A "Natural Language Learning" Program for Treatment of Aphasic Patients

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Seven positive rules for increasing clinical effectiveness are:

(1) Talk simply and directly to the patient, eliminating extraneous noise that has no communicative value.

(2) Control stimulation to elicit maximum response.

(3) Control the amount of material used and make it meaningful.

(4) Use the principle of repeated stimulation to facilitate discrimination and recall.

(5) Work to elicit a maximal number of responses. The patient should be responding continuously throughout the clinical period.

(6) In general, restimulate, rather than explain or correct.

(7) Evaluate the effectiveness of each procedure with each patient.

Undoubtedly, you recognize these rules which come from the work by Schuell, et al. (1964). A program originally designed to teach foreign languages will be presented here which seems to incorporate Schuell's ideas for increasing clinical effectiveness in treating the aphasic patient. This program, "Natural Language Learning," developed by Winitz and Reeds (1975), makes two basic assumptions: (1) language is acquired through comprehension, and (2) the grammar of a language becomes internalized through practice in problem solving, that is, through establishing a relationship between sound and meaning.

In the Natural Language Learning Program, grammatical problems are solved. These problems vary in difficulty, ranging from identification of single lexical items to the identification of a number of linguistic structures in complex sentences. A word or phrase is presented, and a choice is made of a picture that accurately reflects the auditory stimulus. Verbal responses are neither trained nor required.

The purpose of this paper is to describe and to show several aphasic patients going through various stages of the Natural Language Learning Program. Although a number of experimental questions have been raised regarding the use of the program with an aphasic population, few of these questions have been investigated, and, therefore, few specific conclusions are available at this time.

Winitz and Reed's program contains eight lessons in four volumes, two lessons per volume. Each lesson has 100 items. The patient is required to associate an auditory stimulus (presented either by audio cassette tape or live by the clinician) with a picture of the stimulus item and to indicate his comprehension by pointing to the picture. The picture representing the correct response appears in one of three squares.

Figure 1 shows the first item in lesson one. Simultaneously with the visual presentation, the patient hears the auditory stimulus, "cat."

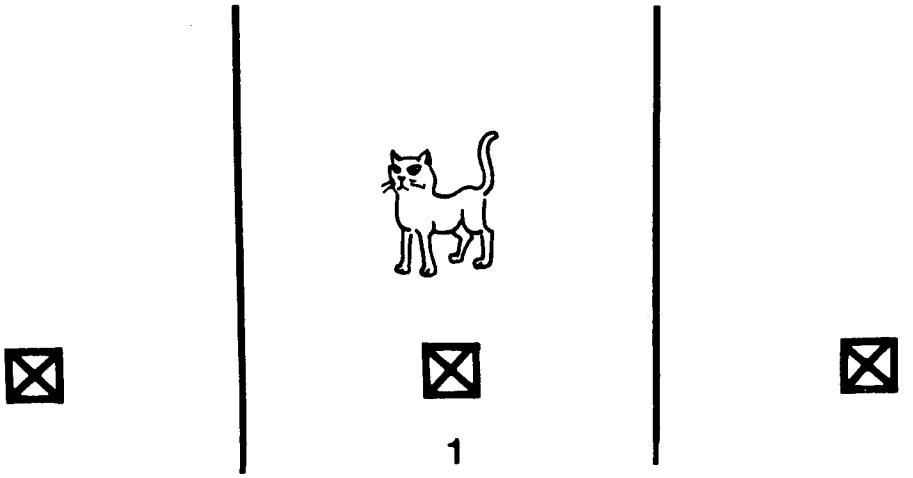

Figure 1

Figure 2 is item five in lession one--"sun."

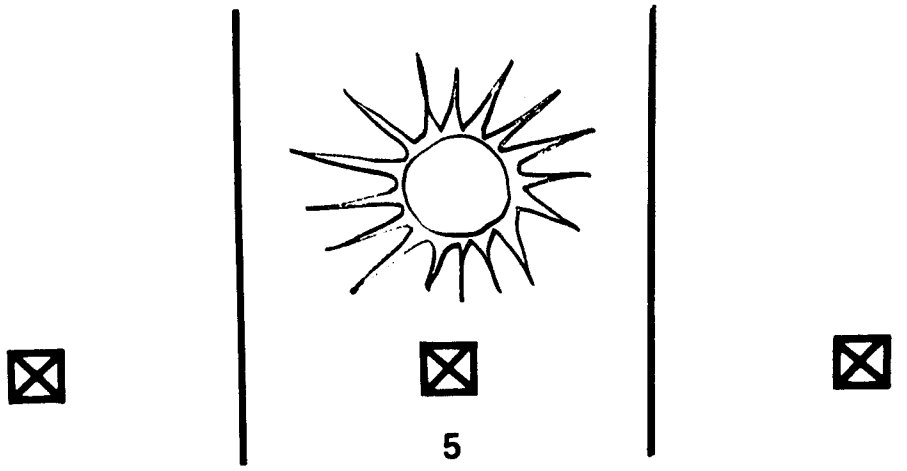

Figure 2

The position of the correct response is randomly varied. When a new word is presented, only one response is possible--the other squares are blank. As the lesson progresses, previously learned structures are repeated as foils so that a correct choice must be made from two, then three, pictures. This is shown in Figures 3 and 4.

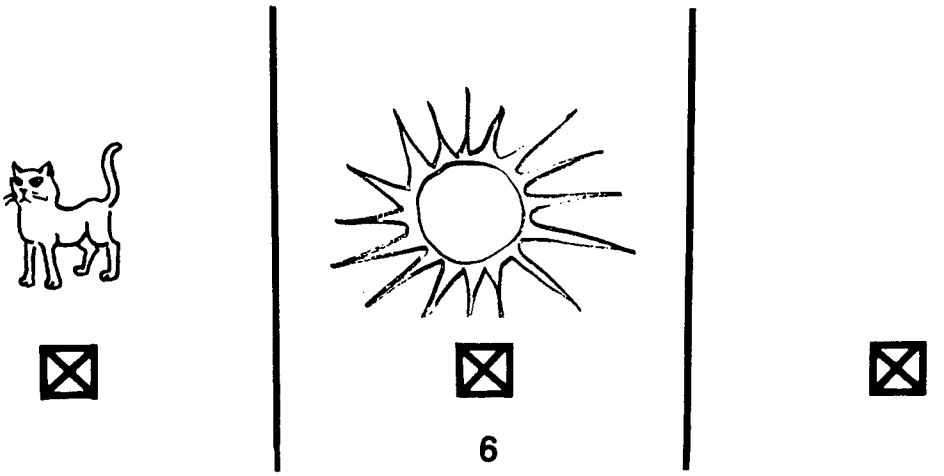

Figure 3

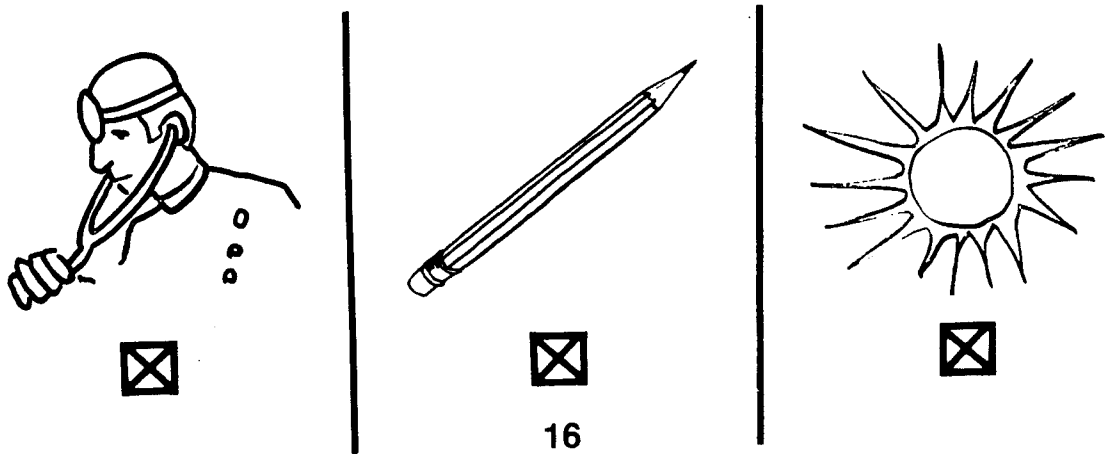

Figure 4

As new pictures are introduced, old ones are faded. Later, old pictures and/or structures are presented again for review.

Knowledge of results is immediate. If the patient produces an error, the clinician points to the correct response and presents the auditory stimulus once again.

This program was designed so that when a page is turned, the correct response can be seen by the patient. Therefore, the program can be used by the patient in a non-clinician directed setting. For practice at home, all that is needed besides the program and the audio tapes is a cassette playback unit.

Beginning with item 51 in lession one, a definite article, "the," is added to the lexical item, e.g., "The chair." Later in the same lesson, compound noun phrases appear, e.g., "The tree and the chair"; "The hat and the chair"; "The tree and the hat."

In subsequent lessons, a variety of linguistic structures are presented. The patient is required to problem solve for: (1) verbs--"The doctor is sleeping" contrasted with, "The doctor is running," (2) prepositions -- "The cat is on the table" contrasted with, "The cat is under the table," and (3) adjectives--"The big house" vs. "The small house."

Figures 5, 6, 7, and 8 show examples of questions and answers which appear in lesson eight. These are: "Where is the cat?" "The cat is under the table." "Where is the money?" "The money is on the chair."

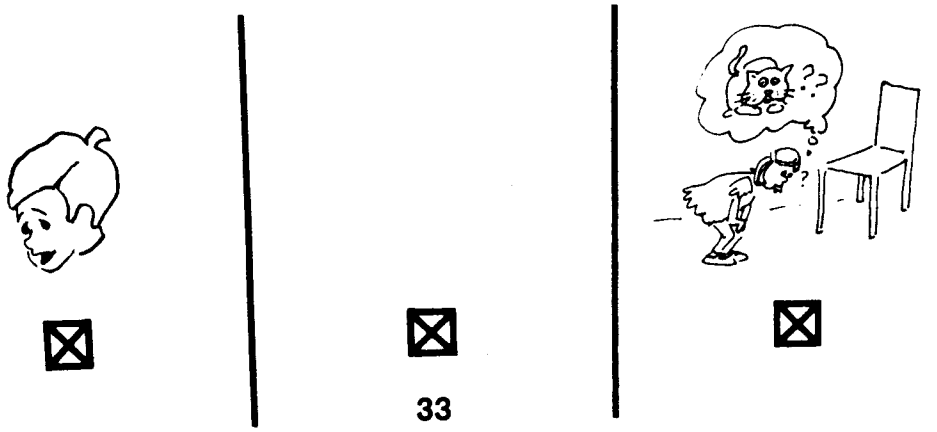

Figure 5

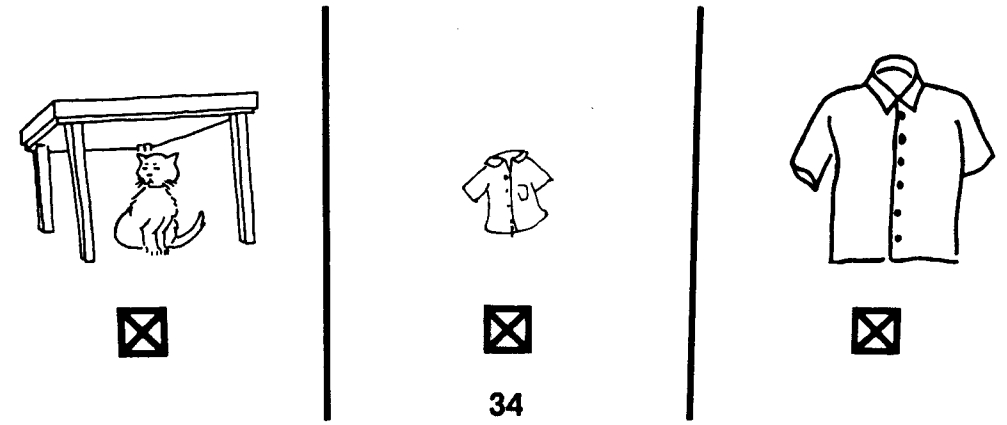

Figure 6

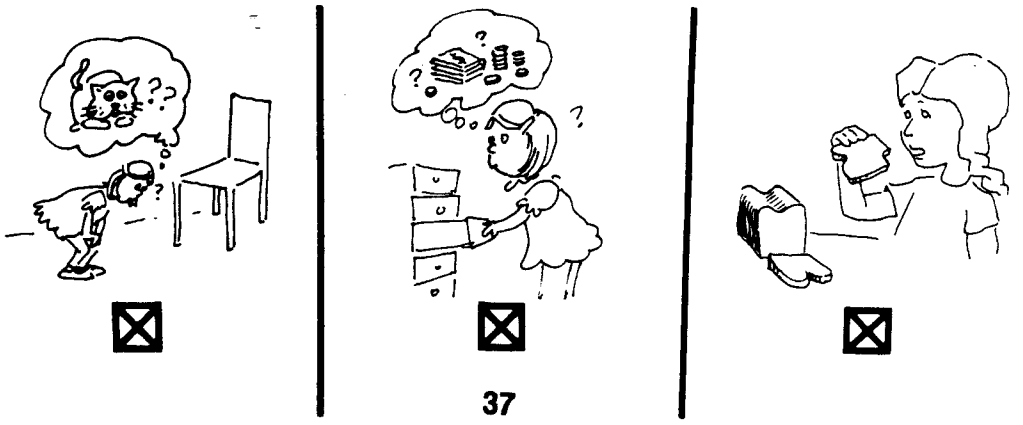

Figure 7

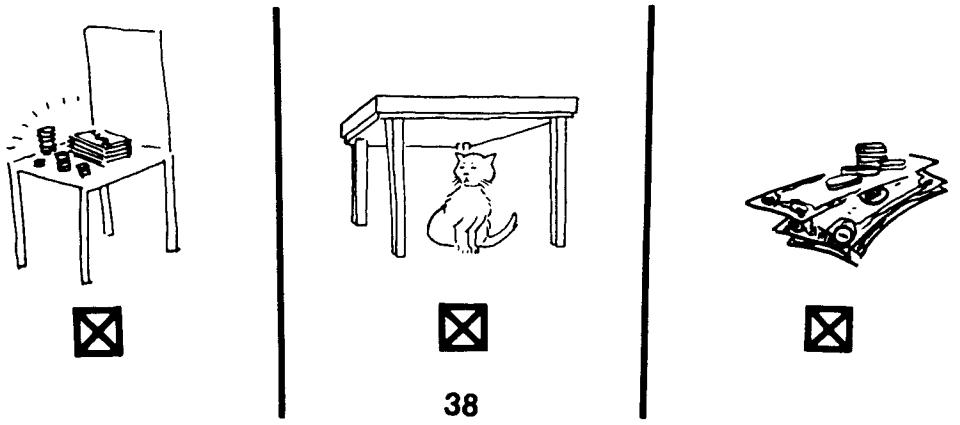

Figure 8

Lesson nine, which has recently been developed, employes a somewhat different format. The patient observes pictures while listening to a story. At certain points in the lesson, the clinician presents pictures which were described previously and the patient indicates his comprehension of the auditory stimulus by pointing to one of the four pictures he sees.

(At this point in the presentation, a video tape was shown of several patients going through various stages of the Natural Language Learning Program. All patients were described in terms of their time post onset of aphasia, PICA overall percentile ranks and scores on the Token Test.)

Eight lessons are available in four languages--Spanish, Hebrew, German, as well as English. Recognizing that differences existed between my aphasic patients and me, not the least of which was the fact that I had not recently sustained brain damage, I decided to take the Spanish program myself.

What insight! In Spanish, "The cat is sleeping" sounded to me exactly like "The cat is eating." I found myself wishing the tape would slow down and not "talk so fast." Although the program was designed so that most responses turn out to be accurate, responsive, complete, prompt and efficient, I found myself asking for repeats, and I delayed, self-corrected, and, yes, I even made errors. It's an experience I recommend to aphasia clinicians everywhere!

In conclusion, I'd like to pose this question: Can it be assumed that a program designed for teaching foreign languages to individuals with normal brains will be an effective tool for treating aphasic patients? There has been so little research regarding the use of this program with an aphasic population that results must be regarded as preliminary. I think the answer to the question will lie in more extensive research.

References

1. Schuell, H., Jenkins, J.J., and Jimenez-Pabon. Aphasia In Adults: Diagnosis, Prognosis and Treatment. New York: Hoeber Medical Division, Harper and Row (1964).

2. Winitz, H. and Reeds, J. Comprehension and Problem Solving as Strategies for Language Training. The Hague: Mouton & Co. (1975).

3. Winitz, H., Reeds, J. and Garcia, P. Natural Language Learning, Vols. 1-4. Kansas City: General Linguistics Corp. (1975).

Discussion

Q: You seem to be ignoring one of Schuell's suggestions, and that is the one concerned with correcting the patient. I wonder if some sort of a back-up system could be used in the program in lieu of correcting; that is, when an error is made simply letting the patient recognize his error by backing up one set where he had made a correct choice and then coming back through it again until he corrected his error. That way, the clinician takes the responsibility for facilitating correct responding by the patient.

Q: When you were administering the material live, were you making a conscious effort to pause between certain portions of the message?

A: Only after an error had been made within a given sentence. For patient #2, an optimal pause time was found and pauses were inserted within these sentences. This was suggested by the work of Tony Salvatore. However, we don't have definite conclusions yet about where pauses should be inserted within a sentence for patients using the Natural Language Learning Program.

Q: Schuell wrote of stimulation and reactivating processes rather than the teaching of vocabulary or structures. That seems to me to be a critical difference between learning a language and whatever it is we do to facilitate aphasic patients' use of language. Do you have any ideas about how one might have to modify a program that is designed to teach a language to make it maximally effective in treatment of aphasic patients? It seems to me that Schuell felt that multiple stimulation was much more important than the specific words or structures used.

A: To respond to your last statement first: I think the patient is given multiple stimulation within this program because the same words and structures are used throughout the program and the patient hears the same stimulus items many times. In answer to your other questions, I suggest one could look at rate, stress, type of error such as phonemic confusions or semantic confusions. It seems to me that many variables could be investigated within the Natural Language Learning Program.

Q: In our clinic we have been using the tapes rather than presenting the program live. What differences do you find between the two methods of presentation?

A: For one thing, on the tape each stimulus item is presented twice, so the tapes have a built-in repeat. When the program is given live, the clinician can use a multi-dimensional scoring system. We usually give the program live until the patient can respond to and interpret his errors--at that time he usually can take the program on his own.

Q: We have used the program with patients who were quite severely impaired. We found that it didn't take long before they were using it quite independently.

Q: Is there data available describing the use of the program with normal subjects?

A: The book by Winitz and Reeds, Comprehension and Problem Solving as Strategies for Language Training, published by Mouton (1975) describes the

use of the program by undergraduate students learning German.

Q: I wouldn't expect to learn another word in, say, Igboo, just because I was exposed to 40 words presented in that language. Do you, with aphasic patients, expect to find generalization to words or structures not trained in this program?

A: Within the program the words that are introduced in isolation are the same words that appear in more complex structures later on. Again, more research is needed to answer these questions, probably research with patients who are at several months post onset of aphasia.

Q: You told the first patient on the tape that he didn't have to talk. Would you tell us what role or position talking takes in this program and what happens to talking when you use this procedure?

A: With one patient we studied, we found that he began to verbalize the stimulus items correctly when we probed by presenting pictures of words being trained and asking him to name them. It seemed that comprehension training was a facilitator for the verbal production of those training words.