

DOCUMENT RESUME

ED 039 106

RE 002 723

AUTHOR Felsenthal, Helen  
TITLE Sex Differences in Teacher-Pupil Interaction in First Grade Reading Instruction.  
PUB DATE Mar 70  
NOTE 15p.; Paper presented at the convention of the American Educational Research Association, Minneapolis, Minn., Mar. 2-6, 1970

EDRS PRICE MF-\$0.25 HC-\$0.85  
DESCRIPTORS Beginning Reading, Grade 1, \*Interaction, Measurement, Reading Achievement, \*Reading Instruction, \*Sex Differences, Student Improvement, Student Motivation, \*Student Teacher Relationship, \*Teacher Attitudes, Teacher Behavior

ABSTRACT

The patterns of teacher-pupil interaction during first-grade reading instruction as a function of pupil sex were investigated. A total of 439 boys and girls and 71 teachers comprised the sample. The study involved three major phases: measurement of teacher attitudes, classroom observation of teacher-pupil interaction, and measurement of pupils' reading achievement. An educational attitude scale, a classroom observation record, and tests of reading readiness and achievement were used. The results were analyzed by using an analysis of variance and covariance. All of the teachers in this study were female, and results showed that they behaved differently in their interactions with boys as compared to girls. The interaction was related to teacher attitudes also. The study showed that sex differences in learning do exist and should be considered in educational planning. References are included.  
(Author/NH)

Sex Differences in Teacher-Pupil Interaction<sup>1</sup>  
in First Grade Reading Instruction

Helen Felsenthal  
Purdue University

U.S. DEPARTMENT OF HEALTH, EDUCATION  
& WELFARE  
OFFICE OF EDUCATION  
THIS DOCUMENT HAS BEEN REPRODUCED  
EXACTLY AS RECEIVED FROM THE PERSON OR  
ORGANIZATION ORIGINATING IT. POINTS OF  
VIEW OR OPINIONS STATED DO NOT NECES-  
SARILY REPRESENT OFFICIAL OFFICE OF EDU-  
CATION POSITION OR POLICY.

### INTRODUCTION

Recognition of individual differences has been a long standing goal of educators, but surprisingly little research has been done on the dynamics of sex differences in school learning. The presence of differences in school adjustment between boys and girls is well established but little is known about the reasons. Most studies have concentrated on broad physical and social development and obliquely suggested the general differences between sexes to be sufficient to account for boys having greater school problems than girls. The interaction process within the classroom itself is largely overlooked as a possible differential factor.

There is ample evidence that boys have a significantly higher proportion of learning and behavior disorders than girls (Kowitz, 1965; St. John, 1932; Wilson, 1966). Nearly two-thirds of all grade repeaters are boys and a significantly higher proportion of boys than girls are classified as underachievers (Peltier, 1968). Sarason (1959) has pointed out that until puberty it is extremely difficult to find a pathologic or problem condition in which the incidence among girls is greater than among boys.

Investigators do not agree if boys and girls are equally ready to

---

1. A paper presented at the annual meeting of the American Educational Research Association, Minneapolis, March, 1970.

read, but most studies comparing girls and boys on measured reading achievement indicate greater achievement by girls (Gates, 1961; Hughes, 1953; Jackson, 1944; Stroud and Lindquist, 1942). Further evidence of the difference between girls and boys in reading achievement is seen in a greater proportion of males receiving remedial treatment in reading clinics. Clinic studies indicate that about 90 per cent of the children referred to reading clinics are boys (Blanchard, 1936; Fabian, 1955; McCollum, 1947; Monroe, 1932; Young, 1938).

It must, nevertheless, be kept in mind that the observed sex difference may merely represent a culturally defined phenomenon. Few studies have been conducted on teacher-pupil relationships to see if boys are treated differently than girls and if such differences are associated with specific teacher attitudes and classroom behaviors. While studies on teacher attitudes and characteristics and effectiveness are voluminous, it is rare to find studies comparing teacher characteristics in relationship to their effectiveness with boys as compared with girls.

One of the few studies designed specifically to investigate teachers' behavior with males as contrasted with female pupils was reported by Meyer and Thompson (1956). Results showed that boys received a significantly larger number of teacher disapproval contacts than did girls but there was no significant difference in approval contacts. Boys were viewed by girl as well as by their male peers as being involved in more situations which evoked disapproval from their teachers.

More recently McNeil (1964) found evidence that the inferiority of young males in learning to read was the result of certain behavior tendencies of boys, to which teachers were unable to adapt. However, another study (Davis and Slobodian, 1967), found that female first-grade

teachers did not discriminate against boys nor did they favor girls in their reading instruction.

### OBJECTIVE

The primary objective of this research was to investigate the patterns of teacher-pupil interaction as a function of pupil sex during first grade reading instruction. In the examination of the sex variable, the study related antecedent variables (teacher attitudes) to interaction variables (classroom activities) and further related both antecedent and interaction variables to product variables (pupil performance).

### PROCEDURE

The study involved 3 major phases: measurement of teacher attitudes, classroom observation of teacher-pupil interaction, and measurement of pupils' reading achievement. Three instruments were used: an educational attitude scale, a classroom observation record, and tests of reading readiness and achievement. Analysis of variance (Lindquist Type VI, 1953) and covariance was the statistical tool employed in analyzing the results of the study.

### SUBJECTS AND INSTRUMENTS

In the first phase of the investigation, the measurement of teacher educational attitudes, 71 of the 88 first-grade teachers (all female) in a public school system completed Education Scale VII (Kerlinger and Pedhazur, 1967).

Using the median scores on progressivism and traditionalism (see table 1) the 71 teachers were divided into four attitude groups. Five teachers from each of the four groups were selected for the final study group, making a total of 20 teachers. For purposes of the study, the

Table 1

## (B) Traditionalism

		Low	High
(A) Progressivism	High	<p>"Progressive"</p> <p>High A</p> <p>Low B</p>	<p>"Inconsistent-High"</p> <p>High A</p> <p>High B</p>
	Low	<p>"Inconsistent-Low"</p> <p>Low A</p> <p>Low B</p>	<p>"Traditionalist"</p> <p>Low A</p> <p>High B</p>

teachers from each of the four groups were selected for the final study group, making a total of 20 teachers. For purposes of the study, the groups were identified as follows: Progressive, Traditionalist, Inconsistent-High, and Inconsistent-Low.

The twenty teachers ranged in age from 21 to 68 years with a median age of 31 years. Teaching experience ranged from 1 to 44 years with a median of 6 years.

The teachers in the final teacher group were involved in the second phase of the investigation, the classroom observation of teacher-pupil interaction. The 20 classrooms were located in twelve different elementary schools drawing from a wide socio-economic range. A total of 439 children (220 girls and 219 boys) constituted the pupil sample. Observation of teacher-pupil interaction during first-grade reading instruction was accomplished through the use of an author-constructed Reading Observation Record (ROR) which consisted of nine main and three combined-scores categories of behavior.

The categories of behavior were established after observing and analyzing common behaviors during first grade reading instruction. Each category was classified as either positive or negative interaction. The categories which constituted positive interaction were: 1. Student Volunteers, Teacher Calls On; 2. Student Expresses an Idea or Feeling, Teacher Accepts; 3. Teacher Praises; and 4. Student Questions, Teacher Answers. Negative Interaction included the Categories: 1. Student Volunteers, Teacher Does Not Call On; 2. Student Expresses an Idea or Feeling, Teacher Rejects; 3. Teacher Criticizes, and 4. Student Questions, Teacher Does Not Answer. A third combined - score category included the total Call-On

Responses which consisted of the categories Teacher Questions Student and Student Volunteers, Teacher Calls On.

Three reading groups in each of the 20 classrooms were observed twice, once each, by two different observers. The observers had been trained in the use of the ROR and had acquired a high rate of interjudge reliability. The reading groups were defined as High-Ability (Reading Group 1), Middle-Ability (Reading Group 2), and Low-Ability (Reading Group 3).

Since the number of children in each reading group varied an adjustment on raw scores in each category was calculated to alter the measurement scores so that theoretically each teacher had an equal opportunity to interact with each child, regardless of the number in the reading group.

The final phase of the research took place in the late spring of 1969 and included the administration of a first-grade reading achievement test. A readiness test had been administered at the end of the kindergarten year to determine readiness to read. Approximately one year had elapsed between the administration of the readiness test and the achievement test. Achievement test scores were analyzed using analysis of covariance with the readiness test as the control variable.

## RESULTS

### Teacher-Pupil Interaction

Teachers in this study (all female) behaved differently in their interaction with boys as compared with girls. Significant sex main effects were found in five of the nine original classroom activity categories and in 2 of the 3 combined-scores categories. The results indicated that boys

were subject to higher frequencies of both positive and negative teacher behaviors. On the whole, teachers chose to call on and accept the ideas and feelings of boys more frequently than they did with girls. However, they also rejected, ignored and criticized boys more often than girls.

Girls had a significantly higher interaction score on only one category which was primarily negative in nature; i.e., teachers did not call on volunteering girls as often as they called on volunteering boys. There were no significant differences in the number of times teachers praised girls as compared with boys. Table 2 shows the mean scores for the sex main effect for each category of classroom behavior.

#### Reading Achievement

Product variable (pupil reading achievement) results were agreement with most studies comparing the reading achievement of girls and boys (Durrell, 1940; Jackson, 1943; Konski, 1951; Nila, 1953; and Stroud and Lindquist, 1942). The girls scored significantly higher on all areas of the achievement test at the end of the first grade despite the nonsignificant sex differences in readiness to read at the end of the kindergarten year. When the readiness-achievement scores were adjusted for reading readiness scores, the girls still maintained a higher level of reading achievement. The means and standard deviations for pupils' age, reading readiness and achievement are given in table 3.

Sex differences in reading achievement also were analyzed by teacher attitude group. In both the "Progressive" and "Traditionalist" groups, the girls received significantly higher reading achievement scores than did the boys in these groups ( $p < .01$  and  $p < .001$  respectively). There was

Table 2  
 Mean Scores for the Sex Main Effect  
 for Each Category of Classroom Behavior.

Category	Sex	
	<u>Boys</u>	<u>Girls</u>
1. Teacher Questions Student	5.03*	4.55
2. Student Volunteers Teacher Calls On	3.30	3.25
3. Student Expresses an Idea or Feeling, Teacher Accepts	8.94**	7.93
4. Teacher Praises	0.65	0.65
5. Student Questions, Teacher Answers	0.35	0.33
6. Student Volunteers, Teacher Does Not Call On	2.16	2.56*
7. Student Expresses an Idea or Feeling, Teacher Rejects	1.95**	1.38
8. Teacher Criticizes	1.08***	.57
9. Student Questions, Teacher Does Not Answer	0.01	0.02
<u>Combined Categories</u>		
Total Call-On Responses	8.38*	7.78
Total Positive Interaction	13.21**	12.01
Total Negative Interaction	5.24#	4.52

\*  $p < .05$   
 \*\*  $p < .01$   
 \*\*\*  $p < .001$   
 #  $p < .10$

Table 3

Means and Standard Deviations for Pupils' Age, Reading Readiness, and Achievement

	Boys (N=219)		Girls (N=220)		Sex Difference	
	Mean	SD	Mean	SD	t	
Age (months)	85.93	3.93	84.90	4.11	-2.69**	
Reading Readiness	65.29	15.13	67.92	15.26	1.81	
Reading Achievement						
Vocabulary	32.67	10.49	36.77	8.80	4.43**	
Comprehension	19.05	7.74	22.61	7.76	4.93**	
Total	51.71	17.20	59.35	15.21	4.92**	

\*\*  $p < .01$

Table 4  
 Mean Scores on Reading Readiness and Raw and Adjusted Mean Scores on Reading Achievement  
 of Pupils by Teacher Attitude and Sex

Teacher Attitude Group	Boys (N=219)				Girls (N=220)			
	Readiness		Achievement		Readiness		Achievement	
	Raw	Adj.	Raw	Adj.	Raw	Adj.	Raw	Adj.
Progressive	68.23	53.00	51.78	58.71**	65.50	58.19	59.47	58.71**
Inconsistent - High	61.37	54.35	57.51	59.47	65.41	58.89	56.70	59.47
Inconsistent - Low	67.00	53.19	52.76	56.70	70.90	59.63	58.45***	56.70
Traditionist	63.81	45.63	47.24	58.45***	68.62	59.92	58.34**	58.45***
Total	65.29	51.71	52.38	58.34**	67.92	59.35	58.34**	58.34**

\*\*  $p < .01$

\*\*\*  $p < .001$

no significant difference in reading achievement between the boys and girls in the two inconsistent attitude groups. Table 4 gives the mean scores and on reading readiness and the raw and adjusted mean scores on reading achievement by teacher attitude group and pupil sex.

### CONCLUSIONS

1. Female first-grade teachers interact differently with girls than they do with boys. Generally, boys receive a larger share of teacher-pupil interaction, both positive and negative in nature, than girls.

2. The pattern of interaction is related to the attitudes of individual teachers. Progressive and traditionalist teachers are more consistent and extreme in their interaction behavior. The inconsistent-high and the inconsistent-low teachers do not follow a definite pattern of interaction behavior. They appear to be more flexible and more adaptable to classroom variation.

3. Differences in pupil reading achievement are associated with differences in teacher attitudes and interactional behavior. Girls score significantly higher than boys on reading achievement tests when these pupils are taught by either progressive or traditional teachers. The sex difference diminishes to nonsignificance when pupils are taught by attitudinally inconsistent teachers.

Several implications can be drawn in relation to the results of the study. It has been revealed again, as in many past studies, that boys in the early school years have more difficulty in learning to read than girls. Both teachers and teachers-in-training should realize that sex differences in learning do exist and should be considered in educational planning. Many

variables undoubtedly relate to this problem. Factors which have not been studied in this research--e.g., curriculum content--should be studied in relation to the relative effectiveness with boys as compared with girls. Dynamic interaction within the classroom, one of the most important variables in any teaching situation, has been largely overlooked in an attempt to discover why boys have more reading problems than girls. This lack of emphasis on the classroom should be corrected with further teacher-pupil interaction studies.

This research has provided some enlightenment on the actual classroom practices of teachers in relation to pupil sex. In so doing, the study suggests a re-examination of our cultural insistence on a neutral school which takes little notice of sex differences and which permits only casually differentiated treatment of studies<sup>ents</sup> on the basis of sex.

## References

- Anderson, H. E., White, W. F., Wash, J. A. Generalized Effects of praise and reproof. Journal of Educational Psychology, 1966, 57, 169-73.
- Blanchard, P. Reading difficulties in relation to difficulties of personality and emotional development. Mental Hygiene, 1936, 20, 384-413.
- Davis, O. L., and Slobodian, J. J. Teacher behavior toward boys and girls during first grade reading instruction. American Educational Research Journal, 1967, 4, 261-269.
- DeGroat, A. F., and Thompsor, G. A study of the distribution of teacher approval and disapproval among sixth grade pupils. Journal of Experimental Education, 1949, 18, 57-75.
- Durrell, D. Improvement of basic reading abilities. New York: World Book Co., 1940.
- Fabian, A. A. Reading disability: An index of pathology. American Journal of Orthopsychiatry, 1955, 25, 319-29.
- Gates, A. Sex differences in reading ability. Elementary School Journal, 1961, 61, 431-34.
- Holmes, J. A., and Singer, H. Theoretical models and trends toward more basic research in reading. Review of Educational Research, 1964, 34, 127-55.
- Hughes, M. C. Sex differences in reading achievement in the elementary grades. In H. M. Robinson (Ed.), Clinical studies in reading II. Chicago: University of Chicago Press, 1953, 102-6.
- Hurlock, E. An evaluation of certain incentives used in school work. Journal of Educational Psychology, 1925, 16, 145-59.
- Jackson, J. A survey of psychological, social, and environmental differences between advanced and retarded readers. Journal of Genetic Psychology, 1944, 65, 113-31
- Kerlinger, F. N. Manual for education scales. Supplement to F. Kerlinger and E. Pedhazur Attitudes and perceptions of desirable traits and behaviors of teachers. New York University, New York, 1967.
- Kerlinger, F. N. and Pedhazur, E. Attitudes and perceptions of desirable traits and behaviors of teachers. New York University, New York, 1967.

- Konski, V. J. An investigation into differences between boys and girls in selected reading readiness areas in reading achievement. Unpublished doctoral dissertation, University of Missouri, 1951.
- Kowitz, G. T. et. al., Guidance needs in the primary grades. Bureau of Educational Research and Services, University of Houston, Houston, Texas, 1965.
- Lindquist, E. F. Design and analysis of experiments in psychology and education. Boston: Houghton Mifflin Co., 1953.
- McCollum, M. E., and Shapiro, J. J. An approach to the remediation of severe reading disabilities. Education, 1947, 67, 488-93.
- McNeil, J. D. Programmed instruction versus usual classroom procedures in teaching boys to read. American Educational Research Journal, 1964, 1, 113-119.
- Meyer, W. J. and Thompson, G. G. Sex differences in the distribution of teacher approval and disapproval among sixth-grade children. Journal of Educational Psychology, 1956, 47, 385-396.
- Nila, S. M. Foundations of a successful reading program. Education, 1953, 73, 543-55.
- Peltier, G. L. Sex differences in the school: Problem and proposed solution. Phi Delta Kappa, 1968, 50, 182-85.
- Prescott, G. A. Sex differences in Metropolitan Readiness Test results. Journal of Educational Research. 1955, 48, 605-10.
- Preston, R. C. Reading achievement of German and American Children. School and Society, 1962, 90, 350-54.
- St. John, C. W. The maladjustment of boys in certain elementary grades. Educational Administration and Supervision, 1932, 18, 659-72.
- Sarason, S. Psychological problems in mental deficiency. (3rd. ed.) New York: Harper & Brothers, 1959.
- Silberman, H. F. Effects of praise and reproof on reading growth in a nonlaboratory classroom setting. Journal of Educational Psychology 1957, 48, 199-206.
- Stroud, J. B., and Lindquist, E. F. Sex differences in achievement in the elementary and secondary schools. Journal of Educational Psychology, 1942, 33, 657-667.

- Wilson, E., Epstein, J., Feeney, E., and Wilson, T. Sex differences in the elementary school--A discussion. National Elementary Principal, 1966, 46, 8-12.
- Young, R. A. Case studies in reading disability. American Journal of Orthopsychiatry, 1938, 8, 230-54.