

DESIGNING THE MODEL OF THE IMPACT OF CHAOTIC CHARACTERISTICS ON ORGANIZATIONAL LEARNING WITH THE MEDIATING ROLE OF EMPOWERING PHYSICAL EDUCATION STAFF OF PUBLIC UNIVERSITIES IN IRAN

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Original scientific paper

Abstract

This study aims to design the model of the impact of chaotic characteristics on organizational learning with the mediating role of empowering of Physical Education officers of public universities in Iran. This study is based on a paradigm, post-positivism type of research with a descriptive-survey procedure and causal hypotheses. A Simple Random Sampling method was applied to determine the sample size from among the population of Physical Education staff of Public Universities in Iran. The sample size determined by The Cochran formula was 279. The face and content validity of standard questionnaires used in this study were examined using CVR and CVI forms completed by the experts in the field of Sport Management. The results of data analysis by SPSS and Smart PLS software showed that chaotic characteristics had a positive and significant effect on employees empowering by 0.188 ($t = 2.514$) and on organizational learning by 0.583 ($t = 7.808$). The results also revealed that the empowering as a mediator of the causal relationship effect of organizational chaotic characteristics on organizational learning. Also, the factors of chaotic characteristics and employees empowering highly predicted the organizational learning behavior. Furthermore, the Goodness of Fit index (0.554) showed that the research model was one of the strong models. Managers of Physical Education Departments from public universities across the country can use the chaotic characteristics of organizations to enhance and improve the capabilities and skills of their staff so that they can further influence organizational learning.

Key words: *chaotic characteristics, empowering, organizational learning, nonlinearity, unstructured pattern.*

Introduction

Today, organizations are increasingly facing unprecedented complexities that raise many challenges in terms of resources in work and innovation [4-11-22]. Leaders and managers of public offices and organizations as representatives of the government are expected to guide their organizations in a dilemma, and manage the events and changes in critical situations using their unique responsibilities and competencies that are often well beyond their normal duties [6]. When faced with organizational and environmental changes, innovation and creativity can be the appropriate framework to cope with these changes [21]. This complexity should be considered profound structural changes as organizations have moved from the traditional age to modern society [17]. The chaotic characteristics of organizations are viewed as living organisms that are subject to complex environmental factors [19]. The science of organizational complexity is a new understanding of emerging systems to enhance the theory of public systems. In complexity and chaos theory, the realism is considered together with ontology, behaviors cannot be predicted, real life systems are unpredictable, evolutionary development of the organization is possible but subject to sudden changes, systems and relationships are nonlinear and complex, systems are inherently unstable but feedback loops can keep the system within range, the butterfly effect describes a situation in which a

small change can produce a chain reaction or change [4]. The chaos theory suggests that when organizations are on the chaotic circumstances, they are exposed to opposing forces of stability, which can potentially be detached from old processes that allow for the simultaneous emergence of an order by itself that organizes new ones based on them moving suddenly [25]. Many researchers have emphasized the existence of convergence and divergence continuous processes, stability and instability, and evolution and revolution in any organization.

In other words, chaos is a dynamic and complex combination of the many elements that constitute the overall entity and its behavior while being unpredictable (chaos) at the same time has a (order) model [9]. Chaotic organizations have characteristics that distinguish them from traditional organizations. Chaotic organizations have characteristics such as alertness, continuity, uncertainty, unpredictability, flexibility, and continuous evolution [21, 13]. Organizations need to face rapid and noticeable changes in their knowledge and skill requirements. In order to be more efficient and viable, they should abandon their old and unimportant knowledge and retain the necessary knowledge [10]. The chaos theory, which is referred to as complexity theory in social organizations, helps to understand organizational

change [5]. The simultaneous existence of two essential and heterogeneous features of order and chaos in an organization creates special conditions and situations that make it different from traditional organizations.

Stacey [26] states that complex adaptive systems can operate in one of the three zones of stable, unstable, and chaos edge that are the narrow pathway of stability and instability. In the stable zone, they are surprised, disintegrate in the unstable zone, but at the chaos edge, the sudden self-regulation process occurs and a pattern of innovative behavior emerges. Thus, this seems to be the best place for organizations. De Hock [16] posits that organizations operating in the chaos edge are called chaotic organizations. It can be said that all adaptive and complex systems are at the chaos edge and have such self-organizing power that they create cognitive models [27].

At the chaos edge, traditional management approaches are not so effective, but rather this zone is a zone of creativity, innovation, a break from the past in order to create new operations [27]. Innovation is not just a matter of chance, of moments or of alchemy, but of creativity that developed by supporting and nurturing even though this support may be due to the creation of a complex organization and chaos [18]. Innovation is therefore applicable to complex processes and systems [21]. But many researchers have used the chaotic characteristics in the organization as a tool for managing complex organizations. Characteristics refer to interconnectedness, nonlinearity, recruitment of capable staff, acceptance and innovation, unreliable structure, unpredictability, and uncertainty, which can affect employees' organizational learning according to different studies.

Physical Education staff, according to the nature of their occupation, are interwoven with sport which is one of the categories that have a complex structure. Because it recognizes the chaotic characteristics, instability, change, and unpredictability, and introduces effective solutions for managing these situations [18].

Today, due to the highly competitive business status and rapid and continuous environmental changes, only organizations that can adapt to the current status are able to survive and develop. Adaptation means accepting the needs to make changes and adapting to these changes. As psychologists refer to learning as a force for changing in behavior [1], the driving force behind change is thus learning. Given this definition and the acceptance of the perspectives of organizational behavior scholars and organizational psychology that the organization is a living and dynamic social system, the subject of organizational learning then becomes clearer and more understandable. This view confirms the theory of John Watson, a leading psychologist and the founder of the theory of behaviorism in psychology, which considers human

knowledge and awareness (learning) to be hidden in the environment. He states that behavior is based on the environment and learning from the environment. Therefore, by changing the environment, the behavior should be changed because otherwise there is no hope to manage the behavior and change it [1]. All experts believe that organizational learning is a complex and multidimensional concept that has been studied from the perspective of various disciplines, and because of its interdisciplinary nature, it is difficult to find a definition that is widely accepted by researchers. But as Sangheh claims, almost all definitions of organizational learning involve two types of cognitive and behavioral change. The cognitive aspect of change concerns with concepts such as the acquisition of new knowledge, and new understanding and insights. The behavioral aspect of change refers to making real or potential changes in the behavior of a learner [13].

One of the identified tools to facilitate the empowerment of people is the empowerment of information technology (2-20). Information and Communication Technology (ICT) is a term that includes all devices and applications such as mobile phones, personal computers and social media programs that enable people to interact with each other in the digital world [7].

Organizational learning of employees through the creation of complex and turbulent environments requires intermediaries that can be one of these characteristics. [20] stated that ICT is a fundamental solution for empowering individuals. In a study, Reiden and Dinti studied the concept of learning organization concerning progress in human resource development. They stated that a chaotic organization could create a high level of learning [29]. claimed that a sports organization is a clear example of a chaotic organization because it has a turbulent, unpredictable, interconnected and uncertain environment, and has an unstructured pattern [23].

The Physical Education Management of Iranian Universities and Sports-related Institutions are complex that needs to apply the most up-to-date organization and management theories in their management due to their wide range of activities and deals with a large stratum of young and adult athletes in the community they play a significant role in improving and promoting human health, which is called the center of sustainable development. Physical education departments in universities, which are also a turbulent environment, have a hidden order due to their organizational nature.

This characteristic has made the department of physical education a prominent example of the chaotic organization. The sensitivity, high volume of staff' activities, and the unpredictability of the environment and events, have made the importance of the concept of organizational learning and empowering employees in the physical

education departments of universities more than other academic institutions. Therefore, this study attempts to answer the following questions:

1. What is the structural model of the effect of chaotic organization on organizational learning among the officers of physical education departments of universities?
2. Does the chaotic organization predict organizational learning?

Material and methods

The present study is based on paradigm with a type of post-positivism research. This quantitative research employs a descriptive-survey strategy and examines causal hypotheses. This approach is based on literature and theoretical background, whereby the variables and their relationships as well as how to measure them in the form of standard tools have been extracted.

The data collection tools are based on library studies and standard questionnaires in the first and second stages of the study, respectively.

The population of the study includes 1100 Physical Education staff from Public Universities in Iran. A random and stratified sampling was applied using the Cochran table to determine the sample size. After the necessary coordination and identification of the statistical population of the research (officers list), approximately 302 questionnaires were distributed in person and electronically among the Physical Education officers and managers of the universities. From this pool, 290 questionnaires were returned, and 11 incomplete questionnaires were excluded from further analysis, and finally 279 questionnaires were analyzed. The research questionnaire consists of four main sections: demographic characteristics, organizational chaotic characteristics, organizational learning, and employees empowering.

Table 1. Characteristics and components of the order-disorder questionnaire in the organization.

Stacey,1996	Lack of objective methods to measure the effectiveness of the organization Accelerate reorganization Comprehensive communication between the departments of the organization	Connectivity
Tetenbaum,1998	Sharing knowledge between different parts of the organization	
Stacey,1996	Incompatibility of responsibility with authority Non-compliance of management unity Lack of connection between performance quality and salary and benefits Need for daily study about making work and related profession Freedom of action of organizational units in performing their responsibilities	Nonlinearity
Roosgar, 1983	Ability to test new solutions Creating a comparative advantage Compatibility with environmental conditions	Acceptance of innovation
Stacey,1996	Disorders in organized promotion and career	
Tetenbaum,1998	Individual's freedom to focus on imagination and creativity	
Stacey,1996	The rate of job creation Opportunity to hire creative people	Attracting capable employees
Bergluban and lichten,1999	Informing methods and finding qualified people Ease of employment and recruitment rules and regulations	
Stacey,1996	Spending more time of managers in meetings Employees with several bosses	Structure without slate
geraldi, 2008	Continuous workflow Lack of fixed structure	
Durrance,1997	Decentralization Unofficial High complexity	
Stacey,1996	Allocate managers' time for unexpected events Allocate part of the employees' time in coordination Need to learn about new management topics	Unexpectedness
Sengupta et al.2000	Empowering employees to make quick decisions instead of planning	
Stacey,1996	Postponement of pre-designed programs Fluidity and flexibility in all structural aspects ready for change Continuous changes	uncertainty
Eijnatten,2004	Postponement of pre-designed programs Fluidity and flexibility in all structural aspects ready for change Continuous changes	

Also, in order to evaluate the organizational learning scale [13], the researchers applied an included 4 components of acquisition / creation of information (5 questions), interpretation and

information transfer / transfer (6 questions), using information / knowledge creation (4 questions), institutionalizing knowledge (5 questions) of a total of 20 questions (Table 2).

Table 2. Components of Organizational Learning Questionnaire.

Variable name	Component name	Question number	Researchers
Organizational Learning	Acquisition / creation of information	1-2-3-4-5	Ghorbanizadeh et al. 2012, Sarhadi 2016, Nifeh (2001)
	Interpretation / information transfer	6-7-8-9-10-11	
	Using information / creating knowledge	12-13-14-15-16	
	Institutionalize knowledge	17-18-19-20-21	

Finally, Alfred Pence's (2005) Employee Information Empowerment Technology Questionnaire was used, which includes four components of general aspects (5 questions), information (7 questions), transaction (4 questions), and relationship (5 questions).

The face validity of this questionnaire was confirmed by 14 experts in the field of sports management and its content validity was verified by supervisors and co-supervisors of the study and by four professors of sports management and planning.

SPSS software version 25 was used for quantitative analysis of research data (descriptive and inferential). Also, Smart PLS software version 3 was used to design the structural model of the effect of chaotic characteristics on organizational learning with the mediating role of employees empowering.

Results

The descriptive statistics on the basis of gender showed that 50.9% of the sample were male, 49.1% female, 72% married, and 28% single.

The educational status of the sample showed that the highest percentage of the sample had Masters (49.1%) and only 1.1% had Associate Degree. The highest age range of the working members of the sample was 20-16 years with 24.7% and the lowest was 30-26 years with 4.3%.

33% of the sample members were formal employees and 67% of the sample members were informal ones.

The descriptive findings of the study indicated that all the variables of the research and their components have a mean greater than 3 and standard deviation above .5, i.e., all variables in the sample have a relative agreement. As presented in Table 3, the Shapiro Wilk test was used to determine the normality of the data. Because it is $p < .05$, Smart PLS software version 3 was used to perform inferential research tests. Cronbach's alpha coefficient was .72 for the 28 items of organizational chaotic characteristics, .96 for the 20 items of organizational learning variable, and .75 for the 16 items of employees empowering. This indicates a favorable reliability of the measuring research instrument.

Table 3. Results of Kolmogorov Smirnov and Shapiro Wilk test for normality of data.

Factors	Kolmogorov Smirnov			Shapiro Wilk		
	Statistic	df	p	Statistic	df	p
Organizational learning	.08	279	.001	.95	279	.001
Chaotic characteristics	.05	279	.067	.99	279	.163
Employees empowering	.07	279	.001	.99	279	.045
Interconnectedness	.12	279	.001	.92	279	.001
Nonlinearity	.23	279	.001	.88	279	.001
Acceptance and innovation	.11	279	.001	.97	279	.001
Recruitment of capable employees	.14	279	.001	.94	279	.001
Unstructured pattern	.13	279	.001	.95	279	.001
Unpredictability	.08	279	.001	.97	279	.001

In the inferential statistics section, the initial measurement model was performed and by examining the homogeneous or one-dimensional test of the confirmatory factor analysis operation, then, the model was evaluated in two ways of estimating the standard and significant coefficients of the coefficients.

According to the homogenization test and in the analysis of the measurement model extracted from SMART PLS software version 3, the questions that had factor loads less than 0.7 were removed from the measurement model. Then, by modifying the model, the Cronbach's alpha reliability coefficients, composite reliability (CR) (Delvin Goldstein),

Spearman coefficient reliability, and Average Variance Extracted (AVE) were examined (Table 4). As shown in Table 4, the reliability of the model based on Cronbach's alpha coefficient for all the variables except the interconnectedness and meaning sub-scales were above 0.6 and were acceptable. In a paper, [30] presented Spearman Correlation Index in the model and named it rho_a and stated that this value should be above 0.6.

The results also indicated that Spearman's coefficient of reliability was favorable and above 0.6 in all sub-scales except the unpredictability. The results of CR showed that all sub-scales were above 0.7 and finally, the coefficients of AVE for all sub-

scales were above 0.5 except the factor of effectiveness from employees empowering.

Therefore, the reliability of the model was confirmed based on four reliability tests.

Table 4. Cronbach's alpha, Spearman coefficient reliability, CR, and AVE reliability coefficients.

Factors	Cronbach's alpha	Spearman	CR	AVE
Interconnectedness	.54	.61	.80	.68
Recruitment of capable employees	.73	.75	.84	.65
Self-determination	.92	.93	.95	.86
Unstructured pattern	.88	.89	.92	.75
Competence	.88	.89	.91	.59
Uncertainty	.69	.72	.82	.62
Nonlinearity	.68	.80	.81	.60
Unpredictability	.66	.43	.74	.60
Meaning	.755	.61	.81	.68
Impact	.70	1.03	.75	.57
Institutionalization of knowledge	.95	.95	.96	.84
Acceptance and innovation	.78	.84	.86	.68

In order to verify the convergent and discriminant validity of the research, the AVE value should be above 0.5. As can be seen in Table 4, all values of CR are larger than AVE, thus the second principle of convergent validity was also confirmed. Also, to test the discriminant validity of the research, cross loadings tests were used. According to this test, the factor load of each item related to its variable is at least 0.1 should be more than when it is virtualized to the other variables. The Fernel and Larker complementary tests also showed the nonlinearity between factors. These tests also showed that all of the AVE squares of the variables were more than

their correlation with the other variables. Therefore, the discriminant validity of the variables was also confirmed. The Heterotrait - Monotrait ratio of correlations (HTMT) test also indicated that all variables pairs had HTMT less than 1. Therefore, the construct validity of the variables was confirmed according to these three tests. Cross Validation Commuality (CVCOM) index was used to evaluate the fit of the model. [15] states that this index is evaluated with three values as 0.02 (weak), 0.15 (moderate) 0 and 0.35 (strong). The results of the CVCOM values can be seen in Table 5.

Table 5. Results of CVCOM for the fit of the model.

Factors	SSO	SSE	Q ² (=1-SSE/SSO)
Employees' empowerment	677.288	642.194	0.214
Organizational learning	802.775	537.292	0.524
Chaos characteristics	5.580.000	2.658.557	0.164

In the measurement model, all CVOM values with respect to Q2 value in the variables of employees empowering and chaotic characteristics, the fit of the model was moderate. and the fit of the model was very strong for the organizational learning variable. That is, the fit of measurement model was high. As shown in Table 6, the main research hypothesis that was the effect of chaotic characteristics on organizational learning was supported, $\beta = 0.58, p = 0.001, p < 0.05, t = 7.80$ and out of the range of -2.58 and 2.58. The beta coefficient shows the strength and direction of impact. That is, the organizational chaotic characteristics influenced organizational learning as much as .583 which is a positive and direct effect.

The results also showed that the chaotic characteristics affected the employees empowering, $\beta = 0.62, t = 5.36, p = 0.001, p < 0.05$. Furthermore, employees empowering affected the organizational learning in physical education departments of public universities in Iran, $\beta = 0.32, t = 3.32, p = 0.001, p < 0.05$. As illustrated in Figure 1, examining the employees empowering mediator effects on causal relationship between chaotic characteristics and organizational learning revealed that the Variance Accounted for (VAF) calculated according to the formula of $VAF = a * b / (a * b) + c > 0.80$ was 0.377 and its partial mediation was confirmed since it is between 0.02 and 0.80.

Table 6. Results of research hypotheses.

Hypotheses	β	t	P	Result
Chaos characteristics affect organizational learning in physical education departments of public universities.	.58	7.80	.000	Supported
Chaos characteristics affect employees' empowerment in physical education departments of public universities.	.18	2.51	.013	Supported
Employees' empowerment affects organizational learning in physical education departments of public universities.	.22	3.50	.001	Supported

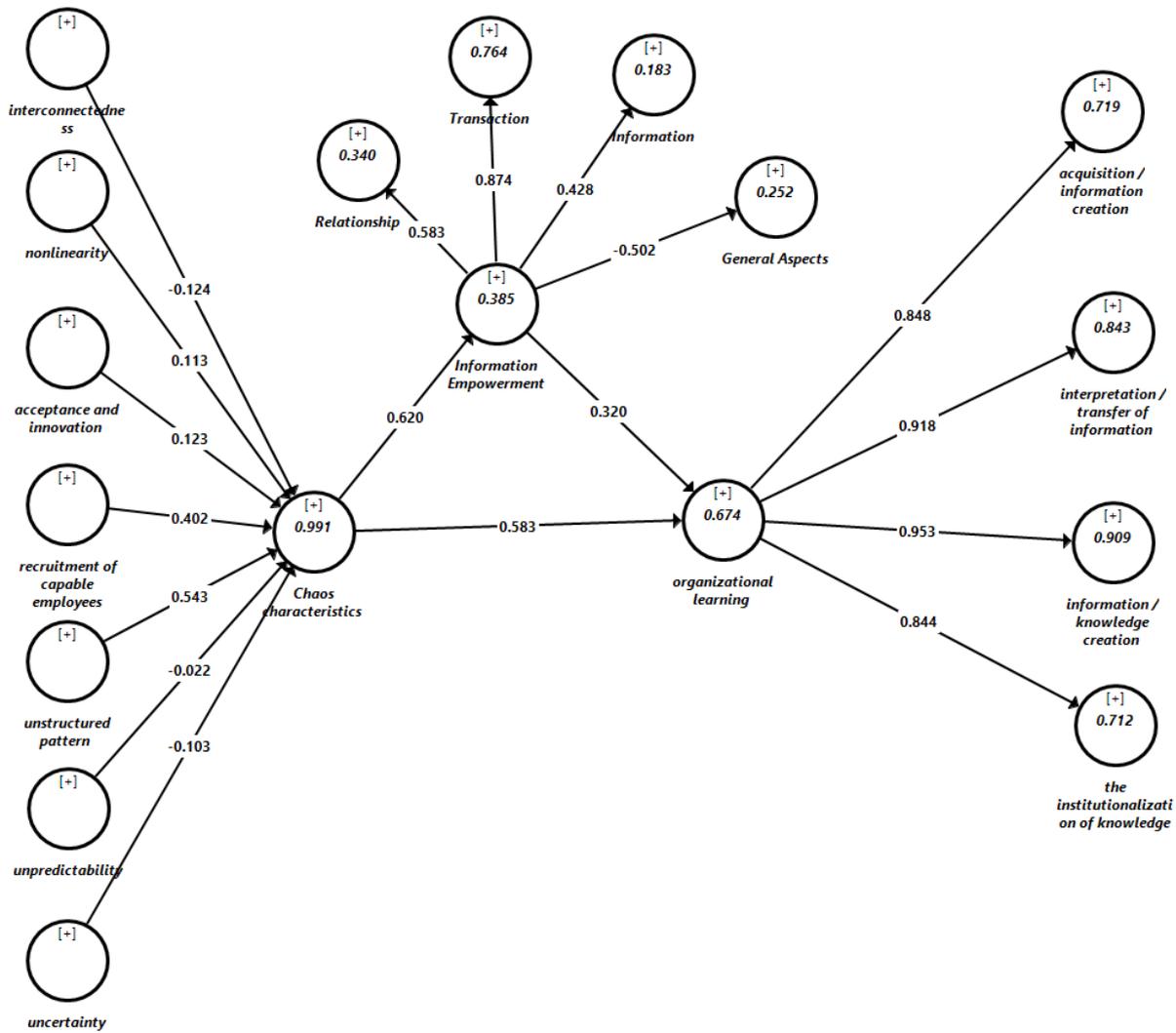


Figure 1. The structural model of chaos characteristics on organizational learning with the mediating role of employees’ Information empowerment.

According to the R-Squared (R^2) test in structural equation, it shows that how much the independent variables predict the endogenous variable behavior. The main purpose of any causal research is to develop a model that leads to a desirable R^2 . This study has three endogenous variables so it has three separate regression equations and each equation is supposed to predict one endogenous variable. Therefore, there are two R^2 indices for this research. In the first equation, seven variables predict interconnectedness, nonlinearity, acceptance and innovation, recruitment of capable employees, unstructured pattern, unpredictability, and uncertainty.

employees, unstructured pattern, unpredictability, and uncertainty. In the second equation, the seven variables predict the chaotic characteristics and organizational learning behavior. According to [8], if the number of independent variables is less than or equal to 5, we predict the value of R^2 with three values of 0.19 (weak), 0.33 (moderate), and 0.67 (strong). According to [16], if the number of independent variables is greater than 5, we predict the value of R^2 with three values of 0.25, 0.50, 0.75. Table 7 represents R^2 of endogenous variables.

Table 7. R^2 of endogenous variables.

Variables	R^2	Adjusted R^2
Chaos characteristics	.99	.99
Organizational learning	.67	.66
Employees’ empowerment	.38	.37

As shown in Table 7, the value of R^2 is very high in the first equation, the value of R^2 is close to high in the second equation, and the value of R^2 is moderate in the third equation.

The F^2 states how each individual variable contributes to the prediction of dependent variable behavior. Table 8 shows F^2 for each of the research variables.

Table 8. Results of F^2 in prediction of dependent variable of each variable.

Variable	Chaos characteristics	Organizational learning	Empowering employees
Interconnectedness	1.11	-	-
Nonlinearity	1.23	-	-
Acceptance and innovation	1.02	-	-
Recruitment of capable employees	7.76	-	-
Unstructured pattern	14.11	-	-
Unpredictability	.02	-	-
Uncertainty	.53	-	-
Empowering employees	-	.19	-
Chaos characteristics	-	.64	.62

As can be seen from Table 6, the factors of interconnectedness, nonlinearity, acceptance and innovation, recruitment of capable employee, unstructured pattern, uncertainty, nonlinearity, unpredictability highly predicted the chaotic characteristics. In the second equation, the chaotic characteristics highly predicted organizational learning. In the third equation, the empowering employees highly predicted organizational learning behavior.

The Cross-Validity Redundancy (CV RED) was used to examine the fit of internal model. The results showed that the CV RED for the dependent variable of chaotic characteristics was $VIF = .22$, which indicates an average fit of internal model, while CV RED for organizational learning was $VIF = .38$, which shows the high fit of internal model. Also, the fit of the dependent variable of empowering employees was $.08$. In order to evaluate the Goodness of fit for internal model, GOF indices were applied. This test is the oldest test of the Smart-PLS for examining Goodness of fit which was suggested by [15], it consists of both the external and internal models and is calculated as follows:

$$GOF = \sqrt{\text{average (VIF or communality)} * R^2}$$

$$Gof = \sqrt{(.207 + .384 + .084) / 2 * (.991 + .674 + 385) / 2} = .548$$

As it can be seen, the calculated $GOF = .548$ is higher than $.36$, indicating that the model of impact of human recourse activities on employees' performance in selected sports organizations has a favorable Goodness of fit.

Discussion and conclusion

The results of structural equation modeling (SEM) related to the third hypothesis of the research showed that the organizational chaotic characteristics had a positive and significant effect on organizational learning as much as 0.583 in the officers of physical education departments of public universities in Iran, $t = 7.808$, $p = .001$. The results were in line with those of [23], [6] and [14]. [23], in a study on analyzing factors of chaotic management in physical education organization of Islamic Republic of Iran based on chaos theory model found that the occurrence of controlled chaos in organization can cause organizational learning in different contexts if it is managed well. The results of their study showed that chaotic management in the physical education

organization was significant and moderate. Since there was no significant relationship between the amount of each dimension of chaotic management and the importance of its dimensions. It can be inferred that managers of physical education departments do not benefit from the positive effects of chaotic management skills for decision making, quality improvement, and so on. In this regard, [6] also concluded that the chaotic characteristics in the organization, provided they are properly managed and principled, can have positive effects on organizational learning.

Results obtained from examining Physical Education departments indicate that the characteristics of the chaotic organization have a positive and significant effect on organizational learning. This means that these departments are quite flexible. In other words, they have an organizational culture in which rules and regulations are flexible, and as different conditions are always present in sports management people have enough freedom to perform their duties. The organization's environment is such that testing and experimentation supports risk-taking and acceptance of failure, and trial and error exists as a living and sustainable process in these departments, and provides the right atmosphere and environment for learning in these departments. It also necessitates organizational learning due to its unpredictability and ability to cope with new situations. In fact, it is the physical education departments that have certain characteristics that completely separate them from traditional organizations and provide a good environment for learning in the organization.

Organizations of chaos are on the edge of chaos, and this would create the innovative ways to address organizational problems. Organizational learning and creating and applying innovative ways occur when an organizational system is maintained between balance and imbalance. Accordingly, chief executive officers should maintain balance and to provide organizational learning and greater innovation and creativity in the organization. All of today's developed organizations like many types of sports organizations need organizational learning and creativity to develop further. Therefore, organizations need to institutionalize learning in all their elements to change their behavior to adapt to the environment. Likewise, [14] found that it is possible to use chaos as a mechanism for utilizing project and organizational strategy to improve

understanding of the project's benefits for organizations and they can better manage the chaotic characteristics and organizational learning to promote organizational productivity. In interpreting the results, it should be noted that chaos has characteristics that distinguish them from traditional organizations. Organizations of chaos have characteristics such as vigilance, interconnectedness, uncertainty, unpredictability, flexibility and continuous evolution, as these organizations must always be ready for rapid and significant changes in knowledge and different needs. Therefore, in order to be more efficient and up-to-date, they must abandon their trivial knowledge and skills and acquire necessary knowledge and skills. In chaotic conditions, systems are constantly fluctuating between different attractions, and sometimes small changes can cause extensive and radical changes in the system.

In addition, changing management in complex and chaotic systems is not responsive by traditional methods, and managers need to learn about the changing area in these systems and empower their employees to make positive changes while keeping pace with the chaos and environmental turbulence. Nowadays, all sports organizations attempt to enhance the efficiency, effectiveness and productivity of their organization by improving and developing their employees' skills. Therefore, it is necessary to use different methods of Information empowerment technology.

The results of this study showed that in physical education departments, the chaotic characteristics have a positive and significant effect on employees empowering. In physical education departments, people with different levels of expertise, skills, information, and different experiences provide the necessary space to create new knowledge and information. Also, these departments, with features such as lack of structural stability, decentralization and non-officially, provide conditions for employees to explore the internal and external environment and identify and collect useful information for the organization and by combining past experiences gain new information and create information capabilities in employees. Since chaotic organizations are involved in a turbulent environment, they, therefore, need to make different decisions quickly and efficiently, so there is a good opportunity for more participation of employees in decision making that managers need to consider it as by that they can increase organizational commitment and satisfaction. However, the results of the research examining the effect of the chaotic characteristics on employees empowering in physical education departments of public universities in Iran are supported.

The inferential results of the study indicated that the chaotic characteristics with the mediating role of employees empowering have a significant effect on organizational learning. It can be stated that the employees empowering is considered a partial

mediator in causal relationship of chaotic characteristics and organizational learning. As it was expected, in the physical education departments, which are considered chaotic organizations with respect to the above-mentioned interpretations, comprehensive communication and coordination of different units of departments with each other provides conditions that cause information circulation among different units of departments, information exchange and learning among individuals, participation in decision making, the ability to interpret human resources, receiving feedback and participation in individuals' mental models through employees empowering and communication. By coordination, it means the coordination of championship sports section with the existing talents in the public sports section and sharing knowledge, which is considered fundamental in organizational learning between different departments, attracting capable people, and supporting competency.

The results revealed that the chaotic characteristics of the organization affect organizational learning regarding applying information and creating knowledge. In fact, the characteristics of the chaotic organization, such as unpredictability and uncertainty, cause the use of new information in practice and gain new experiences. However, this requires the use of educational books and pamphlets, coherence and combination of information or imitation of successful methods from sports sectors organizations, and the use of employees empowering which can improve learning as much as possible. According to the main research hypothesis, therefore, the mediating of employees empowering in the relationship between the chaotic characteristics and organizational learning is confirmed. The chaotic organizations have certain characteristics by which there is a strong focus on employees empowering to solve organizational problems.

To sum up, it can be stated that in the examined physical education departments, the characteristics of the chaotic organization affect the organizational learning. The chaotic organization with characteristics such as removing borders and lack of structure, flexibility, communication, which is one of the features of employees empowering, meritocracy, and attracting people with different characteristics of information empowerment, inclusiveness of information and knowledge throughout the organization, and the use of new information lead to classification and publicity in the whole organization. Furthermore, this also results in turning theoretical knowledge into practical knowledge, continuous improvement of organizational performance, the ability of the organization to conform to environmental requirements, and developing competitive advantages. As [12] stated, the chaotic organization can provide learning opportunities for employees by using facilitators such as social interactions and communication, which are indicators of information empowerment. Therefore,

in chaotic organizations, one of the main programs of human resources is to formulate and hold various training and operational courses with the aim of employees empowering.

On the other hand, enhancing employees' abilities and skills have also promoted organizational learning through various methods and strategies such as holding courses and workshops and promoting various techniques such as nominal group and brainstorming techniques. However, it is expected that with the presence of two variables of chaotic characteristics and employees empowering, the organizational learning variable would be more improved than the separate existence of these variables. It can be claimed that a part of this increase is attributed to the direct effect of the chaotic characteristics on organizational learning and another to the indirect effect of the mediating variable of employees empowering. Accordingly, it is suggested that the managers of physical education departments of public universities throughout the country can employ the characteristics of chaotic organizations to enhance and improve the capabilities and skills of

employees. In addition to the useful use of chaotic characteristics on organizational learning, managers are also suggested to exert greater impact on organizational learning by employees empowering. It is also important for managers to pay special attention to the fact that learning and creativity are encouraged in chaotic organizations. Because managers need to learn along with employees empowering, encourage a variety of different perspectives and creativity so that physical education departments can respond appropriately to the turbulent and unpredictable environment of sport and understand existing structures. Managers are recommended to trust the chaos to take advantage of situational benefits such as flexibility, change and continuous improvement, create learning in the organization, create mobility and vitality in employees and work environment using information from employees empowering. They can help organization get improvements and learn that constant change and emerging chaos is the natural state of affairs. Finally, managers need to know that the chaotic organization provides more potential for learning, which in part depends on the information from employees empowering.

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Received: August 16, 2016

Accepted: September 1, 2016

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