Comprehension of Emblem Gestures in Adult English Language Learners

Mike Suhan

Northern Arizona University

Abstract

The purpose of this study is to test for differences in comprehension of emblem gestures, which is body language that overlaps semantically with spoken language, between groups of (a) adult native English speakers (NES) and adult English language learners (ELL). 12 adult ELLs and 19 adult NESs were tested on their comprehension of emblem gestures. The results were analyzed to see if there were differences between groups based on their first language. No difference in overall comprehension was found, but further analysis showed that certain categories of gestures may be less comprehensible depending on ELLs' first language. Furthermore, the meaning of most types of gestures tested was found to be comprehensible across language groups. The knowledge of which types of gestures are more or less comprehensible to ELLs can inform teachers on how to modify classroom language and provide them with a list of gestures to focus instruction on.

Keywords: emblem gestures, gesture comprehension, second language acquisition

Comprehension of Emblem Gestures in English Language Learners

Background

Emblem gestures, which are a type of body language that has semantic meaning (Ekman and Friesen, 1969), can be used by language learners and teachers when there are gaps in the comprehension of spoken language. While research has examined the comprehension of emblem gestures among English Language Learners (ELL) in early elementary education settings, there has not been similar research conducted in an intensive English program (IEP) context. This research aims to show if there is a difference in the comprehension of emblem gestures between Native English Speakers (NES) and ELLs in an IEP.

This study has applications to pedagogy in that it shows which types of gestures teachers can and cannot assume adult ELLs will understand. Knowledge of emblem gesture comprehensibility can influence (a) classroom language and (b) decisions on how to focus instruction on gestures. Therefore, this study examines 18 different emblem gestures and how comprehensible they are to Chinese and Arabic speaking ELLs.

Emblem gestures were first defined by Ekman and Friesen (1969) as “nonverbal acts that have a direct verbal translation, or dictionary definition, usually consisting of a word or two, or perhaps a phrase” (p. 63). They suggested that these types of gestures are acquired through social interaction. Others have expanded on Ekman and Friesen’s claim, arguing that the acquisition of emblem gestures (and other types of body language) is a social process that is linked to the acquisition of spoken language (McNeill, 1985; McNeill, 1992; Mohan and Helmer, 1988).

While there has been prior research on the comprehension of emblem gestures, the participants in such studies have been limited to young children. Kumin and Lazar (1974) tested

NES 3 and 4 year olds' comprehension of 30 emblem gestures by eliciting the meaning of a gesture after showing a participant a video clip of it. They then tested the same children's ability to produce the same gestures, finding that 4 year olds could produce and verbalize the meaning of certain gestures that 3 year olds could not. Mohan and Helmer (1988) partially replicated Kumin and Lazar's procedures but used 5 and 6 year olds and compared NESs with ELLs. Similarly, Mohan and Helmer found an increased ability to say the meaning of certain emblem gestures among the older children and found that NESs performed better on the test. Comparing the NESs' results with Kumin and Lazar's findings, Mohan and Helmer posited that there is "a developmental sequence in the acquisition of gestures" (p. 289). This research, using intermediate proficiency adult ELLs, can provide a starting point to investigate a developmental sequence of gestures in adult ELLs.

Gesture research using adult participants has largely been focused on the production of gestures. McCafferty (2004) analyzed the interactions of a tutoring session between an American graduate student and Taiwanese student learning English and noted that both the teacher and student used gestures to aid in the comprehension of spoken language, which McCafferty describes as "the creation of a Zone of Proximal Development" (p. 161). In a more generalizable study, Gregersen, Olivares-Cuhat, and Storm (2009) compared the frequency that six gesture types were used by beginner, intermediate, and advanced proficiency level NES students in a university level Spanish course. They found that no group used gestures to aid in the negotiation of meaning more frequently than others and that emblem gestures were used infrequently at similar levels by all groups. Although they did find a relationship between the frequency of illustrator gestures, which lack semantic meaning, and language proficiency, neither McCafferty nor Gregersen et al. tested the comprehension of gestures.

Research Question

Because there is little to no prior research on the comprehension of emblem gestures in adult ELLs, this study will attempt to answer the following research question:

- Is there a difference in the comprehension of emblem gestures between adult NESs and adult ELLs?

Methods

This study uses intact groups from the Program in Intensive English (PIE) and the introductory composition class, English 105. The PIE students are intended to represent the target population of adult ELLs and the English 105 students are intended to represent the target population of adult NESs. The PIE students were comprised of 7 Arabic and 5 Chinese speakers from PIE levels 4A, 4B, and 6. All 19 of the English 105 students present in the class used for this sample were first-year students who are NESs.

The materials consisted of (a) a video and (b) a matching test. In the video, which was of a person performing 18 different emblem gestures and administered concurrently with the matching test, every gesture was shown one time. The 18 gestures performed in the video were taken from the list of gestures used by Mohan and Helmer (1988). Saitz and Cervenka (1972) have been used as a reference in how to perform certain gestures. The matching test consisted of an item for each gesture. Every item had five possible answers, one of which was correct; therefore, extensive training of raters was not required, as answers were not subjective. The participants had to circle the correct answer after watching the gesture in the video. To reduce error, a practice question was included at the top of the test form. The practice question was not be included in the gesture comprehension score and consisted of possible answers that were not in the test items scored.

Individual items were scored as 0 or 1. A total score representing overall emblem gesture comprehension was scored on a scale of 0-18 based on the number of correct answers. The reliability of test items was assessed based on how the NES group performed on the test. Although only 15 of 19 NES participants circled “sit” for its corresponding video clip and 18 of 19 circled “stop” and “get up” for their corresponding clips, all NES participants had 100% accuracy on the other items. It is possible that the “sit” gesture confused participants because there was no chair present when the gesture was performed. Despite a Cronbach’s alpha score of -0.277, the lack of variance for most items in the results of the NESs indicates that the performances of gestures do represent what they are supposed to.

This study used a between-groups ex post facto research design following a pragmatic stance. It compared differences in existing groups without applying any treatment. A pragmatic stance is taken in that the results were analyzed quantitatively with the intent of applying the findings to instruction. The alpha level was set at 0.05.

The operationalized research question is the following:

- Is there a difference in the emblem gesture comprehension test scores between language groups?

The independent variable, language group, is defined as the participant’s first language. It has been operationalized as a nominal variable based on how participants answer the question, “What is your first language?” There are three possible values for the independent variable: English, Chinese, and Arabic. The dependent variable, comprehension of emblem gestures, is the extent to which students understand body language that overlaps semantically with spoken language. It has been operationalized as the score received on the gesture comprehension test,

which is measured on an interval scale that ranges from 0 - 18, with 18 representing a correct answer for every item on the test. The null hypothesis was:

- H_0: There is no difference in the emblem gesture comprehension test scores between language groups.

Results

Mean total scores for all three groups are near the maximum score possible (Table 1).

Table 1

Descriptive Statistics of Gesture Comprehension Scores by Language Group

				95% Confidence Interval	
Group	n	M	SD	Lower Limit	Upper Limit
English	19	17.63	0.496	17.39	17.87
Arabic	7	17.00	0.816	16.24	17.76
Chinese	5	17.00	0.707	16.12	17.88
Total	31	17.39	0.667	17.14	17.63

A closer examination of individual items reveals that 9 of the 18 scores for specific items are constant; everyone in all three groups answered correctly. Items with variable scores are mostly gestures representing commands related to movement or representing yes-no question responses (Table 2).

Table 2

Gesture Comprehension Scores by Item

	English		Arabic		Chinese		Total	
Item	M	SD	M	SD	M	SD	M	SD
Come here	1.00	0.00	1.00	0.00	1.00	0.00	1.00	0.00
Don't do that	1.00	0.00	1.00	0.00	1.00	0.00	1.00	0.00
Get up	0.95	0.23	1.00	0.00	1.00	0.00	0.98	0.18
Go away	1.00	0.00	0.86	0.38	1.00	0.00	0.95	0.18
I don't know	1.00	0.00	1.00	0.00	1.00	0.00	1.00	0.00
It smells bad	1.00	0.00	1.00	0.00	1.00	0.00	1.00	0.00
Me	1.00	0.00	1.00	0.00	1.00	0.00	1.00	0.00
No	1.00	0.00	0.86	0.38	0.80	0.45	0.89	0.25
Quiet	1.00	0.00	1.00	0.00	1.00	0.00	1.00	0.00
Sit	0.74	0.45	0.71	0.49	1.00	0.00	0.82	0.43
Stop	0.96	0.23	1.00	0.00	0.80	0.45	0.92	0.25
That's good	1.00	0.00	1.00	0.00	1.00	0.00	1.00	0.00
Too Loud	1.00	0.00	1.00	0.00	0.80	0.45	0.93	0.18
Well, sort of	1.00	0.00	0.71	0.49	0.80	0.45	0.84	0.30
What did you say?	1.00	0.00	1.00	0.00	1.00	0.00	1.00	0.00
What time is it?	1.00	0.00	1.00	0.00	0.80	0.45	0.93	0.18
Yes	1.00	0.00	0.86	0.38	1.00	0.00	0.95	0.18
You	1.00	0.00	1.00	0.00	1.00	0.00	1.00	0.00

A Kruskall-Wallis test (Table 3) was used to test for differences in total gesture comprehension scores between the three groups.

Table 3

Kruskal-Wallis Test on Differences in Total Gesture Comprehension Scores

L1	N	Mean Rank
English	19	18.84
Arabic	7	11.71
Chinese	5	11.20
Total	31	

Note: df=2; $\chi^2_{observed}$=5.91; $\chi^2_{critical}$=5.99; Exact significance=.052; p > .05

Histograms were made to examine the distribution of scores for the three groups. The shapes of the distributions were similar enough to meet the assumptions of the Kruskal-Wallis test. Because there were only 5 participants in the Chinese sample, exact significance was calculated.

Using the Kruskal-Wallis test, I failed to reject the null hypothesis that there is a difference in emblem gesture comprehension test scores between language groups.

However, the variance in certain categories of test items warranted further analysis. In order to test if there were differences between the groups in the comprehension of emblem gestures representing yes-no question responses, an additional Kruskal-Wallis test (Table 4) was done using the sum of scores for the following items: (a) yes, (b) no, (c) I don't know, and (d) well, sort of. Statistically significant results were found, indicating that there is a difference between groups in scores for the comprehension of emblem gestures representing yes-no question responses. A post-hoc analysis of all groups using exact significance was done. The alpha level was adjusted to 0.017 in order to avoid a type I error. A statistically significant difference was found between the Arabic and English groups, but no statistically significant difference in scores was found between English and Chinese groups or the Arabic and Chinese groups. The effect size of the difference between the Arabic and English groups was large (eta^2=0.35).

Table 4

Kruskal-Wallis Test on Differences in Yes-No Question Response Gesture Scores

L1	N	Mean Rank
English	19	18.50
Arabic	7	11.71
Chinese	5	12.50
Total	31	

Note: df=2; $\chi^2_{observed}$=5.91; $\chi^2_{critical}$=9.14; Exact significance=.008; $p < .05$; eta^2=0.35

A final Kruskal-Wallis test was done using the sum of scores for the following items representing commands related to movement: (a) come here, (b) get up, (c) go away, (d) sit, and (e) stop. The assumptions of Kruskal-Wallis were checked by comparing histograms; the distributions for each sample were found to have the same shape. Exact significance was used.

No statistically significant difference between groups based on the scores representing movement was found.

Relevance to PIE and Second Language Learning

The results do not indicate an overall difference in emblem gesture comprehension between NESs and ELLs. However, not all gestures were equally comprehensible, which warranted further analysis beyond the original research question into two categories of emblem gestures that yielded lower scores on the tests: (a) gestures representing yes-no question responses and (b) gestures representing commands related to movement. The only difference that was found was between Arabic speaking ELLs and NESs in gestures representing yes-no question responses.

As McCafferty (2004) observed, teachers can use gestures to aid in the negotiation of meaning with ELLs. The results of this study indicate that while the participants understood most gestures, Arabic speaking ELLs had lower comprehension of emblem gestures representing yes-no question responses compared with NESs; taking this into consideration, teachers should not assume that this type of body language will be understood by Arabic speaking PIE students. This also suggests that comprehension of certain types of gestures can vary depending on students' first language, so it would be prudent of teachers to assume that gestures comprehensible to speakers of one language may not be equally comprehensible to speakers of another. Moreover, the comprehension of certain gestures across all groups implies that it certain gestures may be readily used by teachers without confusing students.

References

Ekman, P., & Friesen, W. V. (1969). The repertoire of nonverbal behavior: Categories, origins, usage, and coding. *Semiotica,* 1(1), 49-98.

Gregersen, T., Olivares-Cuhat, G., & Storm, J. (2009). An Examination of L1 and L2 gesture use: What role does proficiency play?. *The Modern Language Journal*, *93*(2), 195-208.

Kumin, L., & Lazar, M. (1974). Gestural communication in preschool children. *Perceptual and Motor Skills*, *38*(3), 708-710.

McCafferty, S. G. (2004). Space for cognition: Gesture and second language learning. *International Journal of Applied Linguistics, 14*(1), 148-165.

McNeill, D. (1985). So you think gestures are nonverbal? *Psychological review,* 92(3), 350.

McNeill, D. (1992). *Hand and mind: What gestures reveal about thought.* Chicago: The University of Chicago Press.

Mohan, B., & Helmer, S. (1988). Context and second language development: Preschoolers' comprehension of gestures. *Applied Linguistics*, *9*(3), 275-292.

Saitz, R., & Cervenka, E. (1972). *Handbook of gestures: Colombia and the United States*. The Hague: Mouton.