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ABSTRACT
          A STUDY WAS CONDUCTED TO TEST FOUR HYPOTHESES: (1)
THERE ARE DIFFERENCES IN THE TOTAL NUMBER OF INTERACTIONS THAT A
TEACHER HAS WITH PUPILS WHOM SHE HAS RATED DIFFERENTLY. (2) THE
TEACHER INTERACTS MORE DIRECTLY WITH THOSE PUPILS SHE RATES LOW THAN
WITH THOSE SHE RATES HIGH. (3) THE TEACHER INTERACTS MORE INDIRECTLY
FEWER TIMES WITH THOSE PUPILS SHE RATES LOW THAN WITH THOSE WHOM SHE
RATES HIGH. (4) THE TEACHER USES MORE CRITICISM WITH THOSE PUPILS SHE
RATES LOW THAN WITH THOSE WHOM SHE RATES HIGH. SUBJECTS WERE THE
TEACHER AND 33 PUPILS OF A FOURTH GRADE CLASS. THE INVESTIGATOR
RECORDED TEACHER-PUPIL INTERACTION IN THE CLASSROOM TWO DAYS A WEEK
FOR FIVE WEEKS USING A MODIFIED VERSION OF FLANDERS' INTERACTION
ANALYSIS IN WHICH EACH INTERACTION WAS SCORED WITH A NOTATION AS TO
WHICH PUPIL(S) WERE INVOLVED. THE TEACHER'S RATING OF HER PUPILS WAS
MEASURED BEFORE AND AFTER THE OBSERVATION PERIOD USING KILPATRICK AND
CANTRIL'S SELF-ANCHORING LADDER RATING SCALE. INTERACTION FREQUENCIES
WERE OBTAINED FOR EACH PUPIL IN EACH FLANDERS CATEGORY AND CATEGORY
GROUP. DATA WERE ANALYZED USING NEWMAN KEUL TEST, KENDALL COEFFICIENT
OF OF CONCORDANCE, AND ANALYSIS OF VARIANCE TO DETERMINE THE EXISTING
RELATIONSHIP BETWEEN THE INTERACTION FREQUENCIES AND COMBINED LADDER
RATINGS OF EACH PUPIL. HYPOTHESES 1, 2, AND 4 WERE CONFIRMED,
INDICATING THAT OBSERVABLE VERBAL PUPIL-TEACHER INTERACTION PATTERNS
MAY BE AN IMPORTANT MEANS OF COMMUNICATING TEACHER EXPECTANCIES TO
PUPILS. (JS)

PEABODY PAPERS IN HUMAN DEVELOPMENT

The Relations Between Classroom Interaction and Teacher

Ratings of Pupils: An Exploration of One Means by

Which a Teacher May Communicate Her Expectancies*

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Over the past several years there has been a substantial increase in the attention paid to the role and effects of teacher expectancy in the classroom. Holt (1964) dealt with the role played by teachers' daily communication of their desires and attitudes. The effect of teachers' expectancies was the subject of Brown's (1965) account of his school experiences and Clark's (1965) discussion of middle class teachers in ghetto schools. Intelligence and achievement tests were seen by Crescimbeni (1967) and Rosenthal and Jacobson (1968) as influential sources of teacher expectations, and Dunn (1968) discussed the detrimental effects of the labels placed on handicapped children.

The effects of teacher expectancies have been documented by several researchers. Clark (1965) reported the positive results of pilot projects in New York and St. Louis designed to change teachers' attitudes and perspectives with respect to ghetto children. Arbitrary assignment of students to advanced academic sections resulted in their achieving at a higher academic level than those in a non-advanced section (Flowers, 1966). In a similar study, Beez (1967) found that preschoolers in a Head Start program who were arbitrarily labeled as better intellectual prospects learned more symbols, the teacher having taught more symbols to them. Rosenthal and Jacobson (1968), in their classic study, showed that children randomly labeled "intellectual bloomers" were not only rated higher by their teachers but actually showed greater gains on a non-verbal IQ test.

It seems apparent that though expectancy effects have been recognized, and in some cases investigated, little has been done beyond the level of conjecture regarding the manner and means by which a teacher's expectancies are communicated to her pupils. Despite this paucity of research data, several media for expectancy communication have been suggested. A number of authors have dealt with the role of vocal and visual cues (Holt, 1964; Rosenthal, 1954; Rosenthal & Jacobson, 1968), and kinesthetic cues (Rosenthal, 1964). Orteza y Miranda (1967) and Rosenthal and Jacobson (1967) saw as important the overall language employed by the teacher. Several authors discussed the differential use of language, particularly with reference to the distribution of verbal rewards and punishments (Bany & Johnson, 1965; Rosenthal & Jacobson, 1966) and the amount and content of communication (Jackson & Lahaderne, 1967). Thus, differences in both the verbal and non-verbal content of interactions (e.g., those of the teacher with her pupils) have been considered to affect performance, measured attitudes, peer relationships, and general academic achievement.

There is then a suggestion in the literature of a salient relationship between differential expectancies and patterns of pupil-teacher interaction. However, investigations directed toward determining the nature of the relationship are virtually nonexistent.

The Study

The present study was an attempt to explore one means by which a teacher may communicate her expectancies to her pupils. On the basis of the aforementioned empirical and experimental evidence, it was proposed that the pattern of interaction that a teacher has with each pupil will be significantly related to her ratings of that pupil.

More specifically, the main hypotheses tested were:

1. There are differences in the total number of inter-actions that a teacher has with pupils whom she has rated differently.

2. The teacher interacts more directly with those pupils she rates low than with those she rates high.

3. The teacher interacts indirectly fewer times with those pupils she rates low than with those whom she rates high.

4. The teacher uses more criticism with those pupils she rates low than with those whom she rates high.

Methodology

Interaction in the classroom was measured with a modified version of Flanders (1960) Interaction Analysis, the system described by Medley and Mitzel (1963) as being the most sophisticated, i.e., valid, available.

The original version of the Flanders system provides 10 categories used by an observer to code the ongoing classroom pupil-teacher interaction at three-second intervals. The categories. briefly stated, are as follows:

Teacher Talk
	1. Accepts Feeling
Direct	2. Praises or Encourages
Influence	3. Accepts or Uses Ideas of Student
	4. Asks Questions
Indirect	5. Lecturing
Influence	6. Giving Directions
	7. Criticizing or Justifying Authority

Student Talk
	8. Response
	9. Initiation

General
	10. Silence or Confusion

Though Flander's categories were used in their original form,

several modifications were made in the techniques employed in

observation and coding:

a) As far as possible, interactions were coded as naturally
occurring units rather than being divided into three-second
intervals; the exception was that interactions of a single
type lasting longer than 10 seconds were recorded once
for each 10 second period of their duration.

b) Rather than scoring interactions on the dichotomy of
teacher-pupils (irrespective of which ones were involved)
through the use of a pupil coding system each interaction
was scored with a notation as to which specific pupil(s)
were involved.

c) In tabulating the data, rather than using the elaborate
matrix described by Flanders (1960), the results were
expressed in terms of the frequency of occurrence for
each Flander's category for each pupil.

The teacher's rating of her pupils was measured by use of

Kilpatrick and Cantril's (1960) Self-Anchoring Ladder Rating

Scale. The teacher was asked to describe her concepts of a typical

"worst student" and a typical "best student" without referring to

any real pupil. Then, using these concepts as the lower and upper

points, respectively, of a ten-step scale, she assigned all the
pupils in her room a number, from one to 10, according to where
she felt they were on the scale.

Procedure

The study itself involved the teacher and 33 pupils of a
fourth grade class in a small elementary school in the suburbs
of a large city in the central South.

After an initial six-week acclimation period in the classroom
the investigator observed, categorized, and recorded pupil-teacher
interaction in the chosen classroom two days a week over a period
of five weeks. Ladder Scale ratings of the pupils were obtained
both before and after the observation-data collection period.

The Interaction Analysis data was totaled over the ten days,
yielding frequency-of-occurrence totals for each of the pupils
for each Flanders category and category group. On the basis of
their combined Ladder Scale ratings, the pupils were assigned into
one of three groups--Low ($\underline{N}$ = 8), Medium ($\underline{N}$ = 14), and High ($\underline{N}$ = 11).

The data were analyzed to determine the existing relationship
between the interaction frequencies and the Ladder ratings.

Results

Examination of the differences between the means of the totals
and subtotals for each of the rating groups utilizing the Newman
Keul Test (Siegel, 1956) showed that in each case the Low group
differed significantly from both the Middle and High group; the

Middle and High groups, however, did not differ significantly
from each other.

Place Table 1 About Here

In order to test to see if differences among the groups might
stem from random variations, a Kendall coefficient of concordance,
$\underline{W}$ (Siegel, 1956), was computed to determine the degree of rank-order
agreement among the three ratings groups over the 10 observation
days. $\underline{W}$, the coefficient of concordance, was computed on the data
for each of the hypotheses. For each of the hypotheses that was
confirmed (1, 2, and 4), the coefficient of concordance was signifi-
cant beyond the .01 level, thus indicating that the differences in
means resulted from non-random variation.

The hypotheses were tested using analysis of variance, with
the following results:

Hypothesis	Rating Groups Compared	Flanders Category Tested	$\underline{F}$
1	Low, Medium High	Sum Total 1 - 7	9.12*
2	Low, High	Sum 5 - 7	24.84*
3	Low, High	Sum 1 - 4	.41
4	Low, High	7	35.99*

* $p < .01$

Hypothesis 1 was confirmed...there are differences in the
number of interactions that a teacher has with pupils whom she
rates differently.

Dalton

Hypothesis 2 was confirmed...the teacher does interact more
directly with those pupils whom she rates low than with those whom
she rates high.

Hypothesis 3 was not supported...though the teacher does
interact indirectly fewer times with those pupils she rates low
than with those she rates high, the differences are not significant
at the established (p < .05) level.

Hypothesis 4 was confirmed...the teacher does use more
criticism with those pupils whom she rates low than with those
she rates high.

Conclusions

Before drawing conclusions on the basis of these results,
consideration should be given to the potential limitations of the
study and the steps taken to control them.

Due to the limited time available, only one teacher was
involved in this initial study. The major emphasis was on obtain-
ing a broad sample of interaction data for the one class, and
thus extended periods of observation were employed over many
weeks in order to assure representation of the great variety of
classroom interaction situations. Though there was but a single
observer-data collector, the investigator spent several days a
week over a six-week period acquainting himself with the classroom,
giving the class an opportunity to adjust to his presence, and
practicing interaction recording. In order to reduce category
conflicts as well as slow the rate of behavior coding/recording,

a necessity in light of the pupil-specific coding method used,
the Flanders system was modified to make use of natural interaction
units. The high Kendall coefficient of concordance attests to
the reliability of the collected data.

Since this study deals with expectancy effects, the investi-
gator made every effort to prevent their influence in this research.
Dividing the pupils into Low, Medium, and High groups on the basis
of the teacher's ratings was done by an independent researcher,
and the pupils' group assignments were not available until all the
data had been collected. Finally, in order to eliminate the
effects of feedback on the generation of expectancies which
might affect subsequent data collection, data were collated after
the entire ten days' data had been collected.

Given the aforementioned safeguards, an analysis of the data
indicated that the patterns of interaction that a teacher has with
each pupil in her class is significantly related $(p < .01)$ to
her rating of the pupil. At least for this class, the relation
between rating and interaction was clearly reflected in the greater
overall number of interactions involving those pupils rated Low
$(p < .01)$. The differences in Teacher Talk were especially clear
with respect to "Asking Questions" (Flanders, Category 4), "Giving
Directions" (Flanders, Category 6), and "Criticizing or Justifying
Authority" (Flanders, Category 7), all $p < .01$. Regarding "Pupil
Talk," those pupils whom the teacher rated Low showed more
Response behavior than either of the higher-rated groups $(p < .01)$,

a likely finding given that the teacher directed more questions
to the pupils in this group.

Implications

This study seems to have important implications with respect
to both the methodology employed and the results.

Several techniques were employed which may prove valuable
for further research in the schools. The emphasis placed on the
recording of behavior in its naturally occuring units is compatible
with the recent emphasis on ecological approaches to the study of
behavior settings, e.g., the classroom. The use of pupil-specific
interaction coding represents an all-too-rare effort to sensitize
interaction analysis techniques to the individual pupil (vs. the
class as the unit). And the utilization of the Ladder Rating
Scale is unique in permitting the rater (in this case, the teacher)
to specify her own judgmental dimensions rather than forcing her
to react within the confines of concepts imposed by the investigator.

The results themselves indicate that observable verbal
pupil-teacher interaction patterns may be at least one important
medium for the communication of teacher expectancies in the class-
room. Before any final conclusions can be drawn, though, several
questions must be explored. For instance, what are the respective
contributions of the teacher and the pupil to the observed inter-
action pattern differences? If interaction patterns are related
to a teacher's expectancies, is there a common pattern associated
with specific expectancies or does it differ from teacher to

teacher? More basically, what are the initial sources on which a teacher bases her expectancies--comments from previous teachers, past marks and test scores, or are expectancies veridically based, i.e., accurate reflection of each pupil's actual behavior and academic performance?

These questions can be answered and the role of classroom interaction patterns confirmed or challenged only through further research in the classroom.

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Table 1

Summary of Interaction Data

(Totaled Across 10 Observation Days)

Flanders Category	Low (N=8)	Average (N=14)	High (N=11)	All Pupils: Total (N=33)	Whole Class
1	3	3	2	8	3
2	172	278	243	693	21
3	13	28	28	69	0
4	106	125	81	312	319
Subtotal (a)	294	434	354	1082	343
5	101	98	78	277	1066
6	169	204	154	527	237
7	375	227	90	692	43
Subtotal (b)	645	529	322	1496	1346
Teacher Talk (1-7)	939	963	676	2578	1689
8	222	252	162	636	0
9	310	228	233	771	2
Pupil Talk	532	480	395	1407	2
10					269
Total Inter-actions	1471	1443	1071	3985	1960

Total Interactions Recorded: 5945

a - Teacher-Indirect Influence

b - Teacher Talk-Direct Influence