

The Use of Gestures in Dyads Consisting of  
an Aphasic and a Nonaphasic Adult

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Aphasiologists have recognized that aphasia has deleterious effects on the communication between aphasic patients and their family members, particularly spouses (Schuell, Jenkins and Jimenez-Pabon, 1964). However, there is little research describing and quantifying factors in communicative interactions between aphasic and nonaphasic persons. Furthermore, although the process of communication involves nonverbal as well as verbal behaviors, research regarding nonverbal behaviors is limited. Therefore the purpose this paper is threefold: 1) to describe a model that represents the observable aspects of communicative behavior; 2) to present data regarding use of gestures by aphasic and nonaphasic adults in dyads; and 3) to discuss implications of these findings for further research.

A COMMUNICATION MODEL

The interplay between communication theory and observation of communicative interactions led to the development at Memphis State University of a model to represent various behaviors that can be observed and described when they occur within the interactions between two or more people. At this stage of its development, this model is referred to as the Webster-Larkins Communication Model (WLCM). The following components are included in the WLCM: solicited message, unsolicited message, modality, linguistic structure, topic, referent, function, and receiver comprehension. Each factor was selected on the premise that one person's message units are generated by the other person's message units together with present motivation and past learning (Argyle, 1969).

The factors contained in the present version of the WLCM are shown in Figure 1. The WLCM models the hypothesized organization of communication between two or more people. The process begins with a sender. This person either initiates a message (unsolicited) or the message is requested by someone else (solicited). Unsolicited and solicited messages take the form of a message unit. Each message unit is comprised of one or more communicative acts. It is conveyed by a specific modality: speech, speech and gesture, gesture only, writing, and so forth. Each message unit has a specific linguistic structure, that is, it is a statement or question. When a person asks a question, it is either of the open or closed form. Regardless of which modality is used to send a message unit, the message refers to someone or something--that is, self, spouse, and so forth. Likewise, each message pertains to a specific topic and serves a particular function--providing information, requesting information, giving an opinion, and so forth. The person to whom the message is directed, the receiver, either understands the message or does not. The receiver then becomes the sender and the process is repeated.

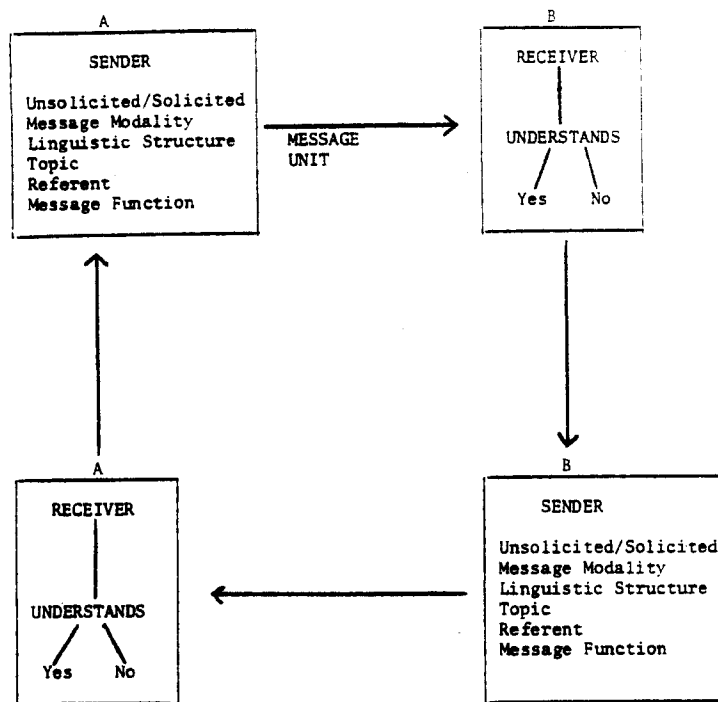


Figure 1. The Webster-Larkins Communication Model

The WLCM generates descriptive categories that can be employed in the observation and description of interactions of dyads, triads, and other small groups. Such categories were used by the investigator (Larkins, 1980) to describe interactions in dyads consisting of an aphasic and a nonaphasic adult. Each message unit was looked at according to communicative act and all factors contained in the model were described. Reliability of categorization was checked using the traditional formula for interobserver reliability.

For the purposes of this paper, only the factor of gesture will be discussed. Gesture was defined as use of hands to convey or to help convey a message.

#### METHOD

##### Procedures

The investigator observed 15-minute videotaped interactions. The basic research design shown in Table 1 was that of four interactions involving dyads consisting of an aphasic (A) and a nonaphasic (NA) participant. To determine differences between dyadic interaction involving an aphasic adult from those involving two normally communicating adults, two interactions between control dyads consisting of two nonaphasic participants (CNA-CNA) were analyzed. Therefore, the basic design was A-NA versus CNA-CNA.

To determine if type of aphasia was a factor, the interactions between two dyads which consisted of a fluent aphasic participant (AF) and a

Table 1. Design of study.

Dyads Investigated	
1.	A/NA - CNA/CNA
2.	AF - NA ANF - NA
3.	A - NASp A - NAST
4.	CNA - CNASp CNA - CNAST

nonaphasic participant (NA) were analyzed. These were compared to the interactions between two dyads which consisted of a nonfluent aphasic participant (ANF) and a nonaphasic participant (NA).

To determine if familiarity between participants was a factor, in each group, each aphasic male (A) interacted with his spouse (NASp) and then with a stranger (NAST). That is, the interaction between two dyads which consisted of a nonaphasic spouse participant (NASp) and an aphasic participant (A) were compared to the interaction between two dyads which consisted of a nonaphasic stranger participant (NAST) and an aphasic participant (A).

To further determine the influence of familiarity, within the control dyads, the interaction between one control dyad which consisted of a nonaphasic spouse participant (NASp) and a nonaphasic male (CNA) was analyzed. This was compared with the control dyad which consisted of a nonaphasic stranger participant (CNAST) and a nonaphasic participant (CNA).

### Subjects

Subjects for the study were two aphasic males, six nonaphasic females, and one nonaphasic male. One of the aphasic subjects was a fluent aphasic patient (AF) enrolled for therapy at Memphis State University. He was 62 years of age and seven months post onset. This patient's Boston Aphasia Diagnostic Examination Rating Scale Profile was consistent with that of a fluent aphasic individual (Goodglass and Kaplan, 1972). The spouse of the fluent aphasic patient (NASp) was 58 years of age. She was a college graduate but was unemployed at the time of the study. The nonaphasic stranger was 61 years of age and worked in the business office at the Memphis Speech and Hearing Center.

The nonfluent aphasic patient (ANF) had previously been enrolled in therapy at Memphis State University. He was 66 years of age and three years post onset. His Boston Aphasic Diagnostic Examination Rating Scale Profile was consistent with that of a nonfluent aphasic individual (Goodglass and Kaplan, 1972). The spouse of the nonfluent aphasic (NASp) was 55 years of age, was a high school graduate, and did general office work. The nonaphasic stranger (NAST<sub>2</sub>) who interacted with the nonfluent aphasic patient was 43 years of age and worked as an elementary school teacher.

The nonaphasic male control (CNA) was 41 years of age and worked as a mechanical engineer. His spouse (CNASp) was 41 years of age and worked as a speech pathologist. The control nonaphasic stranger (CNAS<sub>t</sub>) was 54 years of age and worked as a supervisor with a Title I mathematics program.

### Hypotheses

- The following hypotheses regarding use of gestures were investigated:
- a) Within dyads which have one aphasic and one nonaphasic participant, the participants with aphasia will use proportionately more gestures as the modality to convey a message than will the non-aphasic participants because the speech of the nonfluent aphasic person is usually limited to one word utterances.
  - b) Between dyads, those which consist of one aphasic and one non-aphasic participant will use more gestures to convey a message than will the control nonaphasic dyads consisting of two non-aphasic participants.

### Results

Table 2 summarizes the data with regard to the total number of messages conveyed via gesture, speech, and speech + gesture by participants in each dyad in proportion to the total number of communicative acts by dyad.

As can be seen in Table 2, speech was the modality most frequently engaged in by each dyad as well as each participant within the dyad. In fact, the participants within both the control nonaphasic dyads and the participants in the dyads containing a fluent aphasic person engaged in speech nearly 100 percent of the time.

Table 2 also shows that the nonfluent aphasic individual (ANF) used gesture in combination with speech more than any other participant. For example, ANF used speech + gesture in 13% of his interactions with his spouse (NASp) and in 35% of those with a stranger (NAS<sub>t2</sub>). The fluent aphasic participant (AF), on the other hand, used speech + gesture in 3% of his interactions with his spouse (NASp) and in 2% of his interactions with a stranger (NAS<sub>t</sub>).

Between dyads, the participants within the dyads containing an aphasic person used many more gestures than did the participants within the control dyads. For example, participants within the control dyads used gesture in 1% of their communicative acts, while the participants in the dyads with an aphasic participant used gestures in 35%. Their use of gestures, however, was in combination with speech. This finding suggests that participants interact differently with an aphasic participant than they do when communicating with a normally communicating adult. In the former situation the nonaphasic individuals in this study tended to use a combination of modalities to convey a message rather than one modality. This finding was expected. The difficulty aphasic patients generally have in expressing themselves may lead both aphasic and nonaphasic participants to rely on a variety of modalities in order to communicate.

### Discussion and Implications for Further Research

Future studies can shed more light on whether different patterns of interaction that are related to type of aphasia are used by normally communicating adults. However, an investigation first should replicate the design of the present study and look at a larger number of nonaphasic dyads to see what normals do. Then a study that also replicates this design could be done with a larger number of participants within each type of dyad. The data could be analyzed with regard to the hypotheses and interpreted with

Table 2. Total number messages conveyed via gesture, speech, speech + gesture in proportion to total number of communicative acts by dyads and participant within each dyad.

	DYAD			PARTICIPANTS		
	CNA-CNASp	CNA	CNASp	CNA-CNASp	CNA	CNASp
<b>CONTROL</b>						
	CNA-CNASp	CNA	CNASp	CNA-CNASp	CNA	CNASp
Gesture	0/352 (0%)	0/111 (0%)	0/241 (0%)	0/442 (0%)	0/209 (0%)	0/233 (0%)
Speech	348/352 (99%)	111/111 (100%)	237/241 (98%)	442/442 (100%)	209/209 (100%)	233/233 (100%)
Speech + Gesture	4/352 (1%)	0/111 (0%)	4/241 (2%)	0/442 (0%)	0/209 (0%)	0/233 (0%)
<b>FLUENT APHASIC</b>						
	AF-NASp	AF	NASp	AF-NASp <sub>1</sub>	AF	NASp <sub>1</sub>
Gesture	0/287 (0%)	0/167 (0%)	0/120 (0%)	9/327 (0%)	0/238 (0%)	0/89 (0%)
Speech	282/287 (98%)	162/167 (97%)	120/120 (100%)	322/327 (98%)	233/238 (98%)	89/89 (100%)
Speech + Gesture	5/287 (2%)	5/167 (3%)	0/120 (0%)	5/327 (2%)	5/238 (2%)	0/89 (0%)
<b>NONFLUENT APHASIC</b>						
	ANF-NASp	ANF	NASp	ANF-NASp <sub>2</sub>	ANF	NASp <sub>2</sub>
Gesture	1/337 (0%)	1/175 (0%)	0/162 (0%)	3/461 (1%)	3/253 (1%)	0/208 (0%)
Speech	314/337 (93%)	152/175 (87%)	162/162 (100%)	349/461 (76%)	161/253 (64%)	188/208 (90%)
Speech + Gesture	22/337 (7%)	22/175 (13%)	0/162 (0%)	109/461 (23%)	89/253 (35%)	20/208 (10%)

regard to profiles of interaction patterns. Such information would be useful in: 1) providing baseline data prior to intervention programs for family members of aphasic patients, 2) suggesting therapy programs based upon the communication skills of the aphasic person and 3) evaluating outcomes of intervention.

Within dyads, the nonfluent aphasic participant (ANF) used many more gestures than did the fluent aphasic participant (AF). This difference may be related to type of aphasia. A nonfluent aphasic person's speech is characterized by one-word responses that are hesitant and limited, thus making it difficult for this type of an aphasic person to communicate. Consequently, the nonfluent aphasic person may resort to gesture as a means of facilitating communication. The nonfluent aphasic person in this study had been in therapy and had worked on using gestures while in therapy. Therefore, therapy may have influenced his use of gesture. If therapy had an influence, then this finding suggests that analyzing interactions could be useful with regard to evaluating treatment effectiveness.

With regard to familiarity of participants, 10% of the communication of the stranger within the dyad which consisted of the nonfluent aphasic participant used speech + gesture (Table 2). The spouses and other strangers did not use gestures (0%). Further inspection of the data indicates that the nonfluent aphasic subject's use of gestures increased with the stranger. That is, ANF used speech + gesture in 13% of his messages to his spouse and in 35% of his messages to the stranger. The stranger's use of gesture may have encouraged the nonfluent aphasic participant to use gestures, or the aphasic participant's gesturing may have encouraged the stranger to do the same. This finding suggests that modeling may be a means of stimulating the use of gesture. Further research could focus upon analyzing modeling as a facilitator of both speech and gesture.

#### Modifications of Model

The data collected from this investigation also suggest that the gesture category within the WLCM should be modified. The model does not allow for descriptions of gesture that are as complete as those of speech. According to Cicone et al. (1979) gestures can be classified as either referential (those which in some way communicate information about things in the world) or non-referential. Cicone et al. further classified referential gestures as either iconic (the movement in some way captures the nature of the referent) or non-iconic (simply pointing out a referent). Therefore, the gesture category could be modified to account for type of gesture as suggested by Cicone et al.

#### CONCLUSION

Studying interactions between aphasic and nonaphasic adults is a challenging task. Very few studies have attempted to directly observe and describe these interactions with regard to both verbal and nonverbal behaviors. Gesture is only one aspect of nonverbal behavior, but it appears to be a variable that should be considered with regard to improving the effectiveness of communicative interactions between aphasic and nonaphasic adults. A precise description and measurement of gestures may provide useful information with regard to gestures as well as other aspects of communication between aphasic persons and family members.

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## DISCUSSION

- Q: Could you enumerate about why you felt nonfluent aphasic persons would use more gestures than fluent aphasic persons?
- A: I felt that nonfluent aphasic persons might resort to using more gestures because their speech is usually characterized by hesitant, telegraphic utterances. Therefore they might resort to using gestures to enhance their communication. The fluent aphasic person on the other hand, usually has a "press for speech." Even when they are in the jargon phase, they are still trying to communicate through the use of speech. In this case, I couldn't say that this was true because the nonfluent aphasic patient had been involved in using gestures in his therapy program. The fluent aphasic patient in this study was anomic and his therapy had focused upon speech. So therapy could have influenced the modality these patients selected to use to communicate.
- Questioner's Comment: It has been my experience that fluent aphasics turn out to be better gesturers than nonfluent aphasics.
- Presenter's Comment: Yes, we've had that experience with several of our nonfluent aphasic patients too. In therapy, we have used the stop strategy early on in therapy to get the fluent aphasic patients tuned in by getting them to use gestures and to be sure they turned out to be better at gesturing. But there is a need to look at this without treatment being considered a variable and see what these patients do without intervention.
- Q: Do you think their gesturing improved the more they communicated? And what about the quality of their gestures?
- A: First of all, this was only one 15 minute session. The fluent aphasic patient didn't gesture much and when he did, it was usually in the form of pointing. The nonfluent patient, on the other hand, did use gestures in combination with speech, and they seemed to have enhanced his communication.
- Comment (Co-author): We analyzed these over 5 minute segments.
- Comment (Presenter): We found similarities over time. That is, what they tended to do the first 5 minutes they did the second 5 minutes, and so forth.

Q: What kind of instructions did you give? Did you select the topic?  
A: I asked them to communicate about anything they wanted to, as close to normal as possible. I didn't ask them to talk. I told them that if there were periods of silence that was okay, because we do that normally in our conversations. They were free to choose any topic. I told them that some people had chosen to communicate about their family, T.V. shows, vacations, etc. Then we did provide them with a list of topics and placed them on the table in the room so that they could refer to the list if they ran out of topics to communicate about.

Q: Was there a likelihood that the topic might have influenced the use of gestures? Some topics lend themselves to the use of gestures more than others.

A: What was interesting about the fluent aphasic man was his use of the same topic with both the spouse and stranger. The nonfluent aphasic did not use the same topics with his spouse and stranger. I don't remember what the topics were and whether this was indeed a factor that influenced his use of gesture. I would have to go back and look at the data. But that is a category that Betty and I found important in interaction. Topic seemed to have influenced the interaction patterns. It would be interesting to go back and look at the relationship of topic to the other categories.

Comment (Questioner): It would be interesting to see what would happen if you controlled the topic.

Comment (Presenter): In the pilot study, that was what I did and I found that the topic influenced the interactions, so that we decided not to control it in this investigation.

Q: Did they feel the topics were too restrictive?

A: I thought so. For example, one husband and wife were communicating about the Center. The wife had severe comprehension problems. Before the time was up, the husband said, "Pat, help! We've run out of things to say."

Q: What was the unit you used to analyze your message units? Did you feel this was adequate to analyze gestures? Do you think that more natural settings would have influenced the interactions?

A: Yes, we felt that the situation would influence the interactions and considered this prior to the study. In the future, we plan to look at a variety of settings. But we were interested in first determining whether or not we could actually describe the interactions using the methodology we developed from our model. In this study we were interested in whether the procedure worked. Then we will move on and use it in a variety of settings.

With regard to the first question, as mentioned earlier, the message unit was comprised of one or more communicative acts. We were consistent with Bales, who used the communicative act in his Interaction Process Analysis as the smallest unit to analyze interaction. We used his definition of communicative act. I think it was sufficient to analyze gesture.