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Exploring the Relationship Between Foreign Language Proficiency and Cultural Intelligence

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Abstract

This study employed a Persian Cultural Intelligence Scale (CQS) and a disclosed Test of English as a Foreign Language (TOEFL) to explore the relationship between cultural intelligence (CQ) and English as a foreign language (EFL) proficiency. The administration of these two measures to one hundred forty five undergraduate university students majoring in various fields of knowledge in three Iranian universities showed that both the CQS and its Cognitive, Motivational, Behavioral, and Metacognitive factors are significantly but negatively related to the TOEFL and its structure subtest. However, when the EFL learners were divided into low, middle and high proficiency groups on the basis of their TOEFL scores, the scores of the middle proficiency group on the TOEFL and its structure subtest showed negatively significant correlations with the CQS and its Cognitive and Motivational factors indicating that only this group rate their own cultural intelligence higher in order to improve their low and developing EFL proficiency in general and its structure in particular. However, no significant relationships could be found between the reading subtest of the TOEFL and the CQS of low, middle (intermediate) and high proficiency groups. Neither did the four factors underlying the CQS correlate significantly with the reading subtest of the three groups. The implications are discussed and suggestions are made for future research.

Keywords: Cultural intelligence, foreign language, structure knowledge, reading comprehension ability

Introduction

Theoretically cultural intelligence is defined as the ability to interact effectively in multiple cultures. The theory has been successfully operationalised into a Cultural Intelligence Scale (CQS) by Van Dyne, Ang and Koh (2008) consisting of twenty items. Since its literature has already been adequately addressed by its designers, interested readers are referred to their study to save space. This study will focus on the Persian CQS translated and validated by Khodadady and Gahari (2011) [henceforth K&G] because it has been carried out in the same context, i.e., Iran. The CQS was administered along with the disclosed Test of English as a Foreign Language (TOEFL) to 145 undergraduate university students who spoke Persian as their mother language in order to explore whether any significant relationship exists between test takers' cultural intelligence and their foreign language proficiency.

Factors Underlying the Persian Cultural Intelligence Scale

The Persian CQS employed in this study consists of four factors extracted by K and G (2011) , i.e., Cognitive, Motivational, Behavioral and Metacognitive.

Cognitive Factor

The Cognitive factor of CQS addresses a person's familiarity with the similarities and dissimilarities present in the economic, social norms, and religious orientations of different cultures. As the familiarity increases so does that person's cultural intelligence (Brislin, Worthley, & MacNab, 2006). Although an extensive discussion of this factor appears in many scholarly papers dealing with management and business (e.g., Muzychenko, 2008; Thomas et al., 2008), no significant relationships have been established so far between the cognitive factor of the CQS and abilities such as foreign language proficiency (FLP).

Motivational Factor

Motivational factor refers to the high capability, motivation, and interest of a person to learn and function confidently in cross-cultural situations (Bandura, 2002). Though Crowne (2008) asserted that "individuals who have had multiple vacation experiences abroad, and who are therefore probably high in motivational CQ, would like to receive additional training on interacting effectively in other cultures" (p. 397), no relationships have been established between the Motivational factor of the CQS and abilities such as the FLP.

Behavioral Factor

Behavioral factor underlies a range of verbal and nonverbal behaviors such as employing appropriate words in various situations and employing a suitable tone accompanied by acceptable gestures and facial expressions (Gudykunst, Ting-Toomey, & Chua, 1988). Crowne (2008) found that the Behavioral factor of the CQS shows a negative relationship with part-time students' employment. She argued that these usually older students might have had experiences with students coming from different cultures and thus were well aware of the problems involved in social interactions and thus doubted their ability to interact effectively with others resulting in their "lower behavioral CQ" (p. 398). Crowne did not, however, provide any correlation coefficients to reveal the size of the negative relationship. Nor are there any other studies documenting a significant relationship between the Behavioral factor and abilities such as the FLP.

Metacognitive Factor

Metacognitive factor comprises a given person's awareness of other peoples' culture and their constant appraisal of the accuracy of their knowledge in order to adjust their behavior to unfamiliar ones. Brislin, Worthley, and MacNab (2006) and Triandis (2006) believed that persons with high Metacognitive intelligence question their cultural assumptions and adjust them during and after interactions. Similar to Cognitive, Motivational, and Behavioral factors, no significant relationships have been established between the Metacognitive factor and abilities such as the FLP.

Methodology

Participants

One hundred forty five undergraduate students, 107 female (75.9%) and 34 male (24.1%), took part in the research voluntarily. However, four of them were excluded from the study because they had not been able to get any items right on the TOEFL. The remaining 141 were studying Biology (n = 48, 34.0%), Chemistry (n = 1, .7%), English Language (n = 53, 37.6%), Geology (n = 1, .7%), Law (n = 30, 21.3%), and Physics (n = 8, 5.7%) at Ferdowsi University of Mashhad (n = 115, 81.6%) and Tehran University (n = 26, 18.4%). One hundred twenty four (87.9%) were single and only 17 (12.1%) were married.

The participants' age ranged from 17 to 47 (Mean = 20.44, SD = 3.98) and were born in Esfahan (n = 1, .7%), Kerman (n = 1, .7%), Khorasan (n = 111, 78.7%), Khuzestan (n = 2, 1.4%), Mazandaran (n = 3, 2.1%), Qom (n = 1, .7%), and Tehran (n = 22, 15.6%) provinces. They spoke Persian (n = 137, 97.2%) and Turkish (n = 4, 2.8%) as their mother language. While the majority (n = 106, 75.2%) had not travelled abroad, 33 had visited the Asian countries of Afghanistan, Dubai, Iraq, Saudi Arabia, Syria, and Turkey (23.4%) and only two participants (1.4%) had been to the English speaking countries of America and Canada.

Instruments

Three instruments were administered in this study, i.e., a bio questionnaire, Persian CQS and the disclosed TOEFL consisting of two subtests.

Bio Questionnaire

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

The Persian Cultural Intelligence Scale

The Persian CQS validated by K and G (2011) was employed in this study. The CQS was verified by being administered to 854 undergraduate and graduate students at three universities in Iran. The obtained results are presented in Table 1. As the table shows, the 20-item CQS is a highly reliable measure of cultural intelligence, i.e., $\alpha = .86$, as are its Cognitive, Motivational, Behavioral, and Metacognitive factors, i.e., $\alpha = .81, .82, .74,$ and $.72$, respectively. The four factors together explain 43.12% of variance in the CQS.

Table 1: Descriptive statistics of the CQS and its factors

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

Disclosed Test of English as a Foreign Language

The structure and reading sections of Test of English as a Foreign Language (TOEFL) disclosed by the ETS were used in this study. While the first section “measures the ability to recognize grammatical structures and word usage of standard written English as used in colleges and universities in North America,” the second “measures the ability to read and understand short passages that are similar in topic and style to those that students are likely to encounter in North American colleges and universities” (ETS, 2003, p. 11). These two subtests consist of 40 and 50 multiple choice items, respectively, and measure proficiency in English as a Foreign Language (EFL). The alpha reliability coefficient of the TOEFL estimated in this study was 0.95.

Procedure

After having the Persian CQS and the TOEFL printed and copied, the researchers contacted general English instructors as well as those who offered specialized courses to undergraduate students majoring in various fields of science in person and were asked to encourage their students to take part in the project. Though the length of the TOELF and its administration along with the CQS necessitated spending one complete session of their classes, some teachers agreed when they talked to their students. They participated voluntarily because they were preparing themselves for the graduate programs part of which required English language proficiency. Upon arranging for an appropriate session, the researchers attended the classes in person and administered the bio questionnaire, CQS and the TOEFL under standard conditions in a single session.

In order to establish high, middle and low proficiency groups, the participants' raw scores on the TOEFL were converted into Z-scores. While Z-scorers of +1 and higher were treated as highly proficient those falling at -1 and lower were classified as low in English proficiency. The participants whose Z-scores fell between -1 and +1 were considered as middle in English proficiency (this section should be removed to the procedure).

Data analysis

The internal consistency of the disclosed TOEFL and its two structure and reading subtests were estimated via Cronbach Alpha. In order to determine whether the items comprising the TOEFL had functioned well, their item facility (IF) index was calculated by dividing the number of correct answers by the total number of answers given. The discrimination power of items (ID) was obtained by correlating individual items by the total scores obtained on the test. The relationship between language proficiency and cultural intelligence was explored by employing the Pearson Product Moment correlation. The hypotheses below were formulated to be explored.

H1. The participants' scores on the disclosed TOEFL will correlate significantly with the Persian CQS and its constituting factors.

H2. The correlation coefficients between the TOEFL and the Persian CQS as well as its constituting factors will be higher for high proficiency EFL learners.

Results and discussion

Table 2 presents the descriptive statistics of the disclosed TOEFL and its structure and reading subtests. As the table indicates, the TOEFL itself is a highly reliable measure of English language proficiency, i.e., $\alpha = 0.95$. The structure subtest is almost as reliable as the TOEFL, i.e., $\alpha = .94$. The alpha reliability coefficients of reading subtest is relatively lower, i.e., 0.89, due to its being more difficult than the structure subtest, i.e., mean IF = 0.17 vs. 0.47. The very difficulty level of the reading subtest has lowered its mean discrimination index, i.e., 0.25.

Table 2: Descriptive statistics of the TOEFL and its subtests

Tests	Items	Mean	Standard deviation	Mean IF	Mean ID	Alpha
Structure	40	18.82	9.850	.4671	.4946	.94
Reading	50	8.55	6.693	.1699	.2476	.89
TOEFL	90	27.37	15.081	0.30	0.36	.95

Table 3 presents the descriptive statistics and Scheffe post hoc test of high, middle and low proficiency groups established via Z-scores. As can be seen, the mean score of high proficiency group on the TOEFL, i.e., 52.6, is higher than that of middle and low proficiency groups, i.e., 24.3 and 8.3, respectively. The One Way ANOVA analysis of Z-scores obtained by the three groups show that they are significantly different ($F = 218.058$, $df = 2$, $p < .0001$) in their English language proficiency. The Scheffe post hoc test showed that the mean score of high proficiency group is significantly different from both middle and low proficiency groups.

Table 3: descriptive statistics and Scheffe post hoc test of proficiency groups

Groups	N	Mean	Std. Deviation	Std. Error	Subset for alpha = 0.05		
					1	2	3
Low proficiency	19	8.53	3.389	.777	8.53		
Middle proficiency	96	24.27	8.559	.874		24.27	
High proficiency	26	52.58	4.420	.867			52.58
Total / Sig.	141	27.37	15.081	1.270	1.000	1.000	1.000

Table 4 presents the correlation coefficients obtained between the TOEFL, its subtests, CQS and its four factors for all proficiency groups. As can be seen, the TOEFL and CQS correlate significantly but negatively with each other ($r = -.37$, $p < .01$), explaining 13.69 percent of variance in each other. These findings confirm the first research question, i.e., *the participants' scores on the disclosed TOEFL will correlate significantly with the Persian CQS and its constituting factors*. They also lend support in a reverse direction to philosophers such as de Saussure (1966), Dilthey (1989), Foucault (1994), Sapir (1921), Von Humboldt (1876), Whorf (1956) and Wittgenstein (1980) who argued for a mutual relationship between first language and culture. They show that the EFL learning and culture are significantly, though negatively, related to each other.

Table 4: Correlations between the TOEFL and CQS as well as their subtests and factors for all proficiency groups

Tests	Cognitive	Motivational	Behavioral	Metacognitive	CQS
TOEFL	-.35**	-.28**	-.23**	-.21*	-.37**
Structure	-.37**	-.31**	-.24**	-.22**	-.39**
Read	-.25**	-.17	-.16	-.16	-.25**

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

* Correlation is significant at the 0.05 level (2-tailed)

The negative and significant relationships found between the EFL proficiency and cultural intelligence and its four factors, however, present a dilemma. They question the need for addressing culture in EFL classes as suggested by Genc and Bada (2005) and equipping learners with opportunities to go beyond what they already know and to learn to engage with unplanned and unpredictable aspects of language as suggested by Scarino and Liddicoat (2009) simply because the negative relationships found between the TOEFL, CQS, and its underlying factors for *all* proficiency groups imply that the more culturally intelligent the learners are, the less proficiency they will acquire in their EFL.

Table 5: Correlations between the TOEFL and CQS as well as their subtests and factors for high, middle and low proficiency groups

Groups	Tests	Cognitive	Motivational	Behavioral	Metacognitive	CQS
High proficiency	TOEFL	-.134	.288	.025	-.040	.049
	Structure	-.154	.240	-.086	.120	.029
	Reading	-.068	.229	.113	-.166	.049
Middle proficiency	TOEFL	-.225*	-.213*	-.106	-.130	-.235*
	Structure	-.236*	-.256*	-.142	-.159	-.274**
	Reading	-.067	-.016	.013	-.004	-.029
Low proficiency	TOEFL	.058	-.215	.020	-.058	-.078
	Structure	-.185	-.245	-.027	.013	-.203
	Reading	.376	.017	.075	-.115	.179

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

* Correlation is significant at the 0.05 level (2-tailed)

The conclusion reached on the basis of all proficiency learners' performance on the TOEFL is not, however, supported when they are divided into three distinct proficiency groups. As can be seen in Table 5, the scores of neither high nor low proficiency groups reveal any significant relationship between the TOEFL and CQS. Nor do the structure and reading subtests of the TOEFL correlate significantly with the CQS of these two groups and thus *disconfirm* the second hypothesis that *the correlation coefficients between the TOEFL and the Persian CQS as well as its constituting factors will be higher for high proficiency EFL learners.*

The lack of any significant relationship between the high and low EFL learners' proficiency and their cultural intelligence questions teaching English culture as advocated by Bakhtiarvand and Adinevand (2011), at least at beginning and advanced levels of EFL proficiency. They believe that culture is "an inseparable part of the way in which we live our lives and the way we use language, [and] an important requirement for learning English is the acquisition of cultural knowledge" (p. 112). Their argument does not hold true even for middle proficiency learners whose TOEFL and CQS correlate significantly ($r = -.24, p < .05$) because its direction is negative, implying that the less culturally intelligent they become, the higher their language proficiency will be.

The negatively significant relationship between EFL proficiency and cultural intelligence is further revealed when the structure subtest of the TOEFL is correlated with the CQS ($r = -.27, p < .01$). This result shows that while 5.76 percent of variance in language proficiency is explained by cultural intelligence, it increases to 7.29 percent for the structure subtest of the TOEFL alone. Surprisingly, however, the reading subtest of the TOEFL does not correlate significantly with the CQS, implying that what they read and understand in the EFL has little to do with English culture.

Similarly, out of four, the *Cognitive* ($r = -.24, p < .05$) and *Motivational* ($r = -.26, p < .05$) factors underlying the CQS of middle proficiency participants show slightly higher but negative correlations with the structure subtest than with the TOEFL itself, i.e., $r = -.23, p < .05$ and $r = -.21, p < .05$, respectively. These significant correlations emphasize the reverse culture relatedness of language structure when it involves the dissimilarities present in the economic, social norms, and religious orientations of Persian and English cultures as perceived by the middle proficiency Persian speaking EFL learners and their desire to have vacation experiences in English speaking countries.

Conclusion

English as a foreign language (EFL) proficiency relates significantly but negatively not only to cultural intelligence but also to its *Cognitive*, *Motivational*, *Behavioral*, and *Metacognitive* factors when all proficiency levels are taken into account. However, when the participants are divided into high, middle and low proficiency groups on the basis of their TOEFL scores, cultural intelligence and two of its factors, i.e., *Cognitive* and *Motivational*, correlate significantly and negatively with the EFL proficiency of middle group, indicating that the less they know of English culture, the more they can focus on and improve their EFL proficiency in general and its structure in particular both cognitively and motivationally.

The presence of a negative relationship between the EFL proficiency and cultural intelligence is not unique because Khodadady, Fatemi and Etminan (2012) found a negatively significant relationship between the EFL proficiency and field independency cognitive style. When they administered an S-Test, a cloze multiple choice item test developed on authentic texts whose choices are related syntactically, semantically and discursively not only to the key-response but also to the words comprising the texts (see Khodadady, 2012), as an EFL proficiency measure and the Group Embedded Figures Test (GEFT) as a measure of cognitive styles, they found that although field independent (FI) English learners outperformed their field dependent (FD) counterparts on the S-Test, i.e., they were more EFL proficient, their performance showed relatively weaker and unexpectedly negative relationships with the GEFT ($r = -.22, p < .05$) than

that of the FD ($r = .25, p < .01$). In other words, the less analytical cognitive style the EFL learners adopt, the more proficiency they gain in the EFL.

However, when Khodadady, Fatemi and Etminan (2012) divided their participants into low, middle and high proficiency groups on the basis of their S-Test scores, significant relationships could be established between cognitive styles and EFL proficiency neither for *low* nor for *high* proficiency groups (I was wondering if the author(s) could bring these details I previous sections to be discussed and compared with the present study in the conclusion). Similarly, *no* significant relationship could be found between cultural intelligence as measured by the CQS and language proficiency as measured by the TOEFL in this study either for low or for high proficiency EFL learners. The middle proficiency EFL learners' cultural intelligence and its Cognitive and Motivational factors, nonetheless, correlated significantly but negatively with their EFL proficiency and its structure, indicating that these learners rate their own CQ high in order to provide themselves with cultural cognition and motivation as significant latent variables contributing to their EFL learning.

Although the TOEFL and its structure subtest scores of the middle proficiency EFL learners correlate significantly and negatively with the CQS and its Cognitive and Motivational factors, no significant relationship could be established between the reading subtest of the TOEFL and the CQS and its Cognitive, Motivational, Behavioral, and Metacognitive factors for the same group. The findings of this study, therefore, show that that reading EFL texts in order to comprehend their content has nothing to do with the cultural intelligence of not only middle but also low and high proficiency EFL learners, at least as it is measured by the CQS employed in this study. Future research is, however, required to find out whether similar results could be found if the present study is replicated with university students majoring in English language and literature. Employing other methods of EFL proficiency testing such as cloze tests, C-Tests and S-Tests and developing a different measure of CQ may also indicate whether there is any significant relationship between cultural intelligence and testing methods.

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