

STUDYING THE EFFECT OF CYBERNETIC PATTERN ON QUALITY ASSURANCE BY REVIEWING THE ROLE OF LEARNING ORGANIZATION MEDIATOR VARIABLE IN GENERAL UNIVERSITIES OF TEHRAN

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Abstract

In recent decades, approaches to quality assurance in universities and centers of higher education and research – in contrast to the quality management approach in organizations, businesses and industry - has been the focus of considerable attention. The aim of this study was to investigate the influence of cybernetics on quality assurance with regard to mediator of learning organization at the University of Tehran. In this regard, (163) of faculty members of Tehran University, Martyr Beheshti University and Tarbiat Modarres were selected as the samples using randomized and standardized questionnaires. In order to analyze the data and collected information and answering the research questions and study of conceptual model and review research that represents a significant network of relationships between the variables being studied, the method of path analysis and structural equation modeling is used. The findings suggest direct effects of the Cybernetics model on learning organization has been (0.63), Cybernetic model of quality assurance level (0.44) and the quality assurance level (0.76) and indirect impacts of Cybernetics on the quality assurance of the learning organization model level (0.33), respectively. It should be mentioned that the proposed set of strategies will be provided to improve quality assurance in universities in the country - based on open questions of the questionnaire research - at the end of this article.

Keywords: Quality Assurance, cybernetic model, learning organization and General University.

Introduction

Today, due to the constant changes and high complexity that world is alternately facing Socio-political systems, especially higher education system over other systems in society are subject to reviews and public opinion (Pourzahir, Safai, 2010).

Effectiveness of its system of higher education and the level of responsibility and accountability depends on carrying out the mission and optimum use of the opportunities and challenges of basic resources. Furthermore, the Society and governments due to secure funding for universities, increasingly emphasize on how to exercise responsibility, quality educational

programs, research results, coordinate programs with community needs and focus on quality and accountability of universities (Carlson, 2012, Safai, 2010).

The quality in higher education is a complicated issue and a typical pattern of evaluation includes internal, external, evaluating the credit is developed which in sum created a system of quality assurance (Frastkhah, quoted by International network of quality assurance institutes in higher education, 2003).

In order to have access to the desired quality and its assurance, responding to the needs of university society and other stakeholders considering the professional self-management of academic university and its independence, the traditional management style cannot be efficient and the scientific and management pole will be in contrast. The experts and scholars of the higher education field proposed different models for facing the challenge. Based on the idea of Byrne Baum (2004), different models based on which the universities act upon is divided into five main categories: cooperative model, bureaucratic model, political model, chaos model, Cybernetic model. According to the features and differences of each mentioned models, Byrne Baum (1988) believes that the effective organization of academic activities is possible based on cybernetic controls due to the complex social systems.

By establishing an active system of feedback, the ability to recognize the weak points and correct information is done for applying the required changes and corrections (Heydari Tafreshi et al, 2003).

Organization leading should have awareness of important changes, reforms and activities in organization, knowing the organization and its activities, supporting the activities and cooperation of the members in management and leading, intellectual intervention and emphasizing on case management and creating the communication systems (Bazrafshan Moghadam, 2007). Such a definition of organization associates with the pattern of learning organization (John Kwic, 2000). The learning organizations create knowledge through reviewing the failures and success, their systematic evaluation and transferring and fixing the lessons with maximum efficiency. Schowant and Marcoant believe that in the new environments where the organizations place in, only fast learning of success and failures can maintain the competitive advantages and help them move toward their objectives. Such an organizations create the causes of creating cooperation and incentives and so the output and consequences of organization will have higher quality.

In the second chapter of the fifth development plan, knowledge development and obtaining the second rate of science and technology has been taken into account. In order to obtain the goals of the program, universities and faculties have been considered as the main references of creating, producing and development of knowledge in the society. The study of Bazrafshan (2007) showed that the universities of Iran make use of cybernetic structures especially leading component to organize their activities. On the other hand, the process of system is to guarantee the quality of higher education which is the results of academic bureaucracy and applying cybernetic model has made the standards to develop (Thomas, 2006). Now, there is a question that whether the universities of Tehran can apply other components of cybernetic structures or not? Since the fields of creating and development of knowledge in universities is provided with development of higher education, how much quality of the universities is improved and the goals are met? Which

of the qualities of learning organizations are obtained by the general universities of Tehran? Whether the cybernetic models have been effective in guaranteeing the qualities? Whether the cybernetic model of organizations affect each other or not? Generally, the main goal of the research is that whether the cybernetic model can affect the quality of general universities of Tehran through learning organization or not?

Various conceptualizations are done in the field of higher education quality which has been under doubt due to the weak points and short comings. The first approach has rooted in academic literature and is more associated with the goals, activities and university systems and focus on concepts such as quality assurance and quality development. The second approach is created out of business and industry and emphasize on concepts such as quality management and its methods. Maybe one of the most common reasons for this approach in higher education are the changes due to present and current flow especially in the developing countries. That is attitude change in the higher education from public system toward the market system (Scott, 2010) that

Demand development for having higher education and lack of ability in decision making for responding to the demand has developed it more (Javdani, 2012).

As Scott (2010) mentioned, higher education is in fact game of knowledge. He thinks that there is a dilemma in front of the higher education organizations. One way leads to the market system with emergence of a new institute and education is formed by the taste of the customers that is going toward the leading and executive management in universities that means leaving the organizational independence, scientific freedom and critical thinking (Javdani, 2012). Another way can lead to the development of new forms of higher education that while producing knowledge with higher skills and useful researches, are committed to their responsibilities whether social or cultural (Scott, 2010). Quality assurance is defined as insurance about what service providers do and say (Yiu, 2009). Harman defines quality assurance as a continuous process (measuring, controlling, guarantee, maintenance and improvement) of the quality of a system, institute or higher education course (Javdani, 2011).

The point that should be considered in conceptualizations is that the process and models used for evaluating the quality assurance are not interventional, management based and top-down but they are the processes and models required for obtaining the plan, programs and balanced performance so that prevent any damage to higher education systems. In fact, these models should act for clarifying the evaluations so that they can be responsive for their actions (ibid, p.).

Quality assurance has two dimensions of internal and external evaluation. Internal evaluation is sometimes called self-evaluation, self-measurement and self-review and points to the policies and actions performed in an institute or course for making sure of the fact that the institute has obtained its goals and standards or generally is for a specific course or profession (Martin, 2010). External evaluation of quality refers to the activities of an external group to determine that whether the institute can reach the predetermined standards or not. This external group can be an institute of quality assurance or any other groups (except the activities or courses that are being evaluated) (Martin, 2010).

By discussing the issue of academic independence and scientific freedom (Farastkhah, 2010) , as it is excepted, the academic system is more efficient than before (Rahimi, 2003). The academic

system has to rethink about the structure, aims, and performances and processes so that understand the complex nature of inside the organization and social realm of the actions. The system pays attention to different levels of university, social interactions, social needs and government (Espinosa, 2010).

Stephan Mignot (2002) believes according to the Byrne Baum approach that universities are cybernetic organizations that modify themselves with efficient methods. Self-building and self-reference in cybernetic structures increases the efficiency (Schwaninceer, 2003). In other words, the feedback rings of cybernetic help the information system to set itself and analyze the relationship between the organization and the context (Beckford, 1993). All the stake holders of higher education including the managers, faculty members, students and staff share in technology (Bazrafshan, 2007, quoted Case, 2003). Beckford (2010) defined cybernetic as a branch of management science that studies the structure, information and human aspects of organization as a total (Dudley and Beckford, 2010). Figure 1 illustrates the relationship of information system, managers, members, structure, efficiency and feedback ring from Beckford perspective.

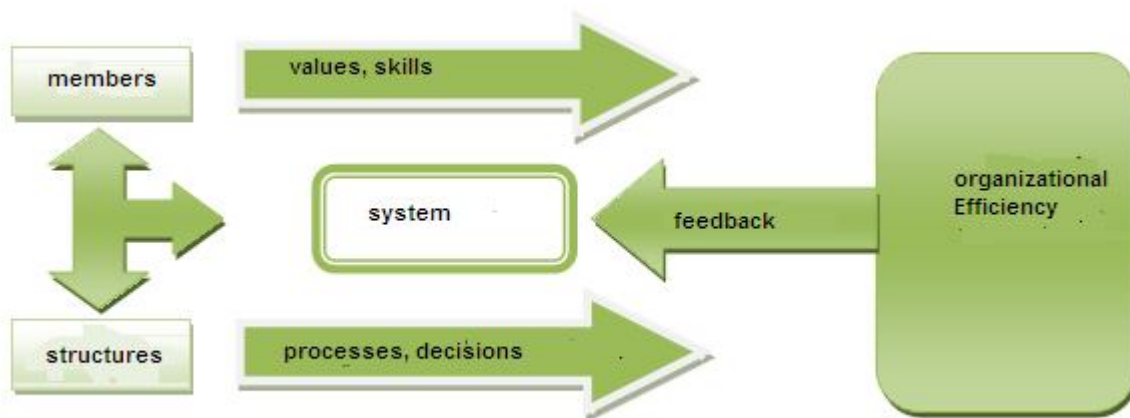


Figure 1: Organizational Cybernetic Model (Beckford & Dudley)

University as a productive system has different functions but production in universities is different from other organizations. Universities work on the knowledge industry (Bazrafshan, 2007). According to Dunten (1998) creating and transferring new knowledge is a base for all the sections of organization. At the end of 50s and beginning of 60s the discussion of “organizational development” are in the center of management and planning in universities. One of the definitions is the definition of Beckhard based on which “organizational development is a planning process that is followed by the systematic principles based on behavioral science (such as sociology, psychology, management theories, economy, law, political science, system approaches, humanity, teaching approaches, learning and ...) and special methodology and the aim is to have personal and organizational efficiency and high organizational management, support and its guarantee (Farastkhah, 2010, quoted Frenchbell, 2004). Organizational

development by itself is related to various theoretical bases. Including the discussions related to management changes, group dynamics, learning approaches and organizational learning (ibid.)

Learner organization are the organizations where people are continuously developing their capacity to obtain a results they want, where they develop new thinking patterns, where the group and desires are met and finally a collection in which the people always learn to learn together (Senge, 2012). The features of learning organization provide the reasons for development of staff and faculty members. The most important function of development of faculty in university is efficiency in three sections of teaching, research and services (Farastkhah, 2012). Malford (2000) define the learner organization as the self-built organizations which are revived and developed again. This definition of learning caused the Malford refused the belief that the learning organization has fixed approaches and formulation of goals. The researches of Rastemoghadam (2002), Satari (2012) and Abdeli (2011) showed that the case universities do not have proper condition in using the features of learning organizations. But based on the findings of the study by Bazrafshan Moghadam (2007), the case universities have tendency to organizing their activities in the frame of Cybernetic which is the most common approach with leading components. Mohammadzade (2009) in his study dealt with designing a pattern for guaranteeing the quality in higher education from the perspective of Agriculture faculty members. In this research, according to the global experiences, eight dimensions are considered for guarantee assurance patterns including: quality assurance “incentive founder” , the way of participating in quality assurance process, definition of quality, evaluation methods, focus area, goal, efficiency and following activities.

Murphy (1997) did a research as “performing the principles of learning organization and quality assurance, a practical model” to improve the quality of Rio Salado University in (1993). He concluded that the practical pattern of learner organization does not exist and so first the practical pattern should be performed first to obtain the desired quality. The result of the study by Stephan Maginot (2002) showed that in the history of universities two main issued should be taken into account; first we cannot consider leadership in the existence of the dean of the university and in contrast, managing a university is a collective responsibility. Determining the goals, view and tasks of universities is done by different people. On the other hand, the system of managing the university and the relationship between the dean of the university, managers, faculty members and managerial body is clearly shown. So, when these structures are studied, these relationships should not be ignored (Bazrafshanmoghadam, 2007, quoting Stephanie, 2002). Hachette (2006) did a research called “quality assurance in higher education of Kingdom State: the study of trust, control, professional self-management and responsibility”. His aim was to study the effect of quality assurance on work life of students. Specially, if they feel reduction in their self-management and they are controlled or not. He wants also to know that how much quality management and relationship between the coworkers can be changed. The author concludes that the responsibility and transparency are the main principles that universities have to accept but the evaluated form in Kingdom state introduced different capabilities and harms the trust. Furthermore, one can plan about how to maintain the public trust and have quality in academic education through the abilities and trust to the experts. The results of the research by Khasanio (2010) showed that the average to excellent application of all the principles of learning organization is in the universities. So, the member enjoyed working in group work environments. This education in all actions is necessary for emergence of skills, personal and professional

growth. This caused the balance of their views and goals in the university and sharing the experiences in a healthy working environment. Despite the abovementioned discussions, the results indicated that Hashemi University is not a complete learner university yet and has to work more for obtaining the goals. Hua (2010) from Jiangtong University dealt with the “study of quality assurance in higher education”. According to him, quality is the main theme of educational plans and teaching the graduates. The results of the present research show that the main action of the cybernetic systems is quality assurance which leads to higher education for graduates (Hua, 2012).

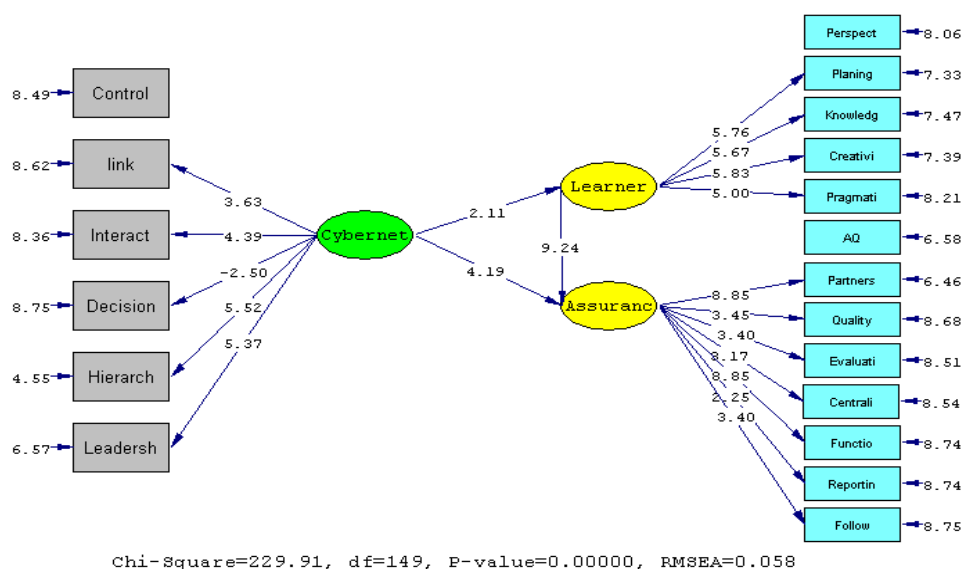
Research Methodology

The present study was done to study the effect of cybernetic pattern on quality assurance considering the medium variable of learning organization in Tehran general universities which apply the descriptive and correlational method. In order to analyze the data and collected information and answering the research questions and studying the validity of the conceptual model which introduced a meaningful network of the relationships between studied variables by the method analysis and structural equations model. The present research is planned and performed based on a conceptual model which will be introduced in the following. The population of the study is 650 of faculty members in engineering, human science, physical science of Tehran, Shahid Beheshti and Tarbiat Modarres universities. The questionnaires were distributed personally and through email. (163) of the questionnaires were collected and analyzed. The standard questionnaire of Wick and Leon in two M.A. Thesis was also used. The quality assurance questionnaire was taken from a doctoral thesis of Mohammadzade (2009) which were designed based on standards. The questionnaire of cybernetic pattern was taken from Doctoral thesis of Bazrafshan (2007). In order to confirm the internal validity of the questionnaires, they were reviewed by the professors and experts. Construct validity was confirmed by the cycled factor matrix. In addition, the reliability of the three questionnaires was calculated by Cronbach alpha for learning organization (0.961), cybernetic patterns (0.953) and for quality assurance questionnaire was (0.961).

Research Findings

As it was reviewed the main goal of the present research was the study of cybernetic patterns effect on the quality assurance of general universities of Tehran considering the role of mediator variable of learning organizations.

Figure 2) the structural model of cybernetic pattern effect through learning organization on quality assurance in meaningful mode



The results of significance tests can be seen in figure 2. As it is shown the results have been meaningful related to all the relations as more than (1.96). On the other hand, the software output has shown proper use of structural model for testing the hypotheses. K-2 ratio to degree of freedom was under 3. So it has a sufficient amount. The amount of RMSEA was 0.058 which showed the fitness of the model. In other words, the data are based on the conceptual model of the research. The goodness of fit index and corrected fit and standard fit were 0.98, 0.97 and 0.93 respectively.

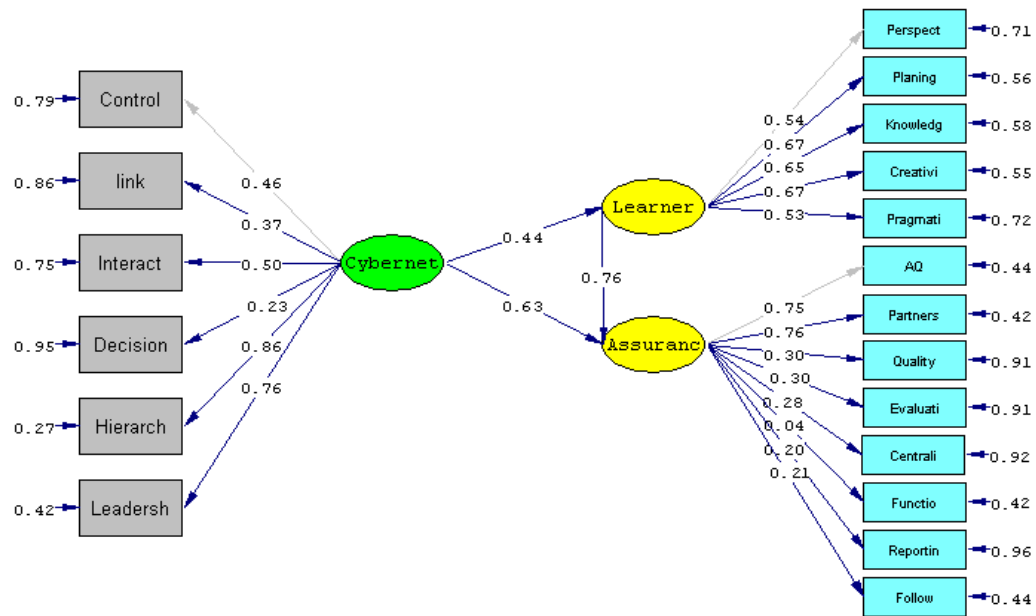
The studied universities were compared in terms of using the learning organization features and cybernetic patterns.

Table 2: Testing the statistical hypothesis of average learning organization and cybernetic pattern

Demand	Test Value = 2.5					
	t	df	sig	MD	Confidence level %95	
					min	max
present condition of learning organization	-3/196	161	0/002	-0/17875	-0/2892	-0/0683
Present condition of Cybernetic organization	13/321	156	0/000	0/58606	0/4992	0/6730

Results of Table 2 show that the studied universities are not in a desirable situation in terms of utilizing characteristics of a learning organization. In addition the findings show that the studies universities have used cybernetic pattern in their system more than average.

Figure 3: the structural model of cybernetic model effect through learning organization on quality assurance of standard estimation mode



Based
the
findings

Chi-Square=229.91, df=149, P-value=0.00000, RMSEA=0.058

on

of

figure 3 and table 3, the effect of cybernetic pattern or model on quality assurance has been (0.44). This effect was 0.76 through the learning organization and 0.33 through the learning organization on quality assurance.

Table 4: the summary of research results

row	hypotheses	Effect coefficient	Significance coefficient	result
1	$H_0 : \rho = 0$ Cybernetic model has no meaningful effect on quality assurance. $H_1 : \rho \neq 0$ Cybernetic model has meaningful effect on quality assurance	0.44	2.11	confirmed
2	$H_0 : \rho = 0$ learning organization has no meaningful effect on quality assurance $H_1 : \rho \neq 0$ Learning organization has meaningful effect on quality assurance.	0.76	9.24	confirmed
3	$H_0 : \rho = 0$ Cybernetic model has no meaningful effect on learning environment $H_1 : \rho \neq 0$ Cybernetic model has meaningful effect on learning environment	0.63	4.19	confirmed
4	$H_0 : \rho = 0$ Cybernetic model has no meaningful effect on quality assurance through learning organization $H_1 : \rho \neq 0$ Cybernetic model has meaningful effect on quality assurance through learning organization.	0.33	---	confirmed

The results of the survey sites at Tehran University and Tarbiat Modarres and Shahid Beheshti University and the responses given to the open question of the questionnaire showed that Some schools according to the dimensions of interest and awareness and internal evaluation or both, have designed and implemented quality assurance, but the impact assessment has not been concerned in a state college or department.

Conclusion

The findings of the present study was to compare the results of Abdoli (2011), Pratt Feld (2006), Sattari (2012) and Rastemoghadan (2005) confirms that this subject Universities did not have a feature of the learning organization, but the results of Khasanova (2010) shows that the University is utilizing characteristics of a learning organization to have an enhanced performance.

Comparison of the present study with the study of Bazrafshanmoghadam (2007) shows that the case universities tend to cybernetic structures. Hua (2010) showed that the main action of the cybernetic systems is quality assurance which leads to higher education for graduates. The findings suggest Cybernetic model of quality assurance level (0.44) affect the quality assurance of the learning organization. Comparing the results of the present study with the study of Murphy (1997) showed that the features of learning organization have significant effect of 0.76 on quality assurance. Stephan Mingot (2002) dealt with the issue in his research that leading is a collective function and the structure of university should be taken into account. The same result was concluded in this study since the effect of cybernetic on learning organization is 0.63. Hachette (2006) concludes that the responsibility and transparency are the main principles that universities have to accept and the effect of cybernetic pattern on quality assurance through learning organization as 0,33 indicates the same fact.

According to the results of the data analysis and aforementioned discussion, it is suggested that the cybernetic pattern has been effective on learning organization and shows the complex relationship in academic system of universities and according to Baum the help of cybernetic systems and patterns can affect the management. If the dean of universities knew the academic society (Mackellar, 2005) he can rely on professional self- management and trust the staff and faculty members to have debates for short term and long term plans for the group to be implemented as decentralize programs and then replace the bureaucracy by the cooperative management and symmetrical interactions. They can hold workshops for teaching new features to the faculty members to know about the organization and design an intranet and internet so that the faculty members can share and communicate with each other and have discussions. Furthermore, encouragements and feedback rings can correct the faults of faculty members in secret and after a while they can be remembered in case of ignorance.

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