

**MODIFICATION OF THE FREQUENCY OF DESCRIPTIVE  
ADJECTIVES IN THE SPEECH OF HEAD START  
CHILDREN THROUGH MODELING WITHOUT  
REINFORCEMENT<sup>1</sup>**

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Children enrolled in a Head Start program were instructed to describe the contents of each of four boxes of toys. After the subject's initial description (baseline), the experimenter (model) described the contents of three boxes of different toys in alternation with the subject's descriptions. For one group, the experimenter used descriptive adjectives in his descriptions. In a second group, the experimenter used no adjectives of any kind. A marked increase in the frequency of descriptive adjectives was observed during the first description after modeling in the first group. This increase was maintained in successive descriptions at approximately the frequency used by the experimenter. Frequency of descriptive adjectives remained at zero or decreased in the second group.

It seems to be a well-established fact that "normal" and "disadvantaged" children differ in their language (Bernstein, 1961; Hess and Shipman, 1965; Riesmann, 1962). Because tests of verbal ability correlate highly with academic success, these linguistic differences are frequently considered to be deficits in the language development of disadvantaged children. As Hart and Risley (1968) pointed out, two approaches have developed as attempts to remediate these differences. Traditional preschool curricula have emphasized the child's knowledge of language (*i.e.*, what the child "can" do, if only under special circumstances). Recent approaches (Bereiter and Englemann, 1966; Hart and Risley, 1968), on the other hand, have emphasized the modification of what the child (typically) does. Too little is known at the present about language development and its disorders to evaluate these two approaches; we cannot even say that subcultural differences in language reflect what a child knows, typically says, or both.

One of the frequently noted aspects of the

language of disadvantaged children is the low frequency of descriptive adjectives. A successful technique for the modification of this difference has been developed by Hart and Risley (1968). They designed an operant preschool program that resulted in substantial increases in the frequency of descriptive adjectives in the spontaneous speech of Head Start children.

In the present study, a modeling technique<sup>2</sup> was used in an attempt to modify the same aspect of language. Several previous studies using modeling techniques have been reported (Brigham and Sherman, 1968; Guess, Sailor, Rutherford, and Baer, 1968; Guess, 1969; Lovaas, Berberich, Perloff, and Shaeffer, 1966; Sherman, 1965), but this study differs from previous work in two ways: first, the above studies all used procedures in which the subject received reinforcement for some or all of his imitations of the experimenter. The present study uses modeling without reinforcement. Secondly, the procedures used in the previous studies initially produced repetitions of the experimenter's language that were later shown to be generalized response classes in some cases. That is, the imitative changes produced in the subject's speech during the repetition phase were frequently found to generalize to non-repetitive utterances and new situations. By contrast, the present study was designed so that repetitions could not occur from the beginning, *i.e.*, the subjects could "imitate" only by using different members of the same verbal response class. The only previous study

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<sup>2</sup>The term "modeling" is used in the generic sense of exposing one individual to the behavior of another (the model). The term "imitation" is used in those cases where a change in the behavior of the first individual (a) results in his behavior being more "similar" to that of the model, although it need not be "identical" repetitions of it, and (b) the change can be systematically related to the behavior of the model.

of modeling without reinforcement was also designed so that the subjects could not simply repeat the model (in this case the use of prepositional phrases and passive constructions). No imitative changes were found under these conditions, however (Bandura and Harris, 1966).

## METHOD

### *Subjects*

Ten children were randomly selected from a Head Start classroom. They ranged in age from 4 yr, 0 months to 4 yr, 9 months and had been enrolled in Head Start for two months at the time of the experiment. The children were asked by their teacher if they would like to play a "tape recorder game" with the experimenter. The experimenter had been in the classroom the preceding week as an observer, but had not interacted with the children.

### *Procedure*

The children were taken individually to an adjoining room by the experimenter. The room contained a tape recorder and a long table on which were placed seven open boxes. Each box contained several brightly colored toys arranged in groups of one, two, or three similar toys of the same color. The toys were selected so as to be easily identified by the children (cowboys, Indians, airplanes, *etc.*).

After each child was allowed to say his name into the tape recorder and play it back, the experimenter gave the following instructions: "Now, I want you to tell me what you see in this box. Tell me all about what you see. Then it will be my turn and I'll tell you what I see in this box. Then it will be your turn again. Okay, tell me what you see in this box." If the child did not name each object with at least a noun, the experimenter said "Anything else?". This was frequently necessary for the first one or two descriptions.

The child made the first description and this was taken as a baseline of adjective frequency. The next description was by the experimenter, followed by the subject, alternatively for a total of three descriptions by the experimenter and three descriptions after baseline for the subject. After each description, the experimenter said "Now it's your turn" or "Now it's my turn". The experimenter did not otherwise speak to or look at the subject.

The children were equally divided into two groups that differed in the experimenter's use of descriptive adjectives. The assignment was random but the groups were similar with respect to sex and age. For one group (ADJ), the experimenter used adjectives of color and number in his descriptions of the toys. Each box described by the experimenter and the subject contained two single toys and two groups of two or three similar toys. The color adjective was used with each noun and the number adjective was used with each group of similar toys. Therefore, the experimenter used four nouns, four color adjectives, and two number adjectives in each description, or 1.5 adjectives per noun. For the other group (NA), the experimenter used no adjectives in his descriptions.

## RESULTS

The data for individual subjects in both groups are presented in Fig. 1. It can be seen from the baseline measures that the frequency in nine of the subjects is near or at zero. Only one subject (in the NA group) showed a high frequency of adjectives, using two color and two number adjectives with four nouns.

The frequency of adjectives in the subject's three post-modeling descriptions of the ADJ group show marked modeling effects in four subjects and a weaker effect in the fifth. The frequency of adjectives per noun is actually higher than the level used by the experimenter in some instances because the subjects sometimes used "one" as a number adjective although the experimenter did not. Again, the increase in frequency of adjectives does not reflect repetitions of what the experimenter said, as they are describing different toys of different colors in different number combinations.

In comparison, four subjects in the NA group used no adjectives in any of their four descriptions, while the one subject who used a high frequency of adjectives in baseline decreased in frequency after the experimenter's no-adjective modeling.

## DISCUSSION

The present results have several implications: first, at least some aspects of language can be quickly and effectively modified through

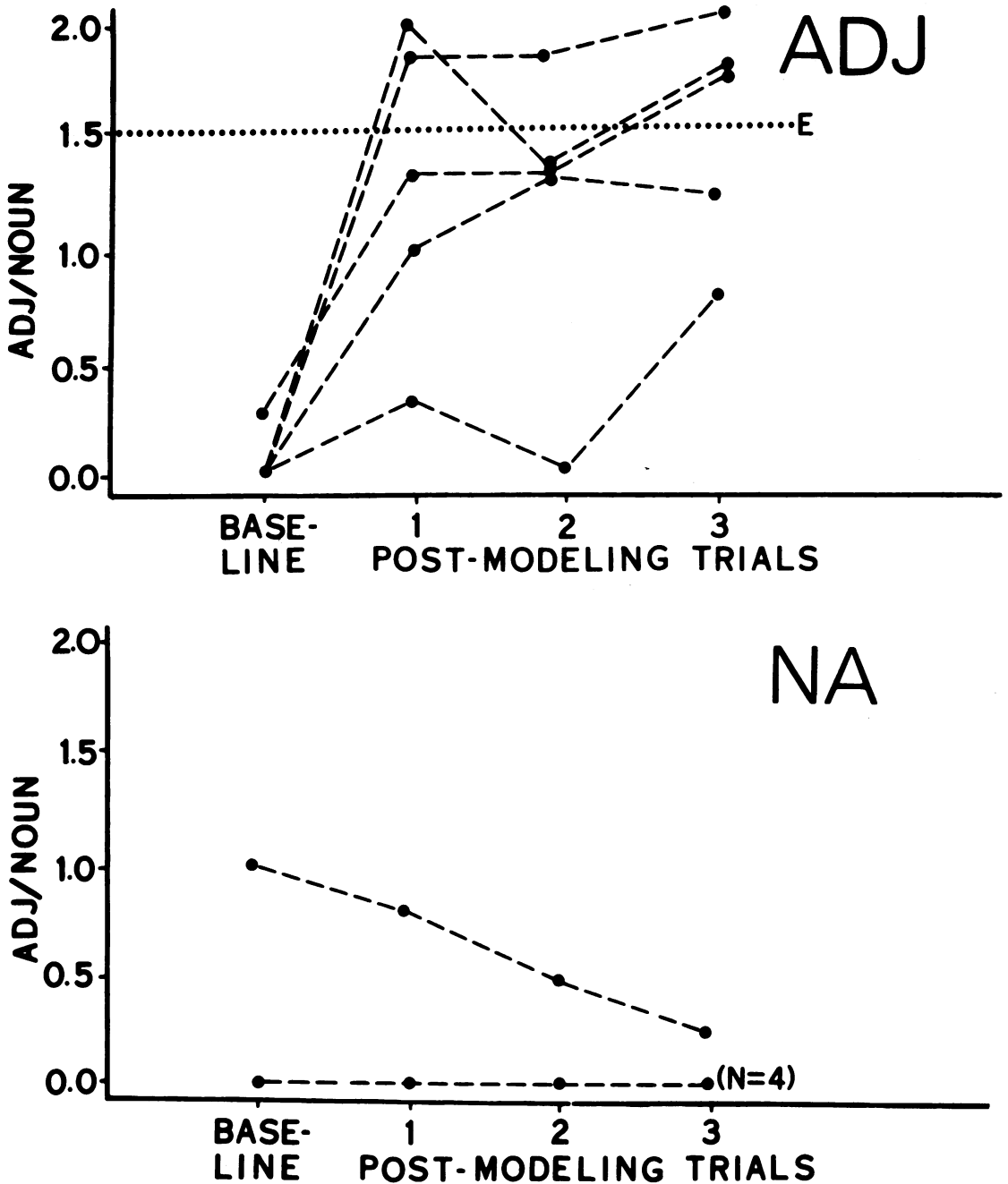


Fig. 1. Number of descriptive adjectives per noun in the group for which adjectives were modeled (ADJ) and the group for which no adjectives were modeled (NA), plotted for individual subjects. Frequency of the experimenter's use of descriptive adjectives in ADJ is indicated by the dotted line. As noted, one line gives the frequency of four subjects in NA.

modeling without reinforcement; a result not previously reported. Second, the imitative modification of language is not restricted to procedures that initially produce repetitions of

the experimenter's language; the frequency of different members of the same class were modified in this study. Third, the immediate increases in non-repeated adjectives suggests that

they already "knew" them, but did not frequently use them. Finally, no previous history of reinforced imitation was necessary to establish strong modeling control, although the children may have had such a history in the home or elsewhere.

It is of interest to note that the same verbal environments that produced "knowledge" of descriptive adjectives did not produce frequent usage. It is easy to imagine that infrequent use of these forms on the part of the parent and other adults, and probably infrequent reinforcement of their use by the children, would produce low frequencies of usage, but it is surprising that the same environments would produce any "competence" at all. Considerable research will be required to those properties of verbal environments that contribute to "competence" and usage. The present results, however, suggest that simple modeling of linguistic forms by adults is at least one factor in determining usage.

While this study did not examine the use of adjectives in situations other than the experimental one, it would be a relatively simple matter for teachers to use language modeling in all those classroom situations where it is most appropriate and important for the children to use descriptive adjectives.

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