Use of Symbolic Gestures in a Case of Fluent Aphasia

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The use of gestural systems or manual signs with aphasic and verbal apraxic adults has appeared often in current literature. It has been observed that symbolic gestures tend to facilitate spoken language in apraxia of speech and aphasia. Rosenbek, Collins and Wertz (1976) utilize meaningful gestures, largely Amerind, in apraxia therapy as a means of reorganizing language processes to build verbal output. Skelly, Schensky, Smith and Fust (1974) describe the use of Amerind to facilitate verbal expression in apraxic patients; and some time is spent in the recent publication Clinical Management of Neurogenic Communicative Disorders (Johns, Ed., 1978) on describing the use of manual signs to facilitate speech in aphasia and apraxia of speech. These references give useful information on types of clients responding to treatment, means for implementing gesture programs and specific results achieved in verbal communication.

What about those patients who do not achieve verbal communication? Is gesture a viable alternative form of communication? The use of gestural signs as an alternative mode of communication has been discussed in several articles (Eagleson, Vaughn, and Knudson, 1970; Chen, 1971), and has been touched upon several times by Rosenbek and colleagues (1976; Johns, 1978) as a "traditional" approach. The use of signs as an alternative with nonverbal patients, severely dysarthric or apraxic people, is known to all of us; but the use of gestures with various types of aphasic patients has not been clearly defined.

Articles expounding a need for alternatives to verbal communication for aphasic adults explain types of sign systems including manual systems (Eagleson et al., 1979; Chen, 1968) and visual symbol systems, but they fail to clearly classify patients by type of disorder, localization, severity, and so forth. It is not clear if verbal apraxic and dysarthric patients are grouped with aphasic cases. Eagleson et al. (1970) refer to successful use of signs with "expressive aphasics" but no patient descriptions or data on testing are included to clarify how this diagnosis was achieved. Chen (1971), who employs a manual alphabet with aphasic patients, vaguely describes subjects as "expressive aphasia," and notes that patients with sensory aphasia are unable to learn signs. At the 1976 Clinical Aphasiology Conference, after describing the use of Amerind with verbal apraxic patients, Rosenbek stated that the approach had not been used with posterior aphasic subjects.

To further complicate matters, research has shown that aphasic patients demonstrate a unique impairment of gestural ability (Duffy et al., 1976; Pickett, 1976; Goodglass and Kaplan, 1963) and are often impaired in symbolic gesture interpretation (Gainotti and Lemmo, 1976).

So, when do we use signing as an alternative mode of communication with the aphasic patient? Common sense dictates that if a patient is not learning to talk, try something else! But, research to date suggests discouraging results in using "signs" with posterior, fluent, or sensory aphasia. What happens in the use of gestural signing programs as we creep back along the

arcuate fasciculus towards Wernicke's area? Do we approach signing with the fluent aphasias in a different manner?

For this reason I would like to discuss the use of gestural signs with a fluent aphasic patient.

Case Presentation

Eva, a 51 year old female, sustained a left hemisphere CVA in April, 1977. At the time of discharge from the hospital in May, 1977, Eva was ambulatory, moving all extremities and presented with "jargon" aphasia. She was first seen at our clinic as an outpatient in June, 1977. On the Porch Index of Communicative Ability, Eva placed at the 27 percentile Overall. Results of this test are shown in Table 1. Traditional language therapy was initiated on a three times per week basis. PICA scores showed gains in reading and listening, but verbal scores did not budge. While Eva verbalized continuously, no channel seemed to facilitate appropriate verbal expression--imitation, word association, visual cues, sound cues, or stress. She was aware of her inability to transmit an idea, but did not seem to recognize where the error was. Eva talked, but did not communicate. By March 1978 her language presented as follows:

1. Fluent "empty" speech with good prosody but devoid of substantives. Mean length of utterance measured at 6.6 words.
2. Severe anomia.
3. No verbal repetition.
4. Moderate auditory comprehension problem (12.3 on PICA subtest VI and 16% correct on the Token Test (DeRenzi and Vignolo, 1962).
5. Moderate reading comprehension problem ("incomplete" responses on PICA V and VII).
6. Limb apraxia and oral nonverbal apraxia.
7. Spontaneous appropriate hand gestures were not used (other than pointing).

(A video tape of Eva's verbal communication was presented.)

Table 1. Initial PICA results obtained June 1977.

Overall	Gestural	Verbal	Graphic
27%	20%	25%	53%
8.15	9.80	4.97	7.70

In addition to traditional language therapy, attempts were made to facilitate verbal expression by singing, melodic intonation therapy, visual and graphic cueing, feeling words spelled in sand, and gesturing. None of these approaches, including gestures, affected verbal output. There appeared to be a strong component of conduction aphasia, as evidenced by Eva's response to verbal imitation work. Eva talked instead of imitating phonemes in spite of positioning of articulators and mirror use. After two months of working on the phoneme /m/, she repeated one syllable, /ma/. It was all too obvious that appropriate speech was probably not an attainable goal for Eva; we decided to return to gestures, but with something else in mind--an alternative.

Procedure

Because of prior observations of Eva's response to gestures, we realized that the standard approach of teaching gestures by "watch me, do what I do" was not enough to incorporate them into her language system. Therefore, a task hierarchy was devised with its basis in language stabilization of target words and a highly structured systematic approach to language retraining through gesture. Eva needed first to understand and internalize the words through all channels before gesture learning could take place. We also needed to learn what mode of presentation facilitated her ability to learn signs. The gestures used were based on AMERIND signs (Skelly et al., 1974). The materials (Figure 1) consisted of printed word cards, pictures representing target words, pictures of gestures, and written question and sentence cards.

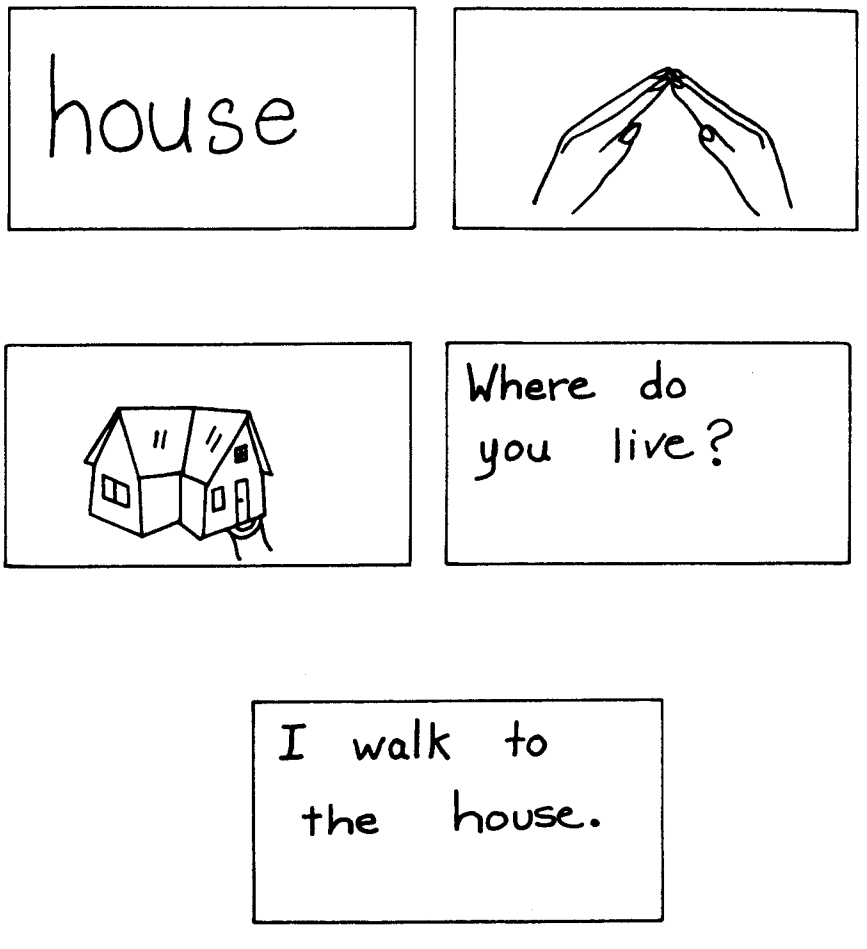

Figure 1. Example of stimulus materials

A task hierarchy was devised as follows:

Level I Language Pretraining--Using Target Words

1. Match written words to pictures
2. Point to picture named
3. Point to picture described
4. Point to picture or word which answers question or completes sentence

Level II Establishing and Stabilizing Gesture/Symbol Association-Input

1. Present gesture with written word and picture of gesture
2. Perform gesture in unison (3 times)
3. Subject matches word picture to picture of gesture
4. Clinician gestures, subject points to picture of gesture
5. Clinician gestures, subject points to word picture
6. Clinician gestures, subject points to written word
7. Subject matches written word to picture of gesture
8. Clinician says word, subject points to picture of gesture

Level III Gesture Drill

1. Unison gestures
2. Clinician gestures, subject imitates with picture of gesture or written word
3. Clinician gestures, subject imitates (no picture or word)
4. Clinician says word, subject gestures with picture cue
5. Clinician says word, subject gestures (no picture cue)
6. Clinician presents written word, subject gestures

Level IV Extension of Gesturing

1. Clinician presents written and spoken question, subject gestures answer (with or without visual prompts)
2. Clinician presents written question, subject gestures answer
3. Clinician presents spoken question, subject gestures answer
4. Clinician presents written phrase, subject gestures phrase
5. Clinician presents spoken phrase, subject gestures phrase
6. Clinician presents picture, subject gestures a description

Level I was basically standard language therapy using target words that would later be taught as gestures. The idea was to stabilize auditory and graphic associations of target words first, and eliminate, as much as possible, the interference of auditory and reading comprehension problems on gesture learning at Level II. At Level II gestures were introduced primarily as "Input." Eva learned to associate gestures produced by the clinician with pictures and words from Level I. She was not required to learn the production of gestures until Level III; thus, Level III was structured to practice gestural "output." Level IV carried gesturing into sentences, questions, and spontaneous communication situations.

Responses on each sign at each task were scored daily using the PICA 15 point scoring system. Daily records were kept of percent correct on each task and ongoing comparisons were made with baseline measures to determine progression to higher difficulty levels and addition of new signs.

Results

During the first two months, progress was slow; primary change was seen in the INPUT channel as Eva learned what gestures meant by associating pictures of gestures and gestures with spoken words, written words and pictures. Unison production and imitation required placement assistance and repeated trials. Recall tasks, such as producing the gesture when the clinician speaks the word produced errors and sign substitutions.

By the fourth month it became apparent through scoring and observation that Eva had vastly accelerated her rate of acquisition of signs. For the first five months, learning seemed to be stimulus bound; in other words little generalization was apparent. By August 1978, Eva had acquired a vocabulary of 24 signs, but use of signs remained limited to therapy tasks. It was as if the only thing the sign was associated with was a 3 x 5 card. Finally, qualitative changes in her use of signs appeared, suggesting that signs were being internalized conceptually. For instance, in therapy she began to broaden meanings of signs to include related items, so that "eat" became food; she showed "book" for read, magazine and library, etc. But still, she was not using signs to communicate.

It was not until September of 1978, seven months after initiating the sign program, that the family reported spontaneous use of gestures to communicate at home. By November she began to make up new signs, and limited use of self-generated signs to communicate ideas was observed.

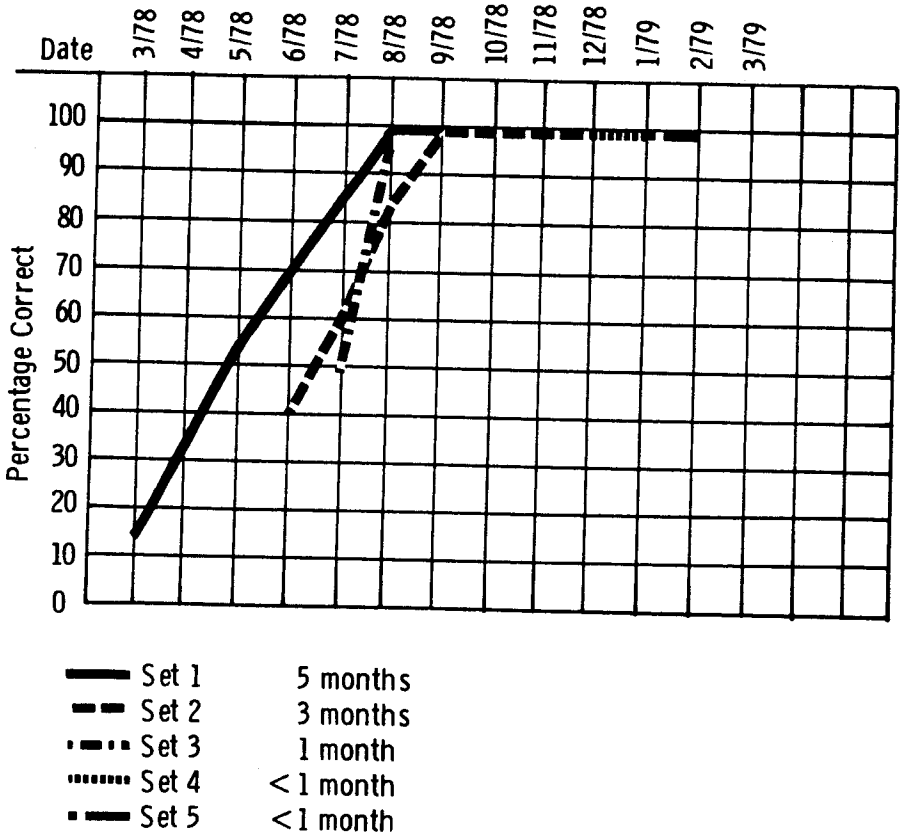

Figure 2. Rate of acquisition of five sets of Amerind signs in the "gesture to spoken word" task.

While we had not been successful in further improving verbal expression or auditory comprehension, Eva began to learn gestures at an increasingly rapid rate as if a new system had emerged. Figures 2 and 3 illustrate the rate at which Eva learned signs on particular tasks, such as producing a gesture in response to a spoken word (Figure 2) and producing a gesture when shown a written word (Figure 3). Initially several months elapsed before she performed 100% accurately on target words. Now, when a set of gestures is introduced, Eva learns the gesture almost immediately. This increased rate of acquisition occurred on all tasks, including Input and Output channels. Figure 5 shows that entry levels for tasks have changed

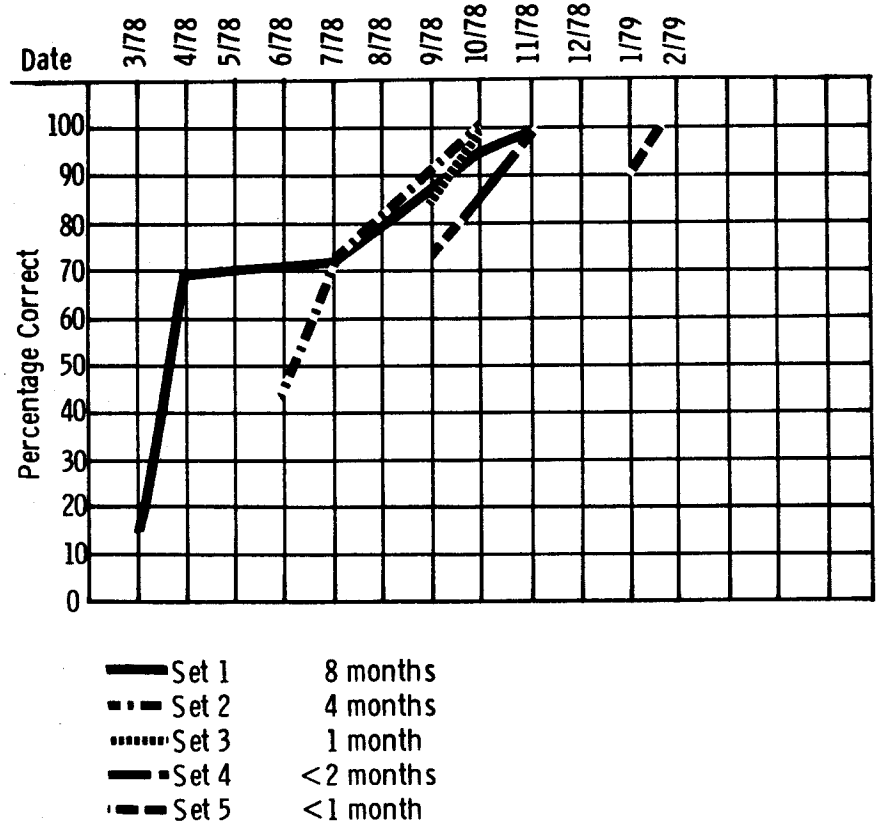

Figure 3. Rate of acquisition of five sets of Amerind signs in the "gesture to written word" task.

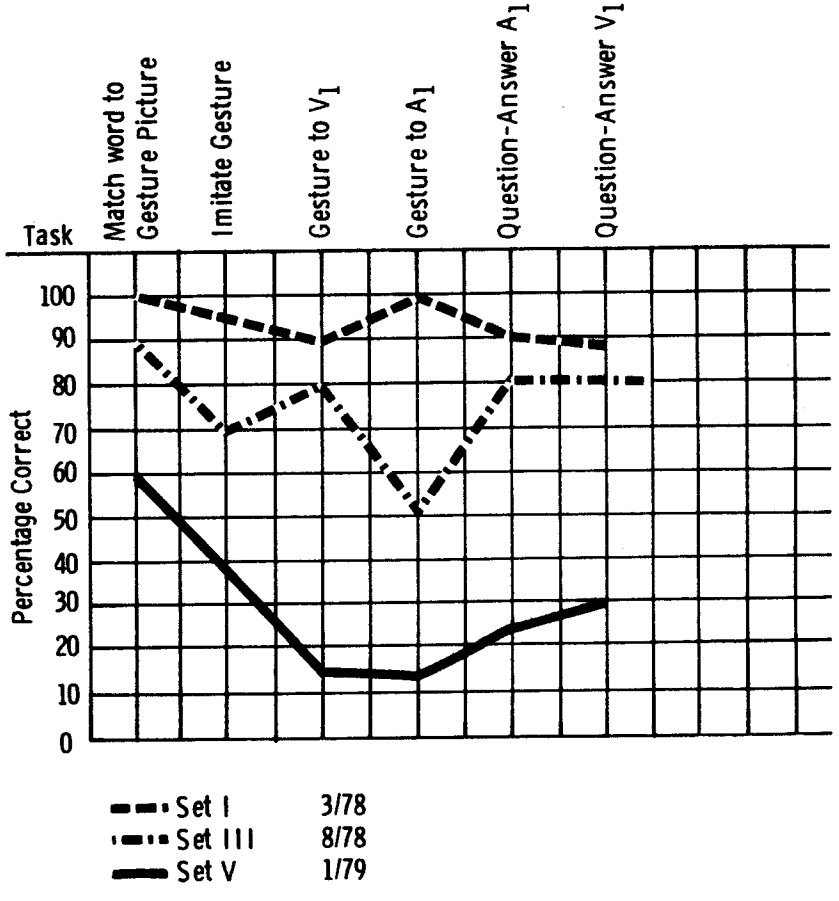

Figure 4. Comparison of entry levels for sets I, III, an

dramatically over ten months. Acquisition of new signs and broader use of signs to communicate continues. (A video tape demonstrating Eva's gestural communication was played.)

Summary

This report demonstrates an example of a fluent aphasic patient who has learned Amerind signs as an alternative to verbal communication. The pattern of sign acquisition was tediously slow, and focusing therapy on all language channels was imperative. We felt that perseverance on pretraining "association" tasks allowing internalization of the symbol system prior to expecting output was important.

While it is impossible to generalize from an isolated case such as this, the prospect of using an alternative system of communication with a "verbal" patient is an interesting concept. It was obvious that a new system of communication had emerged, yet no changes in PICA verbal or gestural scores were apparent. Eva continues to verbalize excessively with little "content," and continues to exhibit auditory comprehension problems, but Eva can communicate!

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Comment: An important point to make is that this is tediously slow. If you can afford it and the patients have the time, things can happen pretty far along post onset with patients like this.

Q: We have found success with Wernicke's type patients in developing the use of supplemental gestures that were the patient's own natural gestures or elaborations of these, as opposed to the teaching of Amerind signs. In fact, I didn't believe you could accomplish what you did with this patient! You mentioned that she did seem to invent some of her own signs. For communicative purposes, to what extent did she use her own signs relative to the use of Amerind signs?

A: Originally she did not invent any signs. That was a problem because gestures were not a strong modality for her, and we had no real rationale for using them; however, about seven months into the program, she did begin using her own signs. Mainly, she would adapt Amerind signs by using parts of them. She has become increasingly more creative and original in making up her own signs.

Q: I would like to know how the people at home communicate with her. Did you do anything to train them to receive her signs, particularly in conjunction with the language she generates?

A: Not really. They are given sets of pictures of all signs which are introduced into therapy. The more concrete signs can be easily recognized as can most of the signs she generates herself; most Amerind signs are obvious. We have not encouraged them to use signs themselves.