The Role of Inter-Cultural Competence on Gestural Recognition

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Cultural variability on gesture recognition

Emblems are conventionalised gestures with a direct verbal translation, can occur without speech and whose meaning is culturally defined (Ekman & Friesen, 1972). In one of the first studies investigating cultural differences in emblematic gestures, Efron (1941) observed difference in the type and the frequency of emblematic gestures used by Italian and Jewish immigrants living in New York. In a notable study Morris and colleagues (1979) showed that different emblems were in use in different geographic areas; also they found out that some emblems can have different meaning for different groups. These results were supported by a recent study where a standard list of verbal messages was used to elicit emblems in encoders with different cultural background (Matsumoto & Hyisung, 2013). This study represents one of the few attempts to compare and catalogue emblems across cultures. Consistently with what said above, individuals are more accurate when recognizing gesture performed by members of the same cultural group (Poortinga, Schoots, & Van De Koppel, 1993; Wolfgang & Wolofsky, 1991).

Gestural Recognition and Inter-Cultural Competence

The existence of cultural difference in non-verbal communication becomes crucial in context of acculturation, when individuals living in a foreign country are exposed to a different gesture repertory. In this context, the construct of inter-cultural competence has been referred to as a measure of the level of adaptation to a new country. Research shows that inter-cultural competence expressed as length of the stay in the host country and level of adaptation, seems to improve the understanding of the non-verbal communication system used by natives of the host country (Beupré & Hesse, 2002). Furthermore, other measures of inter-cultural competence, such as "inter-cultural communication", "satisfaction" and "comfort abroad" were associated with the ability of non-native Canadians to recognize real Canadian gestures from fake gestures. (Molinsky, Krabbenhoft, Ambady, & Choi, 2005)

Current research

The present research wanted to take one step further from the studies illustrated above.

First, it has been amply showed cultural differences on the gestural repertories in use around the world. However, there is no study at the moment that compares the ability

of individuals from different cultural groups in recognizing emblems used in a host country. The present study tried to investigate these differences. Specifically we hypothesised that immigrants living in Italy will differ in the ability of correctly decode the meaning of Italian emblems.

Secondly, in this paper the construct of inter-cultural competence will be applied in a recognition task. We hypothesised that intercultural competence improves the ability of recognize the correct meaning of emblematic gesture. This study explores what factors of the inter-cultural competence improve the ability of recognizing the gestures.

Study 1

The purpose of this study is to examine whether there are cultural difference in the ability of recognizing Italian emblems (Hypothesis 1) and whether this ability is associated with inter-cultural competence for not native population (Hypothesis 2).

Methods

Participants 400 participants were recruited in the city of Milan, consisting of 4 groups: 100 Italians ($M = 39.1$, $SD = 11.9$), 100 Sri Lankans ($M = 39.5$; $SD = 11.3$), 100 Filipinos ($M = 38.3$; $SD = 11.4$), 100 Senegalese ($M = 32.24$; $SD = 8.11$). All the samples were balanced for gender, with 50 male and 50 female subjects in each group.

Material 20 short videos displaying emblematic gestures in use in Italy were shown to the participants. For the selection of the stimuli, three independent Italian judges analysed 7 films of Fellini and transcribed all the emblems performed in the movies by Italian actors. The emblems were described according to the part of the body involved, the movement done, the meaning of the gesture and the level of clarity. Among the emblems where the judges agreed in the description, 22 were selected for the study.

Procedure Participants who gave their consent to the study, were first asked to fill a questionnaire investigating the demographics (age, gender, education, first language) followed by written instructions regarding the recognition task. Each video was shown on a computer screen (dimension 17x21 cm and resolution of 729x576 pixels), consecutively for three times, without audio. After the third repetition three options of meaning would appear on the screen. The software used to deliver the stimuli Presentation®, allowed us to record the performance both in terms of accuracy (wrong or correct answer) and the response time. The first two videos were used as examples, to allow the participants to familiarize with the task, and were not included in the analysis. After the recognition task, the non- Italian sample was asked to fill an intercultural competence questionnaire, which assessed inter-cultural competence as: length of stay in Italy (months), contact with Italians and proficiency of the Italian language (both self-rated on a scale from 1, low, to

3, high). All the materials were provided (or back translated for the not Italian groups) in the participants' first language, Italian (for the Italian sample), Tagalog (Filipino), Sinhalese (all the Sri Lankan were Sinhalese, because were recruited in a Sinhalese association), and French (Senegal). French is the official language in Senegal, but Wolof is the language spoken by most of the population. To assess potential influence of this bilingualism we also asked the Senegalese subject to rate their proficiency in French language (self-rated from 1, low, to 3, high).

Results

An initials analysis revealed that there were significant differences in the age ($p < .001$) and the education ($p < .001$) between the groups.

In order to test cultural difference on the performance after controlling for age and education, a one-way analysis of covariance (ANCOVA) was conducted. The independent variable, culture, included 4 levels, the four cultural groups. The dependent variable was the number of correct answers and the covariate were education and age. The ANCOVA was significant, $F(3,399) = 153$, $p < .001$. The same analysis was significant also when performed with response time as a dependent variable, $F(3, 399) = 56.91$, $p < .001$. Post hoc test revealed that as predicted, Italian subjects were significantly more accurate and faster in recognizing the emblems, compared with the non-native groups. Filipino subjects were significantly more accurate and faster than Senegalese and Sri Lankan subjects. These two groups did not differ in terms of accuracy; however, Senegalese were slower than Sri Lankans.

To test what variables would affect the accuracy, a hierarchical regression was performed on the not native sample (N = 300). At Step 1 we entered 2 contrasts related to the variable culture, "Filipino vs rest" (Filipino = 1, Senegalese and Sri Lankian = 0), and "Senegalese vs rest" (Senegalese = 1, Filipino and Sri Lankian = 0). Age, length of stay, contact with Italians and proficiency in Italian language were also entered in step 1. In the Step 2 we entered six multiplicative terms tapping the interaction between each one of the three variables assessing the inter-cultural competence (length of stay, contact with Italians and Italian language) and each contrast. A significant model emerged, $F(12, 287) = 11.44$, $p < .001$, which accounted for 30% of the variance. It was found that age ($\beta = -.191$, $p < .001$) and "Filipino vs rest" ($\beta = .457$, $p < .001$) were both significant predictors. Among all the factors assessing the intercultural competence, only the proficiency in Italian language was significantly associated with accuracy ($\beta = .344$, $p < .001$). A significant interaction term emerged, revealing that the length of stay in Italy significantly improved the performance only for the Senegalese sample (simple slope $\beta = .315$, $p = .005$). The proficiency in French was not

significantly associated with the accuracy for the Senegalese sample.

Study 2

Study 1 suggested that the only the proficiency of the Italian language and (partially) the length of stay in Italy would affect the ability of recognizing Italian emblems. In study 2 we decided to expand the construct of inter-cultural competence and to further explore the role of cross-cultural contact on emblems recognition.

Methods

Participants The same 100 Filipinos from study 1 were asked to fill a cross-cultural contact after the recognition task.

Material The same recognition task used in Study 1 was also used for study 2. The construct of inter-cultural competence was expanded with the introduction of new indexes. Specifically, the questionnaire filled after the task included: the length of stay in Italy (months), frequency of the contact with Italians in 4 different domains (family, friends, neighbourhood, work/school); frequency of the contact with in-group (the contact with in-group and in each domain with Italians was measured on a 7 point Likert scale, 1 low contact and 7 high contact); perceived connection with Italians (IOS). IOS, Inclusion of the Other in the Self Scale (Aron, Aron & Smollan, 1992), is a figurative item, made by seven pictures. In this study we used an adjusted version where each picture was made by two circles, one representing the Self of the individual, and the other one representing the Italian population. In the 7 levels of this item the circles were shown with different levels of overlap, from 1 (circles no overlap) to 7 (circles almost completely overlapping). Both IOS and the contact described through 4 domains were added in order to provide us with an insight on the kind of cross-cultural contact. Because of the possible limitation of the self-report measure we decided to use two more objective measures. Italian language proficiency was assessed through a language test (in use in language school as an initial assessment of the students) and contact with Italians was assessed also as the amount of time spent with Italians (minutes/day).

Procedure. Participants followed the same procedure used in study 1.

Results

A multiple regression was performed to assess the role of the various indexes of intercultural competence on the ability of recognizing the Italian emblems. The model emerged $F (10, 89) = 4.96$, $p < .001$ explained the 29% of the variance. Similarly with study 1, it was found that proficiency in Italian language was the positively associated with the accuracy ($\beta = .478$, $p < .001$). Surprisingly, it emerged that also a high contact with Italian friends was negatively associated with the accuracy ($\beta = -.261$, $p < .05$).

The results from Study 1 and 2 suggested the important role of L2 (second language) on the ability of recognizing emblems from G2 (second gestural repertory). Consequently we hypothesised that intercultural competence would be associated with L2. To test this hypothesis we performed a multiple regression with language proficiency as DV and the 7 indexes of intercultural competence as IVs. The model was significant, $F (9, 90) = 6.51$, $p < .001$, adjusted $R^2 = .33$. The time spent in Italy ($\beta = .433$, $p < .001$), age ($\beta = -.420$, $p < .001$) and the contact with the Italian at work ($\beta = .302$, $p < .01$), were all significant predictors of the language proficiency. Among these, only age was also a predictor of the accuracy at the gestural task.

Conclusions

We hypothesised that there were cultural difference in the ability of recognizing Italian emblems. Results from study 1 supports our hypothesis by showing that for some cultural groups (in our case Filipinos) it was easier to interpret correctly the meaning of Italian emblems. We could imply that certain gestural repertoires are easier to acquire for certain cultural group. We could speculate that some gestural systems are more similar than others and this facilitate their acquisition, in a process similar to the second language acquisition. The reasons why Italian and Filipino gestural systems may be more similar than Italian and Senegalese are unknown and would need to be explored in more detailed research.

Our second hypothesis was only partially verified. Contrarily to previous similar studies, the length of stay in Italy did not improve the ability of recognizing the gesture in all not native samples. Indeed, this happened only for the Senegalese. However, both Study 1 and 2 revealed that language proficiency is a crucial index of inter-cultural competence able to significantly improve the accuracy of the not native samples. Also it is not clear why a high contact with Italian friends would negatively affect the ability of recognizing the emblems.

The results from both studies suggest an important link between verbal and non-verbal language acquisition, although the two processes seemed supported by different factors. As we could predict, spending more time in a foreign country improves our fluency in the foreign language. However, it seems that only the acquisition of the new language can facilitate the acquisition of the nonverbal language. Given the nature itself of emblems, gesture that have a precise verbal translation (Ekman & Friesen, 1972) we could infer that an emblem can be understood only if the learner has already acquired the conceptual meaning expressed in it.

Limitations and future research

It would be interesting to expand these results and investigate the ability of recognizing Italian gesture by individuals that have never directly interacted with Italians, or never lived in Italy, so to estimate the role of

non-direct exposure to a culture (f.i. through TV, internet) in the second verbal and nonverbal language acquisition. Unfortunately we did not control if our participants had contact with Italian populations before moving to Italy, in fact some participants may have been in Italy previously.

Another factor that could have come into play in this process is multilingualism. Given the strong association between language and gesture recognition, we can hypothese that multilingualism could affect the performance, positively or negatively. In this research we tried to limit its effect, for example although French was not the first language for Senegalese sample, we took that into account and it did not seem to affect the performance. However we are not aware if the knowledge of other languages could have affected the performance of our sample, and this becomes particularly importance under the light shed by our results, regarding the effect of language on the gestural recognition.

Despite the mentioned limitations this research provides good insights into emblematic gesture recognition. For instance, the fact that some cultures are more prone than other to recognize certain foreign gestural systems, suggest some similarities between L2 and G2 acquisition. A wide body of research have explored the link between L2 and G2 (Gulleberg, 2006) but mainly regarding illustrator gestures. Further research is needed to uncover more gestural repertories and also to investigate the process underlining the emblematic G2 acquisition.

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