Relationship between Cultural Intelligence and Pragmatic Comprehension

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Abstract—**Cultural intelligence is supposed to be influential to the development of pragmatic comprehension as individuals with a higher cultural intelligence can more easily navigate and understand unfamiliar cultures and adjust their behaviors to perform effectively in culturally diverse situations. To assess the actual relationship between cultural intelligence and pragmatic comprehension ability, a study was conducted over 120 Iranian learners of English in the intensive English program of universities in the United States. Data were collected through a cultural intelligence scale and a pragmatic comprehension test. The results of the Pearson product-moment correlation indicated a strong positive relationship between level of cultural intelligence and pragmatic comprehension ability. Pedagogical implications of the findings suggested exploring target language culture and interacting with target language speakers for language learners who are on educational sojourns.**

Index Terms—**cultural intelligence, implied meaning, pragmatic comprehension**

I. INTRODUCTION

Cultural intelligence, defined as an individual's capability to function and manage effectively in culturally diverse settings (Earley & Ang, 2003), was first introduced by Earley and Ang (2003). Cultural intelligence is composed of four dimensions: metacognitive, cognitive, motivational and behavioral. Metacognitive cultural intelligence refers to the mental processes that people apply to learn about and understand other people's cultures. Cognitive cultural intelligence refers to the knowledge of norms, practices and conventions in various cultures obtained through education and personal experiences. Motivational cultural intelligence refers to the ability to direct attention and energy toward learning about and functioning in situations which are characterized by cultural differences. Finally, behavioral cultural intelligence refers to the ability to show appropriate verbal and nonverbal actions in interaction with people from different cultures (Ang et al., 2007).

People who possess high metacognitive cultural intelligence are consciously aware of other people's cultural preferences and adjust their mental models during interactions with them. People who possess high cognitive cultural intelligence are able to understand the similarities and differences across cultures. People who possess high motivational cultural intelligence are able to direct attention and energy toward cross-cultural situations based on intrinsic interest and confidence in their cross-cultural effectiveness. Finally, people who possess high behavioral cultural intelligence show situationally appropriate behaviors based on their wide range of verbal and nonverbal abilities, such as exhibiting culturally appropriate words, tone, gestures and facial expressions (Ang et al., 2007).

Cultural intelligence is supposed to be influential to the development of pragmatic comprehension as individuals with a higher cultural intelligence can more easily navigate and understand unfamiliar cultures and adjust their behaviors to perform effectively in culturally diverse situations (Earley & Ang, 2003; Earley & Mosakowski, 2004; Rosen et al., 2000). Past research also supports the use of soft skills such as cultural intelligence to help people adapt to the cultural values and norms of the target country and to better understand intercultural interactions (Ang et al., 2007; Bhaskar-Shrinivas et al., 2005; Earley, 2002; Templer et al., 2006). In fact, people with high cultural intelligence are more familiar with the distinctions of intercultural interactions so that they naturally know how to behave in order not to cause any intercultural mistakes and to facilitate positive reactions (Thomas & Inkson, 2005).

Therefore; given the significance of pragmatic comprehension knowledge for appropriate comprehension of implied meanings encoded in a culturally different language on one hand and the value of having a high level of cultural intelligence to efficiently understand unfamiliar cultures and adjust in culturally diverse situations on the other hand, the current study seeks to investigate the relationship between cultural intelligence and pragmatic comprehension. More specifically, the research question to be addressed in the current study is:

What is the relationship between the level of cultural intelligence and the ability to comprehend target language implied meanings?

Correspondingly, the null hypothesis is:

There is no relationship between the level of cultural intelligence and the ability to comprehend target language implied meanings.

II. LITERATURE REVIEW

A review of studies on pragmatic comprehension, defined as "the ability to recognize a mismatch between the literal utterance and the intention of the utterance" (Taguchi, 2005, p. 547), reveals that the majority of studies conducted so far have investigated the role of individual difference variables in the language learners' abilities to comprehend implied meanings. The types of individual difference variables investigated in the studies consist of cognitive processing ability (e.g. Taguchi, 2007; Taguchi, 2008), target language contact (e.g. Taguchi, 2008), language proficiency level (e.g. Taguchi, 2007; Taguchi, 2011), study-abroad experience (e.g. Taguchi, 2008; Taguchi, 2011), attitude toward target language culture (e.g. Rafieyan et al., 2013a), and cultural distance (e.g. Rafieyan et al., 2014a). There is a dearth of research on the effect of cultural intelligence on the development of pragmatic comprehension, however.

In one study, Taguchi (2007) explored the effect of time, general language proficiency, and cognitive processing skills on the development of accuracy and speed of pragmatic comprehension. Participants in the study were 92 Japanese learners of English in an intensive English program in a university in Japan. A computerized yes/no design pragmatic listening task was used to assess pragmatic comprehension ability. A computerized word recognition task was used to measure the cognitive processing ability. The institutional TOEFL was also used to determine general target language proficiency. The study found that both accuracy and speed of pragmatic comprehension developed over time. The study also found a significant relationship between accuracy of pragmatic comprehension and general language proficiency as well as speed of pragmatic comprehension and cognitive processing ability.

In another study, Taguchi (2008) explored the effect of cognitive processing ability and target language contact on the development of speedy and accurate comprehension of implied meaning over a period of 4-month educational sojourn. Participants in the study consisted of 44 Japanese students of English in a college in the United States. Ability to comprehend implied meaning was assessed by a yes/no design computerized pragmatic listening test. Cognitive processing ability was assessed through a lexical access test. The amount of language contact was also determined by a survey instrument. The findings of the study revealed that cognitive processing ability and language contact have significant effect on the speed but not the accurate comprehension of implied meaning.

Taguchi (2011) further examined the effect of target language proficiency and study-abroad experience on speedy and accurate comprehension of implied meaning. Participants consisted of three groups of Japanese learners of English in a college in Japan including a low language proficiency without study-abroad experience group, a high language proficiency without study-abroad experience group, and a high language proficiency with study-abroad experience group. Ability to comprehend implied meaning was assessed by a computerized multiple choice pragmatic listening test. The study found that both target language proficiency and study-abroad experience had a significant effect on accuracy of comprehension but only target language proficiency not study-abroad experience had a significant effect on comprehension speed.

Rafieyan et al. (2013a) also conducted a study over the effect of attitude toward target language culture and inclusion of target language culture in classroom instruction on the development of pragmatic comprehension. Participants were 32 learners of English at a language academy in Malaysia. Pragmatic comprehension ability was assessed by a multiple choice pragmatic listening test assessing comprehension of implied opinions used as a pre-test and post-test. Attitude toward target language culture was also assessed through a likert scale attitude questionnaire measuring affective, cognitive, and behavioral attitudes. The findings revealed that both positive attitude toward target language culture and inclusion of target language culture in classroom instruction were conductive to the development of pragmatic comprehension in language learners.

Most recently, Rafieyan et al. (2014a) investigated the effect of cultural distance from the target language society on the level of pragmatic comprehension ability. Participants in the study were 30 German undergraduate students of English at a university in Germany who were considered culturally close to the British and 30 South Korean undergraduate students of English at a university in South Korea who were considered culturally distant from the British. Pragmatic comprehension ability was assessed through a pragmatic listening test assessing comprehension of implied opinions. The findings of the study indicated that language learners whose culture was perceived to be closer to the culture of the target language society had higher ability in comprehending target language pragmatically implied meanings.

III. METHODOLOGY

A. Participants

Participants in the current study consisted of 120 Iranian learners of English. They were all studying English at the intensive English program of universities in the United States. Among all the language learners participating in the study, 38 were males and 82 were females. Their age ranged from 18 to 27 with a mean age of 24.2 years old. Their

length of residence in the United States ranged from 6 to 8 months and they were all at the intermediate level of the intensive English program. Therefore, they were supposed to possess the same level of language proficiency and have the same amount of target language and target culture exposure.

B. Instruments

To assess language learners' level of cultural intelligence, the cultural intelligence scale (CQS), developed by Ang et al. (2007), was adopted. The questionnaire consisted of 20 items with four subscales: meta-cognitive cultural intelligence (items 1-4), cognitive cultural intelligence (items 5-10), motivational cultural intelligence (items 11-15), and behavioral cultural intelligence (items 16-20). The items on the questionnaire were based on a 7-point likert scale ranging from strongly disagree to strongly agree with values 1 to 7 assigned to them respectively (Rafieyan et al., 2013b). A high score indicated that a person can better adjust to new cultures, understand local practices, and can behave appropriately and effectively in other cultures outside their own (Chen et al., 2011).

To assess language learners' pragmatic comprehension ability, a pragmatic listening comprehension test, developed by Taguchi (2007, 2008, 2011), was adopted. The pragmatic comprehension test was a 24-item test assessing comprehension of implied meanings. The test used a multiple choice design with 4 options including one appropriate option and three distracters. For each item there was a dialogue between a male and a female native American speaker. The reply that appeared at the end did not provide a straightforward answer to the speaker's question. Participants had to listen and choose the option which referred to the speaker's intention encoded in the reply (Rafieyan et al., 2014a; Rafieyan et al., 2014b).

C. Procedure

During the academic year 2013/2014, 120 copies of the pragmatic comprehension test were administered to the participants in the study. They were instructed to listen to each dialogue and choose one of the four options provided which best refers to the idea implied in the dialogue (Rafieyan et al., 2014a). They were also alerted that the recordings will be played once only. Following the completion of the test, 120 copies of the cultural intelligence scale were distributed among the participants right away. Participants were instructed to answer each item on the cultural intelligence scale by circling one of the numbers ranging from 1 at the most extreme disagreement to 7 at the most extreme agreement with the expressed idea. Participants were given enough time to reflect on their perceptions toward the ideas mentioned in the questionnaire and return the questionnaire. All the test and questionnaires slips were then collected.

D. Data Analysis

To assess language learners' cultural intelligence, descriptive statistics was used to describe and summarize the properties of the data collected from the participants. Descriptive statistics consisted mainly of mean and standard deviation. The cultural intelligence was represented by a mean score on a 7-point scale, where 1 (strongly disagree) represented the minimum score on the scale and 7 (strongly agree) represented the maximum score on the scale. A mean score of 4, however, represented the average score (Rafieyan et al., 2013a). Therefore, mean scores of above 4 represented a high level of cultural intelligence while mean scores of below 4 represented a low level of cultural intelligence. The mean score and standard deviation were computed for each subscale of cultural intelligence including metacognitive, cognitive, motivational, and behavioral individually as well as all subscales generally.

To determine language learners' level of pragmatic comprehension, descriptive statistics was used. Descriptive statistics consisted of the mean score and the standard deviation of the marks obtained through the pragmatic comprehension test. In this respect, 1 mark was assigned to each appropriate answer whereas no mark was assigned to the inappropriate answers. As there were 24 items on the pragmatic comprehension test, each language learner could get a mark between 0 and 24. A mean of below 12 suggested the low performance of language learners on the pragmatic comprehension test whereas a mean of above 12 suggested a high performance of language learners on the test (Rafieyan et al., 2014b).

To determine the relationship between cultural intelligence and pragmatic comprehension, Pearson product-moment correlation (r), which measures the degree and the direction of the linear relationship between two variables (Gravetter & Wallnau, 2013), was used. The size of the value of Pearson correlation can range from -1.00 to +1.00. This value indicates the strength of the relationship between the two variables. A value of 0 indicates no relationship at all, a value of +1.00 indicates a perfect positive correlation (as one variable increases, so does the other variable), and a value of -1.00 indicates a perfect negative correlation (as one variable increases, the other variable decreases) (Pallant, 2013). Cohen (1988) suggests a set of guidelines to interpret the values between 0 and 1. The guidelines apply whether or not there is a negative sign out the front of the r value. The guidelines have been presented in Table I.

TABLE I:
STRENGTH OF RELATIONSHIP

r Value	Strength of Relationship
r = 0.10 to 0.29	Small Correlation
r = 0.30 to 0.49	Medium Correlation
r = 0.50 to 1.00	Large Correlation

The squared correlation (r ₃, called the coefficient of determination, was then used to measure the proportion of variability in pragmatic comprehension ability that can be determined from its relationship with cultural intelligence. Cohen (1988) proposed a set of criteria for interpreting the value of r^2 The criteria proposed by Cohen (1988) have been presented in Table II. All the analysis was performed using Statistical Package for Social Sciences (SPSS) software, version 21 (Rafieyan et al., 2014a; Rafieyan et al., 2014b).

TABLE II:
PERCENTAGE OF VARIANCE EXPLAINED, R^2

r^2 Value	Strength of Relationship
r^2= 0.01	Small Correlation
r^2= 0.09	Medium Correlation
r^2= 0.25	Large Correlation

IV. FINDINGS AND DISCUSSION

A. Findings

Table III presents the mean scores for language learners' cultural intelligence on each individual subscale as well as the overall mean score. The mean scores for language learners' metacognitive, cognitive, motivational, and behavioral cultural intelligence were respectively 5.13, 3.61, 5.12, and 4.27. The overall mean score was also 4.46. As the table shows, language learners in general demonstrated a high metacognitive and motivational cultural intelligence and a low cognitive cultural intelligence. However, they generally demonstrated an above average cultural intelligence. The overall standard deviation is also 1.48 which does not indicate a high variation in language learners' level of cultural intelligence.

TABLE III:
LANGUAGE LEARNERS' CULTURAL INTELLIGENCE

Subscales	N	Mean	Standard Deviation
Metacognitive	120	5.13	1.60
Cognitive	120	3.61	1.57
Motivational	120	5.12	1.60
Behavioral	120	4.27	1.50
Overall	120	4.46	1.48

Table IV presents the overall mean and standard deviation for language learners' performance on the pragmatic comprehension test. The mean score obtained from language learners' answers to the 24 items on the pragmatic comprehension test was 13.08 which suggests that language learners in general had an above average level of pragmatic comprehension. The standard deviation was also 5.17 which indicates an approximately low range of variation in language learners' answers to the items on pragmatic comprehension test.

TABLE IV:
LANGUAGE LEARNERS' PRAGMATIC COMPREHENSION LEVEL

	N	Minimum	Maximum	Mean	Standard Deviation
Pragmatic Comprehension	80	2	22	13.08	5.17

Table V presents the results of the correlation between language learners' cultural intelligence and their pragmatic comprehension ability. The correlation coefficient measured through Pearson product-moment correlation was 0.88 which according to the guidelines set by Cohen (1988) indicates a large correlation between the two variables (above 0.05), suggesting a strong positive relationship between level of cultural intelligence and pragmatic comprehension ability, that is, a higher cultural intelligence was positively correlated with a higher ability to comprehend target language implied meanings.

TABLE V:
RELATIONSHIP BETWEEN CULTURAL INTELLIGENCE AND PRAGMATIC COMPREHENSION

		Pragmatic Comprehension	Cultural Intelligence
Pragmatic Comprehension	Pearson Correlation	1	0.882**
	Sig. (2-tailed)		0.000
	N		120
Cultural Intelligence	Pearson Correlation	0.882**	1
	Sig. (2-tailed)	0.000	
	N	120	120
**.Correlation is significant at the 0.01 level (2-tailed).			

To measure the proportion of variability in pragmatic comprehension ability that can be determined from its relationship with cultural intelligence, the squared correlation (r ₃, called the coefficient of determination, was used (Rafieyan et al., 2014b). The squared correlation derived from the computation of Pearson correlation between cultural intelligence and pragmatic comprehension ability in the current study was r^2= $(0.88)^2$= 0.77. In other words, 77 percent

of variability in pragmatic comprehension ability can be determined from its relationship with cultural intelligence which according to the guidelines set by Cohen (1988) indicates a large correlation (above 0.25).

B. Discussion

The present study investigated the relationship between language learners' level of ability to function and manage effectively in culturally diverse settings referred to as cultural intelligence and their ability to comprehend target language implied meanings referred to as pragmatic comprehension. The findings suggested a strong positive relationship between the two variables, that is, language learners who were more able to function and manage effectively according to target language culture had a higher capability to comprehend target language implied meanings appropriately. These findings reject the null hypothesis which states there is no relationship between the level of cultural intelligence and the ability to comprehend target language implied meanings.

The findings derived from the current study can be explained through the fact that language learners who were more culturally intelligent had higher awareness of the differences between norms and conventions of their heritage culture and the target culture and were more interested and confident to direct their attention and energy toward exhibiting situationally appropriate behaviors based on their broad range of verbal and nonverbal capabilities such as existing culturally appropriate words, tone, gestures, and facial expressions than language learners who were less culturally intelligent (Ang et al., 2007).

Knowledge of cultural norms and conventions of the target society as well as the interest and confidence to apply that knowledge in interactions with target language speakers provided them with sufficient contextual effects to enable them to process target language implied meanings without putting unnecessary processing effort. Consequently, they were successful in arriving at appropriate comprehension of most target language implied meanings. However, none of the language learners managed to comprehend all target language implied meanings appropriately. Therefore, some sort of educational intervention seems to be required to optimize their target language pragmatic knowledge.

On the contrary, language learners who were less culturally intelligent had lower awareness of the differences between norms and conventions of their heritage culture and the target culture. Moreover, they were less interested and confident to direct their attention and energy toward exhibiting situationally appropriate behaviors as they lacked a sufficient range of verbal and nonverbal capabilities such as existing culturally appropriate words, tone, gestures, and facial expressions than language learners who were more culturally intelligent.

Lack of knowledge of cultural norms and conventions of the target society and uncertainty to interact with target language speakers did not equip them with sufficient contextual effects to be able to process target language implied meanings without unnecessary processing effort. Consequently, they were not successful in arriving at appropriate comprehension of most target language implied meanings. However, all of language learners managed to comprehend at least some of the target language implied meanings which implies that contact with target language speakers and exposure to target language culture (depending on the level of contact and exposure) develops target language pragmatic knowledge in language learners.

The findings obtained in the current study are consistent with the findings obtained in the studies conducted by Taguchi (2007), Taguchi (2011), Rafieyan et al. (2013a), and Rafieyan et al. (2014a) who found the positive effect of various individual difference variables such as language proficiency, cognitive processing ability, attitude toward target culture, and cultural distance on the development of pragmatic comprehension ability. The findings obtained in the current study, however, do not support the findings obtained in the study conducted by Taguchi (2008) who found that contact with target language speakers does not have a significant effect on appropriate comprehension of target language implied meanings.

V. Conclusion

The study found that there is a strong positive relationship between level of cultural intelligence and pragmatic comprehension ability. Language learners who were more able to function and manage effectively according to target language culture were more successful in appropriate comprehension of target language implied meanings than language learners who were less able to function and manage effectively according to target language culture. Therefore, language learners who are on an educational sojourn are advised to interestingly explore target language culture and interact with target language speakers in order to develop target language pragmatic competence.

Acknowledgment

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