcare (Meyer, 1982), the consequences of a nuclear incident (Perrow, 1984), ecosystem (Holling, 1973; Folk, 2006), hospitals (Mallak, 1998), firefighting teams (Weick, 1993).

Present paper focuses on understanding resilience at organizational level. Bell (2002) defines organizational resilience as “the capability to respond rapidly to unforeseen changes, even chaotic disruption. It is the ability to bounce back- and, in fact bounce forward- with speed, grace, determination and precision.” For an organization to be able to continue and even increase turnover in the midst of crises is resilience. Organizational resilience is an effective moving target which contributes to performance in normal and critical business situations (Mitroff, 2005).

Knowledge management is defined as the process of consciously creating new knowledge, disseminating it widely through the organization and embodying it quickly in new products/services, technology, and systems (Nonaka and Takeuchi, 1995) that can influence learning (King, 2009; Liao and Wu, 2009; Jamalzadeh, 2012) and ultimately, organizational resilience (Hamel and Valikangas, 2003; Mitroff, 2005; Parsons, 2007; Evely et al, 2012). Several experts and specialists were involved in the development of knowledge management concept that some of the most famous ones are Drucker, Strawsman and Senge. The broadest research concerning knowledge management namely “How Japanese companies create dynamics of innovation?” was conducted by Nonaka and Takeuchi (1995) in the knowledge creating company.

Garcia Morales et al (2007) define organizational learning as organization capability to maintain or improve performance based on past experiences and consider this capability ability to acquire from explicit and tacit knowledge, knowledge sharing and applying knowledge in organization. Studies like Carson et al. (2011), Umoh and Amah (2013), and Dieleman (2013), imply that learning can help to build resilience. Various researchers also analyzed it from different perspectives. Among these approaches, psychological approach (Cyert and March, 1963; Daft and Weick, 1984), social studies approach (Nelson and Winter, 1982; Lee White and March, 1988) and organizational theory approach (Nonaka, 1994; Huber, 1991; Gomez et al., 2005) can be named. A number of studies also contributed to spread organizational learning concept; dividing learning to single-loop and double-loop learning by Argyris and Schon (1978), *The Age of Unreason* by Charles Handy (1989), *The living company* by Arie De Geus (1997), *The Fifth Discipline* Senge (1990).

Although many studies emphasized on the role of knowledge management and organizational learning in enhancing organizational resilience however, little empirical researches exist in developing countries, particularly Iran, concerning the relationship between knowledge management and organizational resilience by considering organizational learning as mediator. Hence, this study examines the effect of knowledge management on organizational resilience with the mediation of organizational learning in selected public organizations in Iran.

2. Hypotheses development

2.1 Knowledge management and organizational resilience: organizational learning as a Mediator

In the current era that change is the only stable concept, the only constant source of strength and durability for the organizations is learning better and faster than competitors. Because people may come and go, but if an organization lose valuable knowledge it would be ready to die (Davenport and Prusak, 1998). Knowledge Development also, would not be possible without learning. Therefore, organizations must change if they want to stay. Otherwise, organizations will suffer the same fate as the dinosaurs that were doomed and lost because of inability to adapt to environmental conditions. According to the principle of inertia in physics objects continue in a state of rest or of uniform motion unless acted upon by forces. Unless interrupted, an object's motion is subject to physical constraints and objects will move in the predicted trajectory. Humans can track and reach moving objects by predicting where objects are going (Liao et al., 2008). Therefore, if in solving problems everything comes from past experience and knowledge without revision and update, the method or problem solving will be predictable and inertial. Once, in a highly competitive environment, competitor can predict the trajectory of what you are thinking or doing, tracking and reaching of predictive action from others could cause failures and loss (Liao, 2002).

Evidence suggests that awareness of knowledge management in the public sector is low. Lucier (2003) states that approximate 84 % of knowledge management programs face with failure. Storey and Barnett (2000) also reported failure rate of over 80 %. Several obstacles have occurred in the course of conducting knowledge

that even advanced industrial societies are not immune from their harm and great corporations also in this way have been victimized (King and Marks, 2008). However, Organization of Economic Cooperation and Development (OECD) in its 2003 report, examined the importance and necessity of knowledge management in public organizations. According to OECD, public organizations should move toward knowledge management for some reasons including turning knowledge into the most critical determinant of effectiveness of activities of the organization, empowering the private sector, globalization, and increased citizenship knowledge. Different researchers examined knowledge management as an applied system for enhancing resilience of the organization (Mafabi et al., 2012; Umoh and Amah, 2013). For example, Umoh and Amah (2013) in their study concluded that knowledge acquisition, knowledge storage, knowledge sharing and knowledge utilization can lead to increased resilience in organization. Researchers such as (Glasser, 1999; Cross and Baird, 2000; Bixler, 2002; Barna, 2003) found that organizational learning is a factor for success of knowledge management in organizations. The question here is that how much organizational learning effective on organizational resilience. This study sought to examine this question. For this study, two hypotheses are discussed.

H1: There is a significant positive relationship between knowledge management and organizational resilience in Iranian public organizational.

H2: There is a mediation effect of organizational learning in the relationship between knowledge management and organizational resilience in Iranian public organizational.

2.2 Knowledge management and organizational learning

Both organizational learning and knowledge management are approaches mediating increase of rational capitals and human capacity and capability for effective complementary measures. No wonder that both organizational learning and knowledge management provide the potential to achieve higher levels of effectiveness. Because, formed knowledge management concept from researches concerning organizational learning. In some of writings in terms of organizational learning literature, organizational learning process is considered as equivalent to knowledge management and process of mastery in knowledge (Nonaka and Takeuchi 1995). Indeed, organizational learning is implied in the concept of knowledge management and have effective roll in long term performance of the organization. Gomez et al (2005) also viewed organizational learning from the perspective of knowledge attainment process. They defined knowledge acquisition, knowledge transfer, and knowledge integration as three process of organizational learning. Based on this, considered 3 process as the ability of an organization for knowledge processing.

Brown and Woodland (1999) from organization learning school simply acclaimed that learning is the process of knowledge acquisition while Allee (1997) from knowledge management school believes that each dimension of knowledge has an learning activity related to itself which support it (Loermans, 2002). Having a broader perspective, the knowledge application is the final result of the learning process. Organizational learning paradigm needs to shift from single-loop or double-loop learning to triple loop learning, from knowledge creation through incremental changes to knowledge creation through radical changes, from system thinking to creative thinking, and from continuous improvement to creative and innovative improvement (Lee and Tsai, 2005). Liao and Wu study results (2009) also suggests that the organizational learning is a mechanism along with knowledge management. This means that organizational learning acts as an intermediary in positive relationship between knowledge management and organizational performance. Therefore, those who cannot learn, adapt and embrace change simply would be destroyed. Learning will save us and it will be done by managing organizational knowledge (Fernandez and Sabherwal, 2001). The question here is the extent to which knowledge management influences organizational learning. Based on our study, we propose the following hypothesis.

H3: There is a significant positive relationship between knowledge management and organizational learning in Iranian public organizational.

2.3 Organizational Learning and Organizational Resilience

Organizations normally build capacities and capabilities through organizational learning to create knowledge (Garcia-Morales et al., 2006). This is what makes the organization resilient (Mafabi et al., 2012). Woods (2003) and Akselson et al (2009) in their study founded factors such as management commitment, reporting culture, learning/training, awareness, and flexibility. Evidence also suggests that behavior, thoughts and actions underpinning resilience can be learnt and developed (e.g., McAllister and McKinnon, 2009; Jackson et al, 2007). Researches (Aguirre, 2007; American Psychological Association, 2006; Bonanno, 2004) have shown that resilience is ordinary, not extraordinary, and that people regularly demonstrate this ability. McAllister and McKinnon (2009); Jackson et al (2007), state that Resilience is not a static inherent in you nor is it a transient phenomenon. Rather, it is a dynamic process that can be cultivated in most individuals. De Geus (1997) identified four characteristics of companies that have persisted for over 100 years despite dramatic fluctuations in their business surroundings: they are conservative in their financing, sensitive to the world around them,

aware of their identity, and tolerant of new ideas.

California Independent System Operator (CAISO) is the focal organization for electricity transmission in California that in the summer of 2000 faced unanticipated volatility in the scheduling of electricity transmission that now known as the California electricity crisis of 2000 – 2001 (Roe and Schulman, 2008; Boinand Van Eeten, 2013). Most of the organizational designs broke down – including the means of ensuring the reliable provision of electricity. The markets that were designed to coordinate supply and demand stopped functioning, almost overnight. Strategic behavior on some parts of the generators caused them to withhold generation capacity in order to artificially raise prices. The most dramatic effect was that a large part of the load – approximately 10000 MW out of a peak load of 40000 MW – was not scheduled beforehand. Yet, The CAISO kept the lights on in California (Boin and Van Eeten, 2013). On 28th of January 1986, the space shuttle Challenger exploded 73 seconds after launch due to defects in the sealing gaskets solid fuel carrying rocket. All seven astronauts were killed but the flight was resumed on 29 September 1988. And space shuttle flew over 80 times more. 17 years later, on 1st February 2003, the Columbia space shuttle disintegrated and turned into ashes during the final stage of its return flight to earth, and all its seven astronauts died. Two years later, in June 2005, shuttle missions were resumed.

Strong organizational culture, high technical competence, vivid awareness of major events that must be precluded from happening, an exact description of procedures and practices directed towards avoiding these events, a formal structure that can be transformed under conditions of emergency into a decentralized, team – based approach to problem – solving, were some of the factors suggested by Boyen and Van Iten (2013) through which aforementioned organizations could be saved. These findings suggest that resilience is a ability and capability that can grow with reflection. But, the question is, to what extent organizational learning influence on organizational resilience in public organizations. Hence, following hypothesis was developed.

H4: There is a significant positive relationship between organizational learning and organizational resilience in Iranian public organizational.

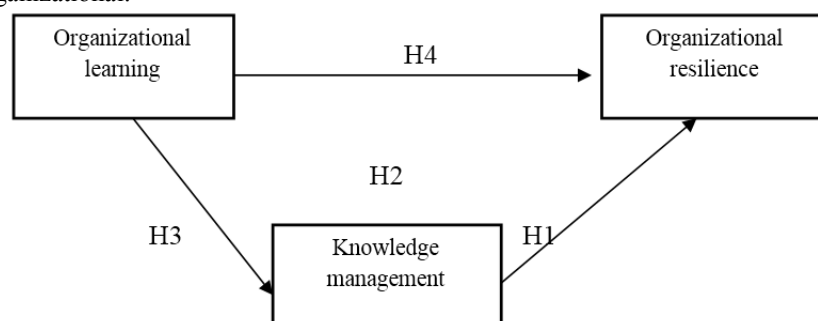


Figure 1. Research model

3. Research Method

In the past and current decade, researchers study effective factors on organizational resilience, but cannot be said that their study is compatible in different cultures. The variable resilience was tested for the first time in Iranian public organizations. The researcher after library studies, conducted interviews with people who had management experience in important positions in the country and prominent management scholars as well. In the beginning of the interview after introduction and demonstrating the license and confidence of respondent contribution and readiness for being asked questions such as: “How did you find me? What is the subject of the interview?” by interviewee, already reason of interview was discussed. Also a general definition of resilience and organizational resilience with a brief explanation of these variables was presented. Afterwards, interviewee was asked to briefly introduce itself and some questions were asked such as: Could the organization resolve the major challenges or not? If not, what was the reason? In view of predictions, what problems the organization would be faced and what kinds of strategies it would use to solve them? What was the main reason that caused problems of your organization to be solved? Afterwards, respondents were asked to put forward their views and opinions. Finally, eight factors identified that were bold in several researches and also in interviews more repeated as most important factor effective on organizational resilience (e.g relationship, stress management, learning of experience, motivation, intellectual capital, knowledge management). Across factors, knowledge management selected in both public and private sectors.

Also the researchers achieved on 7 factors as the most important factors affecting knowledge management that were identified in result of various studies (e.g commitment and senior management support, team work, organizational learning, IT, resource). Across factor, organizational learning as one of most important factor that can affect both knowledge management and organizational learning as mediator variable selected and hypothesis was design.

3.1 Population and Sample

In this study, 30 Iranian public organizations were selected as study population. All these organizations are owned by the government, who are responsible for the timely delivery of services to citizens. The intent of whole property is that the government controls all functions of the organizations and also chooses their senior managers. Organizational resilience which has been qualitatively studied in private sector (McManus, 2008), appears to be the least explored in the public sector (Mafabi et al, 2012), especially in Iran. Therefore, the studies to fill the gap existent focused within public Organizations in Iran. The sample size was determined based on Krejcie and Morgan table (1970). According to this table ($n = 28$) were determined. It is believed that managers are in position to truly respond to questions about organizational attributes (Baer and Frese, 2003). Questionnaires were distributed among middle and senior managers. The researcher personally distributed questionnaires in more than half of the organizations. In other organizations, assists by her friends and relatives. 320 questionnaires distributed and collected among samples within 34 days. 307 copies were returned to the researcher. 28 questionnaires were excluded because they lacked the concurrent validity. The managers that did not have time to fill out questionnaires and answers to rushed to the questionnaires, they questionnaires were removed. 9 questionnaires were excluded because they were incomplete. Finally, data from 270 questionnaires were analyzed.

3.2 Measuring Tools

Through literature review and conceptualization certain measures of knowledge management, organizational learning and organizational resilience were identified. Questionnaires set in two Sections. First section consists of questions that evaluate the individual and job characteristics and including such characteristics as age, sex, education, work experience and management experience. The second section is of the questionnaires Mafabi et al (2012) organizational resilience, Amah (2013) KM and Watkins and Marsiek (2003) organizational learning questionnaire. Organizational Resilience questionnaire consists of 20 items, knowledge management consists of 16 items and organizational learning questionnaire Watkins and Marsiek (2003) also has a 43 question. But in the research, 16 items of Watkins and Marsiek questionnaire (2003) that has been used in research Bess et al (2011) were used. The questions were used with Likert five options scale for the respondents' views, and the samples were requested to determine the importance of each of these factors. Giving a score of 1 to 5 in the respective range, scores was calculated for each factor. Mafabi et al (2012) in their study found reliability organizational resilience ($\alpha=0.893$), Umoh and Amah (2013) in their study found reliability KM ($\alpha=0.88$) and Bess et al in their study found reliability organizational learning ($\alpha=0.939$). In this study, the reliability of the renewed questionnaires was tested. For this purpose, initial sample of 30 questionnaires were distributed among the studied sample. Then, using data obtained from the questionnaire was Cronbach's alpha reliability coefficient calculated. The reliability was calculated for Organizational Resilience ($\alpha = 0.821$), knowledge management ($\alpha = 0.953$) and organizational learning ($\alpha = 0.960$).

The test measures the relationship between two sets of ranked observations and degree of relatedness among ordinal variables when ranked respectively. The value of the Pearson's correlation lies between -1 & +1, the sign indicates the direction of association between the independent variable and the dependent variable. The Pearson's correlation is positive if the dependent variable increase when the independent variable increases; and it's negative if the dependent variable decreases when the independent increases. A spearman correlation of zero shows no association between the variables. On the other hand, multivariate analysis was utilized in testing the moderating effect of technology on the relationship between the dependent and independent variables. The test measures the relationship between three sets used of MedGraph technique of jose (version 3).

3.3 Data Management

In order to get more precise information from the questionnaires, we first edited them. 28 questionnaires were excluded because they lacked the concurrent validity. The managers that had not time to fill out the questionnaires and were rushed to the questionnaire, they questionnaires were removed. Also, whereas some managers were reluctant to fill demographic characteristics, 9 questionnaires incomplete received and were excluded. After removing these, researchers examined 270 questionnaires that were completely filled out. After this review, the data made analysis using SPSS version 20 for both descriptive and inferential. The descriptive statistics examined on the demographic characteristics including age, gender, education, work experience and management experience. In inferential statistics were used, correlation coefficient, regression coefficient and MedGraph technique of jose (version 3).

4. Results and Discussion

First, using collected demographic data, various aspects of the target population analyzed in terms of demographic variables. Information in this section extracted of the sample on the basis of demographic questions included in the questionnaires. To describe the sample is used of age, gender, education, work experience and

management experience. 27.4% of managers younger than 40 years. 51.1% between 40 and 50 years and 21.5% more than 50 years. Minimum age is 32 years and maximum age is 59 years. 8.4% of managers were women and 95.2% male. The results show that the scale middle managers in public organizations quite heavily toward men. 3 percent had a lower of undergraduate and diploma degree. 19.3 percent graduate, 72 .6percent. 2.5percent of managers also had a PhD degree. 22.6% of managers were less than 15 years of service. 56.3 percent of those between 15 and 23 years of service, and 21.1 percent had more than 23 years of service. 51.1percent had Less than 10 years management experience, 39.3 percent of those between 10 and 18 years of management experience, and 9.6 percent had more than 18 years of management experience.

4.1 Knowledge Management and Organizational Resilience

In this section the relationship between knowledge management and organizational resilience explored. Results of Table 1 shows that there is a significant positive correlation between knowledge management and organizational resilience ($r = 0.610$, $p < 0.01$). These findings reveal that H1 confirmed, which reveals there is a positive relationship between knowledge management and organizational resilience. This suggests that knowledge management is related to building organizational resilience. This finding is consistent with the results of research conducted by Mafabi et al (2012), Umoh, & Amah (2013). Mafabi et al (2012) found that there is a significant positive Correlation ($r = 0.464$) between knowledge management and organizational resilience and Umoh, & Amah (2013) divided knowledge management to four dimensions of knowledge acquisition, knowledge storage, knowledge sharing, and knowledge utilization and organizational resilience divided to the three dimensions of organizational adaptability, organizational resourcefulness and organizational learning and found that all 4 dimension of the knowledge management has a significant positive relationship with all 3 dimension of organizational resilience. Therefore, if the organizations attend to knowledge management, can increase resilience in organization.

Table1. Zero order correlation between KM, organizational learning, and organizational resilience

	Mean	SD	1	2	3
1. Organizational resilience	3.28	1.022	–		
2. organizational learning	2.79	1.258	0.342	–	
3. knowledge management	2.74	1.227	0.61	0.605	–

4.2 Knowledge Management and Organizational Learning

In this section the relationship between knowledge management and organizational learning explored. Results of Table 1 shows that there is a significant positive relationship between knowledge management and organizational learning ($r = 0.605$, $p < 0.01$). Hence, the results supports hypothesis 3 that there is a significant positive relationship between knowledge management and organizational learning. This finding is consistent with the results of research carried out by Lopez et al (2004), Zhang et al (2009) and Liao and Wu (2009). Harvey and Denton (2002) had research in several large corporations with the aim finding contexts needful to promote organizational learning. The results of their study shows prerequisite change in business environment, broad adopt about that knowledge important factor advantage in expanse organizational learning. yoon (2009) did a research with the topic "knowledge management System: theoretical considerations and practical application". Research findings indicate that the interaction between the processes strategy and guideline of knowledge management and organizational learning is a key point and a competitive advantage for the business organizations.

4.3 Organizational Learning and Organizational Resilience

Results of Table 1 show that there is a significant positive relationship between organizational learning and organizational resilience ($r = 0.342$, $p < 0.01$). The findings support of hypothesis 4 that represent there is a significant positive relationship between organizational learning and organizational resilience. This suggests that can be achieved on organizational resilience through organizational learning. Research Lothar (2000), Bonanno (2004), American Psychological Association (2006), Jackson et al. (2007), and Aguirre (2007) has shown that resilience is ordinary, not extraordinary, and that people regularly demonstrate this ability and resilience can be achieved through learning. Coutu (2003) also states that we will not be able to fully understand resilience, but we can it learn and must to learn. Maddi(1987) perform a longitudinal study of over 450 male and female IBT employee from 1975 to 1987. Result shown that can through learning to resilience achieved.

4.4 Regression of organizational resilience on knowledge management and organizational learning

The test further for the validity of this hypothesis will be tested. In this section we considered organizational learning and knowledge management as independent variables and organizational resilience as dependent

variable. Multiple regression results are shown in Table 2.

The regression results in Table 2 indicate that 37.4 percent of the variance in organizational resilience is explained by knowledge management and organizational learning ($R^2=37.4$, $\rho<0.05$). In analyzing the results, we noted that in model 1, the control variables of age of managers and experience of work contribute an insignificant explanatory power of 1.1 percent ($R^2 = 0.011$, $\rho> 0.05$) of 37.4 percent total variance explained. The regression results also indicate that managers age ($\beta = -0.027$, $\rho> 0.05$) and work experience ($\beta = -0.009$, $\rho> 0.05$), as control variables do not have a statistically significant relationship with organizational resilience. This, therefore, may imply that age and experience of public sector organizations in Iran do not have an effect on organizational resilience. This seems to suggest that organizational resilience of public sector organizations in Iran can occur, regardless age and experience managers. In fact, we can say that organizational resilience in Iranian public organizational, depend on other factors than age and experience of the managers.

In model 2, organizational learning the predictive power of 11.1 percent ($\Delta R^2 = 0.111$, $\rho < 0.05$) of 37.4 percent total variance explained. Also, Model 2 not shown a statistically significant relationship between organizational learning and organizational resilience ($\beta = -0.046$, $\rho > 0.05$). This finding not support H4 that there is a significant relationship between organizational learning and organizational resilience. Therefore, we can state that factors other than learning increased organizational resilience public organizational in Iran.

In model 3, when knowledge management was entered in the regression, it added a very large predictive power of 36.4 percent ($\Delta R^2 = 0.364$, $\rho < 0.05$). Also, the results shown a significant relationship between knowledge management and organizational resilience ($\beta = 0.633$, $\rho < 0.05$). The findings support of H1, that a there is significant relationship between knowledge management and organizational resilience. In this study, the relationship between organizational learning and knowledge management, even when they showed a significant correlation ($r = 0.342$, $\rho < 0.05$), there is not significant. The regression shows that organizational learning in the presence knowledge management did not show a significant relationship with organizational resilience.

Table2. Hierarchical regression analysis: organizational resilience

Dependent variable: organizational resilience			
Variable	Model 1	Model 2	Model 3
Managers age	- 0.071	- 0.076	- 0.027
Work experience	- 0.040	0.019	- 0.009
Organizational learning		0.336	- 0.046
Knowledge management			0.633
F	1.469	12.185	39.564
R ²	0.011	0.121	0.374
ΔR^2		0.111	0.364

4.5 Testing for mediation

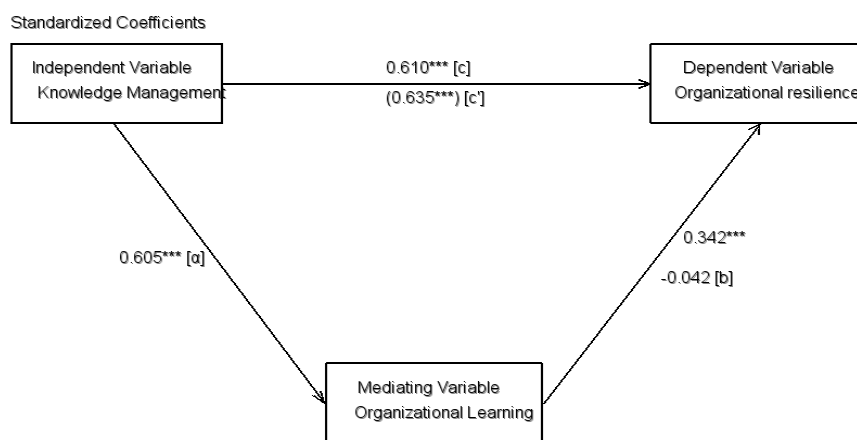
In this study, mediation was investigated about the mediating effect of organizational learning in the relationship between knowledge management and organizational resilience. This review is about H2 that there is a mediation effect of organizational learning in the relationship between knowledge management and organizational resilience. To test this hypothesis we used the appropriate regression model, and the results are shown in Table 3. The results in model 1, which is the regression of organizational learning (mediator) on knowledge management (predictor) show that the relationship between knowledge management and learning is significant ($\beta = 0.605$, $\rho < 0.01$). Results of model 2, which is a regression of organizational resilience (criterion variable) on knowledge management also reveal a significant relationship between knowledge management and organizational resilience ($\beta = 0.610$, $\rho < 0.01$). Also, the results in Model 3, which is the regression of organizational resilience on both knowledge management and organizational learning, indicate that while knowledge management has a significant effect on organizational resilience ($\beta = 0.635$, $\rho < 0.01$), the effect of organizational learning on organizational resilience in presence knowledge management reduces and becomes insignificant ($\beta = -0.042$, $\rho > 0.05$).

Table3. Regression analysis: mediation effect of organizational learning

Variables	Learning organizational resilience		
	Model 1	Model 2	Model 3
Knowledge management	0.605		
Knowledge management		0.610	
Knowledge management			0.635
Organizational learning			-0.042
B	0.590	0.492	0.513
			-0.035
SE b	0.047	0.039	0.049
			0.050

However, the significance of the mediation effect is not yet tested and may require other tests like the Sobel' z-test. Accordingly, the researchers employed the Medgraph (mediation testing) technique of Jose (2013), which requires a computation of correlation coefficients of the three variables in the mediation relationship including the unstandardised regression coefficients which were in-put into the Medgraph that produced the results (Figure 1). The results in Figure 2 show that the mediator organizational learning between knowledge management and organizational resilience has insignificant effect ($Z = -0 / 698, \rho > 0.05$). The finding not support of H2 that there is a mediation effect of organizational learning in the relationship between knowledge management and organizational resilience. These findings suggest that factors other there is than organizational learning as a mediator in the relationship between knowledge management and organizational resilience. Based on these findings, we can say that without organizational learning also knowledge management can affect the resilience of the organization in public organizations in Iran.

Sobel Z- value	-0.698914	$\rho = 484606.0$
Total	0.61	
Direct	0.635	
Indirect	-0.02	
Indirect to Total ratio	-0.04	



NOTE: The numerical values in the parentheses are beta weights taken from the second regression and the other values are zero order correlations.

Figure2. Sobel test results

5. Conclusions and recommendations

This study examined the mediating effect of organizational learning in the relationship between knowledge management and organizational resilience. The findings indicate a significant positive relationship between knowledge management and organizational resilience in public organizations in Iran ($r = 0.610, \rho < 0.01$). Regression analysis also confirmed this relationship ($\beta = 0.610, \rho < 0.01$). Also, a significant positive relationship between organizational learning and organizational resilience ($r = 0.342, \rho < 0.01$), regression analysis confirmed this relationship ($\beta = 0.610, \rho < 0.01$). There is a significant positive relationship between knowledge management and organizational learning ($r = 0.605, \rho < 0.01$). Regression analysis also confirmed this relationship ($\beta = 0.605, \rho < 0.01$). Hence, the hypothesis 1,3 and 4 were confirmed. In Hypothesis 2, that there is a mediation effect of organizational learning in the relationship between knowledge management and organizational resilience, the results of the regression coefficient indicates that organizational learning and knowledge management, each separately influence on organizational resilience. In the multiple regression

coefficient effect organizational learning by the presence knowledge management will greatly reduce and meaningless ($\beta = -0.042$, $\rho > 0.05$). However, to further confirm the hypothesis, technique Medgraph Jose (2013) was used that correlation coefficient 3 variable to calculate. The results showed that the mediator organizational learning between knowledge management and organizational resilience has insignificant effect ($Z = -0 / 698$, $\rho > 0.05$). The finding not support of H_2 that there is a mediation effect of organizational learning in the relationship between knowledge management and organizational resilience. So we can say that factors other than organizational learning as a mediator is impressive in the relationship between knowledge management and organizational resilience.

From the discussion above, we conclude that knowledge management helps to increase the organizational resilience in public organizational of Iran. It also help enterprise managers and organizations to develop new opportunities, create value, gain competitive advantages and improve performance to attain the organizations objectives and emerging needs (Anand, 2011). Respondents at the time of completing the questionnaire frequently stated that they do not pay particular attention to organizational learning. The only existing legislation has led to a number of factors to be considered. The organization does not encourage people to think globally. They are not encouraged to join the social networking websites. Resources that people need to do their jobs are not readily available.

Based on the findings and conclusion above, recommendations firstly, Iranian public organizations continue to strengthen their knowledge management practices in their everyday activities as this is a sure guarantee for their resilience. Also, pay attention to organizational learning. Because exist organizational learning in nature knowledge management and role effective had in the organization's long-term performance. Through learning new skills, increase self-awareness and ensure that the strategies companies can develop resilience to overcome challenging, organizations can resilient and overcome on everyday challenges. Organizational culture is the fiber and sinew of all firms. (de Oliveira Teixeira, 2013). Pearson & Clair (1998), Boin and Lagadec (2000), Coutu, (2002) suggest that there is an agreement that internalizing a culture of resilience at all levels is critical, championed by executive leadership. Because, believed that organizational culture is the key to crisis management, and that it is the organization culture that makes it crisis-prone or crisis prepared (Mitroff et al., 1989; Omer et al., 2014). Therefore, resilience requires a Culture Change. Also, many scholars and practitioners (e.g. Lopez et al., 2004), believe that an organizational culture that is supportive and or adaptive can enable the successful implementation of knowledge management technologies as well as practices. Identify factors for motivating employees. Because a person to be motivated in the face of adversity, to resilient the spring. Thus, the now motivation may be independent of resilience. But Resilience depends on the individual that has motivation for the reintegration success. Others researches perform can useful, including; cognition block increase resilience in organization, the survey effect government, rules and public political for increase organizational resilience, the survey factors that others country used for increase organizational resilience.

References

- Aguirre, B. (2007). Dialectics of vulnerability and resilience. *Georgetown Journal of Poverty Law and Policy*, 14(39), pp.1–18.
- Akselsson, R., Koornneef, F., Stewart, S., Ward, M., (2009). Resilience Safety Culture in Aviation organizations. In: Proceeding of the 17th World Congress on Ergonomics, Beijing, China.
- Allee, V. (1997). *The knowledge evolution: Expanding organizational intelligence*. Oxford: Butter worth-Heinemann, UK.
- American Psychological Association. (2006). *The road to resilience*. Retrieved from <http://www.apa.org/helpcenter/road-resilience.aspx>.
- Anand A. (2011). Understanding Knowledge Management: A Literature Review. *International Journal of Engineering Science and Technology*.3 (2), p. 937.
- Baer, M. and Frese, M. (2003), Innovation is not enough: climates for initiative and psychological safety, process innovations, and firm performance, *Journal of Organizational Behavior*.
- Barna, Z. (2003). *Knowledge management: a critical e-business strategic factor*. Master thesis, San Diego State University, USA.
- Bell, M. (2002). *The Five Principles of Organizational Resilience*. Gartner Inc., Stamford, Connecticut.
- Benard, B. (2004). *Resiliency: What we have learned*. San Francisco, CA: WestEd.
- Bess, K. Perkins, D. McCown, D. (2011). Testing a Measure of Organizational Learning Capacity and Readiness for Transformational Change in Human Services. *Journal of Prevention & Intervention in the Community*, 39, pp. 35–49.
- Bixler, (2002). *Applying the four pillars of knowledge management*. *KMWorld*11 (1), pp.34-40.
- Boin, A., & Lagadec, P. (2000). *Preparing for the future: critical challenges in crisis management*. *Journal of Contingencies & Crisis Management*. 8(4), pp. 185-191.
- Boin, A., Van Eeten, M. (2013). *The Resilient Organization, A critical appraisal*. Public management Review.

- 15(3), pp. 429-445.
- Bonanno, G. (2004). *Loss, trauma, and human resilience: Have we underestimated the human capacity to thrive after extremely aversive events?* *American Psychologist*, 59, pp.20–28.
- Carson, Ed. King, S. & Papatraianou, Lisa H. (2011). Resilience Among Social Workers: The Role of Informal Learning in the Workplace. *Social Work in Action* 23 (5), PP. 267-278.
- Christensen, C.M. & Rarnor, M. E. (2003). *The Innovators Solution: Creating and Sustaining Successful Growth*. Harvard Business School Press, Cambridge, MA.
- Cocchiara, R. (2007). *Beyond disaster recovery: Becoming a resilient business*. IBM Global Services, pp.1-24.
- Coutu, D. (2002). *How Resilience Works*, Harvard Business Review, 80(5), pp. 46–55.
- Cross, R., and L. Baird. (2000). *Technology is not enough: improving performance by building organizational memory*. *Salon management review* 41 (3), PP.41-54.
- Curtis, G. (2008). *Beyond Disaster Recovery (Special Report: Risk Management)*. *Directorship*, pp.38-43.
- Cyert, R., March, J. (1963). *A Behavioral theory of the Firm*. Englewood Cliffs (NJ) Prentice-Hall
- Daft, R. L. & Weick, K. E. (1984). *Toward a Model of Organizations as Interpretation System*, *Academic Management Review* 9 (2), pp.284-295.
- Davenport, T.D., (1998), *Successful knowledge management projects*, *Sloan Management Review*, 39(2), pp. 43-57.
- De Geus, A. (1997). *The Living Company*. Harvard Business Review, 75(2), pp. 51-59. See also his book of the same name. *The Living Company: Habits for Survival in a Turbulent Business Environment*. Longview Publishing.
- De Oliveira, E. & William, B. & Werther, Jr. (2013). *Resilience: Continuous renewal of competitive advantages Business Horizons*. 56, pp. 333-342.
- Devargas, M. (1999). *Survival is not compulsory: An introduction to business continuity planning*. *Computers & Security*, 18(1), pp.35-46.
- Dieleman, H. (2013). Organizational learning for resilient cities, through realizing eco-cultural innovations. *Journal of Cleaner Production*, 50, PP. 171-18.
- Evely, A. C., Fazey, I., Stringer, L.C., Reed, M.S., (2012). *Designing knowledge exchange for resilience: how people view and conduct knowledge matters*. Sustainable Learning Working Paper Series, (2).
- Fernandez, I.B. & Sabherwal, R. (2001). Organizational Knowledge Management: A Contingency Perspective. *Journal of Management Information Systems* 18(1), pp. 23-55.
- Folke, Carl and 26 others. (2002). *Resilience and Sustainable Development: Building Adaptive Capacity in a World of Transformations*. Scientific Background Paper on Resilience for the process of The World Summit on Sustainable Development. Stockholm.
- Fraser, M. W., Richman, J. M., & Galinsky, M. J. (1999). *Risk, protection, and resilience: Toward a conceptual framework for social work practice*. *Social Work Research*, 23 (3).
- Garcia Morales, V., Lorens Montes, F.J. Verdu Jover, A.J. (2007). *Influence of personal mastery organizational performance through organizational learning and innovation in large firm and SMEs*. *Technovation*, 27, PP. 547-568.
- Glasser, P. (1999). *The knowledge factor*. *CIO magazine* (15), pp.1-9.
- Gomez, J. & Cespedes-Lorente, J. & Valle-cabreva, R. (2005). Organizational Learning capability: a proposal of management. *Journal of Business Research*. 18, pp.715-725.
- Hamel, G. and Valikangas, L. (2003). *The Quest for Resilience*, Harvard Business Review, 81(9), pp.52–63.
- Harvey, C; Denton, J., (2002). *To come of age: The Antecedents of organizational learning*. *Journal of management, studies* 36, PP. 897-918.
- Henderson, N. & Milstein, M. (2003). *Resiliency in schools*. Thousand Oaks, CA: Corwin Press.
- Holling, C. S. (1973). *Resilience and stability of ecological systems*. *Annual Review of Ecology and Systematics*, 4, pp.1–23.
- Huber, G., (1991). *Organizational learning: the contributing process and the literature*. *Organization Science* 2(1), pp. 88-115
- Irvine, W. & Anderson, A. (2004). Small tourist firms in rural areas: agility, vulnerability and survival in the face of crisis. *International Journal of Entrepreneurial Behavior & Research*, 10(4), pp. 229-246.
- Jackson, D., Firtko, A., & Edenborough, M. (2007). Personal resilience as a strategy for surviving and thriving in the face of workplace adversity: A literature review. *Journal of Advanced Nursing*, 60(1), pp.1-9.
- Jamalzadeh, M. (2012). The Relationship between Knowledge Management and Learning Organization of Faculty Members at Islamic Azad University, Shiraz Branch in Academic year (2010-2011). *Social and Behavioral Sciences* 62. Pp. 1164-1168.
- Jose, P. E. (2013). *MedGraph-I: A programme to graphically depict mediation among three variables: The internet version, version 3.0*. Victoria University of Wellington, Wellington, New Zealand. Retrieved

- [date] from <http://pavlov.psyc.vuw.ac.nz/paul-jose/medgraph/>
- King, W., & Marks, P. (2008). *Motivating knowledge sharing through aknowledge management systems*. Omega, 36, pp.131-146.
- King, W. (2009). *Knowledge Management and Organizational Learning*. Annals of Information Systems 4.
- Lee, T. S. and Tsai, H. J. (2005). The Effects of Business Operation Mode on Market orientation, Learning Orientation and Innovativeness, *Industrial Management & Data Systems*, 105(3), pp. 325-348.
- Levit, B & March, J.G. (1988). *Organizational Learning Annual*, review Sociology 14, pp.319-340.
- Liao, S. H. (2002). *Problem Solving and knowledge Inertia*, Expert Systems with Applications 22, pp. 21-31.
- Liao, S.&Wu, C.(2009). The Relationship among Knowledge Management, Organizational Learning, and Organizational Performance, *International Journal of Business and Mangement*, 4.
- Liao , S,H. Fei, W,C. Liu, C, T. (2008). *Relationships between knowledge inertia, organizational learning and organization innovation*; Technovation 28, pp. 183-195.
- Loermans, J., (2002). Synergizing the learning organization and knowledge management. *Journal of knowledge Management*, 6 (3), PP. 285-294.
- Lopez, S., Perez, J., and Manuel, M., (2004). Managing Knowledge: The Link Between Culture and Organizational Learning, *Journal of Knowledge Management*, 8 (6), pp. 93-104.
- Lucier, C., (2003). *When knowledge adds up to nothing: Why knowledge management fails and what you can do about it*. Development and Learning in Organizations, 17(1), pp. 32-35.
- Luthar, S., Burack, J., Cicchetti, D &Weisz, J. (Eds.). (1997). *Developmental psychopathology: Perspectives on adjustment, risk, and disorder*. Cambridge, United Kingdom: Cambridge University Press.
- Luthar, S. S., Cicchetti, D., & Becker, B. (2000). *Research on resilience: Response to commentaries*. Child Development, 71, pp. 573-575.
- Maddi, S.R. (1987). *Hardiness training at Illinois bell telephone*. In: J.P. Opatz (Ed.), Health Promotion Evaluation. Stevens Point, WI: National Wellness Institute.
- Mafabi, S. Munene, J. & Ntayi, J. (2012). Knowledge management and organizational resilience Organizational innovation as a mediator in Uganda parastatals. *Journal of Strategy and Management*. 5 (1). Pp. 57-80.
- McAllister, M., & McKinnon, J. (2009). *The importance of teaching and learning resilience in the health disciplines: A critical review of the literature*. Nurse Education Today, 29, pp. 371-379.
- McManus, S.T. (2008), *Organizational resilience in New Zealand*, PhD thesis, University of Canterbury, Christchurch 24 (1), pp. 45-68.
- Meyer, A.D. (1982). *Adapting to environmental jolts*. Administrative Science Quarterly, 27, pp. 515-537.
- Mitroff, I. I. (2005). *From My Perspective: Lessons from 9/11 Are Companies Better Prepared Today?* Technological Forecasting & Social Change, 72(3), pp.375-376.
- Mitroff II, Pauchant T, Finney M, Pearson C. (1989). *Do (some) organizations cause their own crises? The cultural profiles of crisis-prone vs. crisis-prepared organizations*. Organ. Environ. 3(4), pp.269-83.
- Nonaka, I. (1994). *A dynamic theory of organizational knowledge creation*. Organization Science, 5 (1), pp. 14-37.
- Nonaka, I., Takeuchi, H. (1995). *The knowledgecreating company: How Japanese companies create the dynamics of innovation*, New York: Oxford University Press.
- Nelson, R. R & Winter, S. G. (1982). *An Evolutionary Theory of Economic Change*, Cambridge:Belknap Press.
- OECD, (2003). Conclusions from the results of the survey of knowledge management practices for ministries/departments/agencies of central government in OECD member countries
- Omer, M. & Mostashari, A. & Lindemann, U. (2014). *Resilience Analysis of Soft Infrastructure Systems*. Conference on Systems Engineering Research The Aerospace Corporation Redondo Beach, CA.
- Parsons, D. (2007). *National Organizational Resilience Framework Workshop: The Outcomes*, National Organizational Resilience Framework Workshop, 5-7th. pp. 15
- Pearson, C.M. & Clair, J.A. (1998). *Reframing crisis management*. The Academy of Management Review, 23(1), pp. 59-76.
- Perrow, C. (1987). *Normal Accidents: Living with High-Risk Technologies*. New York: Basic Books. (1984)
- Peters, T. *Thriving on Chaos*. Knopf.
- Roe, E. M. and Schulman, p. (2008). *High Reliability Management: Operating on the Edge*, Stanford, CA: Stanford Business Books.
- Rutter, M. (1987). Psychosocial resilience and protective mechanisms, *American Journal of Orthopsychiatry*, 57 (3): 316-331.
- Saleebey, D. (Ed.). (2001). *The strengths perspective in social work practice* (3rd ed.). Boston: Allyn Bacon.
- SchWeber, C. & Bouchard, M. (2011). *Organizational Resilience: Is There Evidence for What Works to Support Business Continuity?* Paper for the 2011 Conference.
- Seligman, M. (1995). *The optimistic child*. Boston: Houghton Mifflin.
- Senge, P. (1990). *The Fifth Discipline: The art and practice of learning organization*. New York: Doubleday

- Dell.
- Shapiro, C. & Hal, V. (1999). *Information Rules: A Strategic Guide to the Network Economy*. Boston: Harvard Business School Press.
- Storey, J., & Barnett, E. (2000). Knowledge management initiatives: Learning from failure. *Journal of Knowledge Management*, 4(2), pp.145–156.
- Sutcliffe, K.M. & Vogus, T.J. (2003). *Organizing for Resilience*. In Cameron, K., Dutton, J.E., & Quinn, R.E. (Eds.), *Positive Organizational Scholarship*. San Francisco: Berrett-Koehler. Chapter 7. pp. 94-110.
- Thurrow, L.C. (2003). *Fortune Favors the Bold: What We Must Do to Build a New and Lasting Global Prosperity*. New York, NY: Harper Collins.
- Umoh, G. Amah, E. (2013). Knowledge Management and Organizational Resilience in Nigerian Manufacturing Organizations. *Journal of Developing Country Studies*. 3(9), pp.104-120.
- Werner, E., & Smith, R. (2001). *Journey from childhood to midlife: Risk, resilience, and recovery*. Ithaca, NY: Cornell University Press.
- Woods, D., (2003). *Creating foresight: how resilience engineering can transform NASA's approach to risky decision making*. Work 4, 137–144.
- yoon. A. (2009). *Designing integrative knowledge management System: theoretical considerations and practical application*. *Advances in Developing Human Resources*, sanfrancisco. 11(3), p. 307.
- Zhang, Li., Tian, Y., & Zhongying Q, A. (2009). *A conceptual model organizational learning based on knowledge sharing*. *Advanced Learning Technologies*, 2006. Sixth International Conference, 20(5), pp.4-6.