A Model for Organizational Intelligence in Islamic Azad University (Zone 8)

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Abstract

Today organizations are faced with the rapidly changeable events in economical, technological, social, cultural and political environment. Successful and dynamic reaction of organizations depends on their ability to provide relevant information and to find, at the same time, adequate solutions to the problems they are faced with. In that sense, the attention of organizational theoreticians is focused on designing of intellectual abilities of organization and new concept in organizational theory has developed organizational intelligence (OI). In two decades ago, theoretical models have been developed and little research has been conducted. Having a model for defining and assessing the organizational status of an organization can be very helpful but the key questions facing every manager are; how can the level of collective intelligence be promoted? And what factors influence OI? Therefore this research carried out in order to assess OI and its factors influencing I.A.U. and provide a structural equation model. The subject of the study was 311 faculty members of I.A.U (Zone 8). Faculty members completed OI questionnaire (Cronbach's alpha=0.98), learning climate (Cronbach's alpha=0.94), multifactor leadership questionnaire (Cronbach's alpha =0.92) and organizational learning audit (Cronbach's alpha =0.94). Findings of this research showed that mean of organizational intelligence, organizational learning and learning culture were less than mean and transformational leadership was more than mean of questionnaire. Lisrel project software was applied for confirmatory factor analysis (CFA) and structural equation modeling (SEM). Based on the tested structural equation model, transformational leadership style had direct impact on learning culture (β=0.78), learning culture had a direct impact on OI (β=0.46), organizational learning had a direct impact on OI (β=0.34) and learning culture had a direct impact on organizational learning (β=0.96). The tested model had a good fit. Findings suggest that for the organizational intelligence to be promoted, these factors must be taken into account.

Keywords: Organizational intelligence, transformational leadership, organizational learning, learning culture, structural equation model.

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1 Introduction

Organizations today are facing constantly changing environment, economic, technological, social, cultural and political conditions. Survival in such competitive and highly complex conditions requires alertness to the environment and a timely and appropriate response. Successful adaptation and response, in return, depends on organizational intelligence and how to use their intellectual capital. This particular case becomes more imperative with universities because universities regard to their original roles and responsibilities in the field of education, research, services, publications, professional development (Ghurchian and Khorshidi, 2000), community leaders, convincing moral and intellectual framework preparation for the future (Senge, 2000) and other specific organizational characteristics that distinguish them from other organizations including the multiplicity of stakeholders, the professional bureaucracies (Prejmerean and Vasilache, 2007) and features related to the learning paradox (Bratiun, 2007) require more investment on organizational intelligence and must take the lead in this area and gradually concentrate on their organizational intelligence development strategies [6,11,20,22]. Organizational Intelligence promotion requires the influencing factors identification besides knowing the intellectual capacity level. Since the introduction of the organizational intelligence concept in 1987, many theorists and researchers have tried to clearly explain this concept and its components in a method that most things which have been done so far focus on offering more models and frameworks which show the dimensions and constituent components of organizational intelligence (for example, Matsuda (1992) is quoted by Becker et al. (1995); Glynn (1996); Halal (2000); Stonhouse and Pemberton (1999); Matheson and Matheson (2001); Albrecht (2003); Schwaninger (2003); Cronquist (2004)). In researches related to organizational intelligence, the attention has been centered on organizational intelligence assessment. For example, Faghihi (2008) evaluated the organizational intelligence in research and education planning organization and proposed a conceptual framework [9]. The overall results of this study showed that if this organization tries to strengthen the organizational intelligence to become an intelligent organization must focus on eight factors of appetite for change, knowledge and learning management, shared fate, strategic vision, information and communication technology, organizational performance, heart and soul and organizational structure. In another study that is conducted by Prejmerean and Vasilache (2007), the organizational intelligence was evaluated using the parameters discussed in Albrecht model. But there are not many researches that research about the relationship between organizational intelligence and other variables [20]. Khodadadi’s Research (2008) focusing on the relationship between the components of organizational intelligence and organizational culture showed that there exists a significant positive relationship between the five components of the shared fate, appetite for change, heart and soul, alignment and congruence, knowledge deployment and organizational culture. The result also showed that there is a significant positive relationship between organizational intelligence and organizational culture [13]. Staskeivicuice and Ciutiene (2008) in a research, studied the universities organizational intelligence processes and their relationship with universities’ effectiveness indicators. The results also showed that universities which have a higher level of organizational intelligence have accordingly higher effectiveness and the formation of intelligent university would be created for development of university's processes development [24]. One essential element in organizational intelligence establishment is learning, and one of the major factors in organizational learning is a kind of culture in which people interact to each other, management response to environmental changes is dynamic and active, team activities receive a lot of attention for the exchange of ideas and there is a high confidence for shared learning and instead of just doing a job, it is focused on achieving goals and innovation is emphasized (Liebowitz, 2000) [15]. Transformational leaders have an important role in creating a climate that will lead to organizational learning. Transformational leaders have an important role in the creation of intellectual capital in organizations by creating synergy (Popper and Lipshitz, 2000) [19]. As noted, despite the role and importance of organizational intelligence especially at universities, there has not been any research
regarding the factors affecting organizational intelligence but only in theoretical models some factors affecting the organizational intelligence has been proposed and that's why for the necessity of the problem such research was conducted. Therefore, this study evaluated the effects of direct and indirect impact of transformational leadership style, learning culture and organizational learning on organizational intelligence and provides a model for explaining the relationship between them and examined the following hypothesis:

1) Learning culture has a direct effect on organizational intelligence,
2) Organizational learning has a direct effect on organizational intelligence,
3) Learning culture has an indirect effect on organizational intelligence through organizational learning,
4) Transformational leadership style has a direct effect on organizational intelligence, and
5) Transformational leadership style has an indirect effect on organizational intelligence through learning culture and organizational learning.

By conducting this research, not only the universities under study will find information on their organizational intelligence level but also related factors affecting organizational intelligence and the direct and indirect effects of these factors on intelligence organizations will be clarified. Knowing these factors will provide planners and experts in the field of organizational and staff improvement with a chance to invest on these factors to enhance organizational intelligence in the university and provide competitiveness and survival in this environment.

2 Methods and Materials

Methodologically, this study employed a latent variable approach including a series of CFA (Confirmatory factor analysis) and SEM (Structural equation modeling). The research society includes academic branches of Islamic Azad University (zone 8). The sample consists of 311 (15 case for each observed variable) faculty members that were selected randomly. To do so, the faculty members' number of each academic branch of (zone 8) were determined separately and then regarding the number of faculty members in each of these sampling branches, samples were identified and selected. Data gathering instruments in this research were four questionnaires. In order to measure organizational intelligence, Albrecht's organizational intelligence questionnaire (2003) has been used including 49 questions about the seven aspects of organizational intelligence. This questionnaire has repeatedly been used in management study and has acceptable validity and reliability. The questionnaire is in English and it is graded based on the five degree Likert scale (very low to very high). So, at first, the text was translated into Persian and its translation were repeatedly revised and then a specialist in English was asked to the translate the text into English without having any recourse to the original documents and then the two copies were compared to each other and the meaningful sequence of two versions in English and Persian were examined carefully. This method which is called "back and forth" was applied in order to ensure that the meanings used in English questionnaire are the same in the studies on the Iranian people. In order to finalize the questionnaire application, based on the following reasons, Semi-metric scale instead of Likert scale was used.

1) Considering the Semi-metric scale which ranges from zero to 100 and when the test number gets higher and more, the chance of error and randomization will be less and validity of the tests evaluation will be more so the default credit of 5 option questionnaire is more than 3 or 5 options (Sharifi and Sharifi, 2004), it can be concluded that the zero to 100 scale leads to more precise responses.
2) Considering the fact that the main mathematical calculations is not allowed before dimensionless and scale unification and Semi-metric scale provides multiplying and adding (Asgharpour, 2008), all questions will be graded based on this scale.

After preparing the questionnaire in order to evaluate the reliability, pilot study was conducted. For this purpose, the questionnaire was given to 40 members of the population and was analyzed after collecting the data; and in order to determine the internal consistency of questions the Cronbach's alpha coefficient was used which obtained coefficient was 0.98. To measure the transformational leadership style, Bass and Ovolio's multi-factorial leadership style questionnaire (2000) has been used which included 20 questions about 4 transformational leadership style factors. This questionnaire is a instrument that is widely used in relation to leadership style and has sufficient validity. Cronbach alpha coefficient measured for this part was 0.92. In order to measure the learning climate, the Bartram, Foster, Lindley, Brown, and Nixon's learning climate questionnaire (1993) was used which included 42 questions pertaining to seven aspects of learning climate which had high structural and distinctive validity (Mikkelson and Gronhaug, 1999). In this study, considering the questionnaire original English version as that of organizational intelligence, translation was done using "back and forth method" after ensuring meaningful sequence of two versions of English and Persian and based on the reasons mentioned earlier for the first questionnaire, semi-metric scale (zero to a hundred) with suitable positive or negative questions were used. Cronbach's alpha coefficients obtained in this study were 0.94. Organizational learning was assessed using Pearn and Mulrooney audit on learning (1994) that included 15 questions (Nequeimoghadam, 2007). The questionnaire also has high construct validity and in order to assess the reliability, a Cronbach's alpha coefficient was used and the result was 0.94. Regarding the models, two-stage approach (Lee, 2004) was used to evaluate the proposed model: at the first step the confirmatory factor analysis (CFA) was used to evaluate the fitness of latent variables measurement models. In other words, it was investigated whether the measures precisely evaluate the construct. At the second step, the structural equation model (SEM) was used to evaluate the hypothetical model. All analysis has been done using SPSS and LISREL software.

3 Findings

Based on the findings, 46.9 percent of faculty members participating in the study were female and 53.1 percent were male whose majors were 38.9 percent (both sexes) Technical and Engineering, 30.2 percent Humanities, 10.9 percent of Medical Sciences and 19.9 percent of basic Sciences and 34.4 percent of faculty members had more than ten years work experience, 38.6 percent within five to 10 years and 27 percent had less than 5 years and the participant were proportionately selected from all academic branches of zone 8. In order to respond to the question whether a model can be offered to assess direct and indirect effects of transformational leadership style, learning culture and organizational learning on organizational intelligence, data from questionnaires were analyzed of which the findings will be provided in the following two sections.

3.1 Confirmatory Factor Analysis (CFA)

Before the evaluation of hypothetical structural model to create suitable and acceptable measuring models and to determine whether indicators measure the underlying theoretical construct, confirmatory factor analysis was performed on all the latent factors. Evaluated hypothetical model in this study consisted of four latent variables including organizational intelligence, organizational learning, learning culture and transformational leadership style. Each of these latent variables has been measured with a few indicators. Factor loading of observed variables of organizational intelligence latent variable ranges from 0.82 to 0.92. The factor loading of learning culture latent variable ranges from 0.51 to 0.91. Factor loading of organizational learning latent variable ranges from 0.72 to 0.93, the factor loading of transformational leadership style latent variable ranges from 0.86 to 0.92 (see Fig. 1 to 4). Loading factors of all indicators...
are significant at the 0.05 level. Considering the findings of confirmatory factor analysis and fit statistics, the measurement model has a goodness of fit (X square = 5.6, goodness of fit index = 0.99, adjusted goodness of fit index =0.95, and the comparative fit index =1).

![Diagram](image1)

**Figure 1:** Confirmatory factor analysis of organizational intelligence latent variable: The big circles indicate the latent factors and the squares indicate the observed variables relating to the factors. The small circle indicates the unexplained variances for each variable.

![Diagram](image2)

**Figure 2:** The confirmatory factor analysis of the learning culture latent variable
3.2 Structural Equation Modeling

Based on the findings of the studies in the field of organizational intelligence, a conceptual model was proposed. Then the relations between the latent variables were examined. To evaluate the conceptual model developed to determine the measurement models of latent variables, the structural equation modeling was used and all potential direct and indirect paths between variables were evaluated that included an exogenous latent variables (transformational leadership style), two mediator variables (organizational learning and learning culture) and one outcome variable (organizational intelligence) respectively. Fig. 5 shows direct and indirect coefficients paths between latent variables. As can be seen in all three variables of transformational leadership style, organizational learning and learning culture have an effect on organizational intelligence.

The direct effects coefficient path of learning culture on organizational intelligence, $\beta=0.46$ and for the organizational learning has a direct impact on organizational intelligence with an effect coefficient of $\beta=0.34$. Transformation leadership style had a direct effect on learning culture with an effect coefficient of $\beta=0.78$ which indirectly influence the organizational intelligence.

The learning culture has a direct effect on organizational learning with an effect coefficient of $\beta=0.96$. Regarding the fit indices; goodness of fit index 0.83, root mean squared error of approximation 0.09,
normalized fit index 0.97 and the comparative fit index 0.98 and incremental fit index 0.98 the structural model has a good fitness.

![Figure 5: The direct and indirect effects of transformational leadership style, organizational learning and learning culture on organizational intelligence (The structural relations are significant at .05 level)](image)

4 Conclusion

As it has been noted, the purpose of this study was to assess the direct and indirect effects of transformational leadership style, organizational learning and learning culture on organizational intelligence in the Islamic Azad University (zone 8). We used the latent variables approach which was based on a group of methods of confirmatory factor analysis (CFA) and structural equation modeling (SEM) to evaluate the theoretical causal model. The findings of confirmatory factor analysis showed that the measurement models of latent variables have a very good fitness. In other words, models with measured data showed good fit. Thus determined indicators suitably measure the latent variables which confirm the existing theoretical models in this field (Albrecht organizational intelligence model, 2003). On the other hand, the evaluation of the structural model showed that transformation leadership style has a direct effect on learning culture and an indirect effect on organizational learning (consistent to Lipshitz and Popper's views (2000), Stonhouse and Pemberton (1999), Edmondson (2002)) and also learning culture has a direct effect on organizational learning (in accordance to the views of Stonhouse and Pemberton (1999), Lipshitz and Popper (2000), and Liebowitz (2000)) and organizational intelligence (Stonhouse and Pemberton (1999), Halal (2000) and Liebowitz (2000)), and organizational learning has a direct effect on organizational intelligence (Consistent to Schwaninger (2003), Stonhouse and Pemberton (1999), Halal (2000) and Liebowitz (2000)). Based on the findings, the presence of transformational leaders at universities who have four characters of idealized influence, inspirational motivation, intellectual stimulation and individualized consideration can provide a suitable climate for learning and in turn improve organizational intelligence. So the more suitable learning climate is the most effective learning and intelligent provoking will be, these findings matches with hypotheses arose from the theory of organizational learning by Lipshitz and Popper (2000), Stone house and Pemberton (1999), Edmondson (2002) and Liebowitz (2000). This study has some limitations such as limited scope of research units which covered the academic branches of Islamic Azad Universities at zone eight, constraints related to
structural equation modeling, this means that even if a model is fitted with the data, still there may be other models which may be fitted to the data. Therefore while the structural model fitting confirms the model, it never proves that the model is the only valid model. Despite having these limitations, the evaluated structural model provides important results in conceptualizing the intervening potential levels for intelligence creation and Intelligence Level promotion at universities. Considering the role of organizational leadership style, learning culture and organizational learning in promotion organizational intelligence, the presence of transformational leaders and learning culture with features including support and encouragement for taking responsibility for learning, giving freedom to experience and accept risk, allocating enough time for working for adaptation, and creating opportunities for learning new jobs and creativity, the presence of written information and appropriate guidelines for work which enhance organizational learning and organizational intelligence. According to the results of this study, in order to make intelligent universities we can use these three factors in planning which are affecting the organizational intelligence. In the present study, structural relations of a set of variables related to organizational intelligence in the Islamic Azad University (zone 8) were evaluated and it is recommended that further research on the fitness of this model be evaluated in other universities.

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