Online ISSN: 2249-460X
PrintISSN: 0975-587X

Global Journal of Human Social Sciences

DISCOVERING THOUGHTS AND INVENTING FUTURE

exploration 11 of innovations

Volume 11
Issue 7
VERSION 1.0

Highlights

- Chinese migrants in Mauritius
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Contents of the Volume

GLOBAL JOURNAL OF HUMAN SOCIAL SCIENCE
Volume 11 Issue 7 Version 1.0 November 2011
Type: Double Blind Peer Reviewed International Research Journal
Publisher: Global Journals Inc. (USA)
Online ISSN: 2249-460X & Print ISSN: 0975-587X

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GJHSS-B Classification : *FOR Code: 2002 , 130308, 130304, JEL Code: Q56, Z11*

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Validation of the Persian Cultural Intelligence Scale and Exploring Its Relationship with Gender, Education, Travelling Abroad and Place of Living

Ebrahim Khodadady[α], Shima Ghahari[Ω]

Abstract - This study explored the validity of Cultural Intelligence Scale (CQS) and its relationship with gender, education, travelling abroad and place of living in Iran. The Persian version of CQS was administered to 854 undergraduate and graduate students majoring in five broad branches of knowledge in three different state universities in Iran. When the Principal Axis Factoring was employed and the latent variables were rotated via Varimax with Kaiser Normalization, four factors were extracted whose number was the same as other studies but differed in their order, i.e., Cognitive, Motivational, Behavioral, and Meta-cognitive. While the students coming from underprivileged cities had significantly higher total cultural intelligence (CQ) as well as Cognitive, Motivational, Behavioral, and Meta-cognitive CQs, female participants' Meta-cognitive CQ was higher than the male. Whereas graduate participants showed significantly higher Cognitive and Behavioral CQs, the participants who had not traveled abroad surpassed their travelling counterparts not only in total CQ but also in Cognitive, Motivational, Behavioral, and Meta-cognitive CQs. These findings suggest the role of cultural intelligence in learning and developing mega skills such as understanding cultural identity and checking cultural lenses and emphasize its state-like nature.

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I. Introduction

Cultural intelligence (CQ) or CULTINT is defined as an individual's capability to function effectively in culturally diverse settings. It deals with understanding the impact of individuals' cultural background on their behavior essential as it is for effective business and successful engagement in any environment or social settings. It is consistent with Schmidt and Hunter's (2000) definition of general intelligence as the ability to reason correctly with abstractions and solve problems. It, however, recognizes that intelligence is more than general mental ability as measured by IQ. CQ acknowledges the practical realities of globalization (Earley & Ang, 2003) and draws on Gardner's (1993) multiple intelligences to help individuals grasp and behave effectively in situations characterized by cultural diversity. The CQ, therefore, complements IQ by focusing on specific capabilities that are important for high quality personal relationships and effectiveness in culturally diverse settings (Ang, Van Dyne & Koh 2006).

The CQ was first introduced by Earley and Ang (2003) and its necessity was emphasized by Earley and Mosakowski (2004). Since then it has been gaining acceptance throughout the business community because the appreciation of the cultural differences to guide responses results in better business practices (Earley & Ang 2003). According to Van Dyne, Ang and Nielsen (2007), "CQ is a critical individual capability with important personal, interpersonal, and work-related implications given the wide-ranging effects of globalization and diversity throughout most of the world." (p. 345) It is, therefore, developed through cognitive means by learning about one's own and other cultures by using senses and adapting one's movements and body language to blend in, i.e., physical means and by gaining rewards and strength from acceptance and success, i.e., motivational means. The CQ includes a set of capabilities that lead to specific outcomes such as decision making, performance, and adjustment in culturally diverse settings. It is also malleable in the sense that it changes over time based on people's interactions, efforts, and experiences. Although the CQ embodies individual capabilities which are culturally relevant, these capabilities are more specific than IQ or EQ. However, it is NOT specific to a particular culture such as American or Iranian. Instead, it focuses on the more general capability to function effectively in culturally diverse situations. Van Dyne, Ang and Nielsen (2007) characterized those with high CQ with having four key capabilities:

"…a) they are able to anticipate what will happen in cross-cultural situations, b) they have a wide understanding of multicultural situations, c) they are confident of their capabilities and are intrinsically interested in experiencing culturally diverse settings and finally, d) they are able to vary their verbal and non-

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verbal behaviors in response to cultural characteristics of the situation." (p. 345)

CQ is different from personality traits. While it shows what a person may do to be effective in culturally diverse settings, personality traits are stable courses of action which a person typically does across time and across situations. However, in both of them there are temperament influences of choice of behaviors and experiences and, therefore, some personality traits should relate to CQ. Notably, for example, ambiguity tolerance and openness to experience, i.e., the tendency to be creative, imaginative and adventurous, are related to all four dimensions of CQ as described below (Costa & McCrae, 1992).

a) Components of Cultural Intelligence

Earley and Ang (2003) conceptualized CQ as comprising meta-cognitive, cognitive, motivational and behavioral components with specific relevance to functioning in culturally diverse settings. As the first component, Meta-cognitive CQ reflects the processes individuals use to acquire and understand cultural knowledge. It occurs when people make judgments about their own thought processes and those of others. This includes thinking of and adopting strategies before a multicultural encounter, as well as checking assumptions and making adjustments during an encounter. Relevant capabilities include planning, monitoring and revising mental models of cultural norms for countries or groups of people. Those with high meta-cognitive CQ question cultural assumptions and adjust their mental models during and after interactions (Brislin, Worthley, & MacNab 2006; Triandis, 2006).

Cognitive CQ, the second component, refers to a person's knowledge and understanding of how cultures are similar to and different from each other. It reflects general knowledge structures and mental maps about cultures and includes knowledge about economic and legal systems, social norms, religious beliefs, practices and conventions in different cultures acquired from education and personal experiences. Those with high cognitive CQ understand similarities and differences across cultures (Brislin et al. 2006).

As the third component, Motivational CQ indicates a person's capability and motivation in learning about and functioning in cross-cultural situations. It includes a person's inherent interest in experiencing other cultures and interacting with people from different cultures. It also includes the value people place on culturally diverse interactions as well as their sense of confidence that they can function effectively in settings characterized by cultural diversity. Those with high motivational CQ direct attention and energy toward cross-cultural situations based on intrinsic interest and confidence in their cross-cultural effectiveness (Bandura, 2002).

The last component, i.e., Behavioral CQ, refers to a person's capability to exhibit appropriate verbal and nonverbal behavior when interacting with people from different cultures. It includes having a flexible repertoire of behavioral responses that are appropriate in a variety of situations as well as the capability to adjust both verbal and nonverbal behavior to the requirements of the immediate sociocultural context. Those with high behavioral CQ exhibit situationally appropriate behaviors based on their broad range of verbal and nonverbal capabilities, such as exhibiting culturally appropriate words, tone, gestures and facial expressions (Gudykunst, Ting-Toomey, & Chua 1988).

While the four components of CQ form different facets of an overall capability to function and manage effectively in culturally diverse settings (Earley & Ang, 2003), similar to other measures such as job satisfaction, they may or may not correlate with each other. Together, meta-cognitive, cognitive, motivational and behavioral components, however, form the overall CQ which has helped understand why some individuals are more effective than others in dealing with situations that are culturally diverse (Van Dyne & Ang 2006; Van Dyne, Ang & Koh 2008; Van Dyne, Ang & Koh 2009; Van Dyne, Ang & Livermore 2010).

b) Cultural Intelligence and Research Findings

Due to the novelty of CQ, empirical research is sparse, though growing (Ang, Van Dyne & Koh, 2006). A good number of the research studies conducted to date on CQ have been mainly concerned with organization management, public relations, and globalization and the effect that CQ may bear on these interactional skills (e.g., Creedon & Al-Khaja, 2005; Janssens & Brett 2006; Ng, Van Dyne & Ang, 2009a; Ng, Van Dyne & Ang 2009b; Sternberg, & Grigorenko, 2006). Ang, Van Dyne, Koh and Ng (2004), for example, showed that the CQ explained variance in performance and adjustment among international executives more than demographic characteristics and general cognitive ability did.

Ang, Van Dyne, Koh, Ng, Templer, Tay and Chandrasekar (2007) cross-validated the CQS across samples, time and country. The results demonstrated a consistent pattern of relationships where meta-cognitive and cognitive CQs predicted cultural judgment and decision making; motivational and behavioral CQs predicted cultural adaptation; and meta-cognitive and behavioral CQs predicted task performance in the USA and Singapore. Messara, Karkoulian, and Al Harake (2008), however, examined the relationship between CQ and locus of control (LOC) in employees working in multicultural organizations and found a significant relation between the two. Similarly, Ang, Van Dyne and Koh (2006) explored the relationship between Big Five personality test and the four-factor model of CQ. Their results showed significant links between (a) conscientiousness and meta-cognitive CQ; (b) agreeableness and emotional stability with behavioral CQ; (c) extraversion with cognitive, motivational, and behavioral CQs; and (d) openness to experience with all

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four factors of CQ. The intriguing finding of this study is that openness was the only Big Five that was significantly related to all four factors of CQ. It suggests that openness to experience is a crucial personality characteristic that is significantly related to a person's capability to function effectively when interacting with different people in different contexts.

Templer, Tay and Chandrasekar (2005) focused specifically on the relationship between motivational CQ and expatriate adjustment and demonstrated that motivational CQ predicts all three types of adjustment, i.e., general, interaction, and work adjustment, over and above time of residence and experience in the host country. Similarly, while Ang, Van Dyne, and Koh (2006) demonstrated that those with more experience interacting with people who have different cultural backgrounds have higher CQ, Shaffer, Harrison, Gregersen, Black, and Ferzandi (2006) examined and substantiated cognitive, affective and behavioral aspects of intercultural effectiveness. Using their framework, Ang, Van Dyne, Koh, Ng, Templer, Tay, and Chandrasekar (2007) explored the relationship between CQ and cultural judgment and decision making, a cognitive outcome, cultural adjustment and well-being, an affective outcome, and task performance, a behavioral outcome. Their results demonstrated that CQ has a unique explanatory power in predicting the three aspects of intercultural effectiveness over and above demographic characteristics, general cognitive ability, emotional intelligence, and openness to experience. Those with higher CQ were found to be more effective at making decisions about as well as making adjustments in situations characterized by cultural diversity. More specifically, it was found that the higher the meta-cognitive and behavioral CQ the higher the task performance. Similarly, they found that the higher the motivational and behavioral CQ, the higher the general, interaction, and work adjustments.

Amiri, Moghimi, Kazemi (2010) examined the relationship between cultural intelligence and employees' performance in a multicultural environment. They found a significant relationship between meta-cognitive, cognitive and motivational aspects of cultural intelligence and employees' performance. Elenkov and Manev (2009) extended CQ to the effect senior expatriates' visionary, transformational leadership, had on the rate of their successful innovation. Having tested 153 senior expatriate managers and 695 subordinates from companies in all 27 countries of the European Union, they found a direct influence of senior expatriates' visionary–transformational leadership on the rate of innovation adoption. Further, they figured out that cultural intelligence moderated the effect of senior expatriates' leadership on organizational innovation, but not on product-market innovation. Similarly, Alon and Higgins (2005) showed that EQ, IQ, and leadership behaviors are moderated by CQ in the formation of global leadership success and, therefore, obtaining maximum impact from a global business strategy.

Imai and Gelfand (2010) still extended the research by examining the impact of CQ on intercultural negotiation processes and outcomes. They concluded that CQ affects not only negotiating effectively across cultures but also management behaviors, which in turn predicted joint profit. In the same line, Cheng (2007) used the Virginia Tech tragedy and concluded that in order to decode each message in cultural, linguistic, and social contexts, to avoid communicative disorders, and to provide culturally appropriate intervention when called for, one is required to develop cultural competence. He suggests that cultural competence assists one to decode the messages from the world of English-language learners, the world of Englishes, and the codes shared by the e-generation.

Since all the studies cited above have been conducted in countries other than Iran, the present researchers decided to find out whether the CQ had any factorial validity here. For the sole reason that the students at tertiary level deem it necessary to study English as a foreign language so that they can read the academic texts and possibly pursue their higher education in English speaking countries, they were chosen as the population of the present study. Their cities of birth, educational level, gender and visiting abroad were also taken into account in order to find out whether these variables would bear any significant relationship with their CQ and the factors extracted in the study.

II. Methodology

a) Participants

Eight hundred fifty four university students of whom 455 (53.3%) and 399 (46.7) were female and male, respectively, took part voluntarily in the study. Eighty five percent (725) were single and only 129 (15%) were married. Their age ranged between 17 and 47 (Mean = 23.97, SD = 3.82). They were studying 73 different fields which were grouped under the five major categories of agriculture (n = 85, 10%), engineering (n = 176, 21%), humanities (n = 320, 38%), science (n = 239, 28%), and medicine (n = 34, 4%) at Ferdowsi University of Mashhad, Shahid Bahonar University, and University of Tehran. Three hundred twenty seven (38.3%) were majoring at undergraduate level whereas 382 (44.7%) and 145 (17%) were continuing their studies at Master and PhD levels, respectively. Seven hundred thirty three (85.8%) spoke Persian as their mother language while 67 (7.8%) conversed in Turkish. While 43 (5%) preferred not to specify their first language, six (.7%) and five (.6%) employed Arabic and English as their language of communication at home.

All the participants knew at least one foreign language (FL), i.e., Arabic, English, French, German, Persian, Russian, and Turkish. While the majority (n =

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718, 84.1%) had studied English, 54 participants (6.3%) knew more than one FL. However, in spite of their familiarity with at least one FL, 693 (81%) had not visited any country. The rest (19%) had visited Afghanistan, America, Armenia, Austria, Azerbaijan, Canada, China, Curie, Dubai, England, France, Germany, India, Iraq, Italy, Jordan, Kuwait, Lebanon, Malaysia, Norway, Pakistan, Protégée, Qatar, Saudi Arabia, Syria, Turkey, and Turkmenistan from 1-15 days (n =92, 10.8%), 1-3 months (n =28, 3.3%), four months up to one year (n = 11, 1.3%) and more than one year (n= 30, 3.5%).

The participants of the present study represented the young and adult undergraduate and graduate students in Iran because they were from 125 cities spread throughout the country. These cities were divided into two educational zones recognized by the Ministry of Science, Research and Technology in Iran. Zone one refers to the capital cities of the provinces and the cities in zone two are literally known as unprivileged areas due to the lack of certain privileges available in capital cities. While 409 participants (47.9%) were born and living in zone one, 445 (52.1%) were from zone two.

b) Instrument

The questionnaire employed in the present study consisted of two parts.

i. *Biodata*

The biodata section consisted of twelve short answer and multiple choice items asking for the name of participants' university, their field, year of study, age, gender, marital status, degree of education, place of birth, place of living, language spoken at home, foreign languages known, travelling abroad, the countries visited and duration of visit.

ii. *Cultural Intelligence Scale*

The Persian version of the 20-item Cultural Intelligence Scale (CQS) developed by Van Dyne, Ang and Koh (2008) was employed in the present study. (This study will be referred to as VAK08 henceforth.) It consists of four meta-cognitive, six cognitive, five motivational and five behavioral items. The items were translated into the Persian language by the researchers on the basis of schema theory (e.g., Khodadady, 2001, 2008; Seif & Khodadady, 2003). Based on this theory, all the words constituting the CQS items were translated by employing their semantic, syntactic and discoursal relationships with each other and their best Persian equivalents were chosen by employing the same relationships governing the Persian equivalents. The translated items were then submitted two specialists in the Persian Language and Literature Department of Ferdowsi University of Mashhad to be checked and approved in terms of their academic Persian style. (The Persian version of the CQS is given in Appendix.)

iii. *Procedure*

One of the researchers travelled to Kerman and Tehran to administer the questionnaire consisting of the biodata section and CQS in person while the other administered the rest to the participants in Ferdowsi University of Mashhad. It was distributed in the dormitories, on the campus and in classes after instructors announced their readiness to cooperate. Since filling out the questionnaire did not take more than 15 minutes, many allowed the researchers to distribute it in the class and collect the answers themselves. In some classes, however, the instructors asked the researchers to leave CQS with them so that they could administer it upon finishing their teaching. These teachers were asked to go through the scale with the researchers to ensure that there would be no problems if the students raised any questions in the class. They were also told that the researchers would wait outside the classroom to be called in for any possible questions. Since both parts of the scale were in Persian, no particular questions were raised by the participants.

iv. *Data Analysis*

The descriptive as well as inferential statistical analyses were carried out by utilizing the SPSS version 19.0. The reliability of the CQS was estimated via Cronback Alpha. Following Khodadady (2010) the Principal Axis Factoring (PAF) and Kaiser criterion, i.e., eigenvalues higher than 1, were used to determine the number of factors extracted in this study. Based on Khodadady and Hashemi's (2010) suggestion, the unrotated factor matrix was skipped and all correlation coefficients with their frequency and magnitudes were estimated and reported to test the following six hypotheses:

H1. The twenty items comprising the CQS will show high inter correlations with each other.

H2. The twenty items comprising the CQS will load on four factors extracted in other studies.

H3. There will be no significant difference in the CQ and its underlying factors of the female and male participants

H4. There will be no significant difference in the CQ and its underlying factors of participants coming from privileged and underprivileged cities

H5. There will be no significant difference in the undergraduate and graduate students' CQ and its underlying factors.

H6. There will be no significant difference in the CQ and its underlying factors of participants who have travelled abroad and those who have not.

III. Results and Discussion

Table 1 presents the descriptive statistics of the 20-item CQS and the four factors extracted in this study. As can be seen, the CQS provides a highly reliable measure of cultural intelligence within an academic Iranian context, i.e., $\alpha = .86$. There are, however, some slight differences between the reliability estimates obtained on the factors in the present study and those of VAK08. These differences might be attributed to the

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number of participants, i.e., 854, 447, their nationality, i.e., Iranian and Singaporean, and level of education, both undergraduate and graduate and undergraduate only, respectively. (Although VAK08 had also administered the CQS to Americans, they were excluded in this study because they spoke English as their first language.)

Upon estimating the reliability coefficient and insuring that the responses were reliable enough, the Kaiser-Meyer-Olkin (KMO) measure of Sampling Adequacy was employed to find out whether employing factor analysis to extract latent variables was appropriate. The KMO statistic obtained in this study was .88. According to Kaiser and Rice (1974), KMO statistic in the .90s is "meritorious," (cited in DiLalla & Dollinger, 2006, p. 250). In other words, the sample selected in the study and the factor analysis employed would probably provide the best common factors. The significant Bartlett's Test of Sphericity, i.e., $X^2 = 3.722$, df = 190, p <.001, indicated that the correlation matrix was not an identity matrix.

Table 2 presents the ordered initial and extraction communalities obtained from the 20 items comprising the CQS. As can be seen, the extraction communalities range from .32 to .57 and thus provide support for Costello and Osborne's (2005) observation that uniformly high item communalities, i.e., .80 or above, as suggested by MacCallum, Widaman, Zhang and Hong (1999) are unlikely to occur in real data. The results of this study, however, show that the more common magnitudes suggested by Costello and Osborne need to be lowered from the order of .40 to .70. We therefore suggest .25 to .55 as the most representative order.

Table 3 presents the frequency, percent and cumulative percent of inter correlation coefficients (ICCs) obtained among the 20 items comprising the CQS. As can be seen, the highest and lowest ICCs are .62 and .07, respectively. Since the mean CC is .24, the majority of CCs fall below the mean, i.e., 62% and thus disconfirm the first hypothesis that the twenty items comprising the CQS will show high inter correlations with each other.

Since VAK08 did not report any ICCs no comparison could be made with the results of the present study. However, they reported the ICCs among the four factors underlying the CQS as shown in Table 4. As can be seen, the highest significant ICC in the present study is between the cognitive and motivational CQs, i.e., .41. The same components, however, show the second lowest significant relationship with each other in VAK08, i.e., .25. In other words, various nationalities, e.g., Singaporeans and Iranians, show different patterns of relationships among the factors underlying their cultural intelligence.

Table 5 presents the twenty items loading on the four factors extracted via Principal Axis Factoring and rotated via Varimax with Kaiser Normalization. As can be seen, all the item load acceptably, i.e., .30 or higher on four distinct factors without cross loading on any other factor and thus confirm the second hypothesis that the twenty items comprising the CQS will load on four factors extracted by VAK08. Furthermore, the Cognitive and Motivations CQs have the highest loadings as the first two factors extracted in this study, implying the priority of knowing and enjoying interactions with the members of other cultures in Iran. In VAK08 study, however, Meta cognitive CQ is extracted as the first whereas it occupies the position of the fourth component in the present study.

Table 6 presents the groups statistics of the female and male participants on the CQS and its factors. The Independent Samples T-Test showed that female participants differed significantly from their male counterparts only on their meta-cognitive CQ, i.e., t = 2.503, df = 852, p <.01. Thus with the exception of the fourth factor, the results obtained in the present study confirm the third hypothesis that there will be no significant difference in the CQ and its three components of Motivational, Cognitive and Behavioral CQs of the female and male participants. Future research must show whether the significant difference in the meta-cognitive CQ of females and males bring about any significant difference on their performances on abilities such as language proficiency and achievement.

Table 7 presents the groups statistics of the participants coming from privileged and underprivileged cities of Iran on the CQS and its factors. As can be seen, contrary to the researchers' expectations, the mean score of participants coming from underprivileged cities is higher than those of the privileged. The Independent Samples T-Test showed that the former differ significantly not only on the CQS (t = -4.655, df = 852, p <.001) but also on Cognitive (t = -4.281, df = 852, p <.001), Motivational (t =-3.057, df = 852, p <.001), Behavioral (t =-3.172, df = 852, p <.001), and Meta-cognitive (t = -2.418, df = 852, p <.01) CQs. These findings disconfirm the fourth hypothesis that there will be no significant difference in the CQ and its underlying factors of participants coming from privileged and underprivileged cities.

Table 8 presents the groups statistics of the undergraduate and graduate participants on the CQS and its factors. As can be seen, the mean scores of graduate students are higher than those of the undergraduate. However, the Independent Samples T-Test showed that the means are significantly higher only on the Cognitive (t =-3.331, df = 852, p <.001) and behavioral (t =-1.992, df = 852, p <.05) components. These results disconfirm the fifth hypothesis; there will be no significant difference in the CQ and its underlying factors of the undergraduate and graduate students, to some degree.

Table 9 presents the groups statistics of the participants who have travelled abroad on the CQS and

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its factors. As can be seen, the mean scores of the participants who have not travelled abroad are unexpectedly higher than those who have. The Independent Samples T-Test showed that the means are significantly higher not only on the CQS ($t = -2.535$, $df = 852$, $p < .01$) but also on the cognitive ($t = -2.990$, $df = 852$, $p < .001$) and motivational ($t = -2.512$, $df = 852$, $p < .01$) components. These results disconfirm the sixth hypothesis that there will be no significant difference in the CQ and its underlying factors of participants who have travelled abroad and those who have not.

While the results of this study show that the participants who have not travelled abroad have a significantly higher overall CQ, Cognitive and Motivational CQs, Crowne (2008) showed education and employment in different cultures increases cognitive and behavioral aspects of CQ because motivational CQ was higher for those who had visited more countries for vacation and other purposes. They, therefore, question Cownes' conclusion that the best way to develop CQ is through engaging in activities involving cross-cultural interaction, while passive activities are significantly less effective in nurturing CQ. This difference might be explained by individual differences which are, according to Bandura (1977), either trait-like or state-like.

Trait-like individual differences are not specific to a certain task or situation; in most cases they emerge during early childhood socialization and are relatively stable over time. In contrast, state-like individual differences such as state anxiety or specific self-efficacy are specific to certain situations or tasks and tend to be malleable over time. It seems that visiting other countries for vocation has had a negative effect on the CQ of the participants of the present study because what they had expected in their cultural interactions might not have not materialized, i.e., a state-like experience. Future research must show whether the nature of visit, i.e., vocation and/or education, affects visitors' CQ.

Examining the Big Five personality characteristics, Ang, Van Dyne and Koh (2006), however, demonstrated that trait-like individual differences such as personality characteristics predict CQ. Individuals who are more responsible, planful, and persistent, i.e., conscientiousness characteristic, have higher meta-cognitive CQ whereas individuals more likeable, good-natured, and cooperative, i.e., agreeableness characteristic, turn out to have higher behavioral CQ. Similarly, while those who are calm, secure, and controlled, i.e., emotional stability characteristic, come to have higher behavioral CQ, sociable, assertive, and active individuals, i.e., extraversion characteristic, have higher meta-cognitive, cognitive, and behavioral CQ; and finally curious, imaginative, and intellectual individuals, i.e., openness to experience characteristic, demonstrate higher levels of all four factors of CQ.

IV. Conclusion

Although this study employed Principal Axis Factoring and rotated the latent variables by employing Varimax with Kaiser normalization, it extracted the same four factors underlying the Cultural Intelligence Scale (CQS) in Iran as did Van Dyne, Ang, and Koh (2008) who employed the SEM in America and Singapore. Khodadady's (2010) and Khodadady and Hashemi's (2010) observation with the questionnaires such as the Characteristics of Effective English Teachers and the Beliefs about Language Learning Inventory show that cross loading is a normal feature in these questionnaires. The CQS is, however, unique because none of its twenty items cross loaded on any of the four factors extracted by the present researchers though the order of factors were different, i.e., Cognitive, Motivational, Behavioral, and Meta-cognitive, from those of Van Dyne, Ang, and Koh, i.e., Meta-cognitive, cognitive, motivational and behavioral. Future research must show whether the replication of the study within a different foreign language context will bring about similar results.

The results of the present study also show that female participants differ significantly from their male counterparts on their Meta-cognitive CQ. Furthermore, participants coming from underprivileged cities have significantly higher total CQ and Cognitive, Motivational, Behavioral and Meta-cognitive CQs. The significant difference extends also to educational level because the graduate participants have higher Cognitive and Behavioral CQs than the undergraduates. And finally, the Iranian participants who have not travelled abroad have higher total CQ as well as cognitive and motivational CQs. These findings support Bucher's (2008) identification of nine mega skills which can be learned and/or developed through cultural intelligence, i.e., understanding cultural identity, checking cultural lenses, global consciousness, shifting perspectives, intercultural communication, managing cross-cultural conflict, multicultural teaming, managing bias, and understanding the dynamics of power.

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Table 1 : Descriptive statistics of the CQS and its factors

CQS and its factors	No of items	Mean	Std. Deviation	Alpha	Alpha VAK08	Rotation Sums of Squared Loadings		
						Eigen values	% of Variance	Cumulative %
Cognitive	6	25.78	6.812	.81	.84	2.588	12.941	12.941
Motivational	5	15.44	6.003	.82	.77	2.368	11.839	24.780
Behavioral	5	15.32	5.520	.74	.84	1.997	9.983	34.763
Metacognitive	4	12.29	4.282	.72	.77	1.671	8.357	43.120
Cultural Intelligence	20	68.83	16.277	.86	-	-	-	-

Table 2 : The ordered initial and extraction communalities obtained via Principal Axis Factoring

Item	Initial	Extraction	Item	Initial	Extraction	Item	Initial	Extraction
12	.51	.57	1	.36	.50	5	.31	.34
13	.51	.63	9	.36	.41	6	.30	.34
8	.46	.60	19	.36	.40	4	.30	.37
14	.44	.53	3	.35	.48	11	.29	.29
10	.43	.50	7	.35	.42	16	.28	.32
15	.39	.45	20	.33	.39	2	.28	.32
18	.39	.45	17	.31	.32			

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Table 3 : The frequency (F), percent (P) and cumulative percent (CP) of 190 correlation coefficients (CC) obtained among the 20 items comprising the CQS.

CC	F	P	CP	CC	F	P	CP	CC	F	P	CP
.62	1	0.5	0.5	.38	3	1.4	15.3	.21	11	5.2	53.2
.56	1	0.5	1.1	.36	3	1.4	16.8	.20	9	4.3	57.9
.54	1	0.5	1.6	.35	1	0.5	17.4	.19	13	6.2	64.7
.52	2	0.9	2.6	.34	2	0.9	18.4	.18	9	4.3	69.5
.51	2	0.9	3.7	.33	1	0.5	18.9	.17	6	2.8	72.6
.50	1	0.5	4.2	.32	2	0.9	20.0	.16	8	3.8	76.8
.49	3	1.4	5.8	.31	5	2.4	22.6	.15	5	2.4	79.5
.48	1	0.5	6.3	.30	3	1.4	24.2	.14	7	3.3	83.2
.46	1	0.5	6.8	.29	3	1.4	25.8	.13	7	3.3	86.8
.45	1	0.5	7.4	.27	3	1.4	27.4	.12	7	3.3	90.5
.44	2	0.9	8.4	.26	8	3.8	31.6	.11	3	1.4	92.1
.42	1	0.5	8.9	.25	4	1.9	33.7	.10	3	1.4	93.7
.41	4	1.9	11.1	.24	9	4.3	38.4	.09	4	1.9	95.8
.40	1	0.5	11.6	.23	6	2.8	41.6	.07	8	3.8	100.0
.39	4	1.9	13.7	.22	11	5.2	47.4	Total	190		

Table 4 : Inter correlations among the factors underlying the cultural intelligence

		Present Study (n = 854)			VAK08 (n = 447)		
Factors	CQS	1	2	3	1	2	3
1. Cognitive	.75*						
2. Motivational	.77*	.41*			.25*		
3. Behavioral	.65*	.23*	.37*		.34*	.31*	
4. Meta-cognitive	.69*	.39*	.40*	.33**	.23*	.32*	.37*

* *Correlation is significant at the 0.01 level (2-tailed).*

Table 5 : The four factors underlying the CQS in Iran

Factors	Item	Loading
Cognitive	8. I know the marriage systems of other cultures.	.76
	1. I know the rules for expressing nonverbal behavior in other cultures.	.65
	7. I know the cultural values and religious beliefs of other cultures.	.63
	9. I know the arts and crafts of other cultures.	.62
	6. I know the rules (e.g., vocabulary, grammar) of other languages.	.53
	5. I know the legal and economic systems of other cultures.	.50
Motivational	13. I am sure I can deal with stresses of adjusting to a culture that is new to me.	.76
	14. I enjoy living in cultures that are unfamiliar to me.	.69
	12. I am confident that I can socialize with locals in a culture that is unfamiliar to	.66
	me.	
	15. I am confident that I can get used to the shopping conditions in a different culture.	.60
	11. I enjoy interacting with people from different cultures.	.46

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Behavioral	18. I vary the rate of my speaking when a cross-cultural situation requires it.	.64
	19. I change my non-verbal behavior when a cross-cultural situation requires it.	.61
	2. I alter my facial expressions when a cross-cultural interaction requires it.	.61
	17. I use pause and silence differently to suit cross-cultural situations.	.55
	16. I change my verbal behavior (e.g., accent, tone) when cross-cultural interaction requires it.	.52
Meta-cognitive	1. I am conscious of the cultural knowledge I use when interacting with people with different cultural backgrounds.	.66
	3. I am conscious of the cultural knowledge I apply to cross-cultural interactions.	.65
	4. I check the accuracy of my cultural knowledge as I interact with people from different cultures.	.56
	2. I adjust my cultural knowledge as I interact with people from a culture that is unfamiliar to me.	.43

Table 6 : Group statistics of the female and make participants on the CQS and its factors

	Sex	N	Mean	Std. Deviation	Std. Error Mean
CQ	Female	455	69.51	16.813	.788
	Male	399	68.06	15.629	.782
Cognitive	Female	455	25.86	7.122	.334
	Male	399	25.69	6.448	.323
Motivational	Female	455	15.64	6.321	.296
	Male	399	15.21	5.618	.281
Behavioral	Female	455	15.37	5.567	.261
	Male	399	15.26	5.471	.274
Meta-cognitive	Female	455	12.64	4.482	.210
	Male	399	11.90	4.013	.201

Table 7 : Group statistics of participants coming from privileged and underprivileged cities and their CQs

	Cities	N	Mean	Std. Deviation	Std. Error Mean
CQS	Privileged	409	66.16	16.128	.797
	Underprivileged	445	71.29	16.043	.760
Cognitive	Privileged	409	24.75	6.837	.338
	Underprivileged	445	26.73	6.657	.316
Motivational	Privileged	409	14.79	5.932	.293
	Underprivileged	445	16.04	6.012	.285
Behavioral	Privileged	409	14.70	5.577	.276
	Underprivileged	445	15.89	5.410	.256
Meta-cognitive	Privileged	409	11.92	4.053	.200
	Underprivileged	445	12.63	4.460	.211

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Table 8 : Group statistics of undergraduate and graduate participants on the CQ

	Educational level	N	Mean	Std. Deviation	Std. Error Mean
CQ	Undergraduate	327	67.52	17.209	.952
	Graduate	527	69.65	15.632	.681
Cognitive	Undergraduate	327	24.80	6.806	.376
	Graduate	527	26.39	6.751	.294
Motivational	Undergraduate	327	15.69	6.371	.352
	Graduate	527	15.28	5.764	.251
Behavioral	Undergraduate	327	14.84	5.569	.308
	Graduate	527	15.62	5.474	.238
Meta-cognitive	Undergraduate	327	12.19	4.259	.236
	Graduate	527	12.36	4.299	.187

Table 9 : Group statistics of participants who have travelled abroad and their CQ

	Travelled abroad	N	Mean	Std. Deviation	Std. Error Mean
CQ	Yes	165	65.96	17.353	1.351
	No	689	69.52	15.945	.607
Cognitive	Yes	165	24.36	7.483	.583
	No	689	26.12	6.602	.252
Motivational	Yes	165	14.39	5.764	.449
	No	689	15.69	6.036	.230
Behavioral	Yes	165	15.12	5.885	.458
	No	689	15.37	5.432	.207
Meta-cognitive	Yes	165	12.09	4.405	.343
	No	689	12.34	4.254	.162

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