"Show Me The ------ Whatever": Some Variables Affecting Auditory Comprehension Scores of Aphasic Patients

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An essential part of any aphasia examination is the assessment of the patient's auditory comprehension skills. Upon admission to an acute care or rehabilitation hospital, an aphasic patient may be tested by all or most of the professionals responsible for planning his management. Auditory comprehension testing often takes the form of asking the patient to point to items named by the examiner. A physician at bedside may ask the patient to indicate items located in the room, e.g. "point to the window," while the speech pathologist more typically uses a standardized test for assessing auditory comprehension. At least two such tests, the Boston Diagnostic Aphasia Examination (Goodglass and Kaplan, 1972) and the Minnesota Test for Differential Diagnosis of Aphasia (Schuell, 1965), include subtests which require patients to point to pictures of objects grouped on cards.

It has been our clinical experience that the physician and the speech pathologist sometimes disagree about a patient's level of auditory comprehension, particularly in the case of a severely aphasic patient where accurate assessment is crucial to management. Rather than questioning the clinical expertise of either of these professionals, one might more profitably seek out extrinsic task variables which influence the patient's auditory comprehension scores. Pointing to objects in the environment may require better visual search, selection, attention and verbal memory skills than does pointing to a more limited array of pictured items. On the other hand, line drawings are less salient, may be problematic for patients with visuo-spatial difficulties, and at least in the case of the Boston Diagnostic Aphasia Examination, depict low frequency items such as cactus and hammock. Finally, there is evidence that some patients respond better to pictures which are presented one on a card, than pictures which are grouped together on a single card (Howes and Helm, 1979).

This study addresses the issue of differences found in auditory comprehension scores when severely aphasic patients are asked to point to environmental and pictured objects by controlling the selection of items used in both modes of presentation.

METHOD

Subjects

Subjects were 21 male aphasic patients admitted to the Boston V.A. Medical Center aphasia unit for rehabilitation. Although etiology and aphasia classification varied, all patients had severely impaired auditory comprehension skills (overall z score -1.0 or less) as measured by the Boston Diagnostic Aphasia Examination.

Materials and Procedure

Ten test items (door, window, book, table, chair, plant, pencil, cigarette, cup, spoon) and one buffer item (box) were presented under three conditions:

Condition I (Array) - Black line drawings of items on individual 4" x 5" cards arranged in rows of 4, 4 and 3.

Condition II (Composite) - Smaller, line drawings of items on a single 7" x 7" card. (See Figure 1)

Condition III (Environment) - Real items located around the treatment room.

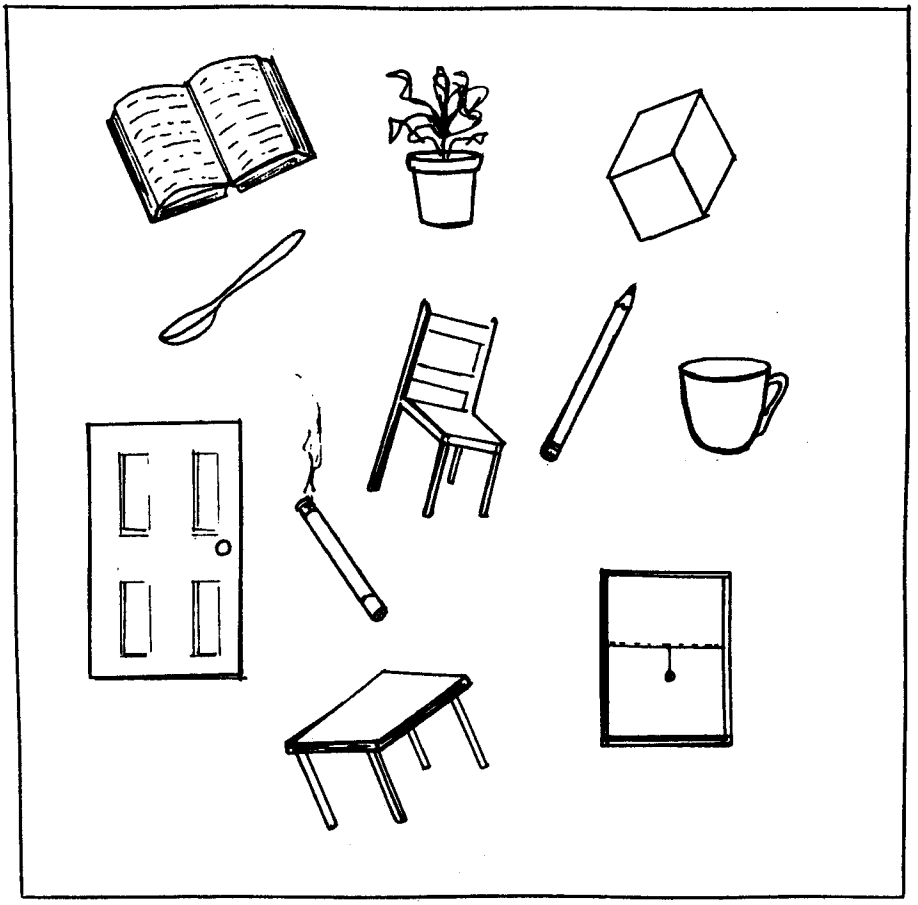

Figure 1. Composite picture used in Condition II.

Subjects were instructed to either "look at these" (Conditions I and II) or "Look all around the room" (Condition III) and "Show me the _____."

Order of items and order of experimental conditions were randomized.

Responses were scored either correct or incorrect with allowance made for immediate self-correction.

RESULTS

An analysis of variance for repeated measures was used to compare scores for each condition ($F=3.22$, $df=2,20$; $p < .05$). T tests for related samples showed significant differences between Conditions I (array) and III (environment) ($t=2.64$, $df=20$, $p < .02$) and Conditions II (composite) and III (environment) ($t=2.22$; $df=20$, $p < .05$) but not between Conditions I (array) and II (composite) ($t=1.92$; $df=20$, $p > .05$)

DISCUSSION

These results suggest that extrinsic variables may affect the performance of aphasic patients on auditory comprehension tests. As a group, patients scored significantly better when pointing to pictured objects than when pointing to the same real objects located in their natural setting. No significant differences existed between pictures of these objects presented individually or in a composite. However, statistical analyses often mask individual differences. Although most patients scored better in the pictured conditions, a few patients did not. One such patient, with a posterior, capsular putamenal aphasia located all ten environmental items, 9 in the picture array and 6 in the composite, that is, his performance worsened as the area to be searched became more constricted. Furthermore, although nonsignificant differences existed for the group in the two picture conditions, only two of the group had equal scores on both. Seventeen patients performed similarly in the two picture conditions, but one patient preferred the composite to the array 7 to 3. This patient had a large anterior "watershed" lesion which probably involved the frontal eye fields (area 8) necessary for initiating voluntary eye movement. It is possible that the less scanning required of this patient within a task, the better his "auditory comprehension" score. More certain is the observation that auditory comprehension scores can be affected by variables which are extrinsic to central auditory processing. These variables should be taken into account when one is examining aphasic patients. Information concerning a particular patient's performance may then be used to determine a treatment approach. If, as this study suggests, some patients have difficulty finding objects rather than merely recognizing them, therapy might be directed toward improving visual search skills, beginning with the condition which elicited the best performance and gradually moving toward the most difficult condition.

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