

The Relationship between Cultural Intelligence and Effectiveness with the Innovation Levels among Principals of Eastern Tehran District

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Abstract

The present study aims to investigate the relationship between principals' effectiveness and cultural intelligence and the levels of their innovation in the primary schools of eastern Tehran. This study was conducted within a descriptive framework and through correlation. The statistical population included all of the Principals of Eastern Tehran (n=335). From this population 181 individuals were selected through Morgan table and through random cluster sampling method. The data were collected by three questionnaires: (1) Innovation Standard Questionnaire designed by Saatchi and his colleagues (2012) with the reliability of .879; (2) the researcher made cultural intelligence questionnaire with 18 items and the reliability of .887; and (3) the researcher made cultural intelligence that included 22 items and the reliability of .954. The reliability coefficients of the questionnaire were obtained through Cronbach's alpha. The collected data were analyzed on the descriptive and inferential levels by SPSS and Pearson correlation coefficient as well as multiple regression and ANOVA. The results of this study revealed that there is a significant and positive relationship between cultural; intelligence and effectiveness. That is higher levels of cultural intelligence could lead to more effectiveness. In addition, there were positive and significant relationships between innovation and cultural intelligence as well as innovation and effectiveness. Finally, there were positive and significant relationships among innovation, cultural intelligence, and effectiveness. In other words, people with higher cultural intelligence and effectiveness would probably show more innovation. The results of regression analysis indicated that the innovation levels among the principals could be predicted by effectiveness and cultural intelligences. The Pearson correlation showed a significant and positive relationship among these three variables which implies that increasing the effectiveness and cultural intelligence could lead to improvement of innovation.

Keywords: Cultural Intelligence, Innovation, Principals, Effectiveness

Introduction

The ability to adjust with people from different cultures and the capacity for intercultural communication is one of the necessary skills for success in 21st century. The current extensive work environments require people who know different cultures and are able to relate to people from other cultures. For that reason, people need "cultural intelligence". According to Poursadegh and his colleagues (2012), the educational organizations, as well as other organizations, need to be aware of the multicultural nature of groups. This has created major challenges for the organizations to gather people from various cultural background together (Sharifi, 2011).

Cultural intelligence refers to individual capacity for understanding, interpreting, and taking the best actions in the environments characterized by multiculturalism (Peterson, 2005). Developing this skill would be more important for the school principals who have the responsibility of one of the most significant organizations in any country. In the educational organizations, effectiveness is one of the most important factors due to the influences that the principal and school staff have on each other and finally on the students. There is no consensus over the exact definition of educational effectiveness since it is difficult to fulfill. The evaluation of educational effectiveness is done with the purpose of showing if the educational programs have led to the development of skills practically.

Effectiveness means the effectiveness levels of actions taken for the obtaining the predetermined goals. In simple terms, the effectiveness studies typically examine the levels of objective realization. However, it seems that for defining the concepts of effectiveness we need to take a step forward. In other words, effectiveness would be realized in an educational course if: (a) the educational needs are clearly identified; (b) an appropriate program is developed for meeting the needs; (c) the designed program is fully implemented, and (d) the educational process as well as the goal achievement are examined. There are ample studies which have focused on examining the mentioned variables which signals to their significance in this field. A review over the relevant literature indicates that although several studies have been conducted in this field, no study has investigated the three variables in a single study. Therefore, this study seeks to investigate the potential relationship between effectiveness of school principals and their cultural intelligence with the levels of innovation in primary schools of eastern Tehran.

The Concept of Innovation

The word "innovation" indicates to the process of producing creative thoughts and converting them to useful products, services, or operating procedures (Nili, 1998).

The Relationship between Creativity and Innovation

The word "creative" comes from the Latin word "create" for which there are different definitions in various dictionaries. Creative in Persian language implies constructs such as innovation and invention but subtle differences. Creativity is defined as a mental and intellectual activity which underlies innovation; while innovation is considered as the end product of creative action (Shah Hosseini, 2004). Creativity is the starting point of any innovation and innovation is an attempt to convert a creative idea into the products or

processes that finally would lead to improvement in the services, reducing expenses, or crating new revenues for an organization (AghayiFishani, 2011, p. 19).

Creativity refers to bringing something new into the existence phase, while innovation implies bringing something new into the usage phase. Ang, Soon (2007) discriminates creativity and innovation through this equation:

$$\text{Benefit} + \text{invention} + \text{concepts} = \text{innovation}$$

In this equation for innovation, the word *concept* refers to the idea which might be department, organization, or newly acquired knowledge according to the individual's framework of reference. The word *invention* implies the novel ideas which are realized, and the word *benefit* indicates the maximum gains from an invention. The simplest definition for the process of innovation is objectified creativity (AghayiFishani, 2011, p. 21; Tan, Joo-seng (2004) explains that creative thinking involves four elements including: (1) Fluency: which means the capacity for coming up with as many ideas as possible; (2) independency: that is the capacity for generating new, unusual, and fresh ideas; (3) flexibility: which involves the capacity for generating multiple and various ideas and approaches; and (4) elaboration: that is the capacity to attend to the details.

Table 1: The evolution of innovation

The first wave: Schumpeter's ideas	Innovation is defined as a new composition of the production factors and different states, or finding a new production function. The factors in this system include identifying a new product, a new production process, new markets, new resources and finally designing a new organization (Shahraray, 1996).
The second wave: technologic innovation	In this stage, invention is commercialized and significantly affects economic growth. David and North (1976) claimed that systematic changes and economic growth in America started from this stage (Shahraray, 1996).
The third wave: industrial innovation	The idea of industrial innovation was proposed by Freeman in 1970s. this idea was characterized with conducting basic research, invention, development and innovation (Shahraray, 1996).
The fourth wave: innovation system	There was greater emphasis on innovation systems from 1987 to 1997, so that Freeman defined innovation system as the network of organizations for realizing technology.
The fifth wave: scientific innovation	Scientific innovation included creating, evaluating, communicating, and employing novel ideas for the purpose of empowering businesses in the goods and services markets which woolen result in the development of national economics and social improvement (Shahraray, 1996).

Levels of Creativity

Sternberg (2006) describes creativity and argues that creativity involves three major capacities which he totally calls levels of creativity and include: synthetic, analytic, and practical abilities. Synthetic ability is in fact what we consider as the goal of creativity and includes the ability to generate novel and interesting ideas and making some connection between things so that other people might not be able to. Analytic ability is the capacity to analyze and evaluate ideas. The creative individuals use analytic ability for evaluating the potential implications of an idea. Practical ability in fact refers to the transforming and summarizing the ideas into actions (cited in Seif, 2007).

Innovation Approaches

Four different approaches could be identified in the literature on innovation that are oriented about individuals, structures, interactions, and innovative systems. The individual-oriented approaches focus on the role of individual factors such as age, education, gender, cognitive styles, and creativity. The structure-oriented approaches highlight the organizational characteristics. The interaction-oriented approaches, which has received increasing attention recently, indicate that how structures affect innovative processes. The fourth approach, as one of the recently introduced approaches, examines the influences of the innovative local and national systems on the innovative activities in organizations. The main focus in this approach is on the environment of organization, interactive learning, creating knowledge, practical application of knowledge, distribution of knowledge (Johnnessen, Olsen, and Lumpkin, 2001).

Dimensions of Innovation

1. Product innovation includes goods or services that are new or significantly improved.
2. Process innovation involves significant changes in techniques and equipments in the productions or the process of delivering the services.
3. Marketing innovation refers to entering the target markets and offering the services in the best manners. The goal of this innovation is identifying new or potential markets as well as new and better methods for providing the markets with services (Ojasalo, 2008).

In general, we could mention the following dimensions for innovation: a) gradual innovation that includes improving the existing business models and technologies;

b) radical innovation that results from successful management of the organization when the business models and technologies are changes at the same time (Talebi, 2006); c) product innovation that refers to developing and delivering new and improved goods and services; d) process innovation involves new and improved methods for production, distribution, and service delivery (Jimenez-Jimenez et. al., 2008); e) administrative innovation includes the changes that affects policies, allocation of resources, and other factors related to the social structure of organization. This type of innovation is the responsibly of professional managers; and e) technologic innovation which means adopting an idea that directly affects the main output processes (Daft, 1978).

Creativity and Innovation Techniques

In the literature of innovation and creativity several techniques are introduced by the researchers. Some of these techniques are presented in the following:

1) Brainstorming: this technique was proposed by Osborn for the first time and was extensively employed by people and organizations in the West so that it has become part of their lives. The Webster's International Encyclopedia offers this definition for the word brainstorming: "a group problem-solving technique that involves the spontaneous contribution of ideas from all members of the group". Therefore, in brainstorming no idea is criticized and every idea (even unrelated) is welcomed (AghayiFishani, 1998, p. 127).

2) Bionics: Bionics is one of the creativity and innovation techniques that have wide and successful implications in technical innovations in the field of communication and control in recent decades. The computer programs and artificial intelligence have been designed by modeling and following the activities of human brain. In this process, new techniques and instruments are produced through taking the mentioned approach (AghayiFishani, 1998, p. 139).

3) Nominal Grouping: Nominal grouping is one of the techniques commonly used in the industries. In this technique, the decision-making process is a five-step procedure: 1) the group members receive the topic for decision-making on the paper and they silently write down their ideas in a few words; using a round-robin approach, each group member presents the first idea on his or her list; the presented ideas are discussed in the group in order to clarify and complete the concepts for the purpose of further evaluation; finally, Participants rate each item from no importance (0) to top priority (10) (AghayiFishani, 1998, p. 134).

Training and Practicing Methods for Creativity and Innovation

Brainstorming: brainstorming was introduced by Osborn for the first time is a group technique in which individuals seek to come up with a solution for a problem through gathering all the ideas presented by the group members (Ghoshli, 2005).

Attribute listing: in this approach, the issues and problems are divided into smaller parts instead of evaluating them generally. Each part is considered and evaluates independently. In this approach, a list of different characteristics of an object or idea such as shape, size, color, and usages and each feature is considered separately (Hosseini, 1999).

Listing questions: in this approach a list of different questions are gathered in order to motivate individuals' power of thinking and imagining (Hosseini, 1999).

Forced association: this is a kind of association formed between two things or thoughts which are not normally related. This process results in the development of new concepts that create the background for findings ideas and facilitating creative thinking.

Role of Educational Administrators in Developing Creativity and Innovation

One of the thinkers in the field of management mentions four sets of factors that affect creativity and innovation: 1) employing creative staff in the organization; 2) good research and financial facilities for the innovative attempts; 3) freedom of action for creative activities and

attempts; and 4) using the results of creative activities and rewarding the creative individuals (Alvani, 2009).

Innovation in Education

Improving the educational system necessitates evolution and two different steps could be identified in the process of evolution: first, designing appropriate innovation that is production and second, replacing the old patterns with the produced that is distribution. The first step involves the technical adjustment of innovation which necessitates that innovation should be adjusted with the new knowledge according to the expert ideas. The second step includes the social adjustment of innovation. In this step, innovation should be distributed in a way that penetrates the body of social system and be accepted and employed by practitioners.

No doubt, for increasing the acceptance of innovations and reforms in the educational system we could not rely on random events or adhere to the common and conventional methods. On the other hand, merely distributing an idea would not lead to its application. When a new idea or method has reached the classroom and learning process, we could claim that that idea or method has been used effectively in the educational system. However, failure is the fate of many innovations which do not reach the practical stage. The potential reason for this failure is an important issue that has been overlooked in the educational system as a major challenge. This might include several reasons such as ignoring the social contexts, lack of awareness among innovation users, lack of comprehensive understanding of innovation by the users, lack of facilities, and lack of adequate administrative instructions (Safi, 1999).

Cultural Intelligence

Cultural intelligence is a theory in management and organizational psychology which proposes that individuals' understandings of the cultural backgrounds affect their behaviors for successful business and it is essential for evaluating their capacities for successful interactions in environment or social contexts. This theory was presented by Soon Ang and Christopher Earley in *Cultural Intelligence: Individual Interactions across Cultures*. Cultural intelligence is measured by a scale similar to the scale for measuring the intelligence. The people with higher cultural intelligence are more successful in interactions in different contexts in comparison to those with lower cultural intelligence.

Three Components of Cultural Intelligence

According to Earley and Mosakowski (2004), cultural intelligence includes three components: Head/cognitive: constant learning about beliefs, traditions, and taboos of the foreign cultures. The organizational learning programs might not prepare individuals for facing with every possible condition and preventing the costly failures. Exploring the meaning of traditions from other culture might seem useless because the local people might be cautious in explaining to the strangers or might not be capable of offering accurate cultural analyses. The newcomers to a culture need to learn several strategies and while it seems difficult for most of the people to enter a new culture, the individuals with higher cultural cognitive intelligence focus on symptoms that facilitate common understanding of cultures.

Body/physical: when communicating with people from other cultures, it is not enough to show understanding of their culture. Rather the body postures should signal to them that the newcomer has already entered and accepted the culture. The ability to follow traditions, gestures, and postures while speaking include messages for the local people that shows the newcomer has respect for their culture (Earley and Mosakowski, 2004, p. 141).

Heart/emotional/motivational: Adapting to the new culture includes overcoming the barriers and pressures. This requires the individuals to believe in their efficacy. If they solved challenges in the past, their self-confidence grew. In fact, self-confidence is rooted in the mastery of a task or a set of conditions. The individuals who do not believe in their capacities for communicating with people from other cultures would give up when they face with failure or incomprehension. In contrast, the individuals with great motivation for overcoming barriers, pressures, and even failures, would persist with more power. The efficient people would not rely on rewards for marinating motivation (Earley and Mosakowski, 2004, p. 142)

Thomas and his colleagues (2008) define cultural intelligence as a system of communicating knowledge and skills that relate through cultural meta-cognition and help the individuals to adopt, choose, and form the cultural dimensions of their environments. This definition places the construct of cultural intelligence within multi-dimensional conceptualization of intelligence. Therefore, cultural intelligence includes not only the multiple dimensions of knowledge (understanding the body of knowledge) and skills (mastery in using knowledge), but also the cognitive and meta-cognitive dimensions (knowledge and control of learning and thoughts) (Thomas et al., 2008, 2008, p. 128).

Dimensions of Cultural Intelligence

Cultural intelligence includes meta-cognitive, cognitive, motivational, and behavioral dimensions. Behavioral interaction implies successful cooperation with people from different societies and cultures and it results from cultural intelligence and includes specific cognitive and motivational levels and a set of specific behavioral techniques and skills (Bibikova&Kotelnikov2006, p. 226).

Earley and Ang (2003) define cultural intelligence as a four part model for the purpose of conceptualizing the individual intelligence:

- Cognitive intelligence that includes the knowledge and control of cognition (the process that people go through for acquiring and understanding the knowledge).
- The cognitive intelligence of individuals' knowledge and knowledge structures.
- Motivational intelligence explains that most of cognition is motivational and the individuals' energy is focused on the amount and direction of this motivation.
- Behavioral intelligence highlights the individual capacities at the practical level (Klein, 2010, p. 57). Earley and Ang (2003) define behavioral intelligence as the adaptability of an individual with the new cultural contexts (Baning, 2012, p. 23).

Effectiveness

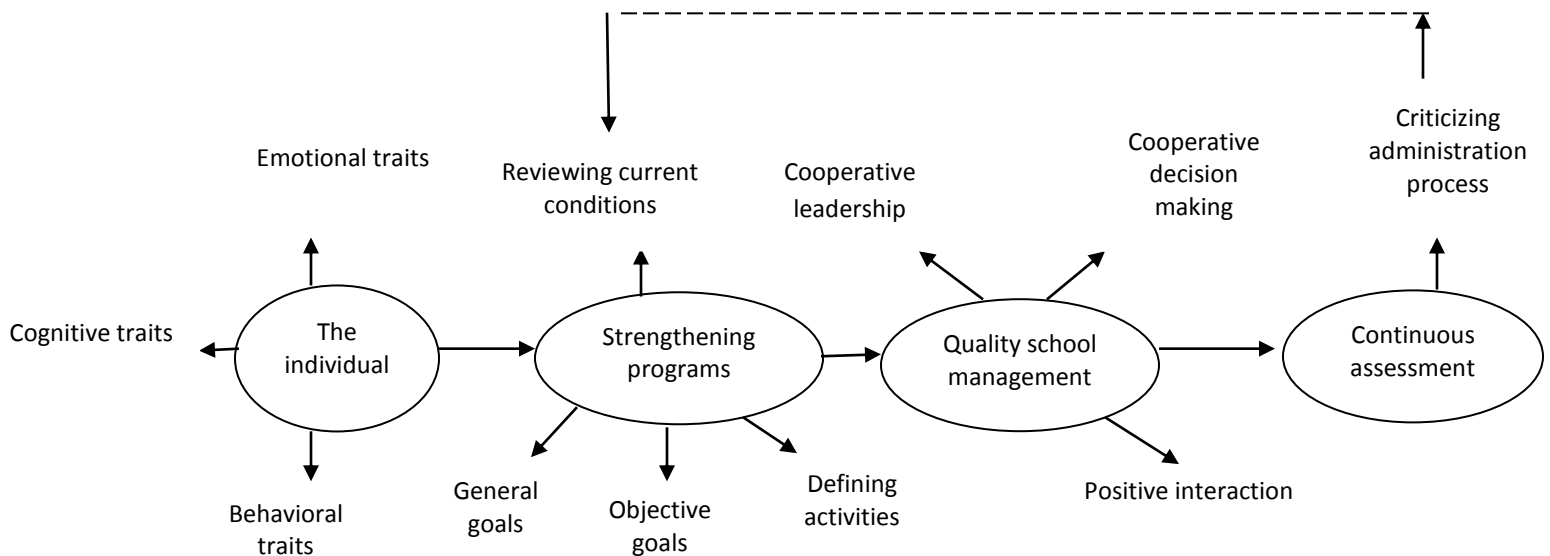
Effectiveness is one of the basic concepts in organizations which is conceptualized through four approaches. The first is goal-attainment approach and defines effectiveness as the attainment

levels of organizational goals and ultimate achievements. The second is system resource approach which evaluates organizational effectiveness according to the ability to apply and process data and different methods for achieving those dataas well as maintaining the stability of organization. The third approach is strategic constituencies approach which suggest that effectiveness is based on fulfilling the demands of those constituencies in the environment which are necessary for the survival of the organization. The fourth approach is internal-process approach which proposes that organizational effectiveness requires identifying the basic variables that affect the organization’s performance and how these variables relate (Robins, Trans. by Beheshti, 2008)

Robins discusses that effectiveness is goal achievement and explains that in effective schools a great (significant) percentage of students get acceptable scores in standardized tests. Effective leadership in organization is the major factor in creating sympathy and empathy (Saatchi, 2005).

With regard to the presented attitudes about effectiveness, we could conceptualize the effective school management in four categories of individual characteristics of organization, strengthening school curriculums, quality management of schools, and the evaluation of school activities which are presented in figure 1.

Figure 1: the interactions among four categories of individual characteristics of organization, strengthening school curriculums, quality management of schools, and the evaluation of school activities



Several relevant studies have been conducted in the literature on this topic which are summarized in the following. Hersey and Blanchard (1983) concluded that strong culture would lead to better feelings in staff and hence better fulfillment of responsibilities. In addition, this culture would result in the increase of staff commitment to organization and alignment

between the staff goals and organization goals and this is one of the significant factors for improving the efficiency.

Salavati (2002) investigated the effects of organizational structures on the organizational creativity and innovation in the public organizations of Kordestan, Iran. The results of this study revealed a significant relationship between creativity and structure; that is, increasing the complexity and formality in the organization could decrease the creativity and vice versa. In another study, Fakhri (2002) evaluated the relationship between creativity and innovation among the bank clerks and the organizational factors. This study indicated that assessment and control systems, leadership styles, and organizational structures, could either facilitate or hinder creativity. On the other hand, although there was a strong and cohesive culture that encouraged creativity in the organization under study (bank in this case), the levels of creativity was low among the staff. As the results of this study showed, inefficient structures, assessment and control systems, and leadership styles were the most significant factors preventing innovation.

Moshbeki and Tizro (2006) investigated cultural intelligence as the elixir of success among the 60 managers in the industrial and service sections who had international interactions. They found out that the managers with higher cultural intelligence would face fewer cultural shocks. These groups of managers are capable of cultural cooperation in the international interactions that is considered as the most effective reaction in the new cultural contexts and this is the elixir of success among these managers. The investigation of variables under study in the industrial and service sections revealed that the cultural intelligence of the service section managers was higher and the cultural shock index was lower in this group.

In a relevant study, Rezayi (2008) investigated the relationship between organizational culture and climate with creativity and innovation levels among the Tehran University staff and found a significant relationship between these variables. Delaram (2008) in a study entitled "Investigation of cultural intelligence on the performance of bank managers in Tehran" indicated a significant and positive relationship between bank managers' cultural intelligence and their performance. The evaluation of relationship among the four dimensions of cultural intelligence highlighted a significant relationship between strategy dimension of cultural intelligence and behavior and motivation dimensions. Furthermore, the findings confirmed the effects of cultural intelligence on performance of managers in their responsibilities were the results of knowledge and behavior dimensions of cultural intelligence.

Golparvar and Atashpour (2009) examined the relationship between organizational climate and dimensions of innovation culture among the cement company staff in Isfahan. According to the findings, there were significant and positive relationships among all the organizational climate dimensions and the innovation culture elements. The results of step by step regression showed that goals, properties and facilities, labor and enthusiasm could predict organizational preparations, goal dimensions, properties and facilities and enthusiasm could predict organizational learning and goal dimensions and health and balance could predict market orientation.

Bigharaz (2010) examined the factors affecting the improvement of creativity and innovation climate in entrepreneurial organizations and indicated that empowerment, motivation for

success, and supportive environment are the main mechanisms involved in the effects of leadership on organizational creativity and innovation. In addition, the empowerment factor had the greatest effects on organizational innovation in comparison to other variables.

In his study on cultural intelligence and leadership styles in Mashhad, Iran, Ebrahimzadeh (2010) found no significant correlation between these variables. However, a positive and significant correlation was reported between cultural intelligence and transformational leadership style in cases that the managers evaluated their own leadership styles. In addition, the analysis of multiple regressions indicated that cultural intelligence could predict transformational leadership in general; however, none of the elements of transformational leadership predicted leadership style separately. Niknami and his colleagues (2010) in a study entitled "Designing and evaluating a causal model for creativity and innovation among the educational managers of Tehran" found out that the innovation and creativity among Tehran's school principals are at the intermediate levels. These researchers suggest that for developing creativity and innovation in the schools we need to strengthen the organizational culture, climate, learning and knowledge management.

Earley and Ang (2003) discuss that those with higher cultural intelligence are capable of adapting themselves to the new cultural contexts which are different from the contexts they grew in effectively without losing their identities. Mahlan (2006) investigated the effects of organizational culture on creativity and innovation among the staff of a company. The results of this study indicated that the organizational culture had positive, significant, and direct effects on creativity and innovation. In addition, creativity had positive and significant effects on innovation.

Charle Mode (2007) examined the relationship among four elements of cultural intelligence and five main personal characteristics based on psychology of personality development. They studied 116 graduate students of business and found a linear correlation among the personal characteristics and four elements of cultural intelligence. Also, the personal trait of welcoming new experiences could predict the general cultural intelligence levels in the individuals under study.

Kim (2009) investigated the potential effects of staff cultural intelligence on their job satisfaction and job performance in addition to the relationship between cultural intelligence and the five major personality traits. The sample for this study included 215 individuals as 57 multi-cultural teams in large metropolitan companies in southwestern United States. According to the results obtained in this study, staff cultural intelligence was positively related to their job satisfaction and job performance. This relationship was stronger than the relationship between job satisfaction and performance and the personality traits. Furthermore, the positive relationship between cultural intelligence of managers and job satisfaction of staff with lower cultural intelligence was stronger than the relationship between cultural intelligence of managers and job satisfaction of staff with higher cultural intelligence. The personality trait of being open to new experiences had a positive and significant relationship with cultural intelligence and its four elements.

Martin (2009) examined the structural relationship of cultural intelligence with creativity and innovation among 3478 teachers in Tokyo. The results of this study indicated that

organizational culture had positive, direct, and significant relationship with creativity and innovation variables. Creativity showed a positive relationship with innovation. The causal model of innovation has fitness with the analysis of the relationship of organizational culture and creativity and these two variables could explain 28 percent of innovation variance.

Ang and Dayn (2007) believe that the cultural judgment and decision making factors could be predicted by cultural strategies and cultural knowledge. Also, the cultural compromise could be predicted by motivation and cultural behavior and efficiency could be predicted based on strategies and behaviors.

According to the review of the relevant literature presented and with regard to the specific role and importance of cultural intelligence in effectiveness and innovation of managers in educational organizations, there is need for conducting a study for investigating the mentioned variables. In this study, the related variables of innovation, effectiveness, and cultural intelligence were identified and selected after studying different and relevant theoretical models, studies, books, and other resources in this field. Accordingly, the following hypotheses were formed:

1. There is a significant relationship between effectiveness and cultural intelligence of principals in primary schools of western Tehran.
2. There is a significant relationship between cultural intelligence and innovation of principals in primary schools of western Tehran.
3. There is a significant relationship between effectiveness and innovation of principals in primary schools of western Tehran.
4. The innovation levels of principals could be predicted based on effectiveness and cultural intelligence.

Methodology

The present study investigated the relationship between effectiveness of school principals and their cultural intelligence. Therefore, this study was conducted within the descriptive framework and through correlation.

Population, Samples, and Sampling Method

The population for this study included all of the principals in the primary schools of Eastern Tehran. According to the statistics of Ministry of Education, there were 335 principals in this district from which 181 individuals were selected through Morgan table and through random cluster sampling method.

Research Instrument

The instrument used for the purpose of this study included three questionnaires as follows: a) The Innovation Standard Questionnaire by Saatchi and his colleagues (2012) with reliability coefficient of .879; b) the researcher-made cultural intelligence questionnaire with 18 items; c) the researcher-made cultural intelligence questionnaire that included 22 items. The reliability coefficient of these questionnaires were evaluated through SPSS and Cronbach's alpha that showed .887 and .954, respectively which are considered as acceptable coefficients.

Data analysis

In this study descriptive as well as inferential statistics for the purpose of analyzing the obtained data. The descriptive phase involved frequencies and percentages tables, calculation of measure of central tendency, mean, median, standard deviation, and variance. The inferential statistics were calculated through SPSS and the relationship between cultural intelligence and effectiveness as well as the relationship among the innovation factors were investigated through Pearson correlation coefficient. In addition, the results of multiple regression was used for predicting innovation levels on the basis of cultural intelligence and effectiveness.

Findings

The data from questionnaires were analyzed through descriptive and inferential statistics through SPSS after excluding the questionnaires that could not be used in the analysis due to wrong responding. For descriptive statistics frequencies and percentages tables, calculation of measure of central tendency, mean, median, standard deviation, and variance were used. And for inferential statistics Pearson coefficient correlation as well as multiple regressions was calculated.

Describing the data

Table1: the descriptive statistics of scores on cultural intelligence, effectiveness, and innovation questionnaires

Variable	Mean	SD	Slope	Kurtosis	K-s	P
Cultural intelligence	3.502	.6385	- .061	.071	.815	.520
Effectiveness	3.561	.6753	- .038	.066	.471	.980
Innovation	3.861	.6753	- .105	.041	1.197	.114

* $P \leq 0/05s$

According to table 1, the distribution of scores obtained by the subjects on the study on cultural intelligence, effectiveness, and innovation through descriptive indices such as mean, standard deviation, Slope and Kurtosis indexes well as the results of Kolmogorov-Smirnov normality test shows that the distribution of scores tend to be normal for the variables evaluated.

Analyzing Inferential Data

In this study, variance analysis and multiple regressions were used as the inferential statistics to investigate the research question and the results of these analyses are presented in table 2. According to the data in this table, the result of $R^2(.71)$ implies that 71 percent of cultural intelligence variance could be explained by effectiveness. In other words, 71 percent of the frequency observed in cultural intelligence might be explained by effectiveness. The result obtained for R also shows that the linear regression could be used for the purpose of prediction. In addition, the calculated F is significant at the level of 95 percent. Therefore, with regard to the obtained correlation coefficient, we could conclude that there is a positive and

significant relationship between cultural intelligence and effectiveness. This implies that higher cultural intelligence would lead to higher levels of effectiveness.

Table 2: Analysis of regression for effectiveness and cultural intelligence of principals

Predictor	Dependent variable: Innovation		
	Non-Standardized coefficients	Standardized coefficients	T
Constant number	.095	-	1.078*
Effectiveness	1.01	.765	41.358
R=0/765; R2 0/710; adjustR2=0.730; F=9.301** P<0.05*			

In order to examine the relationship between cultural intelligence of primary school principals and their innovation, as the second research question, we used the analysis of variance and regression and the results are shown in table 3. According to the data presented in this table, and as it could be seen in table 4-5, the calculated $R^2(.318)$ indicates that 31.8 percent of innovation variance could be explained by cultural intelligence in other words, 31.8 percent of the dispersion observed in cultural intelligence is explained by this variable. The value of R also shows that the linear regression model could be used for the purpose of prediction. Furthermore, the obtained F (59.682) is significant at the 95 percent level. Therefore, it could be concluded from the obtained coefficients that there is a positive and significant relationship between the innovation variables and cultural intelligence. In other words, the higher cultural intelligence could facilitate greater innovation.

Table 3: analysis of regression and innovation

Predictor	Dependent variable: Innovation		
	Non-Standardized coefficients	Standardized coefficients	T
Constant number	1.733	-	6.452*
Cultural intelligence	.596	.077	7.725
R=0.564; R2=0.318; adjustR2=0.313; F=59/682** P<0.05*			

In order to investigate the relationship between effectiveness of primary school principals and their innovation, as the third research question, we used the analysis of variance and regression and the results are presented in table 4. The obtained $R^2 (.525)$ shows that 52 percent of innovation variance could be explained by effectiveness. In other words, 52 percent of dispersion observed in innovation could be explained by this variable. The calculated R (.725) also reveals that the linear regression model could be used for the purpose of prediction. In addition, the obtained F (14.547) was significant at the level of 95 percent. Consequently, it could be concluded that there is a positive and significant relationship between innovation and effectiveness; that is the higher levels of innovation in organization could result in greater effectiveness.

Table 4

Predictor	Dependent variable: Innovation		T
	Non-Standardized coefficients	Standardized coefficients	
Constant number	1.003	-	4.116*
Effectiveness	.803	.067	11.897
R=0.725; R2=0.525; adjustR2=0.521; F=14.547** P<0.05*			

We used variance and regression analysis for investigating the fourth research question which investigated the predictive power of effectiveness and cultural intelligence for innovation and the results are shown in table 5. The calculated R^2 (.787) implies that 78 percent of innovation variance could be explained by cultural intelligence and effectiveness. In other words, .78 percent of the variability observed in cultural intelligence and effectiveness could be explained by this variable. The observed R (.887) also indicates that the linear regression model could serve the goal of prediction. Additionally, the calculated F (24.831) is significant at the 95 percent level. These data lead to the conclusion that there is a positive and significant relationship between innovation, cultural intelligence, and effectiveness. It means that the higher cultural intelligence and effectiveness could lead to higher levels of innovation. The result of regression shows that we the levels of innovation could be predicted according to effectiveness and cultural intelligence. In addition, the Pearson correlation indicates positive and significant relationship among these three variables. This implies that by developing cultural intelligence and effectiveness in individuals we are able to increase their capacity for innovation,

Table 5: analysis of regression for effectiveness, cultural intelligence, and innovation

Predictor	Dependent variable: Innovation		T
	Non-Standardized coefficients	Standardized coefficients	
Constant number	.808	-	4.910*
Effectiveness	.2.875	.172	16731
Cultural intelligence	2.052	.164	12.503
R=0.887; R2 =0.787; adjustR2=0.784; F=24.831** P<0.05*			

Discussion and Conclusion

The present study investigated the potential relationship between effectiveness and cultural intelligence of school principals with their levels of innovation. The findings of this study confirmed that there is a positive and significant relationship between the effectiveness and cultural intelligence among the principals. These findings imply that the higher levels of effectiveness in principals, the higher their cultural intelligence. These findings are in agreement with the findings obtained by Ebrahimzadeh (2010), Moshbeki and Tizro (2006), Delaram (2008), Moody (2007) indirectly.

In addition, there is a positive and significant relationship between the cultural intelligence of the principals and their innovation. This positive correlation probably shows that developing and increasing the cultural intelligence of the principals could lead to greater innovations. These findings are in line with the findings presented by Salavati (2002), Tabrizi and his colleagues (2005), Rezayi (2009), McLean(2006) and Kim (2009) indirectly.

Furthermore, the findings revealed a positive and significant relationship between the effectiveness of principals and the levels of innovation they show. This means that if the effectiveness of principals is higher, they will probably show higher levels of innovation. These findings are confirmed by the findings of Bigharaz (2010), and Niknami and his colleagues (2010) indirectly.

In this study, we used the analysis of regression in order to examine the predictability of innovation by effectiveness and cultural intelligence among the school principals. The results of regression analysis indicated that innovation levels could be predicted by effectiveness and cultural intelligence. And the Pearson correlation showed significant and positive relationships among these variables; that is, by improving individuals' effectiveness and cultural intelligence we might be able to increase the innovation levels. These findings were previously confirmed by Saadati and Sadeghi (2005), Zarorian, Golparvar, and Atashpour (2009), Martin (2009), and Ang and Moody (2007).

This study faced specific limitations including the limitation of research instrument to questionnaire and the limitation of results which were related to the groups of principals. In addition, in some cases the participants might not have enough honesty in answering the questions due to lack of freedom and job security. Other limitations included the work pressure which prevented some of the participants to complete the questionnaires. Also, there was a lack of resources and literature on the subject under study in Iran.

With regard to the findings of this study, the following recommendations are provided for creating the background for innovation in schools and improving the effectiveness and cultural intelligence among the school principals. More studies need to be conducted on the factors involved in effectiveness of principals. The innovation capacity of principals could be improved by methods such as holding workshops for practicing innovation and facilitating access to new innovation information for the principals as well as other people involved in education. Future studies could investigate the potential correlations among the elements of the cultural intelligence and innovation. Another study could be conducted within the same framework for evaluating teachers and other personnel in the field of education for the purpose of comparing these groups regarding the levels of effectiveness. The effectiveness of principals could be improved through training and providing related facilities and the results could be evaluated the levels of innovation in schools.

By providing more facilities and relevant arrangements including welfare and scientific facilities for increasing the access to scientific resources for school principals, we are able to improve the effectiveness of this group in other field of education. Developing the effectiveness could lead to more job relations and team work among the principals. The principals should be provided with facilities which could result in the development of cultural intelligence. Future studies could include other relevant variables such as efficiency and emotional intelligence and the

results could be compared with the results of this study. Promoting the spirit of collectivism through the intellectual exchange that is characteristics of team work could be a considered as a practical way for improving the efficiency.

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