

# Evaluation of Cultural Intelligence in Staff of Industries, Mines and Trade Organizations: Case study: Semnan Province, Iran

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## ABSTRACT

This article examines one of the key competences of the 21st century, called cultural intelligence. The aim of this study is to investigate the relationship between cultural intelligence, organizational culture and the effectiveness of staff in the industry, mine and trade organization of Semnan province. The research method is correlation, and statistical population of the research includes staff of this organization, 141 people based on the personnel department documents. Based on the Cochran's formula with 0.05 percent error, sample size contains 103 employees. Three questionnaires were used to measure the variables. Likewise, descriptive and deductive statistics were applied to evaluate and analyze data. Pearson correlation coefficient and multivariate regression were used in deductive statistics to obtain the results. There is a significant relationship between cultural intelligence, organizational culture and the effectiveness employees of the industry, mine and trade organization of Semnan province. Likewise, there is a positive and meaningful relationship between cultural intelligence dimensions and employees' effectiveness. Among four cultural intelligence factors, only the knowledge of cultural intelligence is able to predict the effectiveness. Meanwhile, there is a positive and meaningful relationship between organizational culture dimensions and the effectiveness of the staff. The calculated correlation coefficient indicates that the creativity factors and Communication pattern have the highest correlation coefficient. Hence, they are able to predict the employees' effectiveness.

## Keywords

cultural intelligence, organizational culture, effectiveness

## 1. Introduction

Many of the 21st century organizations are multi-cultural so that staff with various cultures are seen in them. Moreover, a product may be designed in one country, manufactured in say ten countries and finally sold in more than

one hundred countries. This fact has caused an increasing-dynamic relations in multi-cultural environments. Hence, differences in language, ethnicity, values, norms, and the way of reading the different cultures would emerge as potential sources of conflict, and make it hard to develop appropriate working relationships (Triandis 2006). These conceptual difficulties have led to introduction of novel concept in the cognitive field, which is known as "cultural intelligence (CQ)" (Earley and Ang 2003). Early and Ang defined CQ as an individual's capability to adapt effectively in situations characterized by cultural diversity.

Considering the increasing growth of international interactions and heterogeneity of labors, many of management experts have concentrated on identifying and strengthening the capabilities by which people would do their jobs more effectively. Among these capabilities, cultural intelligence seems to be a considerable factor in order to deal with multi-cultural environments more appropriately. CQ can explain individual differences in adapting to new cultural settings (Huff, Song et al. 2014).

Another factor which should be considered in multi-cultural environments is organizational culture, an important tool for organizations to reside in the ideas, values, norms, rituals and beliefs in order to secure organization sustainability (Sackmann 1991). A strong organizational culture plays a role as a reliable compass and as a powerful lever to guide and balance members' behavior (Wilson and Bates 2005). However, strength of organizational culture will determine its effectiveness (Deal and Kennedy 1982). Considering all of these, strengthening cultural intelligence and organizational culture would lead to efficiency improvement and a dynamic organization. In this paper, relationships between cultural intelligence, organizational culture and effectiveness of employees will be studied. Rest of the article is organized as follows. Section 2 will provide a brief literature. The method, hypotheses and research findings are illustrated in section 3. The results are discussed in section 4 and finally, section 5 includes some practical suggestions.

## 2. Literature review

As mentioned earlier, cultural intelligence (CQ) is defined as “a person’s capability to adapt effectively to new cultural contexts” (Earley and Ang 2003). Cultural intelligence is based on capabilities that can be enhanced via experience, education and training (Earley and Peterson 2004; Ng, Van Dyne et al. 2012). CQ is a concept made up of four components: cognitive, meta-cognitive, motivational and behavioral CQ (Ng and Earley 2006; Ang and Van Dyne 2008). Cognitive component of CQ includes general knowledge about the norms, practice and knowledge of a culture (Earley and Ang 2003). Meta-cognitive CQ relates to an individual’s awareness during intercultural interactions (Ng and Earley 2006). Motivational CQ refers to capability of a person and his/her drive to learn about presenting and functioning appropriately in other cultures (Ang, Van Dyne et al. 2007; Chen, Liu et al. 2012). Finally, behavioral CQ is assigned to flexibility in demonstrating appropriate verbal and nonverbal actions during intercultural interactions (Ang, Van Dyne et al. 2007).

Organizational culture is an important tool to channel information and messages and specify behaviors that are acceptable through companies policies, activities and decisions. Sackman (1991) illustrated organizational culture as a tool to create organizational commitment, provide integration throughout the organization, and help the organization adapt to external changes. There are a lot of models and theories referred to organizational culture. Most of these theories assume that organizational culture is not measurable (Schein 2010; Alvesson 2012). According to some researchers, although organizational culture is complex and multilevel, its levels are unified (O’Reilly, Chatman et al. 1991).

Balogh et al examined cultural intelligence of college students with respect to the organizational culture. They identified the desired organizational culture of students, and studied whether there is any meaningful relationship between students’ cultural intelligence and their preferences for a specific organizational culture. They concluded that most of the students prefer to employ in an organization with local culture (Balogh, Gaal et al. 2011). Kolia who has examined the relationship between organizational culture, organizational climate and organizational effectiveness, have noted that concepts of organizational culture, climate and effectiveness have been combined by school researchers since 1950, so that there is a kind of misunderstanding with respect to these expressions (Kolia, 2002). However, since realizing how to use these concepts for providing the best education is very important, Kolia has studied a high school in Western Colorado for 5 years, concluding that there is a meaningful relationship between positive factors in school like positive climate and its effectiveness. Another study carried out by Kafka

provided that the origin of culture comes from the philosophy of its founders (Kafka, 1988). This philosophy in turn will impact on the criteria which will be applied in recruitment process. He defined ten criteria as the essence of organizational culture, and also introduced them as determinants of employees’ perception. Likewise, he concluded that there is a correlation between organizational culture and its effectiveness or performance, and it is a function of individual differences.

## 3. Methodology

### 3.1. Data collection and sample

Statistical population of this study was drawn from staff of industry, mine and trade organization of Semnan Province in Iran. Based on the personnel department documents, they are 71 people. Using the Cochran’s formula with 0.05 percent error, sample size was determined as 103 employees. The aim of this study is to examine the validity of these three hypotheses; H1) there is a meaningful relationship between employees’ cultural intelligence and their effectiveness, H2) a meaningful relationship exists between cultural intelligence and organizational culture, and H3) there is a meaningful relationship between organizational culture and effectiveness. Three special questionnaires were applied to collect data about each aspect of this study.

CQ was measured by cultural intelligence scale (CQS) which developed by Ang and Van Dyne et al. (2007). It includes 20 items that measure every four components of cultural intelligence. Based on a 7-point Likert-scale, range of answers were from 1 (strongly disagree) to 7 (strongly agree). Organizational culture was measured using a well-known questionnaire developed by Robbins. It consists of 27 items, and a 7-point Likert-scale was applied to record the answers (Robbins, 1999). Finally, data about employees’ effectiveness were collected using a questionnaire derived from Sergiovanni’s model. It consists of 25 items and a 7-point Likert-scale was also applied to record the answers (Sergiovanni, 1994).

### 3.2. Validity and reliability

#### 3.2.1. Validity

Since all of used questionnaires are standard, validity of them is acceptable. However, Validity of CQ questionnaire was examined by four professors in Semnan university and its uncertainties were fixed. Likewise, validity of organizational culture questionnaire and effectiveness questionnaire were measured that both were more than 0.75.

#### 3.2.2. Reliability

Cronbach’s alpha coefficient was applied to obtain reliability of the questionnaires. Twenty eight employees

were randomly selected from the statistical population, and filled the questionnaires before the principal test. Cronbach's alpha coefficient of CQ, organizational culture and effectiveness questionnaires were equal to 0.92, 0.88 and 0.96, respectively. These values indicate stability and internal consistency of the questionnaires.

**3.3. Findings**

In this study, descriptive statistics such as frequency, percentage and mean, and inferential statistics such as stepwise multivariable regression and Pearson correlation coefficient were applied to evaluate the hypotheses.

*H1: There is a relationship between cultural intelligence, organizational culture and effectiveness of employees in industry, mine and trade organization of Semnan Province.*

The stepwise multivariable regression was applied to evaluate this hypothesis. Pearson correlation coefficient was used to determine whether or not there is a relationship between the variables. The results are shown in table 1. All of the correlation coefficients in table 1 have significance level of 0.001.

**Table 1. Matrix of correlation between cultural intelligence, organizational culture and effectiveness**

Variables	Cultural intelligence	Organizational culture	Effectiveness
Cultural intelligence	1		
Organizational culture	0.45	1	
Effectiveness	0.40	0.85	1

Likewise, results of variance analysis and determination coefficient are provided in table 2. As it is seen, F value is equal to 143.99 which is meaningful with the given degrees of freedom because its significance level is less than 0.05. Hence, it is concluded that at least one of these two variables, CQ and organizational culture, can be the significant predictor of employees' effectiveness. On the other hand, R-square is 0.73 which means that predictor variables can predict totally 73 percent of changes in the level of employees' effectiveness. To determine the significant impact of each variable individually,  $\beta$  coefficient was applied (calculated). As it is seen in table 3, significance level of  $\beta$  value for organizational culture is less

than 0.05, so it can predict the level of employees' effectiveness. However, CQ is not able to predict the level of employees' effectiveness. Therefore, equation of regression line is as follows:

$$Y = (0.85) X_1 \tag{1}$$

**Table 2. Predicting effectiveness level based on CQ components**

Predictor variable	R	R <sup>2</sup>	F	DF1	DF2	Significance level
CQ components	0.85	0.73	143.99	1	53	0.001

**Table 3.  $\beta$  coefficients and their significance level**

Predictor variable	B	$\beta$	T	Significance level
Organizational culture	0.97	0.85	12	0.001

*H2: There is a significant relationship between CQ components and employees' effectiveness.*

The stepwise multivariable regression was also applied to evaluate this hypothesis, and Pearson correlation coefficient was used to determine if there is any relationship between variables. Results are shown in table 4.

**Table 4. Matrix of correlation between CQ components and effectiveness level**

Variables	Cognitive-CQ	Meta cognitive -CQ	Motivational-CQ	Behavior- CQ	Effectiveness level
Cognitive-CQ	1				
Meta cognitive -CQ	0.65	1			
Motivational-CQ	0.51	0.53	1		
Behavior- CQ	0.46	0.49	0.61	1	
Effectiveness level	0.35	0.41	0.16	0.32	1

All of the underlined numbers in table 4 are statistically significant at the level of less than 0.001. Variance analysis and determination coefficient were used to assess whether at least one of the predictor variables, CQ components, would be able to predict the level of employees' effectiveness or not. As it is seen in table 5, F value is 11.31 which is significant with the specified degrees of

freedom because its significance level is less than 0.05. Hence, it is concluded that at least one of the CQ components can be the significant predictor of employees' effectiveness. On the other hand, R-square is 0.17 which means that predictor variables can predict totally 17 percent of changes in the level of employees' effectiveness. The  $\beta$  coefficient was calculated to determine the significant impact of each variable individually. As table 6 indicates, significance level of  $\beta$  value for Meta cognitive -CQ is less than 0.05, so it can predict the level of employees' effectiveness. Nevertheless, other three components of CQ can not predict the level of employees' effectiveness. Therefore, equation of regression line is as follows:

$$Y = (0.41) X_1 \quad (2)$$

**Table 5. Variance analysis and statistical regression measures**

R	R2	F	DF1	DF2	Significance level
0.41	0.17	11.31	1	53	0.001

**Table 6.  $\beta$  coefficients and their significance level**

Predictor variable	B	$\beta$	T	Significance level
Meta cognitive -CQ	1.17	0.41	3.36	0.001

**H3:** *There is a significant relationship between organizational culture components and employees' effectiveness.*

Likewise, the stepwise multivariable regression was applied to evaluate this hypothesis, and Pearson correlation coefficient was used to determine if there is any relationship between variables. Table 7 shows the results.

**Table 7. Matrix of correlation between organizational culture components and effectiveness level**

Variables	Risk-taking	Creativity	Identity	Solidarity	Control	Leadership	Management support	Reward system	Coping with conflict	Communication pattern	effectiveness
Risk-taking	1										
Creativity	0.72	1									
Identity	0.33	0.46	1								
Solidarity	0.60	0.58	0.27	1							
Control	0.30	0.62	0.56	0.45	1						
Leadership	0.13	0.33	0.33	0.19	0.59	1					
Management support	0.20	0.43	0.28	0.14	0.39	0.51	1				
Reward system	0.18	0.22	0.03	0.21	0.18	0.04	0.38	1			
Coping with conflict	0.34	0.48	0.32	0.46	0.52	0.15	0.25	0.07	1		
Communication pattern	0.52	0.49	0.10	0.61	0.35	0.11	0.22	0.24	0.61	1	
Effectiveness	0.71	0.82	0.40	0.58	0.59	0.37	0.44	0.29	0.57	0.64	1

All of the underlined numbers in table 7 are statistically significant. Variance analysis and determination coefficient were used to assess whether at least one of the predictor variables, organizational culture components, could predict the level of employees' effectiveness or not. As it is seen in table 8, F value is 81.10 which is significant with the specified degrees of freedom because its significance level is less than 0.05. Therefore, it is concluded that at least one of the organizational culture components can be the significant predictor of employees' effectiveness. Moreover, R-square is 0.75 which means that predictor variables can predict totally 75 percent of changes in the level of employees' effectiveness. The  $\beta$  coefficient was calculated to determine the significant impact of each variable individually. As table 9 indicates, two components of organizational culture, creativity and communication pattern, can predict the level of employees' effectiveness. Therefore, equation of regression line based on  $\beta$  value is as follows:

$$Y = (0.66) X_1 + (0.31) X_2 \quad (3)$$

**Table 8. Variance analysis and statistical regression measures**

Predictor variable	R	R <sup>2</sup>	F	DF1	DF2	Significance level
Organizational culture components	0.87	0.75	81.10	2	52	0.001

**Table 9.  $\beta$  coefficients and their significance level**

Predictor variables	B	$\beta$	T	Significance level
Creativity	5.6	0.66	8.53	0.001
Communication pattern	1.94	0.31	4.03	0.001

#### 4. Discussion and conclusion

In this study, stepwise multivariable regression and Pearson correlation coefficient were respectively used to evaluate the hypotheses and the relationship between variables. Results indicated that there is a positive significant relationship between organizational culture and effectiveness level of industry, mine and trade organization employees. Results of this study are parallel with Kolia's and Kafka's work. Organizational culture plays a substantial role in fostering efficiency in this organization so that more strong organizational culture leads to higher efficiency. To regularize employees' effectiveness more efficiently, the organization should make efforts to strengthen accepted values. Likewise, there is a significant and positive relationship between cultural intelligence and employees' effectiveness. However, cultural intelligence is not the only

element of effectiveness development but there are other factors which are not the subject of this study.

Furthermore, the results obtained that although there is a positive significant correlation between effectiveness and all of cultural intelligence components, only one of the four CQ components, known as Meta cognitive- CQ, can predict the level of employees' effectiveness. Considering these, it is concluded that the employees with similar attitudes and values are more inclined to work together, rather than the employees with different attitudes. However, if an organization's employees have miscellaneous cultures and attitudes, they can be integrated through Meta cognitive- CQ because it means that a person cognizes himself/herself as a cultural component and also understands others who have different cultural experience. In fact, Meta cognitive -CQ is defined as flexibility and capability of transferring experiences from a culture to another one. Finally, the results showed that there is a positive significant relationship between organizational culture components and employees' effectiveness level. It was found that two parameters of organizational culture, i.e. creativity and communication pattern, have the most correlation, and are able to predict employees' effectiveness level. Considering these, if industry, mine and trade organization of Semnan province allows its employees to work more independently, provides innovation opportunities for them, and lets them experience moderate risks, effectiveness level will improve. Likewise, useful communications joint with cooperation and sympathy smooth the ways of getting to top level of effectiveness. Usually, official and rough relationships aren't beneficial, and unofficial relationships between employees can make the organization environment better and more pleasant.

#### 5. Applicable suggestions

Considering all of the results, 4 suggestions are offered:

1. Authorities and policy makers in industry, mine and trade organization of Semnan province are recommended to improve organizational culture and cultural intelligence and try to set appropriate organizational indexes.
2. It is suggested that the policy makers make efforts to increase Meta cognitive -CQ in the organization.
3. The organization authorities should provide an appropriate environment for fostering employees' creativity. In fact, they should allow the employees to work more independently, encourage them to be more creative and innovative, and try to develop these conditions throughout the organization.
4. The organization decision makers are recommended to consider communication patterns as a helpful element for increasing employees' effectiveness. In fact, they should encourage the staff to work beside each other with more cooperation and solidarity.

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