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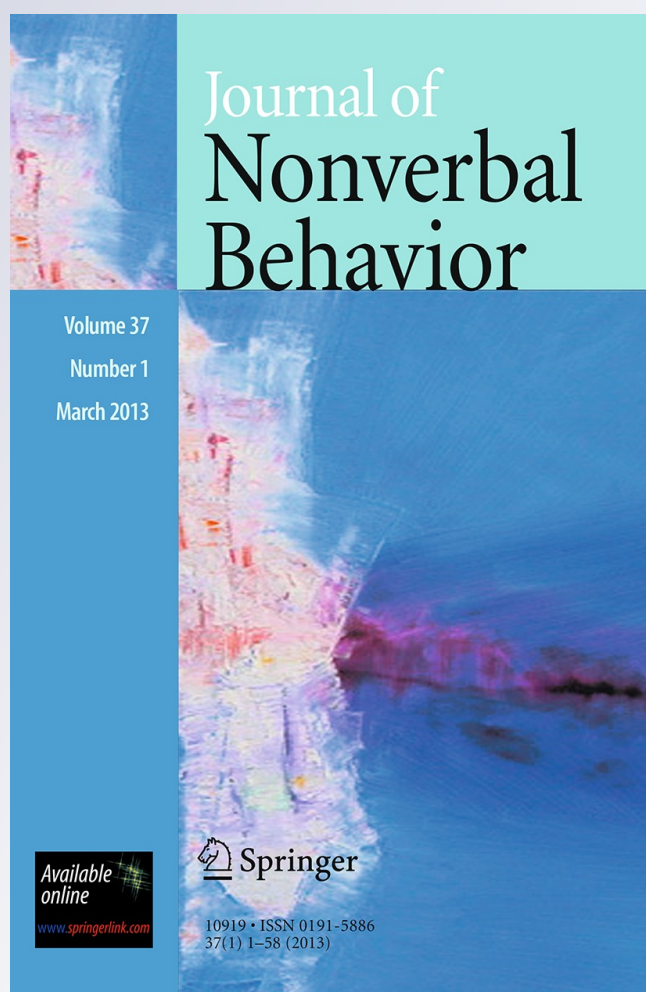
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Cultural Similarities and Differences in Emblematic Gestures

David Matsumoto · Hyisung C. Hwang

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Abstract Despite longstanding interest in cultural differences in emblems, there have only been a few systematic investigations of those differences, and to date there is no study that catalogues and compares emblems across different cultural groups to a standard list of verbal messages. This study does so. Encoders from six world regions produced potential emblems from a standard verbal message list. Gestures that were encoded by at least 70% of the encoders in a region were shown to observers from the same regions, and gestures that were judged correctly as the message intended by at least 70% of the decoders in that region were considered emblems. These procedures resulted in the cataloguing of cultural differences in emblems to the same verbal message list. Surprisingly, the results also indicated a small group of emblems that were similarly encoded and decoded across cultures.

Keywords Gestures · Emblems · Culture · Cross-cultural

Introduction

Gestures are an important part of nonverbal communication, and since Efron's (Boas et al. 1936; Efron 1941) classic study of them, have become an important topic of research. Gestures illustrate speech, amplify meaning, and deliver verbal messages. They are a form of embodied cognition—movements that express thought or the process of thinking (Kinsbourne 2006). Language is not an abstract system detached from practical action; it is a system that is grounded in action (Kendon 2007). The capability to gesture co-evolved with adaptations in our physical anatomy and cognitive and language capabilities (Bouissac 2006), allowing for more rapid and efficient communication systems that went

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beyond words and verbal language (Capirci and Volterra 2008). Gestures and speech are processed by a common neural system in the brain (Xu et al. 2009), suggesting that gestures are as integral a part of verbal messages as words are. Gestures may be linked to motor action similarly for children across cultures (Pettenati et al. 2012); even children who are blind gesture (Iverson and Goldin-Meadow 1998), as do chimpanzees (Liebal et al. 2004; Tomasello et al. 1997).

Although there are different ways to classify gestures (see Lascarides and Stone 2009, for a discussion), they can be broadly categorized into two types: those co-occurring with speech and those that can occur independent of speech. The former are known as speech illustrators (also as coverbal gestures); the latter are known as emblems (also as symbolic gestures or emblematic gestures). This paper concerns emblems.

Emblems are verbal messages encoded in body movements in an enculturation process, and produced spontaneously and understood widely as a form of cultural communication. They deliver verbal messages, like a word or phrase, as in the peace sign (forefinger and middle finger up, palm facing outward) or “good” (thumb up, hand in fist). The fact that emblems can occur with or without speech makes them particularly useful, allowing individuals to communicate at a distance or when talking is impossible or undesirable. Each culture develops its own emblem vocabulary, encoding verbal messages into hand and body movements.

Humans have universal needs and motives (Hogan 1982; Sheldon 2004) and must solve the same problems of living in order to survive. At the same time, groups exist in different ecologies, which necessitate differences in the generated cultural solutions (Georgas et al. 2004; van de Vliert 2009). Thus, while communication is a universal human ability, the specific forms by which that communication occurs can be different, both verbally and nonverbally. In fact cultural differences in emblems have been a focus of many writers (Ekman and Friesen 1972; Johnson et al. 1975; Kita 2009; Morris et al. 1980). Different cultures develop different forms of emblems because of differences in ways of living, as well as because of national and linguistic boundaries, cultural influx across time, cultural histories, and the richness of the word or phrase signaled in the verbal dictionaries of the cultures (Morris et al. 1980). Cultural differences in emblems also occur because of differences in the existence of symbolic objects. For example the crossed fingers for good luck was originally a surreptitious “sign of the cross” to signal to another that one was a Christian, and then became just the sign of the cross to ward off Satan, and now just “good luck.” Interestingly this emblem did not occur in non-Christian cultures in Morris et al. (1980) study.

Despite the interest in cultural differences in emblems, however, there have only been a few systematic investigations of those differences (Kendon 1997, 2007). Morris and colleagues’ study (1980) is certainly one notable exception, as well as Poortinga, Shoots, and Van de Koppel’s (1993). There are studies of individual cultures and their emblem vocabularies, such as South Africa (Brookes 2004), the US (Johnson et al. 1975), Italy (Kendon 1992, 1995; Poggi 2002), Iran (Sparhawk 1976), Israel (Broide 1977); see Kita (2009) for other cultures. But to date there is no study that compares emblems across different cultural groups to a standard list of verbal messages in the same study in order to compare and catalogue emblem differences across cultures.¹ This study does so.

¹ The relative lack of studies documenting cultural differences in emblems stands in contrast to a number of studies that have demonstrated cultural differences in another type of nonverbal behavior—facial expressions of emotion (e.g., see Elfenbein et al. 2007; Friesen 1972; Matsumoto and Kupperbusch 2001; Waxer 1985).

Examining emblems across cultures raises questions concerning the best methodology for eliciting and validating them. Just asking encoders to produce emblems is not sufficient, as there is the possibility that the productions are not true emblems, but instead mimes or charades of actions.² Thus we adopted a procedure that required two steps: first a production stage in which encoders produced emblems, and a second stage in which a different group of observers judged the pool of extracted emblems produced by the encoders. If the produced actions were indeed emblems, they should be highly recognized by members of the same cultural group. This methodology, or variants of it, has been successfully used previously (Broide 1977; Johnson et al. 1975; Poortinga et al. 1993; Sparhawk 1976).

The purpose of this study, therefore, was to catalogue and compare emblems across multiple cultural groups in relation to a standard list of verbal messages. Because it was logistically impossible to survey the entire emblem vocabulary of any one culture, let alone across cultures, we produced a list of verbal messages to highlight emblematic differences across cultures (described in detail below).³ Encoders from multiple cultures were asked to produce emblems according to that list, as well as any others they spontaneously recalled during the encoding procedures; a pool of potential emblems was created for each group by identifying gestures commonly produced by the encoders. Independent groups of observers from each of the cultural groups then judged the meaning of the pool of emblems to produce a final list of emblems. This allowed us to catalogue the produced emblems across cultures, and to compare them to each other.

Method

Emblem Extraction

Verbal Message List (VML)

We first compiled a large list of verbal messages generated in three previous studies using the same methodology in different cultures (Israel—Broide 1977; US—Johnson et al. 1975; Israel—Sparhawk 1976).⁴ This initial VML contained a total of 284 items (98, 118, and 68 from Iran, Israel, and the US, respectively) and included only those emblems that were verified using the same encoding and decoding procedures utilized in this study. Three subject matter experts (SMEs; including the two authors) independently reviewed

² We do not mean to imply that mimes and charades of actions are not important aspects of behavior to study in their own right. Observation of any game of charades makes it clear that individuals can produce actions representing verbal messages that can be interpreted accurately by groups; but these actions are different than emblems.

³ The production of a standard verbal message list to which encoders responded was necessary methodologically in order to provide a basis of equivalence to the productions, which is important for a cross-cultural comparison. One limitation of this procedure, however, is the inability to generate knowledge of cultural differences beyond differences in appearance of the same pre-selected set of messages (with the exception of those spontaneously recalled by the encoders); readers are cautioned to interpret our results accordingly.

⁴ A fourth study (Poortinga et al. 1993) did use the same methodology but did not report the VML produced.

the initial VML and selected items they deemed important for individuals interacting with people from a different culture for the first time to know in order to highlight emblematic differences across cultures and to aid in avoiding potentially dangerous situations.⁵ The final VML to be tested was then determined by selecting the verbal messages all three SMEs had selected. This resulted in an initial VML to be tested (see Table 1, top, for list in alphabetical order; during the extraction, the messages were grouped for easier recall). As part of the methodology, we stopped every so often during the encoding task to ask the informants if they spontaneously remembered gestures other than the ones we asked about (see Table 1, bottom).

Cultural Informant Encoders

The encoders included 28 US born-and-raised Americans and 161 non-US born-and-raised individuals. The latter were either immigrants in the US or residing in their home country at the time of encoding. We grouped the encoders by region, resulting in groups from Sub-Saharan Africa ($N = 44$, of which 24 were immigrants), East Asia ($N = 27$, 24 immigrants), Latin America ($N = 38$, 31 immigrants), the Middle East ($N = 40$, 33 immigrants), South Asia ($N = 12$, no immigrants), and the USA ($N = 28$). Recruitment occurred via word of mouth through students, friends, colleagues, immigrant groups, churches, temples and mosques. All emblems included in the study came from encoders who consented to be video recorded.

Encoding Procedures

Encoders were first introduced to the topic of emblematic gestures and were told that we were interested in typical gestures used in their home countries. They were given two examples—“yes” and “no” in US American culture being displayed by head nods and headshakes, respectively. They were then asked to show what they did in their culture for yes and no to capture these emblems and ensure they understood the procedures. They were then read each item on the VML and asked to portray a gesture for each, if it existed in their culture. After every few items (generally after every 5th item), the interviewer paused and asked the encoders if they spontaneously remembered any gestures. This procedure continued until the VML was completed and the encoders could not spontaneously reproduce any other emblems. Recording was sometimes done in public places (finding a private area), the homes of encoders, and our laboratory. Encoders were also encouraged to perform more than one action for each message if they knew of alternatives.

Emblem Extraction

The first author and an assistant screened the productions to identify possible emblems. They judged the similarity in the produced behaviors for each verbal message across encoders. Gestures were considered as potential emblems if they were judged by both screeners to be produced similarly across a minimum of 70% of the encoders within a

⁵ An initial interaction context that was considered was that of government and non-government organization (NGO) personnel deployed in different cultures, interacting with local citizens, and tasked with building relationships and obtaining information about places and people. Thus, the initial VML included many simple greetings (hello, goodbye), locomotion requests and direction indicators (e.g., come, go, go this way, go that way), simple statements about physical or mental state (e.g., I'm thirsty, I'm hungry, I don't understand), and potentially harmful or dangerous messages (e.g., insults, kill, the hell with you).

Table 1 Verbal message lists tested in this study (alphabetical order)

Initial VML		
A long way	I'm thirsty	Kill
Come; come here	I'm hungry	Look; look at that
Disdain	I agree	Love
Give me a cigarette	I don't agree	No
Go; go away	I don't know	Pretty woman
Go this way	I don't understand	Stop
Go that way	I give up	Telephone call
Good or great	I have no money	That is stupid
Goodbye	I hate you	The hell with you
He's crazy	I love you	Watch out
Hello	I understand	Yes
Hitchhiking or I want a ride	Insult	You noticed someone
VML added by encoder participants		
Apology	Fear; I am afraid; scared	Homosexual
Bless you	Friendship forever	Hurry
Boyfriend	Fuck you	I'm falling apart
Catastrophe	Girlfriend	I'm very strong
Day after tomorrow	Go to hell	I don't like you
Death	God bless you	I need to pee
Devil	God protect me	It's crowded here
Emotionally close	Good luck	I've been cheated or scammed
Excuse me	Hail cab; get a ride	Me; myself
Far away	Half of something	Money
Faster	Handcuffs	More or less
Namaste	Respect	Threat
No money	Run	Tomorrow
Notice a friend	Shy; embarrassed	Too hot to touch
OK	Smart	Up your ass
Pay attention	Smell my palm	Wait
Please give me some	Something horrible	Ward off danger
Prayer	Stingy; cheap	You lie to me (oh my eye)
Promise	Stupid or slow person	You're being too loud
Purify or ward off evil or bad luck	Thank you	
	Thirsty or drink	

region. The 70% criterion was adopted as it was strict enough to eliminate many idiosyncratic gestures, on-the-spot inventions, and mimes, yet flexible enough to be not too restrictive to exclude potentially valid emblems; this criterion was used in previous studies (Broide 1977; Johnson et al. 1975).

Because our initial focus was on the identification of culture- or region-specific emblems, we first identified potential emblems that met the 70% criterion within each region and that were *different* across regions; that is, we ignored potential emblems that

were similarly produced by encoders across regions. This resulted in the identification of 56 gestures from East Asia, 27 from South Asia, 43 from Latin America, 42 from the Middle East, 25 from Africa, and 21 from the US.

Emblem encoding occurred over a period of approximately 4 months and extraction occurred thereafter, working generally two regions at a time. Stimuli were therefore created and collection of judgment data (according to the procedures below) commenced by groups of regions at a time (i.e., the East Asia and Latino surveys were the first to commence, the South Asia and Middle East surveys next, and the African and US surveys last). The US emblems were the last to be encoded and extracted, after collection of the judgment data for some of the other regions had already started. When the emblem extraction for the US was completed, we noticed that there were 15 emblems that had met the 70% criterion within each region and were also *similarly* produced by encoders in all the other regions. (Recall that these were previously ignored because we were attempting to obtain culture-specific emblems.) We therefore identified a pool of 15 culturally *similar* emblems, in addition to the culturally different emblems described above.

Stimuli Creation

Short video clips of persons performing the extracted emblems were made. Because of minor differences across individual encoders, in some cases models of appropriate ethnic background were recorded enacting the emblems in a studio setting in order to standardize the action and eliminate background distraction.⁶ In most cases the original video clips were of good enough quality and free from background distractions that they were used as originally recorded. Two clips were made for each gesture, one by a male and one by a female. Each video clip was between 2 and 4 s in length and included the entire emblem from a neutral position and returning to a neutral position after its completion (corresponding to Kendon's 1996, 2007, concept of excursions). Thus there were 112 videos in the East Asian survey, 54 in the South Asian survey, 86 in the Latin American survey, 84 in the Middle Eastern survey, and 50 in the African survey. We combined the US and culture similar gestures into one survey with 72 videos.

Observers

We recruited observers to judge the emblems corresponding to the region in which they were born and raised. They were recruited by snowball and by a university experiment participant pool system.

There were 209 observers who completed the East Asian survey ($N = 101$ females, 102 males, 6 undeclared). One hundred twenty seven reported being born and raised in China, 42 born and raised in Japan, and 40 born and raised in South Korea. Their ages ranged from 18 to 56 ($M = 22.86$, $SD = 4.64$).

There were 39 observers who completed the Latin American Survey ($N = 15$ females, 20 males, 4 undeclared). Twelve were born and raised in Mexico, 11 in Guatemala, 11 in

⁶ We examined whether the recreated stimuli were differentially "recognized" as an emblem in the judgment procedures described below, and found that of all the emblems reported in Tables 2, 3, and 4 in the Appendix, only two Latino and one culturally-similar emblem was based on stimuli for which at least one video was recreated. All other emblems reported were based on original video clips of encoders. We thus concluded that the re-creation of some of the stimuli did not differentially affect recognition rates.

El Salvador, and 5 from Brazil. Their ages ranged from 18 to 61 ($M = 37.29$, $SD = 11.67$).

There were 38 observers who completed the African survey ($N = 16$ females, $N = 22$ males). Ten were born and raised in Kenya, 10 in Ghana, 10 from Nigeria, and 8 from Niger. Their ages ranged from 18 to 69 ($M = 30.51$, $SD = 11.84$).

There were 35 observers who completed the South Asian survey ($N = 17$ females, 16 males, 2 undeclared). Eighteen were born and raised in India, 10 in Pakistan, and 7 in Nepal. Their ages ranged from 18 to 71 ($M = 35.67$, $SD = 14.97$).

There were 67 observers who completed the Middle Eastern survey ($N = 36$ females, 30 males, 1 undeclared). Twelve were born and raised in Syria, 10 in Turkey, 15 in Jordan, 8 in Afghanistan, 10 in Lebanon, and 12 in Egypt. Their ages ranged from 18 to 53 ($M = 25.65$, $SD = 8.00$).

There were 128 observers who completed the culture similar and US gestures survey ($N = 60$ males, 60 females, 8 undeclared). Forty were born and raised in the US, 12 in Nicaragua, 10 in Nigeria, 10 in Syria, 8 in Honduras, 8 in Canada, 8 in Germany, 10 in India, 8 in Mexico, 8 in Japan, and 6 in China. Their ages ranged from 18 to 59 ($M = 33.19$, $SD = 14.00$).

Judgment Task and Procedures

Within each survey the clips were divided into two blocks, with one of the two clips of each emblem in each block and the order of the clips within each block randomized. The two blocks of clips for each region were placed in an online testing system. All protocols were originally developed in English; a translated version was created for three of the surveys (Spanish for the Latin American survey, French for the African survey, and Simplified Chinese for the East Asian survey). Accuracy of the translations was verified using back-translation procedures. Participants were given the choice of either completing the survey in the translated language or in English.⁷

After reading a description of the study and agreeing to participate, observers were simply asked to view the gesture in each video clip and to indicate its meaning by selecting one of five response choices provided. For each, a multiple-choice response format was created that included the intended verbal message and four other unintended messages selected randomly from the verbal messages for other gestures. Observers were allowed to view the gesture as many times as they wished and were not prevented from reviewing or changing their responses (no observers reported doing so). At the end of the survey observers provided basic demographic information including age, sex, ethnicity, nationality, and country born and raised.

⁷ It would have been preferable to have surveys available in all languages for all cultures from which observers came from, but this was logistically impossible. Given that some previous research has shown that judgments of nonverbal stimuli may differ in bilinguals depending on the language used when the judgments are made (Matsumoto et al. 2008; Matsumoto and Assar 1992), it is possible that such differences in judgment processes vis-à-vis language occurred in this study, and readers are cautioned to interpret the data with this caveat.

Results

Culturally Different Gestures

We computed the percentage of observers selecting each of the response alternatives for each of the gestures within each survey. A criterion of 70% recognition for both the male and female versions of each gesture was set for acceptance of the gesture as being reliably recognized. For the US gestures, only the data from observers born and raised in the US were used. The gestures that met the 70% criterion in each of the regions are listed in Table 2 (see Appendix).

We observed three types of cultural differences in emblems. One was a difference in the form of an emblem across cultures in relation to the same verbal message. Insults, for instance, occurred in all regions and likely serve the same function, conveying offensive or aggressive messages to another. They originate from attitudes related to sex or excrement, which themselves are topics of universal concern; the specific forms of these gestures, however, differed across regions. Gestures related to the verbal message “come” occurred in all regions; yet the regions had different forms of the gesture for this verbal message.

Another type of difference was a difference in meaning to the same forms. The “ring,” for instance, in which a circle is made with the thumb and index finger and the other three fingers are open, can mean “A-OK,” “money,” or a variety of other messages (Morris et al. 1980). Bringing both hands together in the front and bowing had multiple meanings across cultures (“thank you,” “hello,” “goodbye”), as did bringing both hands to the sides of one’s head and pointing the index finger (“the devil,” “angry,” “horny”).

A third type of difference involved culturally unique emblems. The message for “apology,” for instance, occurred only in South Asia; the message for “hunger” occurred only in East Asia; and the message for “day after tomorrow” occurred only in the Middle East, despite the fact that these are clearly universal concerns. Unfortunately, however, it was not clear whether the non-emergence of gestures for the same verbal message in other regions occurred because they don’t exist or because we examined regions and not specific cultures. It is very possible that gestures for the verbal messages described here exist in specific cultures in other regions, but that they did not emerge in our analyses because they did not meet the 70% encoder criterion across all encoders in that culture’s region.

There were 16 gestures that met the 70% recognition criterion for one model but not the other. For instance, the “smell my palm” gesture from Iran was recognized by 96% when performed by one model but only by 54% when performed by the other model. One example of a Mexican gesture for “no money” was recognized at 80%, while the other was recognized at 30%. One example of a Nairobi gesture for “I don’t agree” was recognized at 100%, but the other was recognized at 37.50%. One example of a Chinese gesture for “shy or embarrassed” was recognized at 73%, but the other was recognized at 33%. We inspected each of the pairs of gestures, and while there were some minor differences in portrayals of some (e.g., small facial expressions, number of times hands are rotated or shaken, specific angle of arms and hands, etc.), they were not distinctive enough for us to believe they were qualitatively different from each other. Thus, we have no interpretation of why the recognition rates of the two examples of these gestures were different. Additional data replicating the differences in the recognition rates would suggest a systematic difference in the gestures; non-replication, however, would suggest an issue in our current sampling that produced the differences. Consistent with previous literature (Broide 1977; Johnson et al. 1975; Sparhawk 1976) we considered these as “possible” emblems and listed them in Table 3 (see Appendix).

The verbal message associated with each gesture denoted its meaning. As an initial attempt to delineate each gesture's function, we assigned meta-categories and categories to each post hoc using the classifications below, attempting to delineate the role or purpose for which the gesture is used in the culture. Attitudes and opinions, for example, included gestures that communicated an evaluation, either of approval, disapproval, or neither. Gestures classified as requests or commands were those that asked others to do something, and included both requests for specific instrumental actions and movement (locomotion). The following meta-categories and categories were used:

- Attitudes and opinions included gestures that communicated messages with an evaluation of something. This meta-category included different categories for gestures that signaled approval, those that signaled disapproval, and those that were ambiguous.
- Etiquette and social norms included gestures that conveyed learned social conventions to facilitate social interactions. Its categories included appreciation, greetings and salutations, rectifying transgressions, and religious acts or symbols.
- Insults included gestures that conveyed offensive or aggressive messages to another, often of an obscene or sexual nature.
- Referents were gestures that pointed to or indicated something. Its categories included references to self, time, and religious acts or symbols.
- Requests or commands included gestures that asked or directed others to do something. Its categories included requests for specific types of instrumental behaviors and requests for locomotion.
- Statements were general declarations and its categories included declarations about mental states, physical states, and relationships.

Culturally Similar Gestures

For the culturally similar gestures, we utilized the data from all observers who viewed those and the US gestures. As in the analysis above, we computed the percentage of observers selecting each of the response alternatives for each of these. Both examples of all 15 gestures were recognized above the 70% criterion (see Appendix, Table 4).

Inspection of the different messages conveyed suggested that the culturally similar gestures included more basic or elemental messages than did the culturally variant ones. For example, there were three cross-culturally similar gestures that conveyed attitudes and opinions—"yes," "no," and "I don't know." The attitudes and opinions that were conveyed by culturally different gestures included more complex or ambiguous messages, such as "more or less," "I agree," or "I don't agree." The culturally similar gestures included one statement of mental state—"threat"—and one statement of a physical state—"thirsty". The culturally different gestures included more various messages, including "angry," "crazy," "smart," "stupid," "from my heart," "I am falling apart," "I understand," "I don't understand," "I give up," and "respect."

As above, we assigned meta-categories and categories to each of the gestures. On the whole the culturally similar gestures appeared to convey relatively basic messages that were tied to universal physical forms related to those messages. Although all cultures appeared to have an insult gesture, for instance, the culturally similar gesture for insult was one that pointed to one's butt, a universal aspect of physical anatomy referencing a universal aspect of biology (feces, defecating) and meaning (dirtiness). The culturally similar gestures for referents—"run," "cigarette," "notice something," and "telephone"—all

mimicked the behaviors associated with those messages that are themselves relatively culturally invariant.

It is also interesting to note what messages were included in the culturally variant gestures that were *not* included in the culturally similar ones. For instance there were no culturally similar gestures that were categorized as religious acts of symbols, probably reflecting the vast differences across world regions in religions and religious histories, which most likely affected the origin and transmission of many gestures (Morris et al. 1980). There were no culturally similar gestures categorized as etiquettes and social norms or relationships, although these occur in and are concerns of all cultures. The lack of culturally similar gestures for these categories of messages suggested that the cultures create relatively unique ways of gesturing messages in these categories.

Discussion

The purpose of this study was to catalogue and compare emblems across multiple cultural groups in relation to a standard list of verbal messages, and the data provided new insights concerning cultural differences in emblems, of which we observed three types. One was a difference in the form of an emblem relative to the same verbal meaning; “come,” “emotional closeness,” “God bless you,” “hello,” and “I don’t agree,” for example, were messages that occurred but were produced differently across cultures. Another type was a difference in meaning to the same form. The “ring,” for instance, can mean “A-OK,” “money,” or a variety of other messages (Morris et al. 1980). Bringing both hands together in the front and bowing may mean “thank you” in some cultures but “hello” or “goodbye” in others. Bringing both hands to the sides of one’s head and pointing the index finger may mean “the devil” in some cultures, “angry” in others, and “horny” in still others. A third type of cultural difference involved culturally unique emblems, in which an emblem for a message existed in one culture but not another. An interesting and unexpected finding in this study was the uncovering of some culturally similar emblems.

This study was not conducted without limitations, the first having to do with the Verbal Message List to which encoders responded. Unlike previous studies that attempted to establish the emblem vocabulary of a single culture more comprehensively (Broide 1977; Brookes 2004; Johnson et al. 1975; Kendon 1992, 1995; Kita 2009; Poggi 2002; Sparhawk 1976), we identified a limited number of verbal messages in order to create some degree of equivalence across encoder cultures in the messages requested. Moreover, encoded emblems were selected for inclusion in the observational study if they appeared across the specific cultures within a region, thus minimizing the possibility that minor differences in emblems across cultures within a region (akin to dialects) were included in the final pools tested. Although encoders also spontaneously produced other gestures, a consequence of our procedure was that the final pools of encoded gestures did not exhaust the emblem vocabularies of the various cultures and minimized potential differences; thus we could not generate cultural differences beyond differences in appearance of the same pre-selected set of messages (with the exception of those spontaneously produced). For this reason the gestures reported above *underestimated* the emblem vocabularies of the various cultures, and readers are cautioned to interpret the data with this caveat.

Another limitation was our grouping of the gestures into world regions, not specific cultures within those regions. Unfortunately the relatively low Ns for individual cultures for both the encoding and decoding procedures would have resulted in reduced power for all analyses, and it was logistically impossible to gather sufficient Ns for each of the specific cultures studied. Thus, we opted to group encoders and decoders according to world region, which essentially combined neighboring countries and cultures. This resulted in the elimination of gestures that may have been valid within a culture but not region. To be sure classifying encoders and decoders by country does not entirely avoid this problem because many countries of the world are demarcated by geopolitical, not cultural, boundaries, and many countries are comprised of distinct and separate cultural groups and ethnic enclaves. Therefore using country as a classifier for gestures would have also been not without limitation. Regardless, readers are cautioned to interpret the results with the caveat of our having grouped by region.

Another limitation was our focus on the movements of the hands, and relatively less on facial expressions and postures. Hand gestures often occurred within a system of expressive behaviors that included face and body. There may also be vocalic emblems (although evidence would have to be marshaled that such vocalics have a clearly definable verbal message). We did not capture or code the behaviors produced in these other nonverbal channels, and readers are cautioned to interpret our results with this qualification as well.

A limitation of the observational data was our adopting of the 70% criterion for recognition. We chose this criterion because it was used in previous emblem extraction and verification studies (Broide 1977; Johnson et al. 1975; Sparhawk 1976). Cross-cultural studies in other areas of psychology have also adopted similar criteria to establish cross-cultural equivalence in agreement rates (e.g., Buss 1989). But the observational data is different than the encoding because the decoder's task was to choose among five alternatives, resulting in a 20% chance for correct responding; thus the 70% decoding criterion needs to be interpreted vis-à-vis a 20% chance threshold.

Regardless of these limitations, the findings provided an interesting catalogue of cultural differences in emblems. Morris et al. (1980) suggested that cultural differences in emblem forms occur because of national and linguistic boundaries, cultural influx across history due to wars or immigration, cultural histories, the richness of the word or phrase signaled in the verbal dictionaries of the cultures, and the presence or absence of particular symbols. Consistent with the latter notion, in our study gestures of religious acts or symbols did not occur in all regions studied, and the ones that did emerge were related to Christianity. Morris et al. (1980) called other emblems "relic" emblems in that they were trace representations of specific behaviors. Crossing one's fingers to signify "good luck," which we reported, may be an example of such a relic.

Cultural differences in emblems may also occur in a process akin to that described by Levy (1973) in his work on emotion concepts in Tahiti. Levy described a process of hypercognition to denote cultures that carved up their affective world semantically by generating many words for affective states, and compared that to hypocognition, where cultures generated relatively fewer words for their affective worlds. A similar process may occur for emblems, where some cultures *hyperencode* verbal statements into relatively more gestures, while others *hypoencode* their verbal world into relatively less gestures. Whether words, and gestures, are created to symbolize messages depends on whether or not the message is important enough to be reified in the culture. Such a process may explain why some cultures have gestures for some verbal messages while others do not.

The uncovering of some culturally similar emblem forms was unexpected, as studies to date have focused on cultural differences. Future studies must replicate these findings in

larger samples of cultures. If replicated, they may signal the beginning of a homogenization process of emblems that may ultimately result in a universal language of emblems through cultural transmission and diffusion. This transmission is undoubtedly aided in recent history by increasing intercultural contact brought about by porous borders and immigration, and a consequence of improved communication and transportation technologies. Cultural transmission of emblems is also aided by mass media, including television, movies, and the Internet. Continued improvements in these technologies that allow for continued increasing intercultural contact will likely continue this transmission and homogenization process.

Examination of the culturally similar emblems suggested that they convey relatively basic messages that are tied to universal physical forms related to those messages and/or some functional associations between the physical forms and the messages conveyed. Their relative simplicity gives clues about the nature of the cross-cultural transmission process, which may start with basic, elemental verbal statements and with simplistic, mimic-like forms and over time incorporate more complex verbal messages and forms. Thus, initial homogenization of gestures into a universal emblem vocabulary may begin with elemental units, like morphemes of speech. At the same time this process may exclude aspects of verbal messages or emblematic forms that are not cross-culturally relevant, making it difficult for religious acts and symbols or other very culture-specific emblems and verbal messages to be incorporated across cultures. Studies of cultural transmission and diffusion of other cultural products (e.g., Schönplflug 2009) may further elucidate the processes by which gesture homogenization may occur; and studies of gestures may further elucidate the nature of cultural transmission.

Finally, assigning categories to emblems as we did is not new, as at least one study (Johnson et al. 1975) has done so previously. That study, however, did not differentiate between different levels of categories as we did, nor did the generated categories focus on the function of the emblems. Other researchers may disagree with our meta-categories and categories, and we encourage the development of better classification systems that can describe the functions and meanings of emblems better than the ones proposed here. We offer these as a first attempt to explicate the functions and meanings of emblems at different levels of abstraction.

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Appendix

See Tables 2, 3 and 4.

Table 2 Culturally different emblems for each region

Meta-category	Category	Verbal message	Region	Form	Mean recognition
Etiquette and social norms	Rectifying transgression	Apology	South Asia	The thumbs and forefingers of both hands grasp the earlobes	85.85
	Requests or commands	Come	Africa	One or both hands held in front of one's body, four fingers curled in repeatedly toward oneself	90.40
	Requests or commands	Come	East Asia	Hand raised, palm down, four fingers repeatedly fluttered toward self	78.20
	Requests or commands	Come	South Asia	Hand raised, palm down, four fingers repeatedly fluttered toward self	96.20
	Requests or commands	Come	US	Hand out and open, palm facing up; hand or fingers makes repeated motions toward self	100.00
	Requests or commands	Come 1	Latino	Hand raised, palm down, four fingers repeatedly fluttered toward self	87.50
	Requests or commands	Come 1	Middle East	Hand raised, palm down, four fingers repeatedly fluttered toward self	72.05
	Requests or commands	Come 2	Latino	Hand raised, palm up, four fingers repeatedly fluttered toward self	100.00
	Requests or commands	Come 2	Middle East	Hand raised, palm up, four fingers repeatedly fluttered toward self	95.25
	Statements	Mental state—other	Crazy	Middle East	Open hand with fingers open as if grasping a large knob brought to side of the head and twisted back and forth several times
Referent	Time	Day after tomorrow	Middle East	Index finger of the right hand pointed, other fingers curled under the thumb; hand makes two semi-circular motions ending with the index finger pointing down	95.70
Statements	Physical state	Death 1	Middle East	Left hand placed on top of head, palm down; right hand raised and right palm strikes the top of the left hand several times	75.65

Table 2 continued

Meta-category	Category	Verbal message	Region	Form	Mean recognition
Statements	Physical state	Death 2	Middle East	Index fingers of both hands straight and pointed, other fingers curled under the thumb; both hands brought in front of body, crossing, then both hands brought down to the sides of the body in slashing motion	72.20
Referent	Religious acts or symbols	Devil	Latino	Index and little finger of the right hand straight and pointed, other fingers curled under the thumb (the horn); hand raised and back of palm placed on front of forehead	100.00
Statements	Relationship	Emotional closeness	Africa	The middle finger is crossed over the index finger, other fingers curled and under the thumb	82.15
Statements	Relationship	Emotional closeness	South Asia	Palm of right hand touches right cheek, and slowly lowers off the cheek, or head tilts with a smile	84.25
Statements	Relationship	Friendship forever	East Asia	Little fingers of both hands intertwined in front of body, other fingers curled in, knuckles facing away from body	76.35
Statements	Mental state—self	From my heart	Middle East	Fingers of right hand closed in loose fist, right hand brought to middle of the chest, and either remains stationary or taps the chest once or twice	84.25
Etiquette and social norms	Religious acts or symbols	God bless you	Africa	Both hands open; arms raised straight above one's shoulders, palms facing front, then arms lowered to shoulder level and paused	79.60
Etiquette and social norms	Religious acts or symbols	God bless you	Latino	Sign of a cross made in front of one's body, vertical line first then horizontal, drawn by open hand held vertically with four fingers straight and pointing up, or by hand shaped as if holding a pen or pencil	97.73
Etiquette and social norms	Religious acts or symbols	God bless you	South Asia	The right arm is straightened away from the body; right hand straightened, fingers out, palm down	78.95
Etiquette and social norms	Religious acts or symbols	God protect me	Africa	Both hands open and raised, palms facing forward, elbow at about 90 degrees; head tilt back and eyes looking up	85.40

Table 2 continued

Meta-category	Category	Verbal message	Region	Form	Mean recognition
Etiquette and social norms	Religious acts or symbols	God protect me	Middle East	Both hands open, elbows to the sides, head tilted slightly back, eyes looking up while both hands are shaken up and down	71.25
Attitudes and opinions	Approval	Good	East Asia	Hand in fist, thumb up	74.85
Attitudes and opinions	Approval	Good	Latino	Hand in fist, thumb up	100.00
Attitudes and opinions	Approval	Good	US	Hand in fist, thumb up	100.00
Etiquette and social norms	Religious acts or symbols	Good luck	US	The middle finger is crossed over the index finger, other fingers curled and under the thumb	100.00
Attitudes and opinions	Approval	Good; ok	US	Hand held up, palm facing outward; thumb and index finger touch to form a circle, other fingers extended and slightly spread (the ring)	100.00
Etiquette and social norms	Greetings and salutations	Goodbye	Africa	Hand open with palm facing forward, hand waved left and right several times	86.90
Etiquette and social norms	Greetings and salutations	Goodbye	US	One hand raised and open, palm facing away from body; fingers or hand fluttered back and forth or sideways, or hand remains stationary	100.00
Requests or commands	Instrumental behavior	Hail cab; get a ride	Latino	Index finger of right hand straight and pointed, hand and arm held out away from body	76.85
Requests or commands	Instrumental behavior	Hail cab; get a ride	Middle East	Index finger of right hand straight and pointed, hand and arm held out away from body	76.00
Etiquette and social norms	Greetings and salutations	Hello	Middle East	Both hands brought together at the waist, fingers interlaced or one hand over the other; body bows with head down	85.65
Etiquette and social norms	Greetings and salutations	Hello	US	One hand raised and open, palm facing away from body; fingers or hand fluttered sideways or remains stationary	98.20
Etiquette and social norms	Greetings and salutations	Hello, goodbye	East Asia	Bow of the body from the waist down, head down	79.10

Table 2 continued

Meta-category	Category	Verbal message	Region	Form	Mean recognition
Etiquette and social norms	Greetings and salutations	Hello, goodbye, Namaste	South Asia	Both hands brought together in front of body, palms touching each other as if in prayer, slight bow of the head	92.38
	Requests or commands	Hitchhike	US	Thumb of one hand out, other fingers curled; thumb pointing in a desired direction	98.20
Statements	Mental state—other	Horrible	South Asia	Index finger of both hands pointing, other fingers curled under the thumb, both hands brought to the sides of the head in the temple area with index fingers pointing up	82.70
Statements	Physical state	Hunger	East Asia	Left hand held up in front of body, palm facing up, fingers open; right hand making scooping motions from left hand toward mouth	80.95
Requests or commands	Locomotion	Hurry or faster 1	Latino	Fingers of right hand open, thumb touching side of index finger, or index finger straight and pointed; hand held out and repeatedly shaken up and down	84.60
Requests or commands	Locomotion	Hurry or faster 3	Latino	Variation of 1 but with one hand open, fingers straight, palm up, and hand quickly rotated in small circular motion	86.70
Statements	Mental state—self	I am falling apart	Latino	Both hands open, fingers loose; hands brought to the chest or abdomen, then dropped diagonally to one's sides with loose arms and hands	93.35
Attitudes and opinions	Disapproval	I don't agree 1	Latino	Both hands open, palms slid back and forth against each other a few times and then both hands separated with palms down as if pushing something down	91.65
Attitudes and opinions	Disapproval	I don't agree 2	Latino	Index fingers of both hands straight and pointed, other fingers curled under the thumb; both hands brought to front and then down diagonally to sides of one's body, or starting at one's sides with index fingers waved left and right	93.80

Table 2 continued

Meta-category	Category	Verbal message	Region	Form	Mean recognition
Statements	Mental state—self	I don't understand	East Asia	Hand in loose fist with index finger pointed toward or touching temple of head; with or without twisting or rotating motion	73.15
Statements	Mental state—self	I give up	Latino	Both hands brought to the front, open with palms facing down, and then brought down diagonally to one's sides; head tilted down	74.20
Statements	Mental state—self	I give up	US	One or both hands open and raised to shoulder level with elbows bent, palm(s) facing away from body; head turned away to side with gaze averted	92.85
Statements	Relationship	I love you	Africa	Both hands brought together, palms facing in opposite directions, index fingers interlaced with each other	71.40
Statements	Mental state—self	I understand	Africa	Head nod with hand gesture, either pointing toward oneself or hand open, palm facing one's head	84.40
Insults	Insult	Insult—bicep	Latino	Palm of left hand brought to right bicep; right arm first straight with hand in fist, then arm and hand curled in	91.10
Insults	Insult	Insult—bicep	Middle East	Palm of left hand brought to right bicep; right arm first straight with hand in fist, then arm and hand curled in	89.67
Insults	Insult	Insult—bicep	South Asia	Palm of left hand brought to right bicep; right arm first straight with hand in fist, then arm and hand curled in	93.80
Insults	Insult	Insult—elbow grab	Latino	Palm of left hand brought to right forearm or under elbow; right arm first straight with hand in fist, then arm and hand curled in	80.33
Insults	Insult	Insult—fig	Latino	Hand is closed so that the tip of the thumb protrudes from between the index and middle fingers (fig)	83.35
Insults	Insult	Insult—fig	South Asia	Hand is closed so that the tip of the thumb protrudes from between the index and middle fingers (fig)	80.80
Insults	Insult	Insult—forearm	Middle East	Palm of left hand brought to right forearm; right arm first straight with hand in fist, then arm and hand curled in	82.67

Table 2 continued

Meta-category	Category	Verbal message	Region	Form	Mean recognition
Insults	Insult	Insult—little finger	East Asia	Hand with fingers curled in loose fist, little finger out and pointing downward	70.00
Insults	Insult	Insult—middle finger	Africa	The finger	96.90
Insults	Insult	Insult—middle finger	US	The finger	100.00
Insults	Insult	Insult—middle finger through fingers	South Asia	Middle finger of one hand raised and pointed, other fingers curled; other hand covering the first hand with middle finger pointing out between two fingers	92.30
Insults	Insult	Insult—pig	East Asia	Index finger pointed out, other fingers curled under the thumb, and index finger touching one's nose and pushing it up	72.35
Requests or commands	Instrumental behavior	Look at that	US	Index finger straight and pointed in a specific direction or object; other fingers curled under the thumb	98.20
Statements	Relationship	Love	Africa	Both hands open and crossed in front of one's body, palms resting on the opposite chest	94.10
Statements	Relationship	Love	East Asia	Both hands in front of body, palms facing in, thumbs and index fingers touching and creating the shape of a heart, other fingers curled in	85.33
Statements	Relationship	Love	Latino	Both hands open and crossed in front of body to the opposite upper arm area, as if hugging oneself	91.70
Statements	Relationship	Love	Middle East	Index fingers of both hands straight and pointed, other fingers curled under the thumb, tips of index fingers touching each other; then index fingers separate and draw the shape of a heart	94.05
Statements	Relationship	Love 1	South Asia	Both hands in front of body, palms facing in, thumbs and index fingers touching and creating the shape of a heart, other fingers curled in	86.70
Statements	Relationship	Love 2	East Asia	Both hands in front, palms facing out, index fingers and thumbs touching and creating the shape of a heart, other fingers curled in	71.40

Table 2 continued

Meta-category	Category	Verbal message	Region	Form	Mean recognition
Statements	Relationship	Love 2	South Asia	Both hands brought together, palms facing in opposite directions, index fingers interlaced with each other	81.73
Statements	Relationship	Love 3	East Asia	Both arms raised above the head, hands curled downward and fingers of both hands touching the head to create the shape of a heart with the arms	73.45
Referent	Self	Me myself	East Asia	Index finger pointed out, other fingers curled under the thumb, and index finger pointing toward one's nose	73.60
Attitudes and opinions	Ambiguous	More or less	Latino	One hand brought up, palm facing down; hand rotated with thumb and little finger up and down	95.45
Attitudes and opinions	Ambiguous	More or less	Middle East	One hand brought up, palm facing down; hand rotated with thumb and little finger up and down	92.00
Attitudes and opinions	Disapproval	No	East Asia	Index finger pointed up, other fingers curled under the thumb in loose fist, palm facing away from body, and moving the index finger side to side	82.20
Requests or commands	Instrumental behavior	Pay attention	East Asia	Clapping both hands in front of oneself sharply twice	70.65
Statements	Physical state	Pee	South Asia	Little finger of one hand straight and pointing or slightly curled, other fingers curled	76.73
Requests or commands	Instrumental behavior	Please give me some	East Asia	Both hands open, palms facing up, one on top of the other in front of one's body	70.65
Referent	Religious acts or symbols	Prayer in front of tomb	Middle East	Elbows of both arms at sides, hands raised with fingers open, palms facing slightly up; head bowed	89.40
Statements	Relationship	Promise seal	East Asia	Both hands in front of body, palms facing in, little fingers interlaced, thumbs pressing against each other	79.55
Etiquette and social norms	Religious acts or symbols	Purify or ward off evil	Latino	Index fingers of both hands straight and pointed, other fingers curled under the thumb; both hands brought in front of body and one index finger held perpendicular to the other, crossing in the middle	100.00

Table 2 continued

Meta-category	Category	Verbal message	Region	Form	Mean recognition
Etiquette and social norms	Religious acts or symbols	Purify or ward off evil	Latino	Sign of a cross made in front of one's body, vertical line first then horizontal, drawn by hand shaped as if holding a pen or pencil, or by thumb of one hand, other fingers curled	94.10
	Religious acts or symbols	Purify or ward off evil	South Asia	Thumb of right hand touching other tips of other fingers, palm down, hand rotated in circular motions	85.77
Statements	Mental state—self	Respect	Middle East	Right hand placed over the heart with fingers open, head bowed	93.30
Statements	Mental state—other	Smart	Middle East	Index finger of right hand straight and pointed, other fingers curled under the thumb; index finger points to the right temple	79.75
Requests or commands	Locomotion	Stop	East Asia	Left hand open and raised in front of body, palm down; index finger of right hand pointed, other fingers curled under the thumb in loose fist, right index finger touching middle of the palm of the left hand and perpendicular	82.50
Requests or commands	Locomotion	Stop	Latino	One or both hands open, palm facing down; hand pushed down and away from body with sharp stop	87.50
Statements	Mental state—other	Stupid person	South Asia	Hand in loose fist with index finger pointed toward temple of head; with or without twisting or rotating motion	90.10
Etiquette and social norms	Appreciation	Thank you	Africa	Both hands brought together at chest, palms touching, with four fingers of one and in between thumb and index finger of the other	83.75
Etiquette and social norms	Appreciation	Thank you	Middle East	Both hands brought together at chest, palms touching, with four fingers of one and in between thumb and index finger of the other, head bowed	95.65
Referent	Time	Tomorrow	Middle East	Index finger of the right hand pointed, other fingers curled under the thumb; hand makes one semi-circular motion ending with the index finger pointing down	90.90

Table 2 continued

Meta-category	Category	Verbal message	Region	Form	Mean recognition
Requests or commands	Instrumental behavior	Wait 1 min	Middle East	Index finger of right hand straight and pointed, other fingers curled under the thumb in loose fist; hand raised in front of chest	77.50
Attitudes and opinions	Disapproval	You are lying	Middle East	Right hand brought up and covers the right eye	93.90
Attitudes and opinions	Disapproval	You're being too loud	Africa	Hand brought to one's open mouth, then hand rotating outward twice or more with open fingers, palm facing up	75.95

Table 3 Possible culturally different emblems for each region

Meta-category	Category	Verbal message	Region	Form
Statements	Mental state	Devil; angry	East Asia	Both hands brought to both sides of head, index finger pointed up or curled
Statements	Symbols	Handcuffs; arrested	East Asia	Both arms extended in front of body at waist, hands in loose fists crossing over each other at wrist
Requests or commands	Locomotion	Hurry	East Asia	Both arms held in front of the body loosely, elbows bent; hands open and palms facing down; four fingers repeatedly fluttered outward
Referent	Other	Pretty woman	East Asia	One hand brought to the same side of the face, open; palm placed at cheek and slowly slid down toward chin
Statements	Mental state	Shy; embarrassment	East Asia	Right hand open and brought to face; four fingers covering mouth
Statements	Mental state—other	Something terrible	East Asia	Both hands open, palms facing out, brought in front of body at shoulder level with elbows bent; hands shaken sideways left to right repeatedly
Insults	Insult	Insult—pig	South Asia	Index finger pointed out, other fingers curled under the thumb, and index finger touching one's nose and pushing it up
Statements	Mental state—other	Catastrophe	Middle East	Both hands brought above the head and placed on the top of the head, one on top of the other
Insults	Insult	Insult—bent finger	Middle East	Right hand brought in front of body, open, palm up, level to the ground; middle finger bent so that it protrudes up; hand makes upward movement
Attitudes and opinions	Ambiguous	“Smell my palm”—how would I know?	Middle East	Right hand brought to nose, open, palm facing up as if to smell it; follows with both hands to sides in shoulder and hand shrug
Requests or commands	Instrumental behavior	Wait	Middle East	Both hands brought in front of body, elbows bent; both hands pushed outward and stopped abruptly as if to physically stop something
Requests or commands	Instrumental behavior	Wait	US	Right hand brought up, index finger pointing up and four fingers curled (as if to signal “one”)
Statements	Mental state	Don't understand	Latino	One hand brought up to the neck, index finger pointing with four fingers curled in loose fist; index finger brought across the neck and continues so that finger points away from the body to the side
Referents	Symbols	No money	Latino	Hand held up, palm facing outward; thumb and index finger touch to form a circle, other fingers extended and slightly spread (the ring)

Table 3 continued

Meta-category	Category	Verbal message	Region	Form
Statements	Mental state—other	Stupid person	Latino	Fingers of one hand brought together so that fingertips touch; hand brought up in front of body, elbow bent; hand is rotated right and left several times; may occur with disgusted facial expression
Attitudes and opinions	Disapproval	I don't agree	Africa	One hand raised in front of body, elbow bent, hand open loosely and shaken left and right repeatedly while head also shakes left and right

Table 4 Culturally similar emblems across regions

Meta-category	Category	Verbal message	Region	Description	Mean recognition
Referent	Object	Cigarette	All	Index and middle finger of one hand straight and extended, other fingers curled; index and middle fingers brought to one's mouth	94.68
Request or commands	Instrumental behavior	Faster	All	Both hands brought in front of body, either open or with index finger straight and pointed and other fingers curled; hands rotated several times in circular motion with finger(s) pointing toward each other	100.00
Request or commands	Locomotion	Go or go away	All	Hand raised, palm down, four fingers repeatedly fluttered away self; one or both hands	100.00
Request or commands	Locomotion	Go this way	All	Arm extended in desired direction, with hand either open palm facing diagonally up or index finger straight and pointed, other fingers curled	100.00
Attitudes and opinions	Ambiguous	I don't know	All	Hand shrug; both hands start open with palms down, and then hands rotated with palms up; may occur with upper body lean backwards	100.00
Insult	Insult	Insult butt	All	One hand brought behind one's body with index finger pointing to one's butt	100.00
Request or commands	Instrumental behavior	Kill	All	Hand brought across the neck as if in a slicing motion with the index finger straight and pointed, other fingers curled, or with all fingers straight	100.00
Attitudes and opinions	Disapproval	No	All	Head shake	99.10
Referent	Object	Notice something; acknowledge	All	Head tilted back and returned to original position, eyes and head may be directed toward recognized object	85.20
Referent	Action	Run	All	Arms to the sides, elbows bent, hands closed or in fists; arms and hands pumping back and forth and up and down as if running	100.00
Request or commands	Locomotion	Stop	All	Both hands open, palm facing down; hand pushed down and away from body with sharp stop; or arm(s) of one or both hands extended in front of body, hands open, palm facing target of command	100.00
Referent	Object	Telephone	All	Thumb and little finger of a hand extended, other fingers curled; hand brought to side of head so that thumb approaches ear and little finger approaches mouth	100.00

Table 4 continued

Meta-category	Category	Verbal message	Region	Description	Mean recognition
Statements	Physical state	Thirsty or drink	All	Thumb and little finger of one hand straight and pointed out, other fingers curled; thumb brought to one's mouth and little finger side of hand tipped up in a drinking motion	98.18
Statements	Mental state	Threat	All	Hand in fist; fist may be pumped up and down, or in an uppercut; face mimics angry expression	98.15
Attitudes and opinions	Approval	Yes	All	Head nod	98.18

References

- Boas, F., Efron, D., & Foley, J. P. (1936). A comparative investigation of gestural behavior patterns in "racial" groups living under different as well as similar environmental conditions. *Psychological Bulletin*, 33, 760.
- Bouissac, P. (2006). Gesture in evolutionary perspective. *Gesture*, 6(2), 189–204.
- Broide, N. (1977). *Israeli emblems: Israeli communicative units*, Unpublished doctoral dissertation. Tel Aviv, Israel: University of Tel Aviv.
- Brookes, H. (2004). A repertoire of South African quotable gestures. *Journal of Linguistic Anthropology*, 14(2), 186–224.
- Buss, D. M. (1989). Sex differences in human mate preferences: Evolutionary hypotheses tested in 37 cultures. *Behavioral and Brain Sciences*, 12(1), 1–49.
- Capirci, O., & Volterra, V. (2008). Gesture and speech: The emergence and development of a strong and changing partnership. *Gesture*, 8(1), 22–44.
- Efron, D. (1941). *Gesture and environment*. Oxford, England: King's Crown Press.
- Ekman, P., & Friesen, W. V. (1972). Hand movements. *Journal of Communication*, 22, 353–374.
- Elfenbein, H. A., Beaupre', M. G., Levesque, M., & Hess, U. (2007). Toward a dialect theory: Cultural differences in the expression and recognition of posed facial expressions. *Emotion*, 7(1), 131–146.
- Friesen, W. V. (1972). *Cultural differences in facial expressions in a social situation: An experimental test of the concept of display rules*. Doctoral dissertation. San Francisco: University of California.
- Georgas, J., van de Vijver, F. J. R., & Berry, J. W. (2004). The ecocultural framework, ecosocial indices, and psychological variables in cross-cultural research. *Journal of Cross-Cultural Psychology*, 35(1), 74–86.
- Hogan, R. (1982). A socioanalytic theory of personality. In M. Page (Ed.), *Nebraska symposium on motivation* (Vol. 30, pp. 55–89). Lincoln, NE: University of Nebraska Press.
- Iverson, J. M., & Goldin-Meadow, S. (1998). Why people gesture when they speak. *Nature*, 396, 228.
- Johnson, H. G., Ekman, P., & Friesen, W. V. (1975). Communicative body movements: American emblems. *Semiotica*, 15(4), 335–353.
- Kendon, A. (1992). Some recent work from Italy on quotable gestures ("emblems"). *Journal of Linguistic Anthropology*, 2(1), 72–93.
- Kendon, A. (1995). Gestures as illocutionary and discourse structure markers in Southern Italian conversation. *Journal of Pragmatics*, 23, 247–279.
- Kendon, A. (1996). An agenda for gesture studies. *Semiotic Review of Books*, 7, 8–12.
- Kendon, A. (1997). Gesture. *Annual review of anthropology*, 26, 109–128.
- Kendon, A. (2007). Some topics in gesture studies. In A. Esposito, M. Bratanic, E. Keller, & M. Marinaro (Eds.), *Fundamentals of verbal and nonverbal communication and the biometric issue* (pp. 3–19). Amsterdam, The Netherlands: IOS Press.
- Kinsbourne, M. (2006). Gestures as embodied cognition: A neurodevelopmental interpretation. *Gesture*, 6(2), 205–214.
- Kita, S. (2009). Cross-cultural variation of speech-accompanying gesture: A review. *Language and Cognitive Processes*, 24(2), 145–167.
- Lascarides, A., & Stone, M. (2009). A formal semantic analysis of gesture. *Journal of Semiotics*, 26, 393–449.
- Levy, R. I. (1973). *Tahitians*. Chicago: University of Chicago Press.
- Liebal, K., Pika, S., & Tomasello, M. (2004). Social communication in siamangs (*Symphalangus syndactylus*): Use of gestures and facial expressions. *Primates*, 45(1), 41–57.
- Matsumoto, D., Anguas-Wong, A. M., & Martinez, E. (2008). Priming effects of language on emotion judgments in Spanish-English bilinguals. *Journal of Cross-Cultural Psychology*, 39(3), 335–342.
- Matsumoto, D., & Assar, M. (1992). The effects of language on judgments of universal facial expressions of emotion. *Journal of Nonverbal Behavior*, 16(2), 85–99.
- Matsumoto, D., & Kupperbusch, C. (2001). Idiocentric and allocentric differences in emotional expression and experience. *Asian Journal of Social Psychology*, 4, 113–131.
- Morris, D., Collett, P., Marsh, P., & O'Shaughnessy, M. (1980). *Gestures: Their origins and distribution*. New York: Scarborough.
- Pettenati, P., Sekine, K., Congestri, E., & Volterra, V. (2012). A comparative study on representational gestures in Italian and Japanese children. *Journal of Nonverbal Behavior*. doi: 10.1007/s10919-011-0127-0.
- Poggi, I. (2002). Symbolic gestures: The case of the Italian gestionario. *Gesture*, 2(1), 71–98.
- Poortinga, Y. H., Shoots, N. H., & Van de Koppel, J. M. (1993). The understanding of Chinese and Kurish emblematic gestures by Dutch subjects. *International Journal of Psychology*, 28(1), 31–44.

- Schönplugg, U. (Ed.). (2009). *Cultural transmission: Developmental, psychological, social and methodological aspects*. New York: Cambridge University Press.
- Sheldon, K. M. (2004). *The psychology of optimal being: An integrated, multi-level perspective*. Mahwah, New Jersey: Erlbaum.
- Sparhawk, C. M. P. (1976). *Linguistics and gesture: An application of linguistic theory to the study of Persian gestures*, Unpublished doctoral dissertation. Ann Arbor, MI :University of Michigan.
- Tomasello, M., Call, J., Warren, J., Frost, G. T., Carpenter, M., & Nageil, K. (1997). The ontogeny of chimpanzee gestural signals: A comparison across groups and generations. *Evolution of Communication*, 37, 223–259.
- van de Vliert, E. (2009). *Climate, affluence, and culture*. New York: Cambridge University Press.
- Waxer, P. H. (1985). Video ethology: Television as a data base for cross-cultural studies in nonverbal displays. *Journal of Nonverbal Behavior*, 9, 111–120.
- Xu, J., Gannon, P. J., Emmorey, K., Smith, J. F., & Braun, A. R. (2009). Symbolic gestures and spoken language are processed by a common neural system. *Proceedings of the National Academy of Sciences*, 106(49), 20664–20669.