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TEACHER VERBAL CUES AND PUPIL PERFORMANCE ON A GROUP READING TEST.

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DESCRIPTORS- *VERBAL COMMUNICATION, *READING SPEED, *READING COMPREHENSION, *READING RESEARCH, GRADE 2, GRADE 3, READING ACCURACY, NEW DEVELOPMENTAL READING TESTS,

A STUDY DESIGNED TO DETERMINE THE EFFECT ON CLASS PERFORMANCE OF VERBAL CUES ADMINISTERED AS PUPILS WORKED ON A GROUP READING TEST WAS CONDUCTED. THE SUBJECTS WERE PUPILS IN 18 SECOND-GRADE CLASSES AND 18 THIRD-GRADE CLASSES TO WHICH 36 FEMALE STUDENT TEACHERS WERE ASSIGNED. THE TASKS WERE TWO SUBTESTS OF THE "NEW DEVELOPMENTAL READING TESTS." THE CLASSES WERE ASSIGNED RANDOMLY TO ONE OF THREE TREATMENTS--CUES FOR SPEED, CUES FOR ACCURACY, AND NO VERBAL CUES. THE TEACHERS WERE TRAINED TO ADMINISTER THE TEST AND TO GIVE THE SPEED AND ACCURACY CUES. TEST SCORES WERE TREATED BY ANALYSIS OF VARIANCE AND SCHEFFE CONFIDENCE INTERVALS AT THE .01 AND .05 LEVELS OF SIGNIFICANCE RESPECTIVELY. INDEPENDENT SOURCES OF VARIATION WERE TREATMENTS, GRADE LEVELS, SEX, AND READING ACHIEVEMENT LEVELS. RESULTS INDICATED THAT GIRLS WERE MORE RESPONSIVE TO TEACHERS' CUES THAN BOYS. THE SPEED-TREATMENT GROUP DID ATTEMPT MORE ITEMS THAN THE OTHER GROUPS, AND THE ACCURACY-TREATMENT GROUPS DID ACHIEVE A HIGHER RATIO OF ITEMS CORRECT. HOWEVER, DIFFERENCES WERE NOT SIGNIFICANT. TABLES, REFERENCES, AND THE CUES USED ARE PROVIDED. (RH)

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ABSTRACT

TEACHER VERBAL CUES AND PUPIL PERFORMANCE ON A GROUP READING TEST

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Verbal cues encouraging (a) rapid work, (b) accurate work, or (c) no specified cues were administered by 36 female teachers to their second and third grade classes during a group reading test. Effects of the cues were evaluated in terms of the class performances on the test. Data were treated by analysis of variance and Scheffe' confidence intervals at the .01 and .05 levels of significance respectively. Independent sources of variation were (a) treatments, (b) grade levels, (c) sex, and (d) reading achievement levels. Results indicated that girls were more responsive to teachers' verbal cues than boys.

(77)

TEACHER VERBAL CUES AND PUPIL PERFORMANCE ON A GROUP READING TEST[1]

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What effects do teachers' verbal cues of encouragement or warning have upon the behavior of pupils? Teachers constantly offer a wide variety of verbal cues in their classrooms, which are intended to modify the behavior of pupils. The assumption that these cues really do affect pupil behavior is generally taken for granted. Yet, this assumption has rarely been tested experimentally under ordinary classroom conditions.

Most of the experiments of verbal cues and reinforcements have been laboratory studies. They have generally involved an experimenter working with one subject at a time and have measured performance on simple physical tasks (Stevenson, 1965). The results of these studies have limited application to group instruction in the classroom (Jackson, 1965).

Classroom experiments in this area have investigated reinforcements, either oral (e.g., Hurlock, 1925; Auble & Mech, 1953; Van De Riet, 1964) or written (e.g., Forlano & Axelrod, 1937; Wallen, 1964; Anderson, White & Wash, 1966). With the exception of the study by Page (1958) of teachers' written comments, these studies have dealt with pupils independent of one another instead of pupils as integral parts of a classroom with its own group interactions.

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[1]This study is based on a dissertation submitted to the Graduate School of the University of Minnesota in partial fulfillment of the requirements for a PhD degree. The author is indebted to Theodore Clymer for his valuable assistance and advice in conducting this study.

The present experiment was an investigation of verbal cues administered during the time that pupils were working on the tasks, rather than of verbal reinforcements administered at the conclusion of the tasks. Specifically, the study sought to answer the following question: Are the responses of second and third grade pupils on two sub-tests of the New Developmental Reading Tests (Bond, Ballow & Hoyt, 1963a) affected by the teacher's verbal cues to work rapidly or to work accurately? The treatment cues were administered to classroom groups rather than to individual pupils.

One widely accepted principal of learning is that cues which arouse motivation toward the achievement of an educational objective will increase the effectiveness with which that objective is achieved (Wallen & Travers, 1963). If the treatment cues have a straightforward effect, we would expect that classes receiving speed cues would attempt more task items than classes receiving accuracy cues or no cues. We would also expect that classes receiving accuracy cues would achieve a higher percentage of items correct than classes receiving speed cues or no cues.

Method

Subjects

The sample was 18 second grade classes and 18 third grade classes to which female student teachers had been previously assigned. The classes were located in central area and suburban schools of metropolitan Minneapolis and St. Paul.

Variables

The tasks were two sub-tests of the New Developmental Reading Tests. This is a group reading achievement test for second and third grade pupils. In the first sub-test the pupils are to mark the one word among four which identifies a picture. In the second sub-test the pupils are to mark a set of pictures according to specific written directions. Pupils attempt as many items as they can within the time limits of the test. For this study, it was important that the distributions of scores should not be comprssed because pupils ran out of task items during the testing. The time limits for the sub-tests were, therefore, reduced from 10 to 4 minutes and from 15 to 9 minutes, respectively. The test yielded measures of seven dependent variables: (a) the number of items correct on Sub-test I, (b) the number of items correct on Sub-test II, (c) the adjusted score for guessing on Sub-test I[2], (d) the number of items attempted on Sub-test I, (e) the number of items attempted on Sub-test II, (f) the ratio of the number of items correct to the number of items attempted on Sub-test I, and (g) the ratio of the number of items correct to the Number of items attempted on Sub-test II.

Procedures

The classes were randomly assigned to one of three treatments: (a) speed, (b) accuracy, and (c) control. The female student

[2] The adjusted score is the number correct minus 1/3 the number wrong, and is the standard method of scoring the first sub-test.

teachers were the Es and received prior training on the administration of the tests and the treatments. The treatments were administered while the classes were taking the tests. For the speed treatment, the Es gave verbal cues encouraging rapid work. For the accuracy treatment, the Es gave verbal cues encouraging accurate work. For the control treatment, the Es gave no verbal cues. The content and timing of the cues were specified by a script (see Figures 1 and 2). The timing of the tests and the cues was by stop watch.

Analyses

Since it was possible that the treatments would have different effects in the two grade levels or on boys and girls, the analysis compared the group means in these categories and their combinations as well as comparing the general treatment effects. Another possibility was that the treatments would have different effects upon groups of pupils of differing reading ability. In order to examine this latter effect, the third sub-test of the New Developmental Reading Tests (Bond, Balow & Hoyt, 1963b), was administered to the classes prior to the administration of the treatments. The scores on this sub-test were sorted into approximately equal groups of "high" and "low" for second grade boys, second grade girls, third grade boys, and third grade girls. Thus, the seven scores on the treatment tasks were analyzed according to four independent variables and their combinations: (a) treatment, (b) grade level, (c) sex, and (d) reading achievement level nested within grade by sex. The pooled means for these four classifications and their combinations

FIGURE 1

SCHEDULE OF SPEED CUES

Sub-Test I. Word Recognition

Time	Cue
0 min.	Begin. Let's see how quickly you can work today.
1 min.	You people are doing very well. I see that you are getting a lot done.
2 min.	My, you people are fast workers.
3 min.	It looks to me as if many of you will get most of your work finished.
4 min.	Stop.

Sub-Test II. Comprehending Specific Instructions

Time	Cue
0 min.	Begin. Let's see how quickly you can work today.
1 min.	You people are doing very well. I see that you are getting a lot done.
2 min.	My, you people are fast workers.
3 min.	It looks to me as if many of you will get most of your work finished.
5 min.	I am pleased to see how quickly everyone is doing his work.
7 min.	I am happy to see that you are getting so much done.
9 min.	Stop.

FIGURE 2

SCHEDULE OF ACCURACY CUES

Sub-Test I. Word Recognition

Time	Cue
0 min.	Begin. Let's see how carefully you can work today.
1 min.	You people are doing very well. I see many perfect papers.
2 min.	My, you people are careful workers.
3 min.	It looks to me as if many of you will get most of your work right.
4 min.	Stop.

Sub-Test II. Comprehending Specific Instructions

Time	Cue
0 min.	Begin. Let's see how carefully you can work today.
1 min.	You people are doing very well. I see many perfect papers.
2 min.	My, you people are careful workers.
3 min.	It looks to me as if many of you will get most of your work right.
5 min.	I am pleased to see how carefully everyone is doing his work.
7 min.	I am happy to see that you are doing this work correctly.
9 min.	Stop.

were examined for trends. Differences among comparable means were tested by analysis of variance at the .01 level of significance, and, when appropriate, by Scheffe confidence ~~contrast~~ intervals at the .05 level of significance. The sources of variation and degrees of freedom for the analysis of variance are in Table 1.

Results

The pooled means of each treatment group for each of the seven dependent variables are in Table 2. The means of the variables which are normally used to score the tests, i.e., the number of items correct and the adjusted score for guessing, did not occur in any consistent pattern, and the differences were not statistically significant. The mean scores for the variables involving the number of items attempted and the ratio of items correct to items attempted did occur in the orders predicted. The speed treatment group did attempt more items than the accuracy or control groups, and the accuracy treatment group did achieve a higher ratio of items correct to items attempted than the speed or control groups. However, the differences among the means were not statistically significant.

Only one interaction effect was statistically significant. This was the treatment by sex interaction for the number of items attempted on the second sub-test. The differences among the pooled means associated with this interaction are in Table 3. An anylysis of these differences using Scheffe confidence intervals showed that girls attempted significantly more items under speed cues than under accuracy cues.

TABLE 1

SOURCES OF VARIATION AND DEGREES OF FREEDOM
FOR THE ANALYSIS OF VARIANCE

Source of Variation		Degrees of Freedom
Between Classes		= 35
G	Between Grades	= 1
T	Between Treatments	= 2
GT	Grade by Treatment	= 2
C(GT)	Between Classes within Grade by Treatment	= 30
Within Classes		= 108
S	Between Sexes	= 1
GS	Grade by Sex	= 1
TS	Treatment by Sex	= 2
GTS	Grade by Treatment by Sex	= 2
CS(GT)	Class by Sex within Grade by Treatment	= 30
L(GS)	Between Achievement Levels within Grade by Sex	= 4
TL(GS)	Treatment by Achievement Level within Grade by Sex	= 4
CL(GTS)	Class by Achievement Level within Grade by Treatment by Sex	= 60
	Total	143

TABLE 2

POOLED MEANS AND F RATIOS OF TREATMENT GROUPS

Dependent Variables	Pooled Means N=12 Classes Speed	Accuracy	Control	F ratio
Number Correct				
Sub-test I	23.05	23.13	22.95	0.02
Sub-test II	11.18	11.20	11.23	0.01
Number correct minus one-third the number incorrect				
Sub-test I	20.38	20.75	20.62	0.07
Number attempted				
Sub-test I	30.44	29.63	29.32	0.47
Sub-test II	19.44	18.54	18.85	0.80
Ratio of number correct to the number attempted				
Sub-test I	.7508	.7805	.7725	0.82
Sub-test II	.5885	.6177	.5979	0.64

TABLE 3

ABSOLUTE DIFFERENCE AMONG MEANS OF BOYS AND GIRLS BY TREATMENTS FOR THE NUMBER OF ITEMS ATTEMPTED ON SUB-TEST II

Sex, Treatment	(BA)	(BC)	(GS)	(GA)	(GC)
Boys, Speed (BS) $\bar{X}$ = 18.63 N = 12 classes	0.44	0.29	1.61	0.63	0.72
Boys, Accuracy (BA) $\bar{X}$ = 19.07 N = 12 classes		0.73	1.17	1.07	0.28
Boys, Control (BC) $\bar{X}$ = 18.34 N = 12 classes			1.90	0.34	1.01
Girls, Speed (GS) $\bar{X}$ = 20.24 N = 12 classes				2.24*	0.89
Girls, Accuracy (GA) $\bar{X}$ = 18.00 N = 12 classes					1.35
Girls, Control (GC) $\bar{X}$ = 19.35 N = 12 classes					

*P<.05

Girls consistently scored higher than boys on all seven variables, as shown in Table 4. The differences were statistically significant except on the two variables for the number of items attempted.

Conclusions and Discussion

The complete data (Lamb, 1965) are too numerous for this report, and must be interpreted with caution. It should be kept in mind that the total treatment period was 13 min. and that the sample size was small.

Within those limitations, it would appear that the mean scores of two typical measures of achievement on a primary reading test are not significantly affected by consistent cues to work rapidly or carefully. This stability of result should be encouraging to the authors, publishers and users of such tests.

The results indicate that girls may be affected significantly by speed and accuracy cues in the number of items they attempt. The fact that this effect was apparent on the second sub-test and not on the first might be because the treatments had been in effect longer at the time of the second sub-test, or it might be due to the nature of the tasks in the second sub-test. Since boys were not affected in this way, there is the implication that girls are more responsive to a female teacher's verbal cues than are boys.

The clear superiority of girls over boys was less pronounced on the measures of the number of items attempted. This is not easily explained. It may be that the dominant treatment on girls

TABLE 4

POOLED MEANS AND F RATIOS OF BOYS AND GIRLS

Dependent Variable	Pooled Means N=36 classes Boys	Girls	F ratio
Number correct			
Sub-test I	21.74	24.35	30.35**
Sub-test II	10.36	12.04	39.37**
Number correct minus one-third the number incorrect			
Sub-test I	18.99	22.18	34.96**
Number attempted			
Sub-test I	29.41	30.02	2.85
Sub-test II	18.68	19.20	2.43
Ratio of number correct to the number attempted			
Sub-test I	.7328	.8032	37.59**
Sub-test II	.5734	.6293	13.35**

**P<.01

was the accuracy cues, and that these had the effect of reducing the number of items they attempted. Another possibility is that the superior achievement of girls on reading tests is due more to the accuracy with which they deal with the items than with the number of items they attempt.

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