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ABSTRACT

This study examines some variables that may affect two aspects of syntax in Head Start children; the use of descriptors and the use of complete sentences. Thirty-six children were assigned to six experimental conditions in a design which varied adult verbal modeling, feedback, and sex. Children given adult verbal modeling produced significantly more adjectives, placed them correctly more often and produced more grammatically complete sentences than Ss given no model. The Ss given discrimination learning showed consistently superior performance over Ss given indiscriminate praise. Sex differences, except for one, were nonsignificant. A retention test, 12-14 days later, showed that results attributable to main effects stood up over a period of time, but were not significantly different from scores obtained immediately after learning. (Author)

THE EFFECTS OF ADULT VERBAL MODELING AND FEEDBACK ON THE ORAL LANGUAGE OF HEAD START CHILDREN[1]

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It was the purpose of this study to examine some variables that may affect two aspects of syntax in preschool children: the use of descriptors and the use of complete sentences. Provision of environmental assistance to the oral language development of disadvantaged young children through adult verbal modeling (AVM), as well as its relationship to indiscriminate praise and discrimination learning conditions were the major variables of the study.

In the past decade, attention has been focused on the characteristics and apparent deficiencies of children from impoverished environments. Intervention programs, devised by a variety of agencies, have aimed at changing the oral language skills of young children. Sometimes labeled "the hidden curriculum," oral language skills of the community's standard dialect have already been mastered by middle-class children when they begin school. It has also been widely suggested that these oral language skills seem to be a set of important factors in acquiring school-related skills.

Bernstein (1961) has suggested that the inadequacy of linguistic range and control exhibited by the disadvantaged child whose language code is restricted is evident during the preschool years, but exhibits progressive, cumulative retardation as the child grows older. The quality of the restricted language code, which may function as a contributing factor to language deficiencies, includes characteristics which contrast directly with the elaborated code used by verbally-adept middle-class children: poor syntactic construction, short simple sentences, frequent use of commands and questions, and a rigid, limited use of adjectives and adverbs. Differences in language usage between disadvantaged and

middle-class children are not merely in vocabulary size, but also in organizing and responding to experience (Lawton, 1968).

Other investigators propose a different view of the language of disadvantaged children, maintaining that the language developed by various sub-groups within the culture, although different from standard English, is nevertheless a powerful tool for thinking (Baratz, 1969; Hymes, 1964 a, 1964 b; Labov, 1968; Shuy, 1967). Investigators have been particularly concerned with language used by black communities, asserting that the young black child is not delayed in language acquisition (Baratz, 1969), since he has acquired the many complicated structures of Negro nonstandard English, by the time he is in Head Start. Whether a language deficit hypothesis or an hypothesis that language is different but powerful is used, in either case, the question of how we might go about changing the language pattern of the child is of interest.

Bernstein's theory suggests that the number of sentences used by disadvantaged children would be few. Further, it suggests the hypothesis that Head Start children would use few adjectives in their descriptions of common objects and would respond infrequently in complete sentence form. The possibility of increase through environmental assistance provided by AVM, number of sentences, number of adjectives, as well as the use of the personal pronoun "I" or the adverb "there" in the sentence stem, was explored in the present study.

Understanding of the role of environmental assistance in language development is not complete. Few manipulative studies exist: Casler (1965), Cazden (1965), Irwin (1960), Muller (1966), Rheingold, Gewirtz, and Ross (1959), and Weisberg (1963). One environmental assistance

condition, AVM, already explored by Cazdin (1965) and Muller (1966) may be useful in increasing oral language skills.

Related to Brown's (1964) concept of adult expansion of child speech, AVM was defined in the present study as an adult verbal response to a child's speech, utilizing both expansion and additional predetermined information. As described by Brown, expansion of child speech involves the adult's repeating a child's verbalization, and at the same time, changing the child's sentence into a well-formed adult equivalent. It has been conjectured that expansions may be vehicles for the child to learn the "local expression of linguistic universals" (McNeill, 1966, p. 84) in a way not provided for in imitation or practice. McNeill also suggests that middle-class parents are more likely to expand their children's utterances than are lower-class parents, thus leaving the lower-class child to discover the niceties and complexities of English grammar in a haphazard way on his own. If expansions are used with some degree of success by middle-class parents, then expansion might be useful in intervention programs aimed at the disadvantaged. Cazdin (1965) found, however, that expansion alone did not produce significantly different syntax in day care children. Rather, she found that the modeling condition, in which children were exposed to grammatical sentences which included new information, was a more effective source of assistance to the child's acquisition of grammar than was expansion, alone.

The definition of modeling for the present study, stated above, was derived from combining Cazdin's modeling and expansion conditions, since it is possible that her definitions were too narrow. She suggested later (1968) that attempts to define verbal environment in a very narrow

way will probably not provide as much information concerning ways in which a child's syntax can be changed as would a broader definition of the variable. Adult verbal modeling should not be confused with imitation, which consists only of a child's replication of an adult utterance. Modeling is an adult response to child speech which combines expansion with new or further information. Muller (1966) found that the provision of an "intentionally structured adult verbal environment" (modeling) was effective in producing significant differences in children's use of descriptors in noun phrase responses to a set of controlled pictures which varied in object, color, and number. Modeling was varied in content and timing over six groups. Her materials were constructed with a low ceiling, thus were modified for use in the present study. Difficulty was increased by adding two objects and the dimension of size. The present study included Muller's dependent variable, the use of descriptors, plus sentence structure as effected by AVM.

Of further interest to the present study was the effect of two kinds of feedback conditions upon oral language skills. In one condition, the child was reinforced with verbal praise indiscriminately (IP), whether his response was complete or incomplete, while the other condition was one of discrimination learning (DL). In the second case, the child received verbal praise if he used the complete description, as well as verbal feedback regarding the accuracy of his response if his description was incomplete. These two forms of reinforcement were chosen because they correspond reasonably to two styles of praise observable in teachers.

One would expect that if the child is reinforced indiscriminately for whatever language pattern he initially chooses at the beginning of

the training session, he will perseverate in that pattern, producing fewer gains in an AVM condition than would the child who had some discriminated knowledge of his performance. Positive reinforcement from the adult would be interpreted by the child, quickly, as acceptance of his behavior. In the DL condition, the child has some feedback as to whether or not his response was acceptable to the adult experimenter, and would be more likely to change his behavior in the direction of the behavior indicated as acceptable. A DL paradigm implies conditions in which the child will learn to perform the praised behavior and eliminate the rejected behavior. By providing feedback regarding the performance, the informational aspect of reinforcement is stressed, at the same time providing cues for the learner as to the accuracy of his behavior, permitting him to discriminate between his own responses, choosing the one that corresponds to the response praised by the experimenter.

Method

Subjects. The Ss were 36 Head Start children from Monroe County, 18 boys and 18 girls, placed in five-year-old classrooms. The age range was from 4 years 6 months to 6 years 3 months. Four Ss were black. The Ss were screened on the basis of their ability to identify four colors, ten objects, three numbers, and two sizes. The Ss were randomly assigned to one of six experimental groups as they appeared in the testing room. Because of absences, only 30 Ss participated in the retention measures.

Materials. Four sets of stimulus materials were prepared: Screening, Training, Transfer I, and Transfer II. Ten pictures appeared

in random order on the Screening set. These pictures were composed of the objects, colors, numbers, and sizes which later appeared, but in new combinations, on the Training and Transfer I and II materials. Two randomly ordered decks of 20 pictures each comprised the Training set. Twenty-four new pictures appeared in random order on Transfer I. Three pictures made up Transfer II materials.

The Training materials included combinations of two numbers (one and two), two colors (red and green), two sizes (large and small), and four objects (balls, wagons, flowers, and cars). The same object appeared in two sizes on a single card whenever size was a relevant dimension. Transfer I materials included two numbers (two and three), two new colors (blue and yellow), two sizes (large and small), and nine objects (balloons, blocks, boats, books, buckets, cups, wagons, flowers, and cars). No more than two different objects, two different numbers, or four different colors appeared on any single card. Transfer II, composed of three colored pictures, was designed to measure spontaneous occurrence of descriptors and sentences. All objects, colors, and numbers which had appeared in Training and in Transfer I materials were embedded in pictures showing children using the various objects. Designed to elicit descriptions containing noun phrase responses, the stimuli in both Training and Transfer materials could be variably described as: adjective-noun (A-N); A-A-N; A-A-A-N; A-A-N and A-A-N; A-A-A-N and A-A-A-N; A-A-A-A-N and A-A-A-A-N.

Procedure. The experimental design was a 2 x 2 x 3 analysis of variance with two feedback conditions, sex of the subject, and three AVM conditions. An analysis of variance was used to compare initial

scores with retention data. Both Discrimination Learning (DL) and Indiscriminate Praise (IP) were varied on the feedback dimension while AVM variables were manipulated in three ways according to the use of "I see . . ." or "There are . . ." in the sentence stem, or by the absence of modeling. In all "I see . . ." conditions, the adult predetermined response describing the picture began with the stem "I see . . ." then went on to fully describe the stimulus. In "There are . . ." conditions, the adult model began with the stem "There are . . ." and continued to describe the picture using all possible adjectives in the noun phrase describing the stimulus. One "no modeling" condition with IP and one probing condition with DL served as control groups. In the probing condition the child was questioned about any attribute of the stimulus picture which he did not mention in his response. Although the probing condition technically was not a "no model" condition for DL, it was a proper control within the context of the study.

Verbal reinforcement consisted of evaluative praise such as "You said that very well," "Good," or "You did a good job on that one." In IP conditions, the child was praised for each response. In DL conditions the child received verbal praise if he gave a complete description of the pictures in sentence form, but if he made an incomplete response, he was told "No, in school we say," or "No, we say," or "No, that's wrong." In either event, the E continued with the predetermined complete description of the stimulus picture. If the child gave a complete response in sentence form in the probing condition, he was verbally praised.

The training phase of the experiment was carried out in two sessions on two successive days. During the first session, the child

was screened, then was taken through the Training set of materials one time. At the second session, the child was taken through a different random order of the Training materials, then proceeded directly to Transfer I and II. The E made no response during the Transfer tasks. Two Es administered conditions to a proportional number of the Ss in each experimental group. A retention test, composed of Transfer I and II, was administered 12 to 14 days later.

A tape recorder was used to record responses on Transfer I and II. When each child entered the room with the E, he was familiarized with the tape recorder, speaking his name, age, and address into the microphone. This information was then played back for him. The same procedure, also used by Muller (1966, p. 22), established rapport before the training or retention sessions began.

Scoring procedures were modified from those used by Cazdin (1965) and Muller (1966). The responses on Transfer I were scored for use of adjectives and complete sentences. Adjective usage was scored both stringently and leniently, according to the number and placement of adjectives. The lenient scale was as follows:

noun = one point
non-specific modifier-noun = two points
A-N = three points
A-A-N = four points
A-A-A-N = five points
A-A-A-A-N = six points

Included in the category of non-specific modifier were the articles and relative pronouns "the," "an," "some," "this," "that,"

"these," and "those." Adjectives without a noun were not scored. Adjectives relating to size were scored only when two sizes appeared in the same picture. In the lenient scoring, the order of the adjectives was not considered. For instance, "one wagon, blue" and "one blue wagon" received the same point value. In the stringent scoring, one point was deducted for each adjective that was out of order according to the model. The points were then subtracted from the lenient score for each response.

Each response was also scored stringently and leniently for complete sentences. In the lenient scoring, one point was given for each response containing a sentence. A response was scored as a sentence if it contained a subject and a verb. These sentences do not necessarily correspond to what is considered an evaluative grammatically correct adult sentence. For example, "Them's green" was scored as a sentence. A response containing more than one sentence received only one point, since the use of more than one sentence was not the most concise answer. Correct responses under stringent scoring were sentences beginning with "I see" or "There are."

Responses on Transfer II were scored for adjectives describing items in the pictures, using only the lenient criteria. Sentences were scored using the lenient criteria established for Transfer I.

Results and Discussion

The data reflecting the results of AVM on production of adjectives and of complete sentences in response to Transfer I pictures, both

immediately after training and after a 12-14 day delay, are shown in Table 1.

Insert Table 1 about here

Analysis of the lenient scoring of adjectives on the first administration of Transfer I produced significant differences for AVM, F (2, 24) = 7.46, $p < .01$. A Duncan Multiple Range test at $p < .05$ showed that children in both the "I see" and "There are" modeling conditions produced reliably more adjectives in responding to stimulus materials than did those children in the "no model" groups. When the adjectives were scored stringently, the data yielded similar findings, F (2, 24) = 8.19, $p < .01$, with a Duncan Multiple Range test at $p < .05$ again showing that the children in the modeling groups produced more adjectives, ordered according to the model, than did those children in the "no model" and "probe" conditions. The hypothesis that children in the AVM conditions would evidence higher scores on adjective usage than those in the control conditions was supported.

When scoring of adjectives was examined on the retention Transfer I data, it was found that AVM differences were maintained over the 12-14 day period. Children in the two modeling conditions retained their advantage on lenient scoring of adjectives, F (2, 18) = 5.76, $p < .05$, and also on the stringent scoring, F (2, 18) = 7.09, $p < .01$. A Duncan Multiple Range test at $p < .05$ demonstrated that children in both modeling conditions performed reliably better on the task than those in the "no model" and "probe" group. The results of these analyses indicated

that modeling was effective not only in producing differences in performance immediately after the original training, as hypothesized, but that these differences were maintained for a 12-14 day period, without initiating further training. The difference between immediate and delayed transfer scores for both stringent and lenient scoring of adjectives for the 30 Ss present for the retention test were not significant. Inspection of the raw data showed that in 12 cases, children's scores showed continuing gains when both lenient and stringent criteria for scoring adjectives were used to compare initial with retention scores. A trend toward gains might indicate the possibility that Ss learned a rule, or set of rules, to deal with elaborative language patterns, and practiced the use of such rules during the interval between test administrations.

No significant differences were found for AVM in the immediate Transfer I test when sentences were scored leniently. However, when the number of sentences using the sentence stems heard in the modeling conditions were scored, AVM produced a significantly greater number of sentences, F (2, 24) = 3.76, $p < .05$. A Duncan Multiple Range test at $p < .05$ on the AVM data indicated that those children in the "I see" condition produced significantly more sentences of the model constructions than did children in the control conditions. After a 12-14 day delay, AVM did not produce significant differences in production of complete sentences, whether scored stringently or leniently. Sentence production did not seem to be affected by AVM to the same extent, over a period of 12-14 days, as was the production of adjectives in the oral language of Head Start children.

No support for the hypothesis that children would produce more sentences using the "I see" sentence stem as opposed to the "There are" sentence stem was provided by the data. A t test between the number of "I see" and "There are" sentences produced by the children showed no significant differences. Both sentence forms seemed to be used with equal facility by the children in the modeling and feedback conditions, however children in the "I see-DL" condition did produce significantly more "I see" and "There are" sentences than did the children in the "no model" or "probe" conditions, as evidenced by the data for stringent scoring of sentences on Transfer I, discussed later.

AVM did not produce significant differences for immediate or delayed Transfer II for lenient scoring of adjectives or sentences. Because of a limited number of training sessions, as well as the narrow range of the materials utilized, such results are not surprising. If the effects of modeling were expected to transfer in a dissimilar context, it seems evident that use of more varied materials would be necessary. Transfer II materials showed children in action. It was found that in responding to these materials, some children centered on telling a story rather than giving a description.

Children in the DL conditions received significantly higher stringent and lenient scores than Ss in the IP conditions on immediate Transfer I adjective production, F (1, 24) = 5.76, $p < .05$, and F (1, 24) = 6.81, $p < .05$, and on delayed Transfer I adjectives, F (1, 18) = 5.15, $p < .05$, and F (1, 18) = 6.33, $p < .05$. In the present study, the DL condition seemed to be more effective in producing changes in oral language, as compared to indiscriminate acceptance of the child's

response. Children in the "I see" and "There are" DL conditions received feedback as to the correctness of their performance, directing their attention to relevant cues, and seemingly made some successful effort to match their responses to that praised by the adult. The DL treatment may have produced some negative effect not measured in the present study. Some children in DL conditions experienced bodily tension, and verbalized statements such as "I just can't get it," or "I lost it." Although latencies were not measured, it is possible that Ss in DL conditions would exhibit longer delays before responding. The DL training provided direct information for the children regarding the relevant attributes of the stimulus material to which they should attend, as well as the important characteristics of their responses. If attention to relevant cues was singularly important in guiding the child's response, then the probing condition should have produced performance on dependent variables equal to the AVM conditions, but it did not. The IP condition, acceptance of any response the child happened to select, provided less information upon which to base future response, resulting in perseveration on initially chosen responses.

When Transfer I sentences were scored leniently, DL produced significantly more sentences, F (1, 24) = 20.66, $p < .01$, then did IP, on the initial testing, as well as the retention data, F (1, 18) = 5.83, $p < .05$. An interaction between feedback condition and sex was evidenced in the retention data, F (1, 18) = 6.02, $p < .05$. The girls did about as well whether they were in the DL condition or IP (means = 6.22, and 6.11, respectively), however the cell mean for boys' sentences produced under DL was 17.61, while in the IP condition, the cell mean for boys

was only 3.72. Providing feedback as to the acceptability of their responses enhanced the boys' performance over a two week period.

Those in DL produced significantly more stringently scored sentences than IP Ss on both immediate transfer, E (1, 24) = 18.94, $p < .01$, and delayed transfer, F (1, 18) = 5.66, $p < .05$. Children in DL produced more sentences matching the model's "I see" or "There are" sentence stems than did children in IP.

Analysis of Transfer II data showed that feedback conditions did not produce significant differences when responses were scored leniently for adjectives. Children in DL conditions produced more sentences scored leniently than those in IP, F (1, 24) = 5.11, $p < .05$. This difference was only evidenced on the data from the first testing. Transfer II produced no significant differences when retention data were analyzed. Neither adjectives or sentences were scored stringently on Transfer II.

The only significant sex difference in the data was the interaction reported above, between feedback condition and sex on lenient sentence scoring of retention data. On all other dependent measures for both initial and retention testing, sex differences were nonsignificant.

The data from Transfer I, both immediate and delayed, supported the hypothesis that AVM is effective in producing changes in oral language of Head Start children, as measured by both lenient and stringent scoring of adjectives, and stringent scoring of sentences. Although AVM was responsible for producing differences in effecting the Ss' production of sentences using the model sentence stems, DL produced significantly higher scores as measured by both lenient and stringent sentence production criteria.

It may be that AVM is effective, in part, because of the one-to-one relationship established between the E and the child. The experimental condition reminds one of the relationship evidenced when an adult and child sit side by side reading a story together. Children in the study exhibited an eagerness to go with the Es and seemed very comfortable in the experimental situation, for the most part. The number of aides and volunteer workers avilable in a Head Start program present the possibility of providing the one-to-one relationship which may be highly useful in changing oral language skills. Further studies of the effects of AVM on groups composed of two or more children and an examiner need to be undertaken, as well as studies examining AVM's effects on various language patterns.

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Footnotes

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[2]Now at Western Illinois University.

TABLE 1

Mean Productions of Adjectives and of Sentences under Various Modeling Conditions for Immediate and Delayed Transfer I Tests

Verbal productions	Modeling Conditions					
	AVM: I see		AVM: There are		Control	
	Immediate	Delayed	Immediate	Delayed	Immediate	Delayed
Adjectives:						
Lenient	128.08	121.17	110.49	118.46	60.67	53.79
Stringent	107.50	103.71	103.50	112.08	49.42	44.42
Sentences:						
Lenient	13.33	9.92	7.67	6.96	6.25	8.38
Stringent	9.33	5.58	5.58	4.21	1.83	3.83