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ABSTRACT

The purpose of this study was to examine specific feautres of child language change as determined by change in vocabulary, complexity of sentences and functional use of sentences, and relationships of these changes to the teachers' facilitative or directive verbal behavior. Subjects were 112 nursery school children. Teacher verbal behavior was measured by the Withall Social Climate Index resulting in a facilitative score and a directive score for each teacher. Child language change was determined by a pretesting and posttesting with the Peabody Picture Vocabulary Test and with an Analysis of 50 Consecutive Statements. Within the limitations of this study and from the findings, it was concluded that teachers consistently used a pattern of facilitative or directive verbal behavior in their classrooms; that language for 4-year-old children in this study, as measured by the instruments used, continued to change in the 6-month period; and that for children in this sample, change in use of complexity of sentences was greater in classrooms in which teachers used more directive verbal behavior. In the other aspects of language change studied, language of the children in this sample developed fairly consistently irrespective of teacher verbal behavior as measured by the Climate Index. (Author/MS)

TEACHER VERBAL BEHAVIOR AND ITS RELATIONSHIP TO GROWTH IN CHILD LANGUAGE

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Language development in young children has received a great deal of attention in the last decade. Linguists, educators, psychologists, sociologists, and biologists continue to examine language development. Physical maturation, environment and culture are examined as to the effect they have on language development.

The classroom and the teacher in the classroom are parts of the young child's school environment. Teacher behavior in the classroom is considered to have a strong influence on the child's behavior and thus on his learning. It follows then, that one feature of teacher behavior is the manner in which a teacher talks and interacts with children in the classroom setting.

The verbal behavior of a teacher may be open and facilitative for the child, offering the child choices and supporting him in his learning. The teacher's verbal behavior also may be very directive telling the child what to do and what not to do, modeling language behavior for him and reproving the child if the teacher structuring is not followed. There are probably links between teacher facilitative or directive verbal behavior and particular features of child growth.

The central purpose of this investigation was to examine specific features of child language change, as

determined by change in vocabulary, complexity of sentences and functional use of sentences and relationship of these changes to the teacher's facilitative or directive verbal behavior.

In order to achieve the purpose of the study the investigator recorded the teacher verbal behavior to distinguish between teachers who exhibit high directive (low facilitative) verbal behavior and those who exhibit high facilitative (low directive) verbal behavior. The investigator established baseline data and later growth data via pretesting and posttesting to determine changes in child language usage. Finally, the investigator related the above items in an effort to determine the influence that the classroom climate, as measured by teacher verbal behavior, had on changes in language usage.

Research Questions

The focus of the study was expressed by the following research questions:

1. Do teachers who provide more facilitative verbal behavior have students with greater gains in vocabulary than do teachers who provide more directive (less facilitative) verbal behavior?

2. Do teachers who provide more facilitative verbal behavior have students with greater gains in mean length of response than do teachers who provide more directive (less facilitative) behavior?

3. Do teachers who provide more facilitative verbal behavior have students with greater gains in complexity of sentences than do teachers who provide more directive (less facilitative) verbal behavior?

4. Do teachers who provide more facilitative verbal behavior have students with greater gains in the specific functional use of child language relating to inquiry and dramatic imitation than do teachers who provide more directive (less facilitative) verbal behavior?

5. Do teachers who provide more facilitative verbal behavior have students with greater gains in functional use of language related to situations than do teachers with more directive (less facilitative) verbal behavior?

The study was not designed for extensive investigation into the many faceted area of language development in young children. Rather, it was limited to specific language change during a six month period in children ages 3.8 to 4.8 years. It was further restricted to children attending nursery schools in two suburban areas who by Hollingshead's (1949) classification would be from middle to upper middle class homes.

The investigator recognizes that much in the child's environment might influence language growth but this investigation was limited to examining the relationship of teacher facilitative or directive verbal behavior to child language change. Determination of other teacher or classroom influences was beyond the scope of this study.

Withall (1949) suggests that a teacher's verbal behavior is the most important single aspect of climate in the classroom and that verbal behavior is representative of total behavior. Establishing whether differences in verbal climate in suburban nursery schools make a difference in language change for young children provides a basis so that parents, educators and researchers can make decisions about the classroom environment for young children in terms of learning experiences and in terms of research. The literature suggests that the more directive the teacher's verbal behavior the more structured the environment; the more facilitative the teacher's verbal behavior the less structured the environment. Further empirical research is needed to determine what this relationship is and its impact on the child's learning.

From examining various models or programs in early childhood education one concludes that language development is an important part of preschool programs. A study of this type could help teachers further understand influences they exert on this development. It could help them to clarify their goals and develop procedures for arriving at these goals. A study of this type could give direction for further research in determining if spontaneous language can give better clues to language growth than language offered in response to standardize testing.

DESIGN OF STUDY

Twenty-eight nursery schools in two suburban communities were studied. Measurements of teacher verbal behavior were obtained by observational procedures. Four four-year-old children were randomly selected from each classroom to be subjects to represent the classroom and pre-test and posttest on seven language variables were administered with a six month interval. Measurements of language change were correlated with measurements of teacher verbal behavior.

Two suburban communities were selected on the basis of their similarities in real estate values. All schools in each community were contacted and those teachers whose programs met the following criteria were selected.

1. Children attended four or five days a week for a two to three hour session.
2. The program was basically for four year olds.
3. The school had a schedule of activities and a specific program that the teacher stated.

A total of 28 classrooms met these criteria and became the sample for this study.

Four four-year-old children from each of the 28 classrooms were the target children making a total of 112 children to be selected.

The Withall (1949) Social Climate Index was used to assess the independent variable, the directiveness or the facilitativeness of the teacher verbal behavior.

On the Withall Social Climate Index each statement made by the teacher is identified by an observer as belonging to one of seven categories. These seven categories are (1) learner supportive, (2) accepting or clarifying, (3) problem structuring, (4) netural, (5) directing, (6) reproving, (7) teacher supportive. Categories 1, 2, 3 are defined in this study as facilitative. Categories 5, 6, 7 are defined as directive. On this Index a teacher has a directive and a facilitative score. The facilitative score is obtained by totaling the number of statements in categories 1, 2, 3 and placing this number over the total number of statements made by the teacher and then calculating the percentage. The directive score is obtained by totaling the number of statements in categories 5, 6, 7 and placing this number over the total number of statements made by the teacher and calculating the percentage.

The Peabody Picture Vocabulary Test and an Analysis of 50 Consecutive Statements from the child's Spontaneous Language Sample were used to assess the dependent variable of change in child language.

The Peabody Picture Vocabulary test assesses the child's receptive language. In this, the child is shown

a series of four pictures and then is to identify a given vocabulary word with one of the pictures. A child's Spontaneous Language Sample is a verbatim recording of the child's speech in a prestructured situation. The recorded speech is then divided into fifty consecutive statements and these statements are analyzed for vocabulary usage, for complexity of sentences, for length of sentences, and for functional use of sentences according to previously established criteria.

PROCEDURES

The independent variables, the directiveness and facilitativeness of teacher verbal behavior were measured on the Withall Social Climate Index. Four coders were trained on the Withall Index until they reached a .76 reliability index for coding. Following the training, each coder then categorized a 20-30 minute segment of the verbal behavior of all 28 teachers in a classroom situation. Thus each teacher's classroom verbal behavior was coded four times.

The dependent variables, aspects of child language, were measured on the Peabody Picture Vocabulary Test and Analysis of 50 Consecutive Statements in a pretest and posttest situation. In October three teams administered the Peabody Picture Vocabulary Test and collected speech samples from 112 children.

Each team consisted of an early childhood examiner, trained and experienced in working with and testing young children, and a speech examiner trained in collecting speech samples from children. The early childhood examiner administered the Peabody Picture Vocabulary Test following the standardized instructions. (Dunn, (1965). The speech examiner collected Spontaneous Language Sample by tape recording and hand recording the child's spontaneous language in a standardized play situation. The early childhood examiner presented the toys and interacted with the child following procedures taken from the Spontaneous Language section of the Houston Development Test. (Crabtree, 1963).

To insure consistency in testing procedures the three teams together underwent training sessions on administering the tests.

Later the speech examiner from her written notes and from tapes made a running account of the child's verbalizations. The investigator using the tapes and the typed notes separated these verbalizations into 50 Consecutive Statements and analyzed these statements following criteria established by McCarthy (1930) and by Johnson, Darley and Spriestersbach (1963).

In April the retesting was conducted in the same fashion. (Some subjects became ineligible at this time

so a total of 95 children were involved in the completed study.)

The following procedures were used to analyze the data. Teachers received a facilitative and a directive score on the Withall Social Climate Index. This score was obtained by calculating the percentage of facilitative statements and the percentage of directive statements each teacher used as rated by the four coders. A reliability coefficient was computed using a two way analysis of teacher times situation design following the Medley and Mitzel model to indicate how consistently and reliably teachers used facilitative or directive verbal behavior across situations.

Raw scores were used for the children's language measures on the pretest and the posttest of the Peabody Picture Vocabulary Test and on the vocabulary of use and mean length of response categories of the Analysis of 50 Consecutive Statements. Percentages of total statements were used as scores for the children's language measures on the complexity of sentence, dramatic imitation statements, inquiry statements and related to situation statements. T tests of differences were calculated to test the significance of the change from the pretest to the posttest.

To determine relationships between teacher verbal behavior and child language change partial correlations between posttest and teacher verbal behavior were computed partialling out pretest scores. The formula used was:

$$r_{ab.c} = \frac{r_{ab} - r_{ac} \cdot r_{bc}}{\sqrt{1 - r_{ac}^2}\sqrt{1 - r_{bc}^2}}$$

where: $r_{ab.c}$ = Correlation between teacher verbal behavior and posttest scores partialling out the effect of the pretest scores.

r_{ab} = Correlation between teacher verbal behavior and posttest scores.

r_{ac} = Correlation between teacher verbal behavior and pretest scores.

r_{bc} = Correlation between posttest scores and pretest scores.

N = Total number of classrooms.

A test of significance was used to calculate the significance of this correlation.

$$t = \frac{r_{ab.c}}{\sqrt{\frac{1 - r_{ab.c}^2}{N - 3}}}$$

On all the tests, the level of significance was defined at .10 level since the size of the sample was small.

FINDINGS

Each teacher in the sample of 28 classrooms was observed by the coders at four different times. The observations gave samples totalling about two hours of each teacher's work. Each teacher received a facilitative score and a directive score on the Withall Social Climate Index from each coder.

The facilitative score was obtained by summing categories one (learner supportive), two (clarifying), and three (problem structuring) from the Index and placing this total over the total number of coded statements. Thus a percentage of facilitative statements was secured from each coder for each teacher.

The directive score was obtained by summing categories five (directing), six (reproving), and seven (teacher supportive) from the Index and placing this total over the total number of coded statements. Thus a percentage of directive statements was secured from each coder for each teacher.

Facilitative percentage scores from coders were summed for each teacher as were the directive percentage scores. These summed scores became the teacher facilitative scores and directive scores respectively. Table 1 gives the facilitative and directive teacher verbal percentage scores. In order to clarify for the reader the percentage

TABLE 1

PERCENTAGE SCORES OF TEACHER VERBAL BEHAVIOR RANKED FROM HIGHEST TO LOWEST FACILITATIVE VERBAL BEHAVIOR

Teacher Code	Verbal Behavior	
	Facilitative	Directive
17	83.55	12.05
16	77.45	13.6
20	76.5	16.05
18	76.35	19.05
22	75.95	17.2
24	72.87	16.9
5	71.9	23.0
13	71.03	26.3
1	70.62	22.1
14	69.62	23.6
21	69.3	23.65
6	68.72	22.15
19	68.25	19.32
25	66.15	26.0
3	67.82	26.25
23	64.9	22.05
12	60.25	29.0
26	57.7	35.3
10	57.22	41.4
2	56.4	36.85
11	54.27	38.38
9	52.8	40.05
15	50.5	36.25
28	49.98	41.85
7	48.45	45.05
4	35.92	51.72
8	31.45	61.07
27	31.2	67.6

of facilitative and directive scores for each teacher, the percentage ratings of the four coders have been averaged and given in this table. The scores are arranged in rank order from highest to lowest facilitative score.

A seemingly natural break occurs in the scores. Sixteen teachers had high facilitative scores ranging from 83.55 to 64.9. Nine teachers had medium facilitative scores ranging from 60.25 to 48.45 and three teachers had low facilitative scores ranging from 35.92 to 31.2.

A two way analysis of variance following the Medley-Mitzel model of teacher times rater and situation design was used to determine the reliability coefficient of the verbal behavior of the teachers. Table 2 shows the means, standard deviations and alpha coefficients of scores relating to the teacher verbal behaviors.

As can be seen teachers in the sample, in general, exhibited more facilitative verbal behavior than directive verbal behavior.

The reliability coefficient for the facilitative verbal behavior was .815 and for the directive verbal behavior is .850. Both reliability coefficients for facilitative and directive teacher verbal behavior were relatively high. It can be concluded that teachers in this study consistently and reliably used either facilitative or directive verbal behavior.

TABLE 2

MEANS, STANDARD DEVIATIONS AND RELIABILITY COEFFICIENTS OF TEACHER VERBAL SCORES

Teacher Verbal Behavior	Mean	S.D.	Alpha
Facilitative	62.11	13.62	.815
Directive	30.50	13.81	.850

The dependent variables, components of child language change, were measured by a pretest and posttest on the Peabody Picture Vocabulary Test and on an Analysis of 50 Consecutive Statements. Table 3 presents the classroom mean scores on the pretest and posttest for the means of the children from the 28 classrooms on the Peabody Picture Vocabulary Test and on the Analysis of 50 Consecutive Statements. A t test of differences was calculated to determine if the gains or losses of the pretest to posttest were significant. Table 3 includes means, standard deviations, and t tests of the statistical significance of the changes of Peabody Picture Vocabulary Test, vocabulary or use, mean length of response, complexity of sentences, inquity statements, dramatic imitation statements, and related to situation statements.

T tests of statistical significance of change on the seven language measures ranged from 5.42 to 1.68.

TABLE 3

CLASSROOM MEAN SCORES, STANDARD DEVIATIONS, AND T TESTS OF STATISTICAL SIGNIFICANCE OF CHANGES FOR CHILD LANGUAGE MEASURES

Child Language Measure	Pretest		Posttest		t
	Mean	S.D.	Mean	S.D.	
Peabody Picture Vocabulary Test	53.32	4.06	57.28	2.62	5.42*
Vocabulary of Use	94.89	11.38	104.21	10.77	3.27*
Mean Length of Response	5.18	.80	5.65	.74	3.13*
Complexity of Sentence	14.28	5.47	17.74	4.49	3.64*
Inquiry	9.45	7.31	6.27	3.21	2.52*
Dramatic Imitation	1.23	2.05	3.65	4.08	3.51*
Related to Situation	5.68	7.44	8.52	7.42	1.68

*$p < .10$

All of the t test of differences were significant at the .10 level except for the t test on child use of related to situation statements. Thus it can be concluded that children in this sample showed a significant gain in language change.

In order to determine relationship between teacher verbal behavior and change on certain language variables partial correlations between posttest scores on language measures and teacher facilitative and directive verbal behavior were done partialling out the effect of the pretests. Table 4 outlines the correlations between teacher verbal behavior and specific language which relate to the research questions.

TABLE 4

PARTIAL CORRELATION COEFFICIENTS FOR TEACHER VERBAL BEHAVIOR AND CHILD LANGUAGE MEASURES

Child Language Measure	Teacher Verbal Behavior	
	Facilitative	Directive
Peabody Picture Vocabulary Test	-.173	.169
Vocabulary of Use	-.300	.240
Mean Length of Response	-.215	.256
Complexity of Sentence	-.362*	.430*
Inquiry	.133	-.083
Dramatic Imitation	-.176	.211
Related to Situation	.119	-.105

*p < .10

There was a partial correlation coefficient between teacher facilitative verbal behavior and change in child use of complex sentences of -.362. It was significant at the .10 level. The negative correlation indicates that as teachers received higher ratings on facilitative verbal behavior the change in scores on child use of complex sentences decreased.

There was a partial correlation coefficient between teacher directive verbal behavior and change in child use of complex sentences of .430. It was significant at the .10 level. The positive correlation indicates that as teachers received higher ratings on directive verbal behavior the change in scores on child use of complex sentences increased.

There was a partial correlation coefficient between teacher facilitative verbal behavior and change in child use of vocabulary, mean length of response, inquiry, dramatic imitation and related to situation ranging from -.300 to .133, nonsignificant at the .10 level. All the correlations were negative (except for related to situation and inquiry statements) indicating that, as teachers received higher ratings on facilitative verbal behavior, the change in scores on child language measures decreased.

There was a partial correlation coefficient between teacher directive verbal behavior and change in child use

of vocabulary, mean length of response, inquiry, dramatic imitation and related to situation ranging from -.105 to .250, nonsignificant at .10 level. All the correlations were positive (except for the correlations relating to inquiry statements and related to situation statements) indicating that, as teachers received higher ratings on directive verbal behavior, the change on child language measures increased.

DISCUSSION

From the study several points are worth noting. Twelve of the fourteen correlations between teacher verbal behavior and specific aspects of child language measured in this study were nonsignificant. For the subjects involved in this study there is little evidence of a relationship of the type of verbal behavior that the teacher uses in the classroom and aspects of child language change. The child from a middle class home environment seemingly develops many aspects of his language fairly consistently irrespective of the facilitative/directive teacher verbal climate. A very interesting point in support of this idea is that in the study the teacher with the highest facilitative verbal behavior and the teacher with the lowest facilitative verbal behavior had children with the greatest language gains.

However, in the study there is one important aspect of child language change that did correlate significantly with teacher verbal behavior. The change in a child's use of complex sentences correlated significantly with teacher directive verbal behavior. Figure 1 is a graphic presentation of the child change in use of complexity of sentences. The classroom scores are rank ordered according to teacher facilitative verbal behavior from highest to lowest. Inspection of the ends of the scale shows greater gains in complexity for children in the more directive (less facilitative) classrooms. It can be concluded that for children in this sample change in use of complexity of sentences is greater in those classrooms where teachers use more directive verbal behavior. This relationship suggests that perhaps something is happening in these directive classrooms that relates to the child developing more complex language.

Often, it is believed that to develop language a rich and relatively free environment is needed. The conclusions of this study point to the need to define the characteristics of the relatively free or more structured environment that might enhance complexity of language. Interestingly enough the greatest gain in child complexity of language in the classrooms of the teachers with greater facilitative verbal behavior was for the

teacher with the highest facilitative score. (See Figure 1).

Further research needs to be done to determine what components in directive verbal behavior and facilitative verbal behavior are similar and might influence this change in complexity of sentences. No classroom in this study followed a strictly direct teaching approach modelled after Bereiter-Englemann. However, it could be possible that a fair amount of modelling language behavior was done.

In this study teacher statements such as "Go into the next room find the black pencil and bring it to me," and "When you come back tell me what you did," would have been coded on the Withall scale as directive statements. Yet both are elaborated sentences. The teacher is directing the child to focus not only on a task but also on rather elaborate language structure.

On the other hand a statement such as "I wonder what would happen if I added water to this mixture," would be coded facilitative on the Withall Index. It too is an elaborated sentence. If the statement were made to a small group or one child it would undoubtedly also focus on a task and on elaborate language structure. Further research would help to determine if modelling behavior or simply a more elaborated use of language in the nursery

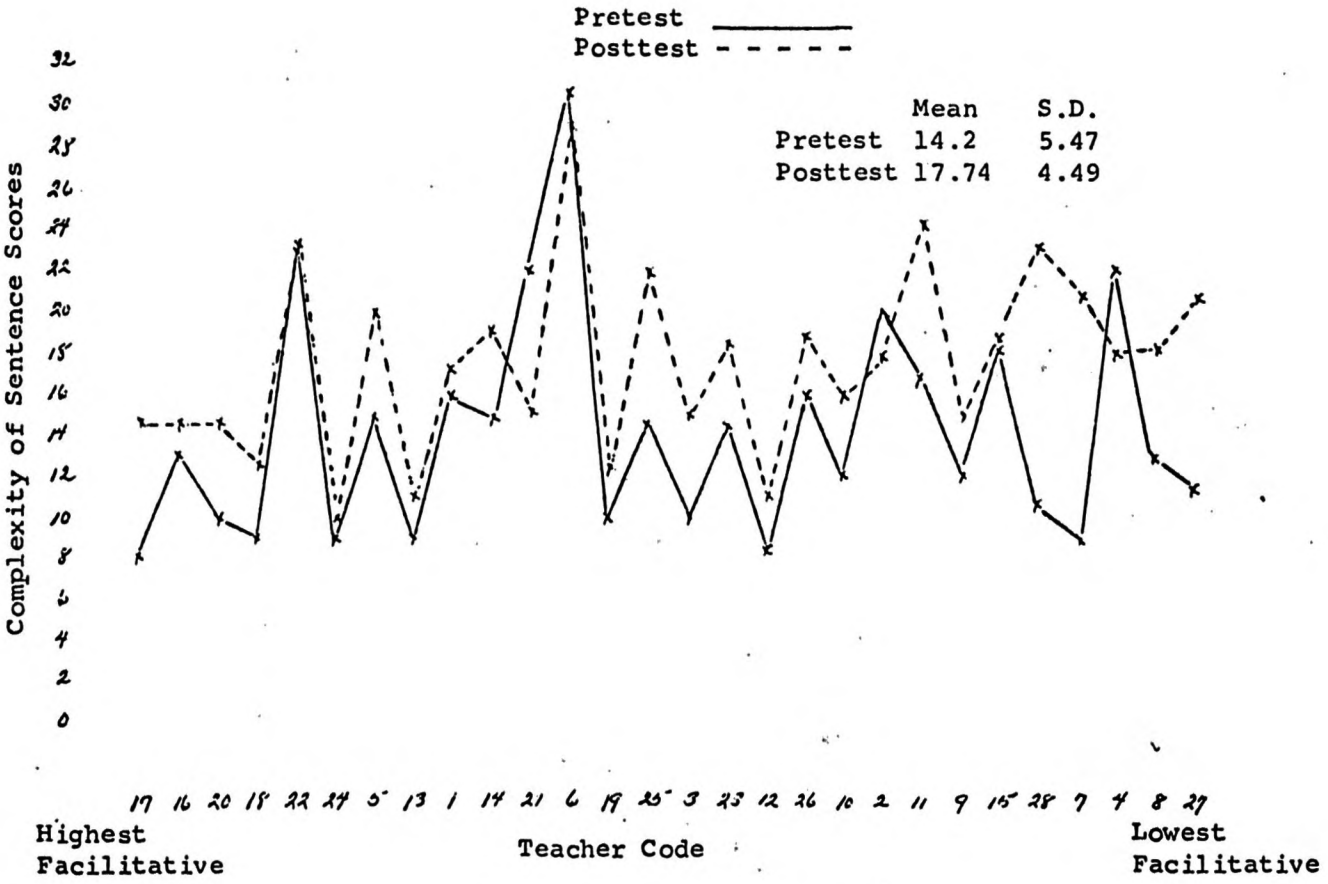

Fig. 1.--Pretest and posttest results for Complexity of Sentences for classroom rank ordered from highest to lowest on facilitative behavior.

classroom is related to change in child use of complex sentences.

The study indicates teachers could be trained to use similiar techniques as those used in the study for observing the language development of the children in their classrooms. The results of their observations could then serve them in determining the need of modelling and focusing attention on certain types of language structure for individual children.

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