

# EFFECTS OF PROMPTING ON SPONTANEOUS NAMING OF PICTURES BY APHASIC SUBJECTS

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## RESUME

Dans une serie d'épreuves, des malades aphasiques ont essayé de nommer des images d'objets communs. Les images tombaient dans trois catégories: images d'enseignement, images d'épreuve, et images de généralisation. Au cours du traitement expérimental, si un sujet n'arrivait pas à nommer une imagee d'enseignement, on lui soufflait le mot qui'il cherchait. Les images d'épreuve figuraient parmi les images d'entraînement, mais ne permettaient aucun soufflement. Les images de généralisation étaient présentées après le traitement expérimental. Les résultats démontrent que les soufflements ont un léger effet en facilitant aux sujets aphasiques l'identification spontanée des objets en question. Cet effet ne paraît pas se généraliser aux objets non soufflés. Les résultats suggèrent qu'il est inutile de passer beaucoup de temps clinique à souffler dans l'espoir de faciliter l'identification généralisée spontanée.

## ABSTRACT

Aphasic patients were given a series of trials in which they attempted to name pictures of common objects. Pictures were divided into three categories; Training Pictures, Probe Pictures, and Generalization Pictures. During the experimental treatment, if a subject failed to name a Training Picture, he was prompted, i.e., the clinician said the word and the patient repeated it. Probe

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Pictures were presented intermixed with Training Pictures, but received no prompting. Generalization Pictures were presented after the experimental treatment. Results demonstrate that prompting has a slight facilitating effect on spontaneous naming of prompted items by aphasic subjects. This effect apparently does not generalize to unprompted items. The results suggest that extensive clinical time spent in prompting in an attempt to facilitate generalized spontaneous naming is not appropriate.

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Deficits in the ability to name familiar objects or pictures of familiar objects are frequently observed as part of the symptom-complex of aphasia. Most clinicians would probably agree with Berry and Eisenson (1956), who maintain that naming disorders are "probably the most frequent and the most persistent of the aphasic patient's difficulties." They go on to say that naming disorders are "most likely to remain as a residual disturbance when considerable improvement in general has taken place." (p. 401).

In spite of the prevalence and persistence of naming disorders in aphasia the literature on the subject is generally limited to descriptions of patients who have exhibited naming deficits (e.g., Head, 1926; Weisenberg and McBride 1935), with occasional reports of associated neurological dysfunction. Descriptions of clinical treatment rarely make specific recommendations regarding procedures to be used in treating deficits in naming abilities. Those which deal with the problem generally suggest that the clinician produce the word, attempt to get the patient to imitate the word, and then progress to related activities building upon the patient's initial responses (Longerich and Bordeaux, 1954; Agranowitz and McKeown, 1964). Implicit in such procedures is the assumption that saying the name of the item to the patient and having the patient imitate the name will facilitate the patient's naming of that item in the future. A less obvious assumption in such procedures is that the facilitating effect will generalize, so that the patient will also show gains in the ability to name items which do not receive direct naming training. If such generalization is not assumed then only items which are retrained will be relearned, and the clinician will be faced with the task of teaching the patient thousands of individual items, in order to produce a functional naming vocabulary.

The author's clinical experiences with naming training have generally been unsatisfactory. Prolonged drill on object or picture naming has generally been frustrating to the aphasic individual, and has not appeared to be very effective in improving the individual's general word-retrieval abilities. In order to evaluate, in a controlled situation, the effectiveness of procedures for enhancing naming abilities, we designed an experiment in which aphasic patients were given training in picture-naming, utilizing imitation, or prompting, procedures. We also provided for measurement of generalization effects by measuring performance on items which received no naming training.

## PROCEDURE

Subjects were 10 aphasic patients, selected from the treatment rolls of the Aphasia Section, Minneapolis Veterans Administration Hospital. Patients had to meet the following criteria: (a) Functional visual perception, as determined by ability to match ten pairs of identical pictures of objects like the pictures eventually used in the experiment. (b) Inability to name at least 35 of 200 black and white line drawings of common objects. (c) Ability to correctly imitate ten common nouns spoken by the examiner. A summary of patient identifying data and scores on the **Porch Index of Communicative Ability** (Porch, 1967) are presented in Table 1.

Table 1. Identifying data and summary of performance on The Porch Index of Communicative Ability for aphasic subjects in this experiment.

Subject #	Age	Time Since Onset (Mo)	Diagnosis	Handedness	Overall	PICA Percentile <sup>1</sup>		
						Gestural	Verbal	Graphic
1	58	8	CVA	R	28	12	39	50
2	56	3	CVA	R	60	51	53	57
3	63	11	CVA	R	81	84	51	90
4	38	41	CVA	R	82	76	57	90
5	59	2	CVA	L	59	75	62	45
6	51	1	CVA	R	42	39	32	62
7	53	2	CVA	R	65	74	48	72
8	46	4	CVA	R	48	41	38	52
9	57	2	CVA	R	70	79	68	71
10	61	10	CVA	R	63	60	65	61

<sup>1</sup> PICA Percentile = A subject's performance on the PICA is compared to the performance of a large, unselected sample of aphasic patients.

Both during subject selection and the experiment proper, subjects' responses were scored on a six-point scale. If the subject did not respond to an item, or indicated that he could not name it, the response was scored "0". If the subject said an unrelated word or made an unintelligible response to an item, it was scored "1". If he said a related word (e.g., "knife" for "fork"), it was scored "2". If he made an error, then corrected himself, it was scored "3". A correct response, emitted 4 sec. or more after stimulus presentation, was scored "4". An immediate, correct response was scored "5". The reliability of the experimenter's judgments of responses was assessed by comparing his scoring to that of another observer, who simultaneously scored naming responses of aphasic patients in three non-experimental sessions. The experimenter and the observer agreed on 191, or 96% of 200 judged responses covering the entire six-point scale, suggesting that the experimenter could reliably judge responses using the 6-point scale.

Each subject was first seen in a pre-experimental session, in which it was determined whether or not he met the criteria for inclusion in the study. He was seated across a table from the experimenter in a quiet, well lighted room. First, he was asked to match each of ten black and white line drawings to one of ten identical drawings placed, one at a time, on the table before him. If he made no mistakes on this task, he was asked to repeat after the experimenter the names of each of the pictured items. If he correctly imitated the experimenter on all ten items, he was asked to name the item pictured in each of 200 black and white line drawings presented one at a time for ten seconds each. The 200 drawings used in the study represented nouns which were within the first five-thousand most frequently occurring words according to Thorndike-Lorge (1944), were three syllables or less in length, and were at or below fifth-grade reading level. As soon as the subject received a score of 0 or 1 on 35 items, the session was terminated. If a subject did not receive 0 or 1 scores on at least 35 items from the complete set of 200 pictures, he was dismissed from the experiment.

For each of the subjects who missed 35 pictures from the group of 200, the 35 missed items were randomly divided into several sets. First, 10 pictures were randomly selected as **Training Pictures**. Then three groups of five pictures each were randomly selected from the remaining 25 as **Probe Pictures**. The remaining 10 items were designated **Generalization Pictures**. Thus, for each subject in the experiment, there were a set of training items, three sets of probe items, and a set of generalization items, all missed by the subject in the pre-experimental session.

During the first experimental session, each of the Training Pictures were presented for a ten-second interval, and the subject was asked to name each item. Responses were scored by the experimenter on the 6-point scale. No differential feedback was given for correct and incorrect responses, and the experimenter did not provide the names of missed items. The subject was allowed 10 sec. to name each item. The Training Picture set was presented ten times in succession, with pictures shuffled between each presentation of the set, for a total of 100 naming trials. Following the 100th trial the session was terminated.

In the second experimental session, one set of five Probe Pictures, selected at random, was intermixed with the Training Pictures. The combined set of pictures was first presented three times in succession under Baseline conditions, with pictures shuffled between each presentation of the set. The subject was allowed 10 sec. to name each item and no model was provided following errors on any item. (These three presentations of the set of pictures served as a "baseline" against which to evaluate changes in performance within sessions as a result of treatment.) Then the combined set of pictures was presented ten additional times in succession under prompting conditions. During these ten pre-

sentations, whenever the subject failed to correctly name a Training Picture, the experimenter said the name of the picture and the subject repeated the name aloud. The experimenter scored both the subject's first response and his response to the experimenter's prompt. (The subject's first response was the one subsequently used in analysis of experimental effects.) If the subject failed to name a Probe Picture, the experimenter simply went on to the next item when the 10 sec. naming interval had expired.

In the third experimental session, a different set of five Probe Pictures was intermixed with the Training Pictures. Procedures duplicated those of the previous session. In the fourth experimental session, the last set of five Probe Pictures was intermixed with the Training Pictures. Again, procedures duplicated those of the two previous sessions. Following the tenth presentation of the combined set of pictures under prompting conditions in the fourth session, all 15 Probe Pictures were randomly intermixed and combined into a single set and administered one time, with no prompting. Then, the Training Pictures were presented once, again with no prompting. Following this, the session was terminated.

In the fifth experimental session, the set of ten Generalization Pictures, not seen by the subject in the four previous experimental sessions, was presented ten times in succession, with pictures shuffled between each presentation. Once again no prompts were provided by the experimenter following incorrect responses. After the tenth presentation of the set, the experiment was terminated. The entire sequence of procedures utilized in the experiment is summarized in Table 2.

Table 2. Sequence of procedures employed in evaluating effects of imitation training on spontaneous naming.

Session	Procedure	Stimuli	Trials <sup>1</sup>
Pre-experimental	Picture Selection	200 Pictures	1
I	Baseline	Training Pictures	10
II	Baseline	Training Pictures Probe Pictures, Set A	3
	Prompting	Training Pictures Probe Pictures, Set A	10
III	Baseline	Training Pictures Probe Pictures, Set B	3
	Prompting	Training Pictures Probe Pictures, Set B	10
IV	Baseline	Training Pictures Probe Pictures, Set C	3
	Prompting	Training Pictures Probe Pictures, Set C	10
IV <sub>b</sub>	Baseline	Probe Pictures, Sets ABC	1
	Baseline	Training Pictures	1
V	Baseline	Generalization Pictures	10

<sup>1</sup> One trial = once through the set of pictures.

## RESULTS

The performance of the aphasic subjects on the naming task is summarized in Figure 1.

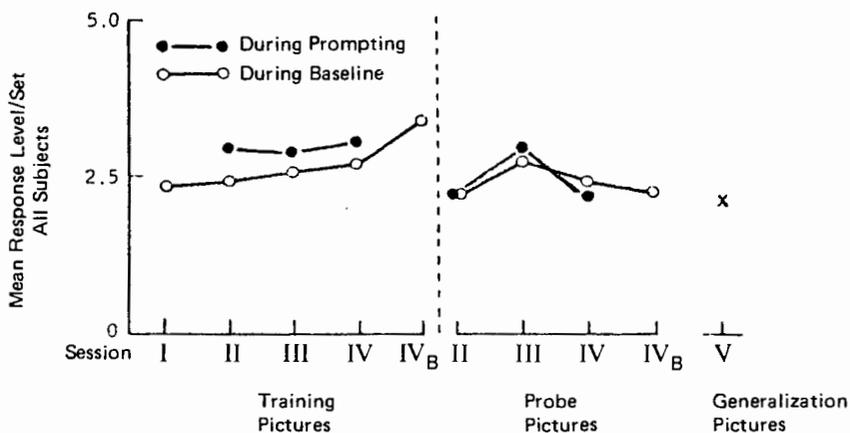


Figure 1. Mean response level for all subjects during each presentation of training pictures and probe pictures in the experiment.

It can be seen in Figure 1 that spontaneous naming of Training Pictures was generally slightly (but not significantly:  $t = 0.63$ ,  $df = 9$ ,  $p < .05$ ) more accurate during Prompting Conditions than during Baseline (no prompting) Conditions in Session II, III, and IV. Spontaneous naming of Probe Pictures did not differ according to whether they were presented while Training Pictures were receiving prompting or while Training Pictures were receiving no prompting (Baseline). There was a gradual (but not significant:  $t = 0.85$ ,  $df = 9$ ,  $p > .05$ ) improvement in performance on Training Pictures in Baseline from Session I to Session IV. There was no improvement in performance on Training Pictures during Prompting or on Probe Pictures during Baseline or Prompting from Session II to Session IV.

Performance on the Generalization Pictures in Session V was somewhat poorer than performance on either Training or Probe Pictures throughout the experiment. However, there was a substantial increment in correct naming on the second presentation of the Generalization Pictures (Figure 2). Subsequent performance on generalization Pictures was stable and at about the same level as performance on Probe Pictures and on Training Pictures in Baseline earlier in the experiment.

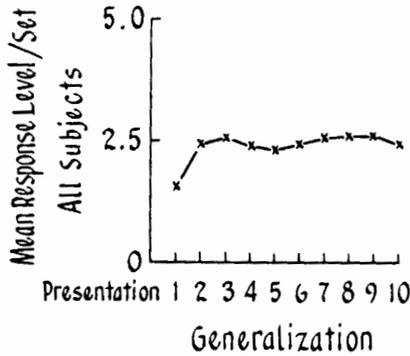


Figure 2. Mean response level for all subjects during repeated presentations of generalization pictures in the experiment.

As was stated earlier, subjects generally obtained slightly higher scores on Training Pictures under Prompting Conditions than in Baseline (Figure 1). This difference could represent the facilitative effect of prompting, or it could represent only a "warm-up" effect which could also result in such a difference, because Baseline Conditions always occurred before Prompting Conditions. In order to determine which variable accounted for the difference, the mean score for the group on each of the three Baseline presentations and each of the first three Prompting presentations of the Training Pictures was graphed (Figure 3). If the differences between Baseline and Prompting Conditions were a warm-up effect, we would expect a gradual improvement across the first three presentations under Prompting Conditions, continuing, with no abrupt changes, across the first three presentations under Prompting Conditions. This was not the case. Performance was relatively stable across the three Baseline presentations, and began to improve only under Prompting Conditions. Consequently, we can conclude that the slight differences in performance on Training Pictures between Baseline and Prompting conditions probably reflect the effects of prompting, and not a warm-up effect.

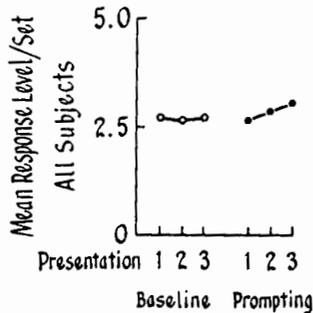


Figure 3. Mean response level for all subjects on each of three Baseline presentations and the first three Prompting presentations of Training Pictures in the experiment.

## DISCUSSION

The effects of prompting, even on prompted items, were not impressive. Spontaneous naming of prompted items was generally slightly better than spontaneous naming of those items in baseline conditions. Prompting was not successful in moving patients from poor performance in Session I to errorless or nearly errorless performance by Session IV. Furthermore, performance on Probe Pictures, which received no prompting, was often as good as, or better than, performance on the Training Pictures, which received prompting.

The effects of prompting on spontaneous naming of unprompted items were even less impressive. There was no observable generalization of more accurate spontaneous naming to either Probe or Generalization Pictures. Performance on Generalization Pictures improved substantially from the first to the second presentation of the pictures, even though no prompting was given. There was a similar improvement on Training Pictures from item selection (where no item could receive a score greater than 1), to Session I. This suggests that simply presenting items to be named, without prompting, results in improved naming performance for those items in subsequent trials.

In summary, then, the data from this experiment suggest that prompting has a slight facilitating effect on spontaneous naming of the items presented under prompting conditions. These facilitating effects of prompting do not appreciably generalize to unprompted items. Performance on generalization and probe items in this study did not improve as a function of prompting procedures applied to training items.

It should be kept in mind that these effects were observed under optimum conditions; that is, with subjects who had demonstrated significant naming deficits on the items utilized, but who could imitate the examiner's prompts without error. It appears likely that even these minimal to moderate effects would not be observed with patients who make errors when imitating the examiner.

We may conclude, then, that prolonged use of prompting procedures to facilitate naming by aphasic subjects is not appropriate. The effects of prompting on responses to items subjected to prompting procedures, although consistent, are nevertheless limited. Prompting apparently results in a moderate increment in the ability to name prompted items during the first few presentations of the items. This increment does not continue throughout subsequent presentations, even though prompting continues. Furthermore, there did not appear to be any significant generalization of these effects to naming of items not subjected to prompting. Thus, though prompting has a limited facilitating effect, it is not an efficient or effective way to ameliorate the naming deficits exhibited by aphasic subjects.

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