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Cross-linguistic Views of Gesture Usage ---

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Abstract

People have stereotypes about gesture usage. For instance, speakers in East Asia are not supposed to gesticulate, and it is believed that Italians gesticulate more than the British. Despite the prevalence of such views, studies that investigate these stereotypes are scarce. The present study examined people's views on spontaneous gestures by collecting data from five different countries. A total of 363 undergraduate students from five countries (France, Italy, Japan, the Netherlands and USA) participated in this study. Data were collected through a two-part questionnaire. Part 1 asked participants to rate two characteristics of gesture: frequency and size of gesture for 13 different languages. Part 2 asked them about their views on factors that might affect the production of gestures. The results showed that most participants in this study believe that Italian, Spanish, and American English speakers produce larger gestures more frequently than other language speakers. They also showed that each culture group, even within Europe, put weight on a slightly different aspect of gestures.

Keywords: spontaneous gestures, cross-cultural difference, cross-linguistic difference, perception of gestures

Résumé

Les gens ont des stéréotypes sur l'utilisation du geste. Par exemple, les locuteurs de l'Est de l'Asie de l'Est ne produisent pas beaucoup de gestes et on croit que les Italiens gesticulent plus que les Britanniques. Malgré la prévalence de ces points de vue, les études qui se penchent sur ces stéréotypes sont rares. La présente étude a examiné les points de vue des participants sur des gestes spontanés en recueillant des données dans cinq pays différents. Un total de 363 étudiants de premier cycle de cinq régions du monde (France, Italie, Japon, Pays-Bas et États-Unis) ont participé à cette étude. Les données ont été recueillies à travers un questionnaire en deux parties. Dans la Partie 1, il était demandé aux participants d'évaluer deux caractéristiques du geste : la fréquence et la taille des gestes produits dans 13 langues différentes. Dans la Partie 2, ils ont été interrogés sur leurs points de vue sur les facteurs qui peuvent affecter la production gestuelle. Les résultats montrent que la plupart des participants à cette étude estiment que les locuteurs italiens, espagnols, anglais et américains produisent de plus grands gestes, plus fréquemment, que les locuteurs des autres langues. Par ailleurs, chaque groupe culturel, même au sein de l'Europe, met l'accent sur un aspect légèrement différent des gestes dans sa perception.

Mots-clés: gestes spontanés, différence interculturelle, différence interlinguistique, perception des gestes

1. Introduction

In the past 40 years there has been an increased interest in gesture, bodily movements of the arms and hands that accompany speech in terms of the information that gestures convey about culture, discourse, thought, intentionality, emotion, intersubjectivity, cognition, and language acquisition (for reviews, see Kendon, 2004; McCafferty and Stam, 2008; Gullberg, de Bot and Volterra, 2008; Stam and Ishino, 2011). One area in particular that has been studied is the cross-cultural and cross-linguistic use of gesture. Studies on this topic have so far focused on two types of gestures: emblem gestures and spontaneous gestures.

The type of gesture called *emblem* gesture is characterized by form-meaning pairings dictated by social convention that make sense without accompanying speech, such as thumbs-up for “good” or shoulder shrug for “do not know”. By comparing the lexicalized emblem gestures in each culture and making a dictionary of them, a number of studies have revealed the similarities and differences of emblems in different cultures (e.g., Kendon, 2004; Morris, Collett, Marsh and O’Shaughnessy, 1979). The type of gesture called a *spontaneous gesture* is characterized by “an obligatory accompaniment of speech, a lack of language-defining properties, idiosyncratic form-meaning pairings, and a precise synchronization of meaning presentations in gesture with co-expressive

speech segments” (McNeill, 2000:22-23). Spontaneous gestures have been cross-culturally examined in terms of the types of gestures produced, their frequency, the gesture space used, and the relationship of speech and gesture. However, the majority of these studies on emblem and spontaneous gestures have looked at cross-cultural and cross-linguistic production; few have examined people’s views on gesture usage. Consequently, this study cross-culturally examined the views of spontaneous gestures usage that people have. In what follows, we review the previous studies on emblems and spontaneous gesture, and state the purpose of the study.

2. Review of the Literature

2.1. Emblems

Emblems are also called *quotable gestures* (Kendon, 2004). They occur both with and without speech and thus differ from spontaneous gestures that occur only with speech. Additionally, emblems are culturally codified, conventionalized, and translatable. They are frozen forms that often go back to Roman times (Morris et al, 1979). Their meaning is easily understood by all members of a particular cultural group; however, it is often not easily understood by members of another cultural group. An emblem may have various meanings, and the same form may have different meanings in another culture (Stam and Ishino, 2011). Examples of emblems are the thumbs up gesture (fist with thumb up) and the OK sign (thumb and index finger in contact), which has a positive meaning in many western countries, but a different and negative meaning in many non-western countries, where it means an orifice. Studies on emblems have illustrated that the same shape of gesture is interpreted differently by different cultures. Through such comparison, dictionaries of emblems in the different cultures have been made (e.g, Brookes, 2001; 2005; Calbris, 1990; Calbris, and Montredon, 1986; Ekman and Friesen, 1969; Hauge, 1998, 1999; Kendon, 1981; Morris et al, 1979; Payrató, 1993; Pooringa, Schoots, and van de Koppel, 1993; Ricci Bitti and Poggi, 1991; Wylie, 1977). Emblems, especially for Italians, have been well documented, and Italians have traditionally been described as having a rich gesture vocabulary with frequent use of gestures in daily communication (Kendon 2004; Munari 1994). Because cross-cultural differences in the use and perception of emblems have been well studied, they will not be discussed further. In this paper, we focus on views of cross-cultural differences in spontaneous gesture usage.

2.2. Spontaneous Gestures — Cross-cultural and Cross-linguistic Similarities and Differences

Some studies so far have tried to reveal cross-linguistic differences in spontaneous gesture usage. For example, like studies on emblems, studies have shown that Italian

speakers produce spontaneous gestures more often than speakers of other languages. The first study on cross-cultural and cross-linguistic differences in spontaneous gestures was Efron's pioneering study (1941), where he examined the gestures of Southern Italian immigrants (speaking Italian), Eastern European Jewish immigrants (speaking Yiddish), and assimilated Eastern European Jews and Southern Italians (speaking English) in New York City. He found that the Eastern European Jews tended to use a small gesture space, their hands, and ideographic gestures, whereas the Southern Italians primarily used a large gesture space, their entire arm, and emblematic gestures. He also found that the gestures produced by assimilated Eastern European Jews and Southern Italians differed from those produced by the two immigrant groups: the gestures produced became more similar to each other. Graham and Argyle (1975) examined whether speakers provided more material when they gestured than when they did not, and whether this information was more beneficial to Italian speakers than it was to British English speakers. They hypothesized that the Italian speakers, members of a high gesture culture, would benefit more from the gestures than the British speakers, members of a low gesture culture. They found that the participants who described the pictures in both culture groups provided more information when the subjects were allowed to gesture. They also found that the Italians benefited more from the gestures than the English and attributed this finding to the amount of gesturing in Italian culture. Thus, these studies showed that there are differences in the size and frequency of gestures Italian speakers produce compared to English and Yiddish speakers.

Other studies also found cross-linguistic differences in gestures. It was shown that French students gestured more than English students in a description task (Sainsbury and Wood, 1977), the gesture rate among Japanese speakers was higher than Dutch speakers for gestures accompanying 'introduction' of new information in narrative (Yoshioka, 2005), and the proportion of gestures accompanied with referential expression in Chinese speaking children was higher than that in American English speaking children (So, Demir, and Goldin-Meadow, 2010).

In contrast to studies showing cross-linguistic differences, some studies that investigated native speakers' gesture rates — Spanish vs. English (Stam, 2006a, 2006b), German vs. Spanish (Müller, 2001), Italian children vs. Japanese children (Pettenati, Sekine, Congestrì and Volterra, 2012) — found no significant differences in the gesture rate between the two languages. Müller (2001), investigating differences in Spanish speakers' and German speakers' use of gesture space, found that Spanish speakers use a larger gesture space than German speakers do: they use their forearms more often. However, she did not find any differences in the frequency of gesturing between the two groups.

Thus, the findings about the cross-linguistic differences in spontaneous gestures have not been consistent and have illustrated that the topic of gesture frequency is

not a simple one. Goldin-Meadow (2003) pointed out that stereotypes on cultural differences in the frequency of gesture is likely to be made by noticeable aspects of gesture such as the size and space of gestures. She argued that in Müller's study (2001), "Spanish speakers' gestures may be more noticeable than German speakers' gestures, which could create the impression that Spanish speakers gesture more than German speakers. There may not be, in fact, large cultural differences in how often people gesture" (2003:158).

However, it has not been empirically made clear whether stereotypes about gesture exist or what views on gesture usage people have. This is because the production of gesture in gesture studies has been paid more attention to and views on gesture usage have been understudied. Although a few studies have looked at perception of emblematic gestures (Calbris, and Porcher, 1989; Hauge, 1998, 1999; Molinsky, Krabbenhoft, Ambady and Choi, 2005; Morris et al., 1979, Pooringa, Schoots, and van de Koppel, 1993), there have been no systematic empirical cross-cultural/cross-linguistic studies on people's views of gesture use by speakers of other languages.

3. Method

Thus, this study hoped to fill that gap by gathering data from speakers of several different languages: English, Dutch, French, Italian, and Japanese speakers. Specifically, we aimed to answer the following research questions:

- 1) What are ordinary people's views on the frequency of gesture use among speakers of different languages?
- 2) What are their views on the size of gestures used by speakers of different languages?
- 3) What are their general views on gesture use?

3.1. Participants

A total of 363 undergraduate students from five countries (USA, France, Italy, Japan, and The Netherlands) participated in the study. Hereafter, we refer to them as *cultural group*. Table 1 indicates the number, the mean age, and the age range for the participants from each cultural group. Care was taken to maximize the comparability of each country's sample, which was gathered through convenience sampling. The American sample was gathered at a university in the Chicago area. The Dutch sample was collected in universities in Nijmegen and Leiden. The French sample was gathered at a university in Aix en Provence. The Italian sample is from a university in Rome. The Japanese sample is from a university in Tokyo. Data collections occurred during regular class hours at the universities.

Table 1. Number of participants, the mean age, and age range for each cultural group

| | America | Netherlands | France | Italy | Japan |
|-----------|---------|-------------|--------|-------|-------|
| Total | 64 | 78 | 71 | 78 | 72 |
| Female | 47 | 43 | 58 | 50 | 32 |
| Male | 17 | 35 | 13 | 28 | 40 |
| Mean age | 31.7 | 21.3 | 23.0 | 23.5 | 21.8 |
| Age range | 18-57 | 18-36 | 18-40 | 18-41 | 19-50 |

3.2. Instruments

Data were collected through a questionnaire survey method. The questionnaire was made by the authors and comprised a cover sheet and two parts requesting participants' view on gestures. In part 1 (see Appendix), participants were instructed to imagine everyday conversations between native speakers of 13 target languages (hereafter, all target languages are indicated in italics: *American English, Arabic, British English, Chinese, Dutch, French, German, Italian, Japanese, Korean, Portuguese, Russian, and Spanish*). They were then asked to rate two characteristics of gesture –*frequency of gestures* and *size of gesture*– for each target language on a scale of one to five (for *frequency*, 1 = Rarely to 5 = Extremely frequent; for *size*, 1 = Extremely small to 5 = Extremely large). In part 2, which comprised 26 items (see Appendix), participants were asked about their views about factors which might affect the production of gestures, such as the context in which they are used, their functions, the possible relationship between personality and gesture production, politeness of gesture usage, and linguistic variation with a scale of one to five (1 = Strongly disagree to 5 = Strongly agree).

3.3. Procedures

All surveys were conducted by an author living in the country, who is familiar with gesture studies. At the beginning of the survey, the researcher explained to participants that this survey was conducted to investigate their view on the relationship between language and communicative style including gestures. Then, the researcher gave the definition of gestures that were targeted in this survey by demonstrating the gestures. A gesture was defined as the hand movements made by people when they speak. For the purposes of this survey, the following were not considered to be “gestures”: personal grooming (e.g. scratching the head, playing with one’s hair), signs that have fixed meanings (e.g., an OK sign, a thumbs-up sign), eye-, head- or body-movement, and sign languages. (Because the signs that have fixed meanings, called emblems, have been studied extensively (e.g., Kendon, 2004; Morris et al., 1979), we excluded them from this study.)

Next, the composition of the questionnaire was also explained. While answering the questionnaire, the participants were asked to imagine daily conversations that

take place between native speakers about the same age as they are, even though some languages were not familiar to the participants for part 1. The summary of the above instructions was also written into the questionnaire. No time constraint was placed on participants. However, most participants finished the questionnaire in 15 minutes.

4. Results

4.1. Frequency and Size of Gesture

We conducted an analysis of variance (ANOVA) on the mean score of each of 13 target languages for the *frequency of gestures* and the *size of gesture* with “cultural group” as a between-subjects factor (Table 2). The results showed that there were main effects of cultural group on all but the *Spanish* language for the *frequency of gesture*. In addition, main effects of cultural group were also found on all other languages for the *size of gesture*. Generally speaking, the results showed that all cultural groups perceived that Asian language speakers produce gestures less frequently and in a smaller gesture space, whereas they perceived that Western language speakers produce gestures more frequently and in a larger gesture space.

As for the *frequency of gesture*, the target languages that all cultural groups selected in the top five are more or less similar. These included *Italian*, *Spanish*, *American English*, and *Portuguese*. Participants in the four western cultural groups viewed *Italian* speakers as those who produced gestures most frequently, followed by *Spanish* speakers. Specifically, French and Italian participants rated *Italian* speakers significantly higher than American participants. *Spanish* speakers were equally viewed as high frequency gesturers by all cultural groups. Although Japanese participants gave *American English* speakers the highest score, *Italian* and *Spanish* speakers followed it. Japanese participants rated *American English* speakers significantly higher than the other four cultural groups. American participants also rated *American English* speakers significantly higher than French and Italian participants.

These tendencies were shown in the *size of gesture* too. *Italian*, *American English*, *Spanish*, and *Portuguese* were viewed by all cultural groups as languages whose speakers produce larger gestures than other language speakers do. Participants from three European cultures tended to rate *Italian* speakers as those who use large gestures followed by *Spanish* speakers. Again, French and Italian participants rated *Italian* speakers significantly higher than American participants. Japanese participants viewed *American English* speakers’ gestures as larger than other languages, followed by *Italian* speakers. The scores of Japanese participants were significantly higher than those of other cultural groups. French participants rated *Spanish* speakers significantly higher than Italian and Japanese participants.

Thus, the results showed that participants in this study generally believe that *Italian, Spanish, and American English* speakers produce larger gestures more frequently than other language speakers.

Table 2. Mean scores of five-scale points for 13 target languages (indicated in italics) in each cultural group

| Language | America | Netherlands | France | Italy | Japan | F value | Multiple Comparison ^a |
|----------------------|-------------------------|-------------|-----------|-----------|-----------|-----------|----------------------------------|
| Frequency of gesture | <i>American English</i> | 3.8 (1.1) | 3.5 (1.0) | 3.3 (1.0) | 3.4 (1.0) | 4.7 (0.5) | 26.01*** A>F, I; J>A, N, F, I |
| | <i>Arabic</i> | 3.3 (1.3) | 3.2 (1.1) | 3.7 (1.0) | 3.1 (1.3) | 2.9 (0.9) | 4.85** F>I, J |
| | <i>British English</i> | 2.9 (1.1) | 2.8 (1.0) | 2.5 (0.9) | 2.5 (1.0) | 3.8 (1.0) | 22.35*** J>A, N, F, I |
| | <i>Chinese</i> | 2.8 (1.1) | 2.5 (1.0) | 2.0 (1.0) | 2.4 (1.2) | 2.8 (1.1) | 6.33*** A>F; N>F, J>F |
| | <i>Dutch</i> | 2.6 (1.0) | 3.0 (0.9) | 2.4 (0.8) | 2.3 (0.9) | 3.4 (0.9) | 20.63*** N>A, F, I; J>A, N, F, I |
| | <i>French</i> | 3.4 (1.1) | 3.6 (0.9) | 3.6 (0.8) | 2.6 (0.8) | 3.8 (0.9) | 19.13*** A>I; N>I; F>I, F>I |
| | <i>German</i> | 3.0 (1.2) | 2.5 (0.8) | 2.5 (0.8) | 2.3 (1.0) | 3.4 (0.9) | 17.49*** A>N, F, I; J>N, F, I |
| | <i>Italian</i> | 4.1 (1.2) | 4.4 (0.7) | 4.7 (0.5) | 4.5 (0.8) | 4.3 (0.8) | 5.12** F>A; I>A |
| | <i>Japanese</i> | 2.7 (1.2) | 2.7 (1.1) | 1.9 (0.9) | 2.4 (1.2) | 2.6 (1.0) | 7.77*** A>F; N>F; I>F, J>F |
| | <i>Korean</i> | 2.5 (1.2) | 2.4 (0.9) | 1.9 (0.8) | 2.2 (1.0) | 2.7 (0.9) | 7.49*** A>F; N>F; J>F, I |
| | <i>Portuguese</i> | 3.0 (1.1) | 3.7 (0.8) | 3.8 (0.8) | 3.3 (0.9) | 3.5 (0.9) | 7.95*** N>A; F>A, I; J>A |
| | <i>Russian</i> | 3.1 (1.2) | 2.5 (0.7) | 2.5 (0.8) | 2.5 (1.0) | 2.9 (1.0) | 5.88*** A>N, F, I |
| | <i>Spanish</i> | 3.9 (1.1) | 4.1 (0.7) | 4.3 (0.7) | 4.0 (0.9) | 4.0 (0.9) | 1.89 |
| Size of gesture | <i>American English</i> | 3.7 (1.1) | 3.4 (1.1) | 3.5 (1.0) | 3.3 (1.1) | 4.7 (0.5) | 25.32*** J>A, N, F, I |
| | <i>Arabic</i> | 3.1 (1.3) | 2.9 (1.2) | 3.5 (0.9) | 3.1 (1.2) | 2.8 (1.0) | 4.07** F>N, J |
| | <i>British English</i> | 2.7 (1.1) | 2.6 (1.0) | 2.2 (0.8) | 2.3 (1.2) | 3.5 (1.0) | 18.40*** J>A, N, F, I |
| | <i>Chinese</i> | 2.7 (1.3) | 2.2 (0.9) | 1.8 (0.8) | 2.3 (1.1) | 3.0 (1.2) | 12.62*** A>F; J>N, F, I |
| | <i>Dutch</i> | 2.5 (1.0) | 2.7 (0.9) | 2.3 (0.6) | 2.3 (0.9) | 3.3 (0.8) | 16.35*** N>I; J>A, N, F, I |
| | <i>French</i> | 3.2 (1.1) | 3.3 (1.0) | 3.3 (0.9) | 2.6 (0.8) | 3.6 (1.1) | 9.47*** A>I; N>I; F>I; J>I |
| | <i>German</i> | 2.9 (1.2) | 2.5 (0.8) | 2.5 (0.8) | 2.4 (1.0) | 3.4 (0.9) | 15.71*** A>F, I; J>A, N, F, I |
| | <i>Italian</i> | 3.9 (1.3) | 4.2 (0.8) | 4.5 (0.8) | 4.4 (0.7) | 4.2 (0.8) | 5.01** F>A; I>A |
| | <i>Japanese</i> | 2.5 (1.3) | 2.2 (0.9) | 1.6 (1.0) | 2.4 (1.2) | 2.1 (0.8) | 6.77*** A>F; N>F; I>F, J>F |
| | <i>Korean</i> | 2.5 (1.3) | 2.2 (0.8) | 1.7 (0.8) | 2.3 (1.1) | 2.4 (1.0) | 6.57*** A>F; N>F; I>F; J>F |
| | <i>Portuguese</i> | 2.8 (1.0) | 3.5 (0.8) | 3.4 (0.8) | 3.2 (1.0) | 3.3 (0.9) | 7.41*** N>A; F>A; J>A |
| | <i>Russian</i> | 3.1 (1.2) | 2.5 (0.8) | 2.6 (0.7) | 2.5 (1.0) | 2.8 (1.0) | 4.27** A>N, F, I |
| | <i>Spanish</i> | 3.9 (1.0) | 3.9 (0.8) | 4.2 (0.8) | 3.7 (0.9) | 3.8 (0.9) | 2.76* F>I, J |

*** $p < .001$, ** $p < .01$, * $p < .05$. ^a Alphabet indicates the initial letter of cultural groups.

4.2. Views on Gesture

We conducted an analysis of variance (ANOVA) on the mean score of each item with cultural group as a between-subjects factor. Out of 26 items, six items did not show a main effect of cultural group (Table 3). In other words, regardless of cultures in this study, participants have the same value on the following propositions about gesture: *pointing at others with the index finger is bad manners, size of gestures is influenced by culture, size of gestures is influenced by the language one speaks, some gestures are made unintentionally, children gesture more frequently than adults, and speakers gesture more frequently when speaking in a foreign language than in their mother tongue.*

The rest of 20 items showed a main effect of cultural group (Table 3). Based on the result of post-hoc tests showing significant differences, we summarized the views on gesture that each culture group has. American participants think that people tend to produce gestures when they are speaking in public or when they are either highly intelligent or emotional, however, not in daily conversation. They believe that gesturing helps speaking because American participants seem to notice that a listener watches the speaker's gesture. They also note that frequency and type of gesture varies between males and females.

Dutch participants tend to believe there is a connection between gesture and culture and/or language. They also seem to notice that a listener pays attention to a speaker's gestures. Similar to Americans, they also hold the view that there is a gestural difference between males and females.



French participants have the view that people should use gestures in public and that people gesture even when a speaker is not emotional. They believe that gestures have functions, such as conveying information and remembering things. They also think that people learn local gestures by living abroad. They do not think that there are differences between males and females in frequency and type of gesture.

Italian participants showed slightly surprising views on gesture, given the results of Part 1. They tend to think that the use of gestures should be discouraged in daily conversation. This may be because they assume that gesture has no function in communication and that the person who is gesturing is possibly lying. They also believe that there is a gender difference in the use of gesture.

Japanese participants tend to believe there is a relationship between personality and gestures. They think that people should not use gestures when they give a logical explanation because the use of gesture does not appear intelligent and gesturing is connected to emotion or passion. In addition, they notice gender differences in gesture. They may have a different standard of politeness in gestures in that they prefer a flat hand shape when they point to a conversational partner, and they think they should put their hands on their laps while being a listener. These results indicate that

each cultural group puts weight on a slightly different aspect of gestures. They also indicate that even within Europe, views on gesture vary.

Table 3. Mean score of view on gesture for each country

| Items | America | Netherlands | France | Italy | Japan | F value | Multiple comparison ^a |
|---|-------------|-------------|-------------|--------------|-------------|----------|----------------------------------|
| 1. Speakers should use gestures when making presentations in public | 3.94 (0.96) | 4.04 (0.69) | 4.10 (0.96) | 3.23 (1.09) | 3.61 (1.07) | 10.67*** | U>I; N>I, F> I, J |
| 2. Low frequency of gestures suggests high intelligence | 2.02 (1.06) | 1.69 (0.86) | 1.54 (0.92) | 1.85 (0.990) | 2.19 (1.12) | 4.89*** | U>F; J> N, F |
| 3. High frequency of gestures suggests a passionate personality | 3.89 (0.99) | 3.95 (0.70) | 3.76 (1.10) | 3.38 (0.91) | 4.10 (0.98) | 6.24*** | U>I; N>I; J>I |
| 4. Gestures should not be used when giving logical explanations | 1.80 (0.84) | 1.94 (0.84) | 1.97 (1.06) | 1.94 (1.19) | 2.44 (1.17) | 4.07*** | J>U, N, I |
| 5. Gestures should be used when expressing emotion | 4.11 (0.88) | 3.94 (0.84) | 2.69 (1.18) | 3.74 (1.01) | 3.81 (1.08) | 21.67*** | U>F; N>F; I>F; J>F |
| 6. Pointing at others with the index finger is bad manners | 3.78 (1.43) | 3.69 (1.05) | 3.62 (1.31) | 3.58 (1.42) | 4.10 (1.04) | 1.98 | |
| 7. Those who do not gesture lack emotion | 2.20 (1.10) | 1.91 (0.90) | 1.58 (0.92) | 1.91 (1.01) | 2.01 (0.96) | 3.70** | U>F |
| 8. Frequency of gestures is influenced by culture | 3.88 (1.29) | 4.37 (0.65) | 3.86 (1.00) | 4.21 (1.02) | 3.81 (1.07) | 4.53** | N>U, F, J |
| 9. Frequency of gestures is influenced by the language one speaks | 3.63 (1.27) | 3.76 (0.91) | 3.25 (1.10) | 3.76 (1.10) | 3.32 (1.18) | 3.45** | N>F; I>F |
| 10. Size of gestures is influenced by culture | 3.59 (1.22) | 3.88 (0.93) | 3.87 (0.97) | 3.97 (1.09) | 3.89 (0.88) | 1.36 | |
| 11. Size of gestures is influenced by the language one speaks | 3.58 (1.2) | 3.64 (0.90) | 3.24 (1.13) | 3.41 (1.22) | 3.44 (1.11) | 1.40 | |
| 12. The use of gesture in daily conversation should be discouraged | 1.67 (0.87) | 1.35 (0.55) | 1.28 (0.61) | 1.82 (1.07) | 1.47 (0.58) | 6.50*** | U>F; I>N, F, J |
| 13. Gestures convey information | 4.03 (0.99) | 4.37 (0.77) | 4.70 (0.60) | 4.10 (1.09) | 4.38 (0.74) | 6.78 | F>U, I |
| 14. Gesturing helps speaking | 4.09 (0.95) | 4.47 (0.70) | 4.27 (0.88) | 3.92 (1.02) | 3.36 (1.10) | 15.00*** | U>F; I>N, F, J |
| 15. Listeners watch their speaking partners' gestures in conversation | 4.27 (0.80) | 4.15 (0.82) | 3.63 (0.91) | 3.79 (1.06) | 3.40 (0.88) | 11.05*** | U>F, I, J; N>F, J |
| 16. Gesturing helps one remember things | 3.64 (1.01) | 3.58 (0.97) | 3.92 (1.02) | 3.42 (1.13) | 3.63 (1.11) | 2.11 | F>I |
| 17. Gesturing has no function in communication | 1.45 (0.80) | 1.27 (0.57) | 1.14 (0.42) | 1.49 (0.94) | 1.38 (0.62) | 3.01* | I>F |
| 18. Some gestures are made unintentionally | 4.19 (0.97) | 4.49 (0.79) | 4.48 (0.92) | 4.18 (0.95) | 4.31 (0.74) | 2.15 | |
| 19. Frequency of gestures increases when one is lying | 2.41 (1.08) | 2.86 (0.82) | 2.39 (1.05) | 3.46 (1.26) | 2.44 (1.06) | 14.13*** | I>U, N, F, J |
| 20. Children gesture more frequently than adults | 3.09 (1.27) | 2.86 (0.91) | 3.37 (1.23) | 3.24 (1.25) | 3.33 (1.19) | 2.36 | |
| 21. Speakers gesture more frequently when speaking in a foreign language than in their mother tongue | 3.23 (1.21) | 3.62 (1.18) | 3.80 (1.19) | 3.59 (1.29) | 3.61 (1.28) | 1.87 | |
| 22. Frequency of gestures varies between male and female speakers | 3.45 (1.11) | 3.42 (0.92) | 2.11 (1.02) | 2.94 (1.14) | 3.10 (1.12) | 18.56*** | U>F; I; N>F, I; I>F |
| 23. Type of gestures varies between male and female speakers. | 3.55 (1.13) | 3.38 (0.97) | 2.90 (1.30) | 3.40 (1.05) | 3.67 (1.03) | 4.98** | U>F; I>F; J>F |
| 24. Speakers pick up local gestures by living abroad | 3.45 (1.02) | 3.85 (0.81) | 3.94 (1.01) | 3.67 (1.06) | 3.57 (0.95) | 2.93 | F>U, I |
| 25. When you listen to what people say while sitting on a chair, you should put your hands on your lap | 2.56 (0.99) | 1.62 (0.74) | 1.69 (0.86) | 1.71 (1.71) | 2.26 (1.07) | 14.16*** | U>N, F, I; J>N, F, I |
| 26. The hand shape in picture A  is more polite than that in picture B  when you point to your conversational partner | 2.11 (1.39) | 1.74 (1.12) | 1.90 (1.29) | 2.01 (1.25) | 1.36 (0.74) | 4.40** | A>J; F>I; I>J |

*** $p < .001$, ** $p < .01$, * $p < .05$.
^a Alphabet indicates the initial letter of cultural groups.

4.3. Factor Analysis

To determine whether ratings cluster according to views on gesture, we conducted a factor analysis. Both the scree plot and the Kaiser-Guttman “*eigenvalue* >1” rule suggested a three-factor solution (first four *eigenvalues* were 3.25, 1.82, 1.58, and .96). Three factors, accounting for 40% of the total variance, were extracted through unweighted least squares analysis and rotated via the Promax with Kaiser Normalization. The factor loadings are reported in Table 4.

More specifically, the three-dimension ratings from *the linguistic or cultural difference in gestures* loaded strongly onto Factor 1 (alpha reliability; $\alpha = .80$), the five-dimension ratings from *the gender and emotional difference in gesture* loaded onto Factor 2 ($\alpha = .64$), and the four-dimension ratings from *the function of gesture in communication* loaded onto Factor 3 ($\alpha = .65$).

Table 4. Factor pattern matrix

| | | Factor 1 | Factor 2 | Factor 3 |
|----|---|---------------------------------------|--------------------------|-------------------------|
| | | The linguistic or cultural difference | The gender and emotional | The function of gesture |
| 11 | Size of gestures is influenced by the language one speaks. | 0.83 | -0.02 | -0.06 |
| 9 | Frequency of gestures is influenced by the language one speaks | 0.79 | 0.03 | -0.08 |
| 10 | Size of gestures is influenced by culture | 0.60 | -0.02 | 0.11 |
| 8 | Frequency of gestures is influenced by culture | 0.57 | 0.07 | 0.09 |
| 22 | Frequency of gestures varies between male and female speakers | -0.04 | 0.86 | -0.09 |
| 23 | Type of gestures varies between male and female speakers. | 0.09 | 0.62 | 0.10 |
| 5 | Gestures should be used when expressing emotion | 0.01 | 0.38 | -0.02 |
| 7 | Those who do not gesture lack emotion | 0.01 | 0.35 | -0.01 |
| 14 | Gesturing helps speaking | -0.03 | 0.05 | 0.63 |
| 16 | Gesturing helps one remember things | -0.02 | 0.02 | 0.56 |
| 13 | Gestures convey information | 0.10 | -0.12 | 0.51 |
| 17 | Gesturing has no function in communication | -0.01 | 0.13 | -0.49 |
| 15 | Listeners watch their speaking partners' gestures in conversation | -0.06 | 0.20 | 0.43 |

Note: Loadings greater than .35 are in bold.

We conducted an analysis of variance (ANOVA) on the mean score of each sub-scales (Factors one to three) with cultural group as a between-subjects factor. Significant main effects of cultural group were found in *the gender and emotional difference in gesture*, $F(4, 358) = 23.31, p < .001.$, and in *the function of gesture*, $F(4, 358) = 7.01, p < .001.$ A significant tendency of the main effect was found in *the linguistic or cultural difference in gestures* $F(4, 358) = 2.39, p < .07.$

For *the gender and emotional difference in gesture*, post-hoc tests (Tukey, $p < .05$) showed that American participants rated this difference significantly higher than French and Italian participants, and Dutch, Italian, and Japanese participants rated it significantly higher than French participants. For *the function of gesture*, post-hoc tests showed that Dutch and French participants rated function of gesture significantly higher than Italian and Japanese participants.

These results indicated that American, Dutch, and Japanese participants are more likely to believe in the connection between gesture and gender or emotion and that Dutch and French participants tend to think that gestures have functions in communication more strongly than other cultural groups.

5. Discussion

This article investigated what kind of views people hold about spontaneous gestures by collecting data from five different cultural groups. There are two main findings. First, this study revealed that people from different cultures hold the common view that specific language speakers produce larger gestures than other language speakers do. It indicated that regardless of the participants' cultures, they tend to believe that Indo-European language speakers, especially *Italian* speakers, produce larger gestures more frequently than East Asian language speakers such as *Chinese*, *Japanese*, and *Korean*. These views were compatible with arguments presented in previous research (e.g., Neu, 1990; Graham and Argyle, 1975). Second, this study showed that each culture group puts weight on a slightly different aspect of spontaneous gestures and that, as regards gender differences of gesture, there are variances of view on gesture usage even within Europe.

These unifying and culturally varying views about spontaneous gestures might be due to the participants' familiarity with speakers of the target languages partially through media such as animation or movies. They may also be influenced by the frequency of contact with the language speakers or by a population of the particular language speakers in the culture. For example, *Arabic* speakers were ranked in the top five language speakers producing frequent gestures among the participants in

America, France and Italy, but not in the Netherlands and Japan. This may be because the Netherlands and Japan may have less interaction experience with Arabic language speakers compared with other cultural groups.

Thus, by changing the possible locations where the data are collected, we might get different answers, although this does not affect the results in this study. Variation within the data from Europe suggests variation in other regions of the world (e.g., East Asian cultures). Therefore, views on gestures in other cultures need to be examined. In addition, whether the views of gesture found in this study match the actual gestural production in each culture and how views of gesture that people have affect the actual gesture production and vice versa needs to be examined. Furthermore, whether people's views on gesture can be changed with exposure to examples of actual interaction in various languages needs to be explored in the future.

This was a first attempt to empirically examine and contrast views on spontaneous gestures held by speakers of different cultural backgrounds. The finding that participants in each culture group have a different view on spontaneous gestures suggests that people are aware of a certain systematicity in the use of spontaneous gestures in everyday conversation. It is a topic worthy of further investigation.

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