THE RELATIONSHIP BETWEEN CONNOTATIVE MEANING AND THE READING ACHIEVEMENT OF BOYS AND GIRLS IN THE SECOND GRADE

by

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ABSTRACT

From surveys of achievement in reading, it is evident that many people in our society do not learn to read adequately. It is also evident that the majority of the children who have difficulty in learning to read are boys who have emotional problems related to their reading behaviour.

Through a review of the literature on identification, sex-role learning and the differential treatment of boys and girls in schools it was suggested that the numerical predominance of male over female retarded readers is related to the difference in connotative meanings that boys and girls attach to significant figures in their home and school environments. It was hypothesized that the connotative meanings that certain concepts have for boys would be significantly related to their reading ability. It was further hypothesized that no such relationship would exist for girls.

To test the hypothesis measures were made of reading ability and connotative meanings certain concepts have for boys and girls in the second grade. Meaning was measured by means of the semantic differential. To assess the relative importance of the meanings of the concepts measured as predictor variables of reading achievement, assessments of intelligence and socio-economic status were also made.

Contrary to the hypothesis the findings indicated that for children in general the concepts measured seem to be more highly related to the reading achievement of girls than of boys. The one concept that appears to be significantly related to the reading achievement of both boys and girls is the female child, Janet, a literary figure in the basal reading series used in the school district selected for the study.

Analysis of the data from individual classrooms suggests factors affecting reading achievement may be peculiar to a particular classroom. Future research may attempt to analyse the complex interaction of teacher, students, and reading material and then try to isolate the factors most relevant to reading achievement.

Multiple regression analysis indicated that some of the concepts measured accounted for significantly more variance in reading ability than other factors such as intelligence sub-test scores and socio-economic status which are widely assumed to be related to reading ability.

It was suggested that the failure to find any significant association between connotative meaning and reading achievement for boys may have been due to the level of reading ability measured by standardized reading tests. It was

suggested that future research might look at the association between connotative meaning and independent and instructional levels of reading ability.

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DEDICATION

This study is dedicated to patient Rhona and to three little kids who have too often and for too long asked, "Where's Terry?"

CHAPTER I

INTRODUCTION

I. THE IMPORTANCE OF THE PROBLEM

Despite technological advances in information dissemination, the ability to read remains one of the most important means of acquiring knowledge. The failure of a society to give each of its members a basic competency in reading is measured by the numbers of individuals who meet with serious reading difficulty.

A significant percentage of people in our society do experience serious reading problems. Harris reported that hundreds of thousands of World War II draftees were unable to meet a grade four standard of literacy.[1] Betts summarized the findings of several authorities. He said that from 8 to 15 per cent of school children meet with serious reading difficulty.[2] Gray claimed that there may be even more than 30 per cent of children in school who experience difficulty in reading.[3] More recently, Austin, Bush and

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[1]Albert J. Harris, How to Increase Reading Ability (New York: David McKay Company, 1961), p. 3.

[2]Emmett A. Betts, The Prevention and Correction of Reading Difficulties (New York: Row Peterson and Company, 1936), p. 2.

[3]William S. Gray, "Teaching Reading," Encyclopedia of Educational Research (New York: The MacMillan Company, 1950), p. 1001.

Huebner found that about 16 per cent of the children included in their survey were in need of special help in reading.[4]

While gross numbers indicate the size of the problem a closer inspection of the data on retarded readers reveals that the majority of them are boys. In the sample of retarded readers selected by Preston 72 per cent were boys.[5] Bond and Tinker cite various authorities who claim that from 66 per cent to 94 per cent of children with reading difficulties are boys.[6]

If the population of retarded readers is analysed from a mental health point of view it becomes apparent that many of these children have emotional problems related to their reading difficulties. While the percentages reported by various authorities varies somewhat, it is apparent that reading difficulty and emotional disturbance are functionally related:

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[4]Mary C. Austin, Clifford L. Bush, and Mildred H. Huebner, Reading Evaluation (New York: Ronald Press Company, 1961), p. 205.

[5]Mary I. Preston, "The Reaction of Parents to Reading Failure," Child Development, 10(3):173-79, September, 1939.

[6]Guy L. Bond and Miles A. Tinker, Reading Difficulties: Their Diagnosis and Correction (New York: Appleton-Century Crofts, 1967), p. 10.

Authority	Percentage of retarded readers showing signs of emotional disturbance
Gates[7]	75
Robinson[8]	42
Witty[9]	40

The relationship of cause and effect in reading disability and emotional disturbance is an issue which remains unresolved.[10] However several authorities claim that most children come to school free from emotional problems and are eager to learn to read.[11, 12, 13]

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[7]Arthur I. Gates, "The Role of Personality Maladjustment in Reading Disability," Journal of Genetic Psychology, 59:77-83, September, 1941.

[8]Helen M. Robinson, "Manifestation of Emotional Maladjustment," Clinical Studies in Reading: I, The Staff of Reading Clinics of the University of Chicago, editors (Supplementary Educational Monographs, No. 68. Chicago: University of Chicago Press, 1949), pp. 114-22.

[9]Paul Witty, Reading in Modern Education (Boston: D.C. Heath and Company, 1949), p. 229.

[10]Helen M. Robinson, Why Pupils Fail in Reading (Chicago: University of Chicago Press, 1946), p. 78.

[11]Grace M. Fernald, Remedial Techniques in Basic School Subjects (New York: McGraw Hill Book Company, 1943), p. 8.

[12]Fred J. Schonell, The Psychology and Teaching of Reading (London: Oliver and Boyd, 1961), p. 47.

[13]Guy L. Bond and Miles A. Tinker, Reading Difficulties Their Diagnosis and Correction (New York: Appleton-Century-Crofts, 1957), p. 107.

Studies already cited in this paper have established that more boys than girls encounter serious reading difficulty. The same differential in achievement may be seen in children who achieve normally. Konski found no significant difference between boys and girls in any of twelve reading readiness areas studied. By the end of the first grade four measures of reading achievement showed that the mean achievement of girls was significantly in advance of the mean reading achievement of boys.[14] Similar findings are reported by Carroll,[15] Wozencraft,[16] and Samuels.[17] From a survey of 13,000 North American children ranging in age from eight to eleven years, Gates concluded that girls are significantly superior to boys in reading achievement.[18] By way of contrast, Preston found that in Germany, girls fail more frequently than boys. Preston felt that his findings may be

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[14]Virginia J. Konski, "An Investigation into Differences between Boys and Girls in Selected Reading Readiness Areas and in Reading Achievement" (unpublished Ph.D. dissertation, The University of Missouri, 1951).

[15]Marjorie Carroll, "Sex Differences in Readiness at the First Grade Level," Elementary English Review, 35:370-75, October, 1948.

[16]Marian Wozencraft, "A Comparison of the Reading Abilities of Boys and Girls at Two Grade Levels," Journal of the Reading Specialist, 6:136-39, 1967.

[17]Fra Samuels, "Sex Differences in Reading Achievement," Journal of Educational Research, 34:564-603, April, 1943.

[18]Arthur I. Gates, "Sex Differences in Reading Ability," Elementary School Journal, 61:431-34, May, 1961.

due in part to the values current in the German culture which tends to regard reading and learning as the normal activity of the male rather than the female. He also felt that the numerical predominance of male over female teachers at the elementary level was a significant factor.[19] Atkinson reported that when children learn to read by means of a computer assisted program there is no significant difference between the reading achievement of boys and the reading achievement of girls.[20] Finally, McNeil found that when auto-instructional procedures are used to teach children to read, boys achieve significantly better than girls.[21]

In summary, it may be said that of the large number of children who encounter reading difficulty the majority are boys. Many of these children have emotional difficulties related to their reading problems. A comparison of the performance of normally achieving children shows that boys and girls are equal in their readiness to learn to read. By the end of grade one the girls are significantly ahead. When the

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[19]Ralph C. Preston, "Reading Achievement of German and American Children," School and Society, 90:350-54, October, 1962.

[20]Richard C. Atkinson, "The Computer is a Tutor," Psychology Today, 1(18):36-9, January, 1968.

[21]John D. McNeil, "Programmed Instruction Versus Usual Classroom Procedures in Teaching Boys to Read," American Educational Research Journal, 1:113-20, March, 1964.

male/female teacher ratio is reversed the ratio of male to female reading failures is also reversed. When the teacher variable is removed or reduced, sex differences in reading achievement disappear or in some cases result in superior achievement of boys rather than girls. Such findings suggest that some factor or constellation of factors related to the teacher adversely affects the reading achievement of boys across the whole spectrum of reading ability.

One of the aims of the present study is to investigate the next logical step in the argument. Are the attitudes of normally achieving boys such that they might be expected to produce a negative emotional reaction towards reading; and are such emotional problems, if they exist, a factor in their lower mean reading achievement when it is compared with the mean reading achievement of girls?

The review of the literature will discuss studies which deal with emotional problems related to reading disability. It will also summarize research concerning the formation of attitudes in young children.

II. THE PROBLEM

Statement of the Problem

This study will seek to answer the following questions:

1. Is there any significant difference between boys and girls in the meanings they attach to the following words and expressions:

John, ("hero," Copp Clarke Basal Reader)[22]

Janet, ("heroine," Copp Clarke Basal Reader)[23]

My Teacher,

My Mother,

My Father,

Superman,

Me,

How I Would Like to Be (Ideal Self).

2. Are the meanings that boys attach to the words and expressions listed in (1) above significantly related to their reading achievement?

3. Are the meanings that girls attach to the words and expressions listed in (1) above significantly related to their reading achievement?

4. What combination of measures of the following factors are most highly related to reading achievement: semantic distance associated with the concepts listed in (1) above, intelligence, socio-economic status of the parent, chronological age of the child, proportion of male teachers in the school?

5. Is there any significant relationship between the reading achievement of a boy or a girl and the degree of identification with any of the people or literary characters listed in (1) above?

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[22]Sheila Egoff, Off to School (Vancouver: Copp Clarke Publishing Company, 1960), passim.

[23]Ibid.

6. Is the presence of masculine elements in the elementary school related to the reading achievement of boys?

7. Is the presence of masculine elements in the elementary school related to the reading achievement of girls?

III. DEFINITIONS OF THE TERMS USED

Identification. Kagan has described identification as:

> . . . an acquired cognitive response that occurs within the subject. Some of the characteristics of the model become incorporated into the psychological organization of the subject so that the subject may respond to events occuring to the model as though they had occurred to him.[24]

Meaning. The meaning of a word or expression is operationally defined as a profile on Osgood's semantic differential.[25]

Concept. A concept is a cognitive categorizing response that occurs within the individual. It is of course different from that which is conceptualized or any symbol that is used to stand for the thing conceptualized. For the purposes of exposition the term "concept" will refer to the verbal symbol for the concept but the cognitive response of the individual is always necessarily implied.

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[24]Jerome Kagan, "The Concept of Identification," The Psychological Review, 65:296-305, 1958.

[25]Charles E. Osgood, George J. Suci and Percy H. Tannenbaum, The Measurement of Meaning (Urbana: University of Illinois, 1957), passim.

Dimensions in meaning. Osgood et al have put forward empirical support for the suggestion that meaning appears to vary predominantly along three orthogonal dimensions: evaluation (E), potency (P) and activity (A), i.e., people tend to judge concepts as to whether they are good or bad (E), weak or strong (P), or fast or slow (A).[26]

Semantic distance. Semantic distance refers to the degree of difference in meaning for an individual between two concepts.

The meaning of semantic distance can best be explained with the aid of an example. A subject may rate two concepts in the following way:

	E	P	A
Me	6	7	3
My Father	6	3	7

The semantic distance (D) is obtained by summing the squares of the absolute differences and finding the square root, thus:

	E	P	A	
Me	6	7	3	
My Father	6	3	7	
	0	4	4	Absolute differences (d)
	0	16	16	d^2

[26] Ibid., pp. 31-75.

$$\Sigma d^2 = 32$$

$$\sqrt{\Sigma d^2} = 5.66$$

$$D = 5.66$$

The semantic distance (D) between these two concepts is 5.66.

IV. LIMITATIONS

Significance

Although some previous work has been done on the attitudes of young children toward reading,[27] it is felt that the present study is sufficiently exploratory in nature as to justify the .05 level of significance since the consequences of making a Type I error are considered to be of less import than the premature conclusion that further research in this area is likely to be unfruitful.

Generality of the Findings

In the strictest sense the findings cannot be generalized beyond the sample involved. However strict adherence to such a policy would render research almost valueless. The sample involved in this study may be described as children in the second grade who come from a predominantly Canadian,

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[27] Terry D. Johnson, "The Attitudes of Good and Poor Male Readers" (unpublished Master's thesis, The University of British Columbia, Vancouver, 1968).

middle-class, white, urban sub-culture. The findings of this study may be applied to other samples with a confidence that is in direct proportion to the similarity of that sample to the sample employed in this investigation. Thus an administrator in the municipality where this study was conducted might be fairly confident of finding a similar situation existing in other grade two classes in other schools under his jurisdiction. Interested parties in areas less like the one employed in this study would have to exercise greater caution in applying the findings to their situation. Inasmuch as the study deals with cultural values the findings presented here would be unlikely to apply to cultures that have very different sets of values.

The Tests Used

The findings presented in this paper are limited to the nature of the tests used. Thus "reading achievement" refers to those skills required to perform those behaviours demanded by the reading test employed in this study. In like manner intelligence, connotative meaning and socio-economic status are defined by the manner in which they are measured.

The Teacher Variable

It should be recognized that teacher personality may be an important variable and that the number of teachers involved in this study is very small. Application of the findings presented in this paper to a wider population of teachers must await confirmation through replication.

CHAPTER II

STATEMENT OF PREVIOUS RESEARCH

I. EMOTIONAL DIFFICULTIES RELATED TO READING DISABILITY

As Roswell and Natchez have pointed out the main concern of the investigator is not merely to discover the absence or presence of emotional disturbance in a child with a reading problem.[1] To find evidence of emotional difficulty in an individual who has been subjected to chronic public failure is a highly predictable discovery. Roswell and Natchez continue:

> What has to be assessed is the nature, degree and complexity of the emotional problem. . . the ways in which the emotional maladjustment is related to the reading disability. . . how it may have arisen and. . . how it may affect future school performance.[2]

Gates has discussed the nature of emotional maladjustment encountered by retarded readers.[3] He lists five categories of behaviour which show evidence of emotional difficulties:

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[1]Florence Roswell and Gladys Natchez, Reading Disability, Diagnosis and Treatment (New York: Basic Books, 1964), p. 56.

[2]Ibid.

[3]Arthur I. Gates, The Improvement of Reading (New York: The MacMillan Company, 1947), pp. 114-15.

1. Nervousness. The child exhibits obvious signs of tension by general restiveness, irritability or silliness. In some cases there is little overt expression of tension.

2. Withdrawal. Gates speaks of the child "leaving the field" which may refer to playing truant, day-dreaming, or superficial and intermittent attention to the lesson.

3. Aggressiveness. Under this heading Gates includes mischievousness, noisiness, bullying, and deliberate baiting of the teacher.

4. Defeatism. The child may become discouraged and develop feelings of inferiority.

5. Chronic worry. The child may feel continually threatened by the reading situation in general, or by particular failures, such as in oral reading or on reading tests.

Gates cautions the teacher against assuming that such behaviours are permanent or constitutional characteristics unless careful diagnosis indicates no other reason for the disturbance. Gates feels that such behaviour should be regarded as symptomatic of underlying causes which may be very difficult to detect.[4]

Prescott has discussed the effects of different degrees of emotional disturbance. He lists three categories: mild, strong, and disintegrative. The effect of mild emotion,

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[4] Ibid.

Prescott claims, appears to be desirable since it often acts as a motivating agent. Strong emotion may be pleasant or unpleasant. Strong pleasant emotions may act as motivators in learning but unpleasant emotions are very likely to interfere with learning. The most extreme category described by Prescott is disintegrative emotion. When such emotions are experienced for too long they seriously interfere with the child's normal functioning.[5] It is the present writer's opinion that for children falling into this last category the reading problem is not of primary concern although reading may be one avenue through which to attempt remediation.

Discussion

There remains a fourth category of emotional disturbance not discussed by Prescott. Fernald speaks of the failing reader as being in "a chronic state of emotional upset."[6] The present writer feels that the degree of emotional disturbance does not have to be great to produce reading difficulty. It merely has to be long standing. It may be that for some reason a child has a mild negative attitude toward the initial reading situation which may be

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[5]Daniel A. Prescott, Emotion and the Educative Process (Washington: American Council on Education, 1938), pp.18-36.

[6]Grace M. Fernald, Remedial Techniques in Basic School Subjects (New York: McGraw Hill Book Company, 1943), p. 7.

sufficient to encourage inattention and to elicit something less than the wholehearted co-operation that appears to be necessary in learning to read. This initial inattention may lead to early failure which, if communicated to the child and his peers, results in a loss of status and reinforces the child's negative attitudes. Further failure is thereby encouraged. Thus a vicious circle is created which eventually results in reading retardation.

To give credence to such an argument it is necessary to provide some foundation for the supposition of the existence of the child's initial negative attitude. Further, it is necessary to show that such an attitude is more likely to occur in boys than in girls if it is to account for the greater prevalence of reading failure in boys.

II. THE PROCESS OF IDENTIFICATION

In An Outline of Psycho-Analysis, Freud described the process of identification which is normally complete by the age of five or six years.[7] Freud's conception of identification involving the Oedipus complex and castration fears has come to be referred to as defensive identification and has been described as appearing to defy scientific verification.[8]

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[7]Sigmund Freud, An Outline of Psycho-Analysis, trans. James Strachey (New York: Norton, 1949), pp. 90-91.

[8]George Mandler, Paul Mussen, Nathan Kogan and Michael A. Wallach, New Directions in Psychology III (New York: Holt, Rinehart and Winston, Inc., 1965), p. 91.

However, a more recent development in the theory of identification has been formulated by Mowrer.[9] He sees identification as a developmental process which is based on love, affection and respect for the model by the identifier. Sears, Maccoby and Levin maintain that the child begins to perform some of the mother's acts for himself. Thus he may "babble and talk, snuggle against his own arms, or offer himself a thumb to suck."[10]

Identification with the father is probably achieved through role playing, i.e. those behaviours he will be expected to display as an adult. Whiting believes the boy identifies with his father not only because he is threatening or nurturing, but also because he is seen as an extremely powerful agent in controlling the administration of both rewards and punishments.[11]

Bandura and Walters see identification as being produced by selective reinforcement of imitative behaviour.

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[9]O.H. Mowrer, Learning Theory and Personality Dynamics (New York: Ronald, 1950), p. 580.

[10]R. R. Sears, Eleanor E. Maccoby and H. Levin, Patterns of Child Rearing (New York: Harper and Row, 1957), p. 372.

[11]John M. Whiting, "Resource Mediation and Learning by Identification," Personality Development in Children, I. Iscoe and H.W. Stevenson, editors (Austin: University of Texas Press, 1960), pp. 122-126.

Boys tend to act like their fathers and girls to act like their mothers because they are reinforced for doing so.[12]

If identification is a viable process then children in a given society should be aware of socially approved sex-typed behaviours (sex-roles); and they should normally express, as Freud indicated, a sex-role preference by the age of six.

III. SEX-ROLE DEVELOPMENT IN YOUNG CHILDREN

Brown defined sex-role behaviour as "behaviour associated with one sex or the other that the individual would like to adopt or that he perceives as the preferred or more desirable."[13] Fauls and Smith provided empirical evidence for the existence of sex-role preferences in young children. They found that boys tend to prefer masculine activities more frequently than do girls. They also found that both sexes perceived the parents as preferring sex-appropriate activities more often than sex-inappropriate activities.[14] Brown administered the "IT" Scale for Children (ITSC) to boys and girls of five and six years. He found large and significant

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[12]Albert Bandura and Richard H. Walters, Social Learning and Personality Development (New York: Holt, Rinehart and Winston, 1964), p. 98.

[13]Daniel G. Brown, "Sex-role Development in a Changing Culture," Psychological Bulletin, 55(4):232-42, July, 1958.

[14]Lydia B. Fauls and Walter D. Smith, "Sex-role Learning of Five Year Olds," Journal of Genetic Psychology, 89:105-117,1956.

differences between the sexes in their choices on the IT Scale. Brown concluded that definite and relatively dichotomous sex-role patterns are displayed by young children.[15] From his findings in a later study, Brown concluded that the preference for one sex-role begins to emerge by about the third year.[16] The work of Hartup and Zook confirms Brown's findings and suggests that sex-role preference grows stronger with age.[17] These studies suggest that children are aware of the existence of sex-roles and have normally established a sex-role preference by the time they come to school.

IV. CONTRASTS IN THE ATTITUDES OF BOYS AND GIRLS IN SCHOOL

Brown claimed that from the kindergarten level through the fourth grade boys showed a much stronger preference for a masculine role than girls show for a feminine role.[18] Fitt, working with children from seven to eighteen years of age,

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[15]Daniel G. Brown, "Sex-role Preference in Young Children," Psychological Monographs, 70(421):1-19, 1956.

[16]Brown, 1958, loc. cit.

[17]Williard W. Hartup and Elsie A. Zook, "Sex-role Preferences in Three and Four Year Old Children," Journal of Consulting Psychology, 24:420-26, 1960.

[18]Daniel G. Brown, "Masculinity-Femininity Development in Children," Journal of Consulting Psychology, 21: 197-202, June, 1957.

found that girls show a more favourable attitude than boys toward school at all educational levels.[19] Butterworth and Thompson, in an investigation concerning age and sex differences related to preference for comic books, found that boys chose books of masculinity, adventure and success while girls selected stories of femininity, adolescence, romance and humour.[20] In a sample of grade six and seven children, Tennenbaum found (a) girls were more favourable to school than were boys, (b) teachers were liked more by girls than by boys, and (c) children whom the teacher selected as problem children had much less favourable attitudes toward school than did children as a whole.[21] Bonney found that sex differences in social success in school were not large but were rather consistently in favour of girls.[22] A study by Kagan involving 240 second grade children indicated that boys tended to rate

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[19]A.B. Fitt, "An Experimental Study of Children's Attitude to School in Auckland, N.Z.," British Journal of Educational Psychology, 26:25-30, February, 1956.

[20]Robert F. Butterworth and George C. Thompson, "Factors Related to Age-Grade Trends and Sex Differences in Children's Preferences for Comic Books," Journal of Genetic Psychology, 78:71-96, March, 1951.

[21]S. Tennenbaum, "Attitudes of Elementary School Children to School Teachers and Classmates," Journal of Applied Psychology, 28(2):134-41, April, 1944.

[22]M.E. Bonney, "Sex Differences in Social Success and Personality Traits," Child Development, 15:63-79, March, 1944.

school related objects such as "blackboard," "book," a page of arithmetic or a school desk as feminine rather than masculine. However, he also found that the presence of a male principal or librarian in the school was associated, among boys, with a tendency to regard school as having more masculine characteristics.[23] Mazurkiewicz reported that in the population he studied boys generally regarded reading as a feminine activity. He felt that this attitude exerted some influence on the reading ability of boys.[24] Lamkin found a significant negative correlation between the masculinity of sixth grade boys and their reading ability.[25]

V. CONTRASTS IN THE TREATMENT OF BOYS AND GIRLS IN SCHOOL

In the classroom the values and behaviour of the teacher undoubtedly have far-reaching effects on the formation of attitudes in young children. Meyer and Thompson

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[23]Jerome Kagan, "The Child's Sex-Role Classification of School Objects," Child Development, 35:1051-1056, September, 1964.

[24]Albert J. Mazurkiewicz, "Social-Cultural Influences in Reading," Journal of Developmental Reading, 3:254-63, Summer, 1960.

[25]Floyd D. Lamkin, "Masculinity-Femininity of Preadolescent Youth in Relation to Behaviour Acceptability, Tested and Grade Achievement, Inventoried Interests and General Intelligence" (Abstract), Dissertation Abstracts (Ann Arbor: Xerox Limited, 1968), 28(7):2558-A.

observed teacher-student interactions in three grade six classrooms taught by women. They reported that boys received significantly more disapproval than girls.[26] Lippitt and Gold concluded that teachers gave more encouragement to girls and made more critical remarks to boys. When children were divided as to high or low leadership qualities on the basis of peer judgements large sex differences were discovered in the low leadership group. Within this low leadership group teachers were much more encouraging to girls than they were to boys.[27] Sears and Feldman, from a review of studies concerning achievement on standardized tests and teachers' grades, concluded that "from the limited evidence we have it seems that girls are given higher grades than boys despite the fact that boys achieve at least as well as girls. . ."[28] Waetjen and Grambs pointed out that schools reward verbal skills and language competency and thus reinforce the greater facility

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[26]William J. Meyer and George G. Thompson, "Teachers' Interactions with Boys as Contrasted with Girls," Psychological Studies in Human Development, Raymond G. Kuhlens and George G. Thompson, editors (New York: Appleton-Century-Crofts, 1963), pp. 510-518.

[27]R. Lippitt and M. Gold, "Classroom Social Structure as a Mental Health Problem," Journal of Social Issues, 15:40-50, 1959.

[28]Pauline S. Sears and David H. Feldman, "Teachers' Interactions with Boys and Girls," The National Elementary Principal, 46(2):30-35, November, 1966.

in language which girls possess when they come to school.[29] Elsewhere they suggest that women use words differently, structure space differently and perceive reality differently from men.[30] If such is the case then the possibilities for breakdown in communication between primary teachers and their male pupils are numerous and far-reaching in their consequences.

Perhaps more important in the formation of children's attitudes towards school is not what adult observers see teachers doing, but what the children believe the teacher does. McNeil gathered from children in the first grade ratings on the behaviour of the teacher towards boys and girls in reading groups. It was felt by the children that boys had fewer opportunities to respond than girls and that the teacher was more critical of the performance of boys than she was of the performance of girls.[31]

In 1932 C.W. St. John observed that:

> . . . the fundamental cause of boys' inferiority in educational achievement is a maladjustment between boys and their classroom situation and particularly

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[29]Walter B. Waetjen and Jean D. Grambs, "Sex Differences: A Case of Educational Evasion?" Teachers College Record, 65:261-71, December, 1963.

[30]Jean B. Grambs and Walter B. Waetjen, "Being Equally Different: A New Right for Boys and Girls," National Elementary Principal, 46(2):59-67, November, 1966.

[31]John D. McNeil, "Programmed Instruction Versus Usual Classroom Procedures in Teaching Boys to Read," American Educational Research Journal, 1:113-120, March, 1964.

> their teachers. It is believed that this maladjustment is due largely to the inability of teachers to adapt themselves to interests and characteristics of personality and behaviour of boys which teachers weigh heavily in marking. . .[32]

The preceding studies suggest that elementary schools are more conducive to learning in girls than in boys; and that boys who experience difficulty in learning to read may do so as a result of having rejected the feminine values they find in the typical primary classroom. Studies concerning the nature of retarded readers offer evidence both in support and contradiction of such a conclusion.

VI. PERSONALITY PATTERNS FOUND IN RETARDED READERS

Spache, using the Rosenzweig Picture Frustration Test, found retarded readers between six and ten years of age to be more aggressive than average readers. The aggression of the retarded readers appeared most clearly in pictures of children. In situations in which there was frustration from adults it seemed that children learned to avoid open conflict by passive behaviour.[33] Natchez, working with grade five and six

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[32]C. W. St. John, "The Maladjustment of Boys in Certain Elementary Grades," Educational Administration and Supervision, 18(9):659-72, December, 1932.

[33]George D. Spache, "Personality Patterns of Retarded Readers," Journal of Educational Research, 50:461-9, February, 1957.

children, found some poor readers who were aggressive but also found others who were passive and withdrawn.[34] Barsky discovered that inferior male readers were significantly higher in anti-social aggression than inferior female readers and superior male readers. Inferior male readers were also found to be significantly higher in projected aggression than superior male readers.[35]

Some studies suggest that retarded readers exhibit basically feminine characteristics. Borston and Fox found that boys with reading disability commonly had a background of a domineering mother and a father who appears to provide an inadequate model for masculine identification.[36] Anastaiow found that boys with feminine characteristics did not read significantly less well than boys who were strongly masculine although the mean reading achievement for "feminine" boys was lower than the mean for "masculine" boys.[37]

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[34]Gladys Natchez, Personality Patterns and Oral Reading (New York: New York University Press, 1959), p. 98.

[35]Marilyn L. Barsky, "The Relationship of Some Aggressive Characteristics to Reading Achievement in Fifth and Sixth Grade Males and Females" (Abstract), Dissertation Abstracts (Ann Arbor: Xerox Limited, 1966), 27(5-A):1257-8.

[36]J.C. Coleman, F.L. Borston and J. Fox, "Parental Attitudes as Related to Reading Disability in Children," Psychological Reports, 4:47-51, 1958.

[37]N.J. Anastaiow, "Success in School and Boys' Sex-Role Patterns," Child Development, 36(4):1053-66, December, 1965.

Henderson, using a "social distance" task reported that retarded readers between the ages of seven and fourteen are characterized by a high degree of dependency and place themselves closer to the mother than the father.[38] Kimball, working with adolescents, found underachievers to have a poor father relationship, to be passive, to have a feminine orientation, and to be unable to express negative feelings directly.[39]

VII. SUMMARY

Studies concerned with the process of identification and the establishment of sex-role patterns in young children indicate that children are capable of clear discriminations involving sex-typed behaviour. It is also evident that most children have established a definite sex-role preference before they enter school. In the elementary grades where the majority of teachers are women, girls appear to receive some preferential treatment over boys. Girls also appear to

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[38] E. H. Henderson, "Self-Social Constructs of Achieving and Non-Achieving Readers," Reading Teacher, 19(2):114-18, November, 1965.

[39] Barbara Kimball, "Case Studies in Educational Failure During Adolescence," American Journal of Orthopsychiatry, 23:406-15, 1953.

experience greater social success in school. These differences in social success appear to be accentuated for boys and girls of low social status. Not surprisingly, girls at each educational level indicate they have more favourable attitudes toward school than do boys. In the early grades boys appear to regard school as a feminine institution. Studies concerned with the nature of retarded readers have produced contradictory findings. Some investigators have found retarded readers to exhibit predominantly masculine traits while others report that children with reading problems are frequently femininely oriented.

CHAPTER III

HYPOTHESES

I. A RATIONALE UNDERLYING THE GENERAL HYPOTHESIS

From the research reviewed the following rationale has been formulated:

Because the majority of primary classes are taught by women the typical primary classroom provides an atmosphere of femininity. Reward systems in these classrooms are geared to feminine standards of behaviour which are characterized by orderliness, extreme cleanliness, conformity and submission. Many cognitive problems set by the teacher may favour types of thinking that are characteristic of females rather than males. Such an atmosphere, reward system and cognitive climate may be responsible for the production of a degree of negative emotion in boys which, while it may be slight in absolute terms, may be of sufficient magnitude to make it difficult for boys to co-operate whole-heartedly in classroom activities. Learning to read is one of the major activities of the primary classroom. It is possible that the negative reaction experienced by many boys initiates a vicious spiral of reading failure and further rejection of the reading situation which eventually results in the lower mean reading achievement of boys in general and for the existence of the larger number of male retarded readers than female retarded readers.

It is also possible that the presence of masculine elements in the school will ameliorate the adverse effects of the "feminine" atmosphere of the primary classroom on the acquisition of reading skills by boys.

II. GENERAL HYPOTHESIS

From the preceding rationale a general hypothesis has been formulated:

There will be a significant relationship between the reading achievement of boys and the connotative meanings they attach to the following words and expressions:

John,("hero", Copp Clarke Basal Reader)[1]

Janet,("heroine", Copp Clarke Basal Reader)[2]

My Teacher,

My Mother,

My Father,

Superman,

Me,

How I would like to Be (Ideal Self).

No such relationship will be found between the reading achievement of girls and the connotative meanings they attach to the same expressions.

In order to make it possible to test the general

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[1]Sheila Egoff, Off to School (Vancouver: Copp Clarke Publishing Company, 1960), passim.

[2]Ibid.

hypothesis a series of sub-hypotheses have been formulated. It should be noted that only the general hypothesis is being tested and not the rationale underlying the general hypothesis. It may be that a more adequate explanation will be found for the relationship between connotative meanings and reading achievement. This study seeks only to establish whether such a relationship exists.

III. SUB-HYPOTHESES

The general hypothesis is broken down into several sub-hypotheses which are tested by producing from them a series of specific predictions.

Sub-hypothesis I

There will be significant differences among the mean semantic distances generated by the pairs of concepts appearing in Table I for boys as contrasted with the same mean semantic distances for girls.

In order to test sub-hypothesis I specific predictions concerning the pairs of concepts that appear in Table I have been made.

Where the word "Girls" appears in a cell it is predicted that the semantic distance between the two concepts generating the cell will be significantly smaller for girls than for the same semantic distance for boys. Where the word "Boys" appears the semantic distance will be significantly smaller for boys.

TABLE I

SPECIFIC PREDICTIONS OF THE RELATIVE SIZE OF THE SEMANTIC DISTANCE BETWEEN CERTAIN CONCEPTS HELD BY BOYS AND GIRLS

	Concepts					
	John	Janet	My Teacher	My Mother	My Father	Superman
Me	Girls	Girls	Girls	Girls	Boys	Boys
Ideal Self	Girls	Girls	Girls	Girls	Boys	Boys

Sub-hypothesis II

The semantic distance generated by boys' ratings of pairs of concepts that appear in Table II will be significantly correlated with the reading ability of those boys. In order to test sub-hypothesis II a matrix of predictions has been cast in Table II.

Where a plus (+) sign appears in a cell it is predicted that the semantic distance between the concepts that generate the cell will be significantly and positively correlated with the reading achievement of boys. Where a minus (-) sign appears in a cell it is predicted that the correlation will be significant and negative.

To make a stringent test on the general hypothesis it must also be shown that the meanings that boys attach to the

TABLE II

SPECIFIC PREDICTIONS OF THE DIRECTIONS OF CORRELATIONS BETWEEN THE SEMANTIC DISTANCE GENERATED BY CERTAIN PAIRS OF CONCEPTS HELD BY BOYS AND THE READING ACHIEVEMENT OF THOSE BOYS

	Concepts					
	John	Janet	My Teacher	My Mother	My Father	Superman
Me	-	-	-	-	+	+
Ideal Self	-	-	-	-	+	+

concepts under study are not shared with children in general. Therefore a null hypothesis concerning the relationship between the meanings held by girls and their reading ability has been formulated.

Null Hypothesis

The semantic distance generated by girls' ratings of pairs of concepts that appear in Table III will not be significantly correlated with the reading achievement of those girls. To test the null hypothesis a matrix of predictions has been cast in Table III.

TABLE III

SPECIFIC PREDICTIONS OF ZERO CORRELATIONS BETWEEN THE SEMANTIC DISTANCE BETWEEN CERTAIN CONCEPTS HELD BY GIRLS AND THE READING ACHIEVEMENT OF THOSE GIRLS

	Concepts					
	John	Janet	My Teacher	My Mother	My Father	Superman
Me	Zero	Zero	Zero	Zero	Zero	Zero
Ideal Self	Zero	Zero	Zero	Zero	Zero	Zero

Where the word "Zero" appears in a cell it is predicted that the semantic distance between the concepts that generate the cell will have no significant correlation with the reading achievement of girls.

III. HYPOTHESIS CONCERNING AMELIORATING EFFECTS

Sub-hypotheses I and II test the general hypothesis. The ameliorating effects of masculine constituents in the elementary school, although somewhat peripheral, are related to the central problem. Therefore a minor sub-hypothesis concerning ameliorating effects has been formulated. If no evidence is found to support this sub-hypothesis, it will not

be regarded as being particularly damaging to the general hypothesis. On the other hand, if evidence is found to support this sub-hypothesis such information would be of value in suggesting remedial measures.

Sub-hypothesis III

It is hypothesized that the reading achievement of boys will be significantly related to the proportion of male teachers to the total number of teachers in the school. The relationship between the reading achievement of girls and the proportion of male teachers in the school will not be significantly different from zero.

CHAPTER IV

THE COLLECTION OF THE DATA

I. DESIGN

General Design

Five grade two classrooms were selected at random from a school district in the lower mainland of British Columbia. The children were given a version of the semantic differential to measure the connotative meanings they attach to the following concepts:

John, ("hero," Copp Clarke Basal Reader)[1]

Janet, ("heroine," Copp Clarke Basal Reader)[2]

My Teacher,

My Mother,

My Father,

Superman,

Me,

How I Would Like to Be (Ideal Self).

From their responses to this test semantic distance scores (D) were computed.

In between sessions of administering the semantic differential the children were given the Gates-MacGinitie

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[1]Sheila Egoff, Off to School (Vancouver: Copp Clarke Publishing, 1960), passim.

[2]Ibid.

Reading Test, Primary B, Form 1.[3] Reading achievement scores for vocabulary, comprehension and total reading achievement were computed from the children's responses to this test. I.Q. scores were obtained through the administration of the California Short Form Test of Mental Maturity, 1963 Revision, Level 1.[4]

The following information was gathered for each subject:

Socio-economic status of the father or family wage earner;[5]

the proportion of male teachers in the school;

the chronological age of each child.

Subjects

The subjects were children in the second grade who came from a predominantly Canadian, working, middle-class, white, urban sub-culture.

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[3]Arthur I. Gates and Walter H. MacGinitie, Gates-MacGinitie Reading Tests, Primary B, Form 1 (New York: Teachers College Press, 1965).

[4]Elizabeth T. Sullivan, Willis W. Clark, and Ernest W. Tiegs, California Short-Form Test of Mental Maturity, 1963 S-Form, Level 2 (Monterey: California Test Bureau, 1962).

[5]Bernard R. Blishen, "A Socio-Economic Index for Occupations in Canada," Canadian Review of Sociology and Anthropology, 4(1):41-53, February, 1967.

Sample Size

It is quite common in educational research to find studies that use very large samples. The use of such large numbers is defended on the grounds that only on the basis of such large numbers can useful generalizations be made. However, it is quite possible to employ such a proliferation of subjects that the net result is detrimental to the study. In an attempt to decide what the optimum sample size should be power tests were applied employing the largest standard deviation obtained in previous research with the semantic differential ($s^2 = 10.66$).[6] Three was the smallest difference between mean semantic distance scores that was considered to be of practical value ($|H_o - H_1| = 3$). A power test indicated that an N of 138 would give tests concerning means a power of .95. A total of 140 subjects was tested but loss through absence and incomplete test response reduced this number to 121. An N of this size gives tests concerning means a power of .93.

II. TESTS AND MEASURES

The Semantic Differential

Rationale. Lazowick has summarized the logic underlying

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[6]Terry D. Johnson, "The Attitudes of Good and Poor Male Readers" (unpublished Master's thesis, The University of British Columbia, Vancouver, 1968).

the semantic differential[7] as follows:

> 1. The process of judgment or description can be conceived as the allocation of a concept to an experimental continuum, definable by a pair of polar terms.
>
> 2. Many different experimental continua, or ways in which meaning may vary, are essentially equivalent and hence may be represented by a single dimension.
>
> 3. A limited number of such continua can be used to define a semantic space within which the meaning of any concept can be specified.[8]

The scales. Osgood et al. have described semantic space as being composed of three major dimensions: evaluation, potency, and activity.[9] Through a process of factor analysis they have isolated those pairs of bipolar adjectives which show the highest intercorrelation in a matrix of intercorrelations and are most "pure" in regard to the three major dimensions of semantic space. From the list of pairs adjectives used by Osgood et al. those which appear in Table IV were selected on the basis of (1) the size of their factor loading, (2) their relative "purity," (3) their appropriateness to the present area of study, and (4) the probability that

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[7]Charles E. Osgood, George J. Suci, and Percy H. Tannenbaum, The Measurement of Meaning (Urbana: University of Illinois, 1957), passim.

[8]L. M. Lazowick, "On the Nature of Identification," Journal of Abnormal and Social Psychology, 51:175-83, 1955.

[9]Ibid., pp. 31-75.

they fall into the listening vocabularies of most children in the second grade.

TABLE IV

FACTOR LOADINGS OF PAIRS OF BIPOLAR ADJECTIVES USED IN THIS STUDY

			Factor Loading		
			Evaluation	Potency	Activity
1.	Good	- Bad	.88	.05	.09
2.	Nice	- Awful	.87	-.08	.19
3.	Fair	- Unfair	.83	.08	-.07
4.	Large	- Small	.06	.62	.34
5.	Strong	- Weak	.19	.62	.20
6.	Hard	- Soft	-.48	.55	.16
7.	Sharp	- Dull	.23	.07	.52
8.	Fast	- Slow	.01	.00	.70
9.	Hot	- Cold	-.04	-.06	.46

The Use of the Semantic Differential

The use of the semantic differential with children. Osgood et al. have suggested the use of a five point scale with

children[10] but offer no supporting evidence for this suggestion. It is possible that these authors were thinking of the work by Conklin who suggested that a five point scale was as fine a scale as untrained raters could handle.[11] However, Symonds concluded that seven steps is the optimal number on a scale.[12] Di Vesta, in a normative study of the semantic differential, successfully employed a seven point scale with children ranging from the second to the sixth grade.[13]

Maltz used the semantic differential to measure the attitudes of subjects ranging from grade two to college level. He concluded that while concepts of young children are less consistent than those of subjects at higher educational levels, the differential is a useful and valid instrument for measuring the concepts of young children.[14]

The use of the differential in the measurement of identification. Lazowick used the semantic differential

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[10]Osgood, op. cit., p. 85.

[11]E.S. Conklin, "The Scale of Values Method for Studies in Genetic Psychology," University of Oregon Publication, 1923, no. 1, cited by Joy P. Guilford, op. cit., p. 290.

[12]P.M. Symonds, "On the Loss of Reliability in Ratings Due to Coarseness of the Scale," Personnel, 1949, 26:94-118.

[13]Francis J. Di Vesta, "A Normative Study of 220 Concepts Rated on the Semantic Differential by Children in Grade 2 through 7," Journal of Genetic Psychology, 109(2):205-229, 1966.

[14]Howard E. Maltz, "Ontogenic Change in the Meaning of Concepts as Measured by the Semantic Differential," Child Development, 34(3):667-674, September, 1963.

with the parent. He concluded that the semantic differential was a valid means of investigating the meaning systems involved in the identification process.[15]

Fitzgerald and Roberts used the semantic differential to measure identification in young children together with a more usual method of identification measurement--a procedure whereby identification is inferred from the child's selection of sex-appropriate and sex-inappropriate games. They concluded that their results showed the two measures of identification to be meaningfully related.[16]

The Concepts

The concepts used in the present study were as follows:

1. Rocket. A labelled picture of a rocket was used to teach the children how to record their responses on the rating scales.

2. Popeye and Brutus. The highly stereotyped cartoon characters Popeye and Brutus were used to ensure that the subjects understood the rating procedure and that they were responding in a rational manner.

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[15]Lazowick, loc. cit.

[16]Donald Fitzgerald and Karlene Roberts, "Semantic Profiles and Psychosexual Interests as Indicators of Identification," Personnel and Guidance Journal, 44(9): 802-6, 1966.

3. John. John is the "hero" of the first book that most children in British Columbia meet in school.[17] It was assumed that the semantic distance between the child's self concept and John would indicate the degree to which he identifies with this character.

4. Janet. Janet is John's literary sister and the "heroine" of the first grade basal reading series used in British Columbia.[18] It was assumed that the semantic distance between this item and the child's self concept would indicate the degree to which the child identifies with this character.

5. My Teacher. It was assumed that the teacher is a very important figure in a child's school life and that the semantic distance between the child's concept of his teacher and his own self concept would indicate the degree to which he accepts or rejects the teacher.

6. My Mother. It was assumed that the semantic distances between My Mother and the subject's concept of Me and How I Would Like to Be would reveal the degree to which the subject identifies with his mother.

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[17] Sheila Egoff, Off to School (Vancouver: Copp Clarke Publishing Company, 1960), passim.

[18] Ibid.

7. My Father. It was assumed that the semantic distances between My Father and the subject's concept of Me and How I Would Like to Be would reveal the degree of the subject's father identification.

8. Superman. Superman was selected as being a stereotyped super-masculine figure.[19] It was assumed that boys generally would identify more closely with this item than would girls. It was also assumed that strongly masculine boys would identify with this concept more closely than would less masculinely oriented boys.

9. Me. The connotative meanings held by two groups of subjects cannot be compared meaningfully on the basis of their absolute ratings of the concepts involved. Group meanings are comparable when the concept is related to some reference point. The subject's concept of himself, for the purpose of this study, is the point of reference.

10. How I Would Like to Be. It was assumed that a subject's rating of How I Would Like to Be would reveal more closely than his concept of himself, his idea of an ideal model.

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[19] Superman (Superman National Comics, No. 211. New York: National Periodical Publications, November, 1968), passim.

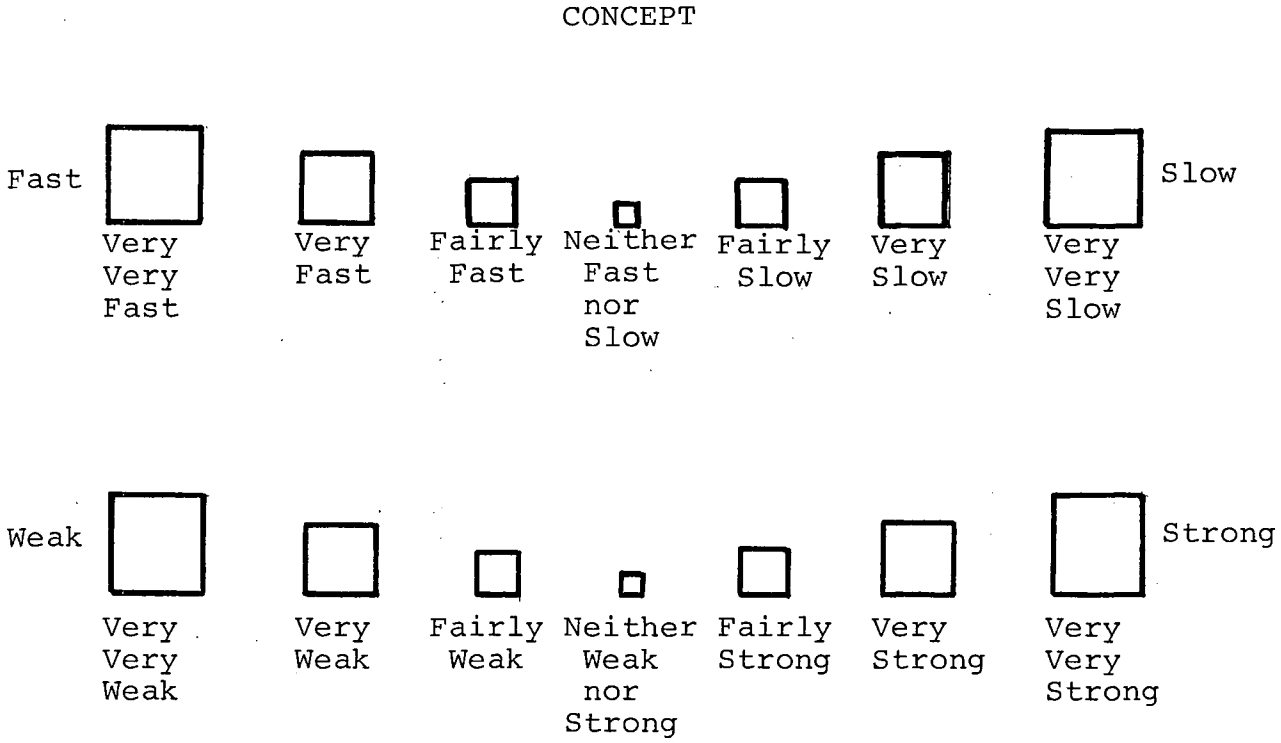

Figure 1. An example of the meaning of the boxes used in a pencil and paper adaptation of the semantic differential. The box size was introduced as an additional clue to the meaning of the box.

The Use of Boxes

It was felt that young children would be able to follow direction more easily and respond more accurately if boxes of varying sizes were used rather than the format suggested by Osgood et al.[20] There was some suspicion that varying the size of the box might influence the responses made by the subjects. Specifically, it was felt that young children would find it easier to mark large boxes and thus tend to use these more readily than the smaller boxes. To test this possibility a pilot study was run with thirty-two second grade children.

Half the children responded to a sheet where the boxes were all as large as the largest box shown in Figure 1. The other half of the group responded to a sheet where the boxes varied in size as shown in Figure 1. Subjects were randomly assigned to varied or non-varied groups. The head of the paper where a picture of the concept normally appears was left blank. Thus any variation in response pattern could be assumed to be due to the box-size, position, or chance. The children were not given any explanation beyond the fact that they were to play a "game" wherein they had to put a cross in any one box in each row.

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[20]Osgood et al., op. cit., p. 83.

An analysis of variance of the frequency of box use indicated three things:

(1) there is no significant difference in the frequency of use of a box in any given position regardless of whether boxes are varied or non-varied in size ($F_{obs} = 2.15$, $F_{.95}(1,15) = 4.54$);

(2) there is a significant difference among the mean frequencies of box use when both varied and non-varied boxes are considered together ($F_{obs} = 4.95$, $F_{.95}(6,90) = 2.21$);

(3) the interaction effect between box position and condition is not significant ($F_{obs} = 1.35$, $F_{.95}(6,90) = 2.21$).

Inspection of the means indicates that the central position is chosen more frequently under both varied and non-varied conditions. Therefore it may be concluded that children, when free to choose any box, tend to select one in a central position regardless of its size in relation to the alternative choices available.

Since the use of boxes varied in size was (1) felt to be more convenient in explaining their use, and (2) more helpful in serving as an additional cue to the meaning of a box, it was decided to adopt the format shown in Figure 1.

TABLE V

MEANS AND STANDARD DEVIATIONS OF FREQUENCY OF BOX-USE

		1	2	3	4	5	6	7
Varied	$\bar{X}$	1.37	1.19	1.37	2.00	0.94	1.11	1.19
	s.d.	0.59	0.72	0.69	0.62	0.66	0.37	0.62
Non-Varied	$\bar{X}$	1.19	1.25	1.63	1.63	1.37	0.88	1.00
	s.d.	0.53	0.66	0.78	0.78	0.69	0.48	0.35

The California Short Form Test of Mental Maturity

The California Short Form Test of Mental Maturity (CTMM) is a condensation of the California Test of Mental Maturity.[21] The 1963 Short Form, Level 1 which was used in this study consists of seven sub-tests:

1. Opposites, 2. Similarities, 3. Analysis,
4. Numerical Values, 5. Number Problems,
6. Verbal Comprehension, and 7. Delayed Recall.

Sub-tests 1 through 4 make up the Non-Language Section. From the child's responses to this section of the test it is

[21]Elizabeth T. Sullivan, Willis W. Clark, and Ernest W. Tiegs, Examiner's Manual California Short Form Test of Mental Maturity (Monterey: California Test Bureau, 1963), p. 5.

possible to compute a Non-Language intelligence quotient. The sub-tests 5 through 7 make up the Language Section and give a Language intelligence quotient. The two scores may be combined to give a global I.Q. score.[22]

Level 1 of the CTMM is designed to be given to children from grades one through low grade three.[23]

The 1963 Short Form is scaled at all levels to the Stanford-Binet Intelligence Scale and, like the Stanford-Binet, employs a deviation I.Q. rather than a ratio I.Q.[24]

The norming and scaling of the 1963 Short Form was carried out on the basis of the responses of 38,793 cases from schools representing seven geographic regions of the United States.[25] No Canadian norms are available but since the present interest lies in the child's achievement on this test only in relation to the performance of other children in the sample, then it is felt that further norming is not required.

The 1963 Short Form, Level 1 has been reported as correlating .85 with the Stanford-Binet. A reliability coefficient of .94 has been cited.[26] When comparisons of

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[22] Ibid., pp. 6-7.

[23] Ibid., p. 8.

[24] Ibid., p. 32.

[25] Ibid., p. 8.

[26] California Test Bureau, Technical Report on the California Test of Mental Maturity Series 1963 Revision (Monterey: California Test Bureau, 1965), p. 24.

scores on the CTMM (Short Form) were made with school marks in academic subjects validity coefficients ranging from .57 to .64 were reported.[27]

This test was administered and marked by the present investigator.

The Gates-MacGinitie Reading Test, Primary B, Form 1

The Primary B Form 1 of the Gates-MacGinitie Reading Tests are intended for use in the second grade.[28] It consists of two parts; a vocabulary section and a comprehension section. The vocabulary section measures the child's ability to recognize or analyse words in isolation. The comprehension tests sample the child's ability to understand sentences and paragraphs.[29]

The norming sample consisted of 40,000 students in thirty-eight communities in the United States.[30] A split-half

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[27]California Test Bureau Professional Staff, Guide to Interpretation of the California Test of Mental Maturity Series 1963 Revision (Monterey: California Test Bureau, 1964), p. 39.

[28]Arthur I. Gates and Walter H. MacGinitie, Teacher's Manual Gates-MacGinitie Reading Tests, Primary B, Forms 1, 2 (New York: Teachers College Press, 1965), p. 1.

[29]Ibid.

[30]Arthur I. Gates and Walter MacGinitie, Technical Manual for the Gates-MacGinitie Reading Tests (New York: Teachers College Press, 1965), p. 3.

reliability coefficient of .93 has been reported.[31]

This test was administered and marked by the present investigator.

Blishen's Socio-Economic Index for Occupations in Canada

Blishen's socio-economic index presents a list of occupations ranked and indexed in order of "social standing" or prestige. The basis of the index is the distribution of education and income of the members of a given occupation. In constructing the index it was assumed that the family's social status is dependent upon the occupation of the husband.[32] In the cases where no father is present, the occupation of the chief wage earner was used.

The rank order correlation between Blishen's 1967 index and his earlier occupational scale[33] was .96 which Blishen takes as indicating the stability of occupational classes over time and a measure of reliability of results despite variations in procedure.[34]

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[31] Ibid., p. 15.

[32] Bernard R. Blishen, "A Socio-Economic Index for Occupations in Canada," Canadian Review of Sociology and Anthropology, 4(1):41-53, February, 1967.

[33] Bernard R. Blishen, "The Construction and Use of an Occupational Scale," Canadian Journal of Economic and Political Science, 24:519-31, November, 1958.

[34] Blishen, 1967, loc. cit.

Pineo and Porter have also constructed a scale of occupations in Canada.[35] Multiple correlations between the Pineo-Porter scores and the income and educational level scores in Blishen's index was .919. Blishen takes this high correlation as providing evidence for the validity of his occupational index.[36]

Information concerning the occupation of the parent or family wage-earner was obtained, where possible, from the school medical records. Where records were incomplete notes were sent home to the parent requesting this information.

III. DATA COLLECTION

Screening

In order to establish that the subjects were responding in a rational manner the test booklet (see Appendix A) in which the responses were made included a teaching page and two screening pages. The first page, showing a picture of a rocket, was used to teach the subjects how to decide where to place their responses. One screening page showed a picture of Popeye while the second showed a picture of Brutus. These two figures are well-known and highly stereotyped cartoon

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[35]Peter C. Pineo and John Porter, "Occupational Prestige in Canada," Canadian Review of Sociology and Anthropology, 4(1):24-40, February, 1967.

[36]Blishen, 1967, loc. cit.

characters. It was assumed that most children were already familiar with these characters and that those who were not would readily recognize the stereotype from a brief group discussion. It was further assumed that the children tend to hold generally the same attitude towards these characters, e.g. Brutus is large, strong and dull while Popeye is good, strong and fast. All nine bi-polar adjectives were presumed to be predictable. It was arbitrarily decided that any child who failed to respond "correctly" to at least twelve of these eighteen pairs of adjectives was answering in a capricious manner. Data from such subjects were discarded. In fact only two children failed to pass the screening test. Reference to Figure 2 may aid in the clarification of the procedure.

The Order of Presentation of Concepts

Stockford and Bissell have spoken of a "proximity effect" they noted in the behaviour of individuals in rating traits on rating scales.[37] They observed a spuriously high correlation between the rating of traits that were close in space and time. When the traits were rearranged new ratings were obtained. Guilford has suggested that this effect may be reduced by two means: (1) to place unlike concepts in spatial proximity, (2) to allow as long a time as possible

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[37] L. Stockford and H.W. Bissell, "Factors Involved in Establishing a Merit-Rating Scale," Personnel, 1949, 7:456-61.

Leaf 52 omitted in page numbering.

to elapse between the rating of different concepts.[38]

In an attempt to avoid such spurious correlations the concepts were arranged as far as possible with "masculine" and "feminine" concepts alternating:

	Rocket
	Popeye
First	Brutus
Testing	I.Q. Test (sub-tests 1-4)
Session	Janet
	I.Q. Test (sub-tests 5-7)
	Superman

	My Teacher
	My Father
Second	Reading Test (Vocabulary)
Testing	My Mother
Session	Reading Test (Comprehension)
	How I Would Like to Be
	Me

There were two testing sessions which were spaced one week apart. The intervals between the measurement of meanings of

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[38]Joy P. Guilford, Psychometric Methods (New York: McGraw-Hill, 1954), p. 285.

the concepts was occupied with the administration of the intelligence and reading tests. Since the semantic distance scores for How I Would Like to Be and Me and the other concepts are of central importance it was vital that these two self-concepts not be spuriously drawn toward any particular concept. For this reason Me and How I Would Like to Be were rated as far away in time as was possible from the other concepts.

The Treatment of Responses

Each concept was rated on nine bi-polar scales. Each scale has a range of seven points. Each adjective was designated positive or negative, e.g. Good, Large and Sharp are positive while Bad, Small and Dull are negative. The pairs of bi-polar adjectives were arranged in random order on the response sheet with each successive pair of adjectives alternating in polarity. The first pair was arranged so as to have Hard (positive) on the left of the paper and Soft (negative) on the right side. The second pair of adjectives was so arranged that the positive member fell on the right side and the negative member on the left. This alternating pattern was maintained for all pairs of adjectives. It was thought that such an arrangement would help to prevent positional perseveration.

The most negative category on the rating scale was allotted a score of 1. The most positive category was given a score of 7. Mean ratings were obtained for the three major

dimensions of meaning (EPA) from the three pairs of adjectives selected to tap each dimension of meaning (see Table VI). The child's responses to a given concept generated a profile of three scores. The most positive response possible was 7,7,7 (EPA) while the most negative possible response was 1,1,1. A concept that was neutral in meaning would be characterized by a profile of 4,4,4. The required semantic distance scores (D) were computed by the procedure already described in Chapter I, p. 9.

CHAPTER V

ANALYSIS OF THE DATA

I. INTRODUCTION

Organization of the Chapter

The organization of this chapter will parallel as far as possible the organization of Chapter III which was concerned with the presentation of the hypotheses. The data, relevant observations and conclusions for each sub-hypothesis will be presented. Conclusions concerning the general hypothesis will be made through an overall interpretation of the results for each sub-hypothesis. In addition, the results of a multiple regression analysis of all the factors measured will be presented. An analysis of the results for individual classrooms will follow. The chapter will be concluded with a summary of the findings.

Assumptions of the Normality of the Semantic Distance Score Distribution

Osgood et al. have stated that the distribution of D is unknown.[1] Inspection of the data indicated that all the D score distributions were positively skewed and leptokurtic.

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[1]Charles E. Osgood, George J. Suci, and Percy H. Tannenbaum, The Measurement of Meaning (Urbana: University of Illinois, 1957), p. 101.

However, Box indicates that the t and F tests are robust enough to withstand even marked deviations from normality, particularly with regard to Type 1 errors.[2] It was felt that since all the distributions deviated from normality in the same manner the assumptions underlying parametric tests would not be seriously violated.

Assumptions Regarding Similarities and Differences Between Boys and Girls

Reading. This study is based on the assumption that in the population there is a significant difference between the mean reading achievement of boys and the mean reading achievement of girls. It was further assumed that this difference would be reflected in the sample of children selected for study. A t-test between each aspect of reading achievement measured indicated that the girls in the sample read significantly better than the boys. The means for the reading achievement of boys and girls and the significance of the differences between them are presented in Table VI.

Background variables. It was also assumed that boys and girls would not be significantly different in intelligence test scores or socio-economic status of their parents. Tests of the significance of the difference between the means

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[2] G.E.P. Box, "Non-normality and Tests on Variance," Biometrika, 40:318-335, 1953.

for boys and girls on these two variables confirmed these assumptions. Means and the significance of the differences between them are presented in Table VI.

TABLE VI

TESTS OF SIGNIFICANCE OF THE DIFFERENCE BETWEEN THE MEANS OF READING TESTS, INTELLIGENCE TESTS AND SOCIO-ECONOMIC STATUS OF THE PARENTS FOR BOYS AND GIRLS

	Boys		Girls			
	Mean	s.d.	Mean	s.d.	t	p
Reading						
Vocabulary	51.81	9.72	56.12	7.97	2.68	<.01
Comprehension	50.45	8.70	55.69	7.83	4.64	<.01
Total	101.84	16.88	112.02	14.74	3.59	<.01
Intelligence Test						
Language	101.66	10.41	101.89	10.92	.01	>.10
Non-language	105.08	10.72	106.08	13.05	.04	>.10
Total	103.57	9.80	104.10	10.85	.03	>.10
Socio-economic Status	49.55	6.99	50.43	8.03	.62	>.10

II. ANALYSIS OF VARIANCE AMONG SEMANTIC DISTANCE (D) SCORES

Sub-hypothesis I

Sub-hypothesis I stated that there would be a significant difference between the semantic distance scores for boys and girls. Specific predictions concerning the differences between pairs of concepts were made in Table I. This table is reproduced as Table VII with the addition of F values for the obtained differences. As can be seen from Table VII no significant difference was found between any of the mean D scores except the semantic distance between Ideal Self and John. Inspection of the means indicates that this difference was in the opposite direction to that which was predicted by the hypothesis. Means and standard deviations of the obtained semantic distances are presented in Table VIII.

It must be concluded that in general the semantic differential does not discriminate between boys and girls with regard to the concepts measured in this investigation. The only significant difference obtained was contrary to sub-hypothesis I. It would seem from the present evidence that boys and girls do not differ significantly in the connotative meanings they attach to the concepts measured in the pattern predicted by the hypothesis.

TABLE VII

A REPRODUCTION OF TABLE I WITH THE ADDITION OF OBTAINED F VALUES DERIVED FROM AN ANALYSIS OF VARIANCE OF MEAN SEMANTIC DISTANCE SCORES

	John	Janet	My Teacher	My Mother	My Father	Superman
Me	2.54	1.14	0.31	1.68	0.21	0.12
Ideal Self	7.00*	2.48	0.22	0.56	0.00	1.44

* Significant beyond the 0.5 level.

TABLE VIII

MEANS AND STANDARD DEVIATIONS OF SEMANTIC DISTANCE SCORES FOR PAIRS OF CONCEPTS RATED BY BOYS AND GIRLS IN THE SECOND GRADE

	Boys		Girls	
Concepts	Mean	s.d.	Mean	s.d.
Me-John	1.74	1.25	2.14	1.47
Me-Janet	2.17	1.52	2.48	1.62
Me-My Teacher	1.19	1.30	2.04	1.27
Me-My Mother	1.99	1.41	2.30	1.22
Me-My Father	2.21	1.31	2.33	1.44
Me-Superman	2.97	1.39	2.87	1.85
Ideal Self-John	2.26	1.07	2.83	1.30
Ideal Self-Janet	2.67	1.27	3.11	1.84
Ideal Self-My Teacher	2.19	1.46	2.15	1.30
Ideal Self-My Mother	2.21	1.19	2.36	1.13
Ideal Self-My Father	1.98	1.50	1.98	1.52
Ideal Self-Superman	2.41	1.68	2.02	1.77

III. ANALYSIS OF LINEAR CORRELATIONS BETWEEN SEMANTIC DISTANCE SCORES AND READING ACHIEVEMENT

Sub-hypothesis II

Sub-hypothesis II stated that there would be significant degrees of association between the semantic distances generated by the responses of boys to the differential and their reading achievement. Specific predictions concerning individual correlations were presented in Table II. This table is reproduced as Table IX with the addition of the linear correlations obtained between the specified D scores and vocabulary, comprehension and total reading scores. As can be seen from Table IX only the correlations between the D scores for Me-Janet and comprehension and total reading achievement scores are significant. Contrary to sub-hypothesis II these correlations are positive. These two significant results indicate that smaller D scores generated by boys between Me and Janet have a slight but significant tendency to be associated with lower reading scores.

It is evident from the data presented that only the connotative meaning of Janet is significantly related to the comprehension and total reading scores in boys. The direction of the two results that were found to be significant was in the opposite direction to that predicted by sub-hypothesis II.

TABLE IX

A REPRODUCTION OF TABLE II WITH THE ADDITION OF LINEAR CORRELATIONS BETWEEN SEMANTIC DISTANCE SCORES AND READING ACHIEVEMENT OF BOYS

		CONCEPTS					
	Reading Achievement	John	Janet	My Teacher	My Mother	My Father	Superman
Me	Vocabulary	.05	.19	.02	.01	-.04	-.16
	Comprehension	.04	.28*	.13	.05	.20	.00
	Total	.06	.26*	.09	.04	.11	-.08
Ideal Self	Vocabulary	-.05	.14	-.08	.05	-.16	-.14
	Comprehension	.08	.16	-.16	-.16	-.13	-.19
	Total	.02	.16	-.17	-.11	-.16	-.19

* Significant at or beyond the .05 level.

Null Hypothesis

The null hypothesis stated that the correlations between semantic distance scores generated by girls and their reading achievement would not be significantly different from zero. A series of specific predictions was presented in Table III. This table is reproduced with the obtained correlations as Table X. As can be seen significant correlations were obtained for the D scores associated with Janet, My Teacher, My Mother and Superman. In all cases the significant correlations were negative indicating that larger semantic distance scores generated by girls concerning these concepts have a slight but significant tendency to be associated with lower reading achievement scores.

While many of the obtained correlations were not significantly different from zero more significant correlations were found than could be accounted for by chance. It must be concluded that, contrary to the position taken in this investigation, some of the connotative meanings that girls attach to certain concepts are significantly related to their reading achievement. The fact that more significant relationships were found between the connotative meanings held by girls and their reading achievement than was found for boys is particularly damaging to the present general hypothesis.

TABLE X

A REPRODUCTION OF TABLE III WITH THE ADDITION OF LINEAR CORRELATIONS BETWEEN SEMANTIC DISTANCE SCORES AND READING ACHIEVEMENT OF GIRLS

	Reading Achievement	John	Janet	My Teacher	My Mother	My Father	Superman
Me	Vocabulary	-.11	-.25	.04	.01	-.12	-.32*
	Comprehension	-.02	-.34*	.05	.01	-.06	-.25
	Total	-.08	-.33*	.05	.00	-.10	-.30*
Ideal Self	Vocabulary	-.08	-.05	-.25	-.13	-.22	-.39*
	Comprehension	-.13	-.22	-.32*	-.27*	-.26	-.39*
	Total	-.12	-.16	-.29*	-.21	-.26	-.40*

* Significant at or beyond the .05 level.

Sub-hypothesis III

Sub-hypothesis III stated that the reading achievement of boys would be significantly related to the proportion of male teachers in the school while the same correlation for girls would not be significantly different from zero. As can be seen from Table XI none of the obtained correlations was significant.

TABLE XI

LINEAR CORRELATIONS BETWEEN THE PROPORTION OF MALE TEACHERS TO THE TOTAL NUMBER OF TEACHERS IN THE SCHOOL AND THE READING ACHIEVEMENT OF BOYS AND GIRLS

Reading Achievement	Boys	Girls
Vocabulary	-.20	.05
Comprehension	-.09	.00
Total	-.16	.04

* Significant at or beyond the .05 level.

On the basis of the present limited evidence, it must be concluded that the proportion of male teachers to total number of teachers in the elementary school is not significantly related to the reading achievement of boys or girls.

General Hypothesis

The lack of positive support from the data concerning the boys and the evidence contrary to the null hypothesis concerning the girls supply sufficient evidence for one to conclude that the general hypothesis is untenable. It would seem from the present data that connotative meanings are not in general, related to the reading achievement of boys but that there is some relationship between the reading achievement of girls and the connotative meanings they attach to several of the concepts measured.

IV. MULTIPLE REGRESSION ANALYSIS

While the linear correlations already presented test the hypothesis proposed in this paper, the combination of factors that is most highly associated with reading achievement is likely to be of value and interest to educators. Multiple correlation coefficients for those factors found to be associated with the various aspects of reading achievement for boys are presented in Table XII. The same information for girls is presented in Table XIII.

Although the analysis of linear correlations has rendered the present general hypothesis untenable it is evident that the connotative meanings which some of the concepts employed in this study have for children are frequently

TABLE XII

MULTIPLE REGRESSION ANALYSIS OF FACTORS RELATED TO READING ACHIEVEMENT OF BOYS

	R	RSQ	Increase in RSQ	F	Significance
Vocabulary					
Total I.Q.	.30	.09	.09	7.15	<.05
C.A.	.37	.13	.04	3.91	<.05
Proportion of Male Teachers	.40	.16	.03	2.33	<.05
Socio-economic Status	.43	.19	.02	1.87	>.05
Comprehension					
Total I.Q.	.47	.22	.22	20.57	<.05
C.A.	.53	.28	.06	6.25	<.05
Me-Father (D)	.58	.34	.05	5.64	<.05
Ideal Self-Mother (D)	.62	.39	.05	5.42	<.05
Me-Janet (D)	.66	.43	.04	4.66	<.05
Socio-economic Status	.66	.44	.01	1.29	>.05
Total Reading Achievement					
Total I.Q.	.46	.22	.22	19.80	<.05
C.A.	.54	.29	.08	8.08	<.05
Me-Janet (D)	.58	.34	.04	4.06	<.05
Ideal Self-Mother (D)	.60	.36	.03	2.95	<.05
Socio-economic Status	.62	.38	.02	1.98	>.05

TABLE XIII

MULTIPLE REGRESSION ANALYSIS OF FACTORS RELATED TO READING ACHIEVEMENTS OF GIRLS

	R	RSQ	Increase in RSQ	F	Significance
Vocabulary					
Non-Language I.Q.	.49	.24	.24	14.54	< .05
Me-Janet(D)	.55	.30	.06	4.28	< .05
Ideal Self-Superman(D)	.58	.34	.04	2.77	< .05
Me-John(D)	.61	.37	.02	1.68	> .05
Comprehension					
Non-Language I.Q.	.46	.21	.21	12.61	< .05
Me-Janet(D)	.57	.33	.11	7.96	< .05
C.A.	.61	.37	.04	3.10	< .05
Me-Mother(D)	.64	.41	.03	2.59	< .05
Ideal Self-Superman(D)	.67	.45	.04	3.37	< .05
Me-John(D)	.70	.49	.03	2.89	< .05
Ideal Self-Janet(D)	.72	.52	.03	2.52	< .05
Socio-Economic Status	.72	.52	.00	0.27	> .05
Total Reading Achievement					
Non-Language I.Q.	.52	.27	.27	16.74	< .05
Me-Janet(D)	.61	.38	.11	8.00	< .05
Ideal Self-Superman(D)	.64	.42	.04	2.89	< .05
Me-John(D)	.67	.46	.05	3.62	< .05
Ideal Self-Janet(D)	.70	.49	.03	2.61	< .05
Ideal Self-Mother(D)	.71	.50	.01	0.75	> .05

more highly associated with reading achievement than are other factors such as socio-economic status and language I.Q. which are widely regarded as being related to reading achievement. In particular the D scores related to Janet figure importantly and consistently in almost every aspect of reading achievement measured for all children but particularly so for girls. The connotative meanings of John and Superman also seem consistently related to the reading achievement of girls.

V. ANALYSIS OF LINEAR CORRELATIONS FOR INDIVIDUAL CLASSROOMS

Justification

Although the hypotheses were statements concerning children in general it was thought that an analysis of the data for individual classrooms might provide information that could be used to indicate further avenues of research.

Five classrooms were used in this study. For the purposes of exposition they have been designated V, W, X, Y, and Z. Linear correlations for all classrooms are presented in Tables XIV through XVIII. Means and standard deviations are presented in Table XIX.

The Findings

The results from classroom V tend to follow the trend noted in the data for the total group. In this classroom

semantic distance scores and reading achievement scores seem to be more highly related for girls than for boys.

By way of contrast the results from classroom W tend to support the general hypothesis that reading achievement scores and semantic distance scores are more highly associated for boys than they are for girls. The only significant correlation for the girls was between Me-Janet and Reading Comprehension score. Ten of the correlations for the boys in this classroom are significant but the pattern and the direction of the correlations are not, in every case, as predicted by sub-hypothesis II.

A similar trend in support of the general hypothesis may be noted in classroom X. The only exception to this generalization is the correlations related to Ideal Self and Superman for the girls. In this classroom association with Superman appears to be related to higher reading scores in girls.

In classroom Y semantic distance scores appear to be almost completely unrelated to reading achievement for boys or girls. However, it is interesting to note that this is the only classroom where the mean reading achievement of the boys exceeded that of the girls (see Table XIX). The difference between mean total reading scores was not significant ($t = 1.1$, $p > .10$).

TABLE XIV

LINEAR CORRELATIONS BETWEEN CERTAIN SEMANTIC DISTANCE SCORES AND THE READING ACHIEVEMENT OF BOYS AND GIRLS IN CLASSROOM V

BOYS		CONCEPTS					
Reading	Achievement	John	Janet	My Teacher	My Mother	My Father	Superman
Me	Vocabulary	-.19	.33	.16	.07	.07	.41
	Comprehension	-.43	.22	.32	.51	.00	.24
	Total	-.43	.10	.34	.41	.05	.48
Ideal Self	Vocabulary	.11	.39	.41	.38	.26	.21
	Comprehension	-.02	-.01	-.25	-.41	.07	-.21
	Total	.07	.29	.14	.00	.15	.02
GIRLS							
Me	Vocabulary	-.56	-.23	.34	-.42	.29	-.66
	Comprehension	-.47	-.83*	.50	-.61	-.15	-.60
	Total	-.57	-.63	.49	-.60	-.24	-.71
Ideal Self	Vocabulary	-.25	-.19	-.44	-.97**	-.15	-.56
	Comprehension	-.89**	-.30	-.69	-.72*	-.27	-.72*
	Total	-.68	-.29	-.66	-.94**	-.24	-.74*

Significance levels: * .05, ** .01.

TABLE XV

LINEAR CORRELATIONS BETWEEN CERTAIN SEMANTIC DISTANCE SCORES AND THE READING ACHIEVEMENT OF BOYS AND GIRLS IN CLASSROOM W

BOYS		CONCEPTS					
	Reading Achievement	John	Janet	My Teacher	My Mother	My Father	Superman
Me	Vocabulary	-.41	-.38	-.72**	-.57*	-.64*	-.61*
	Comprehension	-.63*	-.25	-.63*	-.50	-.58*	-.35
	Total	-.48	-.32	-.72*	-.53	-.66**	-.52
Ideal Self	Vocabulary	-.34	-.06	-.35	-.55*	-.57*	-.29
	Comprehension	-.19	.15	-.16	-.41	-.38	-.31
	Total	-.23	.04	-.40	-.43	-.45	-.37
GIRLS							
Me	Vocabulary	.28	-.44	.13	.21	.53	.46
	Comprehension	.37	-.62*	.25	.34	.56	.46
	Total	.35	-.57	.21	.29	.57	.48
Ideal Self	Vocabulary	-.38	-.55	-.41	-.47	-.22	.06
	Comprehension	-.39	-.53	-.37	-.45	-.18	-.02
	Total	-.41	-.57	-.41	-.48	-.20	-.01

Significance levels: * .05, ** .01.

TABLE XVI

LINEAR CORRELATIONS BETWEEN CERTAIN SEMANTIC DISTANCE SCORES AND THE READING ACHIEVEMENT OF BOYS AND GIRLS IN CLASSROOM X

BOYS		CONCEPTS					
	Reading Achievement	John	Janet	My Teacher	My Mother	My Father	Superman
Me	Vocabulary	.20	.02	-.02	-.24	-.45*	-.44*
	Comprehension	.11	.63*	.43*	.23	.31	.11
	Total	-.03	.39	.29	-.05	.00	-.18
Ideal Self	Vocabulary	-.35	-.36	-.13	-.26	-.32	-.28
	Comprehension	-.09	-.27	-.17	-.25	-.27	-.32
	Total	-.28	-.37	-.20	-.31	-.35	-.34
GIRLS							
Me	Vocabulary	-.18	-.06	-.15	-.28	-.23	-.49
	Comprehension	.04	-.04	-.16	-.21	-.29	-.48
	Total	-.16	-.10	-.20	-.37	-.30	-.53
Ideal Self	Vocabulary	-.41	-.27	-.31	-.32	-.18	-.59*
	Comprehension	-.36	-.27	-.41	-.52	-.35	-.60*
	Total	-.43	-.24	-.33	-.43	-.24	-.60*

Significance levels: * .05, ** .01.

TABLE XVII

LINEAR CORRELATIONS BETWEEN CERTAIN SEMANTIC DISTANCE SCORES AND THE READING ACHIEVEMENT OF BOYS AND GIRLS IN CLASSROOM Y

BOYS		C O N C E P T S					
	Reading Achievement	John	Janet	My Teacher	My Mother	My Father	Superman
Me	Vocabulary	.12	.21	-.13	.09	.12	-.17
	Comprehension	.07	.19	-.31	.08	.15	-.05
	Total	.09	.21	-.22	.08	.14	-.11
Ideal Self	Vocabulary	-.19	.01	-.12	-.02	-.14	.14
	Comprehension	-.01	.00	-.37	-.20	-.12	.08
	Total	-.11	.00	-.23	-.11	-.13	.11
GIRLS							
Me	Vocabulary	-.56	.03	-.44	-.03	-.23	-.13
	Comprehension	-.13	-.08	-.14	-.01	-.31	-.28
	Total	-.38	-.04	-.33	-.02	-.34	-.26
Ideal Self	Vocabulary	.13	-.27	-.08	.24	-.17	-.08
	Comprehension	-.46	-.62	-.24	-.65*	-.53	-.46
	Total	-.25	-.57	-.12	-.32	-.46	-.36

Significance levels: * .05, ** .01.

TABLE XVIII

LINEAR CORRELATIONS BETWEEN CERTAIN SEMANTIC DISTANCE SCORES AND THE READING ACHIEVEMENT OF BOYS AND GIRLS IN CLASSROOM Z

		CONCEPTS					
BOYS	Reading Achievement	John	Janet	My Teacher	My Mother	My Father	Superman
Me	Vocabulary	.44	.62*	.30	.42	.24	.06
	Comprehension	.39	.55*	.33	.33	.21	.04
	Total	.42	.59*	.32	.37	.23	.00
Ideal Self	Vocabulary	.38	.56*	.12	.07	.06	.24
	Comprehension	.35	.55*	.03	.03	.20	.16
	Total	.37	.56*	.04	.02	.14	.20
GIRLS							
Me	Vocabulary	.45	.41	.14	.04	.27	.34
	Comprehension	.18	.25	.06	.05	.24	.20
	Total	.30	.33	.10	.05	.26	.27
Ideal Self	Vocabulary	.17	.37	.17	.23	.15	.54*
	Comprehension	.07	.29	.14	.10	.16	.37
	Total	.03	.32	.16	.16	.16	.45

Significance levels: * .05, ** .01.

TABLE XIX

MEANS AND STANDARD DEVIATIONS OF READING ACHIEVEMENT SCORES FOR BOYS AND GIRLS IN FIVE INDIVIDUAL CLASSROOMS

	Boys		Girls	
	Mean	s.d.	Mean	s.d.
CLASSROOM V				
Vocabulary	53.44	9.77	56.67	7.31
Comprehension	49.11	10.89	56.83	5.88
Total	102.55	14.28	113.50	11.62
CLASSROOM W				
Vocabulary	42.33	9.09	52.60	7.14
Comprehension	45.83	7.87	51.00	5.66
Total	87.33	16.05	103.60	12.13
CLASSROOM X				
Vocabulary	52.13	8.34	57.81	7.82
Comprehension	49.56	7.72	58.54	9.84
Total	100.78	14.07	117.27	15.52
CLASSROOM Y				
Vocabulary	55.56	7.02	53.12	4.09
Comprehension	52.62	7.84	50.50	3.12
Total	108.18	14.37	103.62	5.88
CLASSROOM Z				
Vocabulary	54.23	11.02	59.00	9.97
Comprehension	54.54	9.12	59.54	7.40
Total	108.77	19.93	118.53	16.87

In classroom Z the limited number of significant findings for the boys tends to contradict sub-hypothesis II. In this classroom a small semantic distance score for Me-Janet generated by boys is associated with lower reading achievement scores.

V. SUMMARY

An analysis of variance of the mean semantic distance scores generated by boys and girls indicates that the semantic differential does not discriminate between the sexes at the second grade level.

Analysis of linear correlations between the three aspects of reading achievement measured and the connotative meanings of the concepts employed indicate that, contrary to the position taken at the outset of this study, there is a greater degree of association between the independent and dependent variables under consideration for girls than there is for boys. The concept children have of Janet seems to be significantly related to the reading achievement of both boys and girls. The concepts of My Teacher, My Mother and Superman appear to be significantly related to the reading achievement of girls only.

The proportion of male teachers in the elementary school does not seem to be related to the reading achievement of boys or girls.

From the lack of positive support and the amount of contrary evidence provided by tests of the sub-hypotheses, it must be concluded that the general hypothesis is untenable.

Multiple regression analysis confirms the importance of intelligence in relation to reading achievement in both boys and girls. The data also indicate that the concepts children have of the literary figures presented in the basal reader are more highly associated with reading achievement than are such factors as socio-economic status and language I.Q. which are generally recognized as being influential on reading ability. This generalization is more true of girls than it is of boys.

The importance of the relationship between chronological age and reading achievement of boys tends to confirm the idea that the slower rate of development of boys is related to their reading achievement.

Analysis of linear correlations for individual classrooms indicates that any given classroom does not necessarily follow the trend noted in the total sample. Of particular interest is the classroom where the mean reading achievement of boys exceeded that of the girls. In this classroom almost no association was noted between semantic distance scores and reading achievement for boys and girls.

CHAPTER VI

IMPLICATIONS AND CONCLUSIONS

I. INTRODUCTION

The organization of this chapter will maintain the pattern set by Chapters III and V. In addition to the discussion related to the sub-hypotheses overall implications will be proposed. The chapter will be concluded with a summary of the whole study.

II. DISCUSSION OF THE FINDINGS

Differences in Connotative Meanings Between Boys and Girls

The failure of the semantic differential to discriminate between the connotative meanings that boys and girls attach to the concepts measured may stem from the possibility that being a child has a greater influence on one's perspective than being male or female. That is to say, children at the second grade level simply do not discriminate clearly between male and female in the areas investigated in this study. Many teachers, both male and female, have had the experience of being addressed by young preoccupied children as "Mummy." Such errors might indicate that the child tends to put all adults who hold positions of authority into a category which, in some respects, is not clearly sub-divided.

Linear Correlations

Boys. The only significant correlations obtained for the boys was between the semantic distance score for Ideal Self-Janet and comprehension and total reading scores. These correlations were positive. These results indicate that boys who tend to identify with Janet also have a slight tendency to gain a lower reading score. That is to say that masculinely oriented boys tend to score higher in reading achievement than femininely oriented boys. This trend is the reverse of the one predicted by the hypothesis.

Girls. The findings for the girls suggest that those who tend to identify with their teachers, their mothers, Janet and Superman also tend to gain higher scores on a standardized reading test. The results concerning My Teacher, My Mother and Janet are not unreasonable. Closer identification to these figures indicates an absence of conflict in role identity and might suggest a readiness to co-operate willingly with learning activities related to these three figures. However, it is hard to reconcile the significance of Superman particularly when the degrees of association between this concept and the three aspects of reading achievement were found to be greater than any of the other obtained relationships. It may be that identification with Superman is characteristic of a girl with an outgoing personality who engages willingly in classroom activities and thereby attains greater skill in reading.

Male teachers. The lack of significance of the correlation between the proportion of male teachers to the total number of teachers in the elementary school does not support the idea that increasing the proportion of male teachers in the elementary school would have any significant beneficial effect on the reading achievement of boys. However, the number of schools employed was very small (five) and analysis of a much greater number of schools with a much larger range in the proportions of male teachers would have to be carried out before any meaningful generalization could be made.

Multiple Regression Analysis

Boys. The data confirm the importance of general intelligence in the reading achievement of boys. The importance of chronological age indicated in the multiple regression equation tends to confirm the suggestion that delaying the age of beginning reading is likely to be beneficial to reading achievement in boys. The presence of semantic distance scores for Me-Father, Me-Janet, and Ideal Self-Mother as significant factors in the multiple regression equation indicates that while these measures are not highly associated with reading achievement, they may be more useful predictor variables than more widely accepted factors such as subtests on intelligence tests and socio-economic status.

Girls. The importance of the Non-Language I.Q. confirms the idea that intelligence is an important factor in

the reading achievement of girls but the presence of the Non-Language I.Q. rather than the Language I.Q. is unexpected. Similar findings in future research might be taken as an indication of a need for further validation on the Non-Language section of the CTMM.[1]

Comparison of the findings for boys and girls. The relative sizes of the obtained R's for boys and girls indicate that this area of research is more relevant to the reading achievement of girls than of boys. There is a good deal more variance in the reading achievement of boys which goes unaccounted for than in the reading achievement of girls. This discrepancy would suggest that the study has failed to tap the variables relevant to reading achievement in boys but may have revealed sources of variance in the reading achievement of girls.

III. IMPLICATIONS FOR EDUCATIONAL PRACTICES

The present findings tend to support current practices in the schools of British Columbia as far as the teaching of reading is concerned. With regard to the characters in the basal readers, boys generally identify more closely with John than girls do, thus indicating that boys do not regard him as a femininely oriented character as was suspected. Identifica-

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[1]Elizabeth T. Sullivan, Willis W. Clark, and Ernest W. Tiegs, California Short-Form Test of Mental Maturity, 1963 S-Form, Level 2 (Monterey: California Test Bureau, 1962).

tion with Janet is associated with a slight tendency to lower reading scores thus indicating that femininely oriented boys tend to read less well than masculinely oriented boys. With regard to the sex of the teacher, the present findings offer no support for the idea that the numerical predominance of female teachers is detrimental to, or any way associated with the reading achievement of boys.

IV. IMPLICATIONS FOR FURTHER RESEARCH

The fact that the present study appears to be of greater relevance to the reading achievement of girls rather than boys may indicate that this avenue of investigation will not be too fruitful in a direct approach to the problem of reading difficulties peculiar to boys. However, future research might involve the construction of further models of the relationships that exist between the figures in the semantic space of children and their reading achievement which take into account the present findings. The trend observed in the present data points out the importance of the error of omission concerning the younger sister of Janet and John, Anne, who figures largely in the first pre-primer used in schools in British Columbia. It was felt that children in general would be unanimous in the concept they have of Anne (i.e., good, weak and fairly active) and thus it was thought unlikely that there would be any significant difference be-

tween boys and girls in the degree of association between the connotative meaning of Anne and their reading achievement. However, the importance of Janet might indicate the importance of female children as literary characters. Thus Anne too might be a significant figure related to reading achievement.

One of the reasons why this study was unable to find any evidence in support of the hypothesis may be associated with the nature of the skills demanded by standardized reading tests. It has been noted that standardized reading tests frequently rate children one to four grades above their actual achievement level.[2] It was noted in this paper that intelligence correlates most highly with reading achievement. It is in the nature of standardized reading tests to present a range of reading problems that exceeds the range of reading abilities of the group of subjects to be measured. It is inevitable, therefore, that each child will reach the upper limits of his reading ability and will have to resort to strategies that fall outside of his reading skills. It would seem likely that one of these strategies is making intelligent guesses on the basis of limited information.

Thus more intelligent children tend to score more highly on standardized reading tests. It may be that connotative meanings are more highly associated with reading

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[2]Emmett A. Betts, Foundations of Reading Instruction (New York: American Book Company, 1954), p. 441.

achievement at the everyday classroom level, i.e. independent and instructional levels indicated by informal reading inventories, rather than the limits of reading ability measured by standardized reading tests. Future research might look at the relationship between connotative meaning and levels of reading achievement measured by an informal reading inventory.

V. FINDINGS FOR INDIVIDUAL CLASSROOMS

It is evident that the trends observed in children in general do not necessarily characterize the trend in any one classroom.

In classroom W the significance of the negative correlations of My Teacher, My Mother, My Father, John and Superman, for boys, suggest that in this classroom these concepts are clustered together and that closeness to this cluster for boys is associated with higher reading ability. A similar trend may be noted in classroom X. The most notable exception is the importance of Superman in relation to the reading achievement of girls. In this classroom closeness to Superman is associated with higher reading achievement for girls.

In classroom Y there appears to be almost no association between connotative meaning and reading achievement for boys and girls. When it is also noted that in this classroom alone the mean reading achievement of boys exceeded that of the girls then the lack of association between the variables of

interest takes on considerable import. Such a result, together with the data from the other classrooms, tends to support the idea that connotative meanings are associated with a discrepancy between reading achievement in boys and girls, and that the lack of such a discrepancy is associated with a corresponding loss in the importance of connotative meanings. Future research needs to make a much more intensive comparison between classrooms where connotative meanings do appear to be highly associated with reading ability and those classrooms where no such relationships exist.

The data from classroom Z appear to contradict sub-hypothesis II. Contrary to what was hypothesized, it would seem that boys who associate themselves with Janet tend to be lower in reading ability than those boys who do not see themselves and Janet as similar.

In making general conclusions from the analysis of the data from individual classrooms, it might be noted that the deviations within any one classroom from the general trend indicate that the significant variables influencing reading achievement are not likely to be found in gross factors such as the sex of the teacher or the literary stereotypes presented. It seems possible that more relevant variables are to be found in the complex process of interaction between the teacher, the material presented, the mode of presentation, and the abilities of the students. Future research would probably

be more fruitful if it were to attempt to analyse the nature of these interactions and to test the significance of their relationships with achievement in reading.

VI. SUMMARY

A review of the literature suggests that through a process of identification, boys come to school more ready to associate themselves with masculinely oriented activities than with femininely oriented activities. The literature suggests that the differential treatment of boys and girls in school may be beneficial to learning in girls but detrimental to learning in boys. It was thought possible that the discrepancy between the identification pattern of boys and the model (i.e., the teacher) provided in the school situation may produce a reluctance in many boys to engage readily in classroom activities which, in the primary grades, are largely directed toward the teaching of reading. This initial reluctance may lead to early failure and further rejection of the school environment. The cycle of rejection and further failure was felt to be responsible for the lower mean achievement of boys in general and for the existence of the great numerical predominance of male over female retarded readers.

It was hypothesized that a significant relationship exists between the reading achievement of boys and the connotative meanings they attach to the following concepts:

Me,

How I Would Like to Be,

John,

Janet,

My Teacher,

My Mother,

My Father,

Superman.

It was further hypothesized that no such relationships exist for girls.

The semantic differential, an intelligence test and a reading test, were administered to 121 children in the second grade of five elementary schools on the lower mainland of British Columbia. Information concerning chronological age, socio-economic status and proportion of male teachers in the school was gathered.

An analysis of the data indicates that barely any significant relationships exist between the concepts measured and the reading achievement of boys but several significant relationships were discovered between the connotative meanings measured and the reading achievement of girls. The literary character Janet seems to be related to reading achievement in both boys and girls.

The greater amount of variance accounted for by the variables measured indicates that this area of research may be more relevant to reading abilities of girls rather than boys. The proportion of male teachers in the elementary school appears to be unrelated to reading achievement in boys or girls.

It is suggested that the lack of support of the present hypothesis may be due in part to the skills demanded by standardized reading tests. The relationships hypothesized in this study may exist at the independent or instructional levels of children's reading ability rather than at the limits of reading ability that standardized reading tests appear to measure.

Analysis of individual classrooms indicated that the factors affecting reading achievement may be peculiar to the classroom. Research should begin to look at the complex interaction of the student/teacher/material matrix rather than at gross variables such as teaching method or sex of the teacher.

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A P P E N D I X A

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WHAT DO I THINK ?

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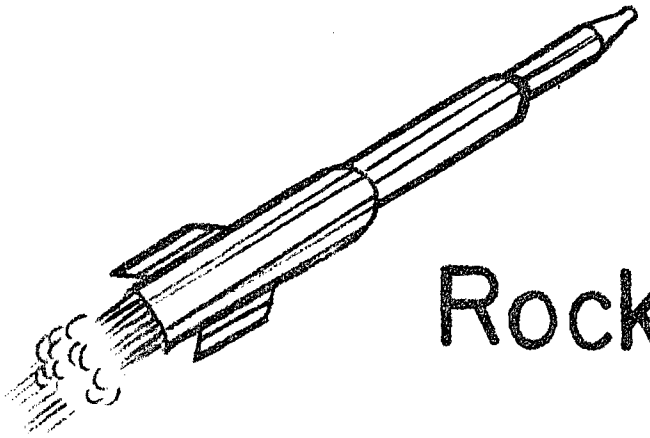

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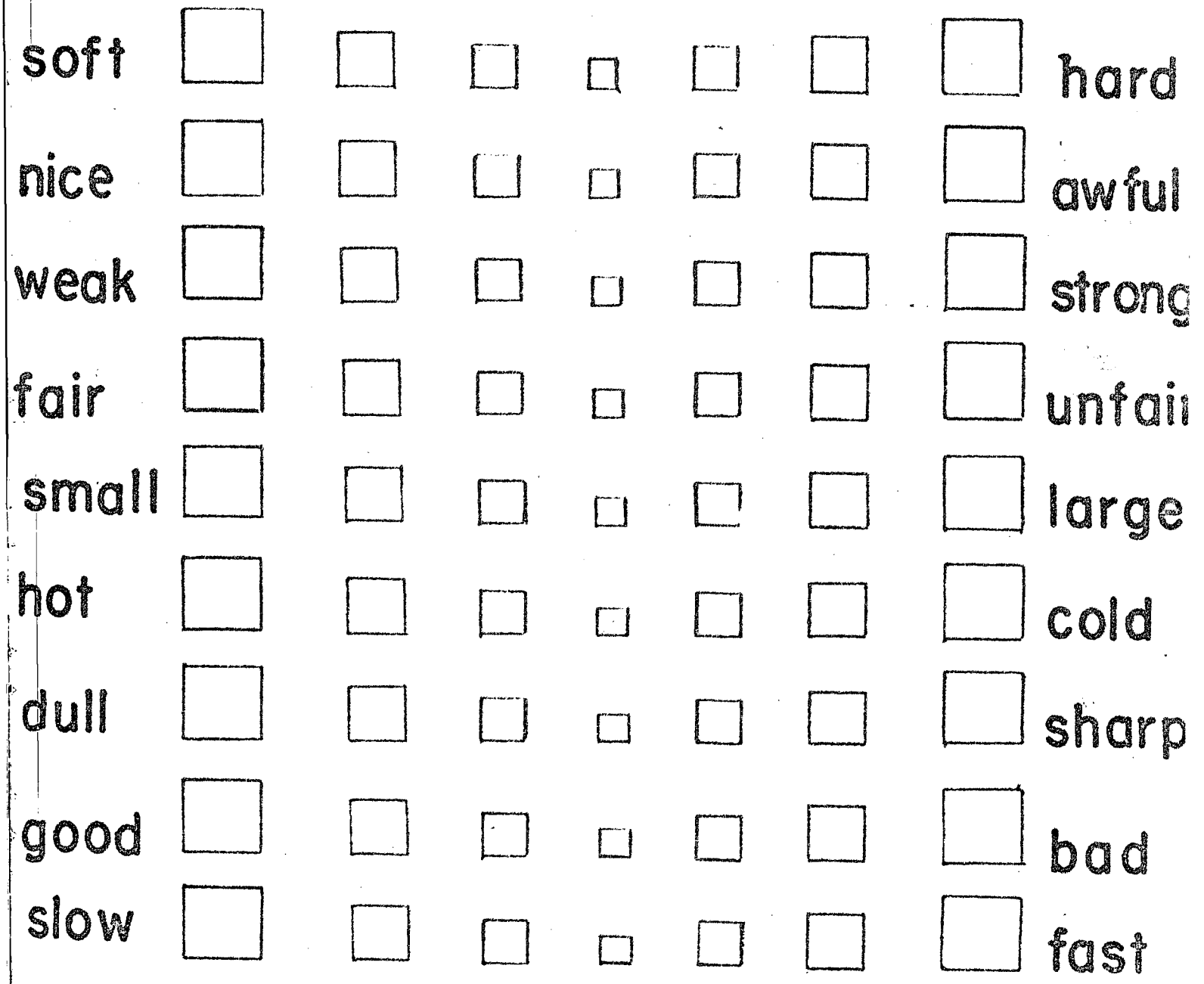
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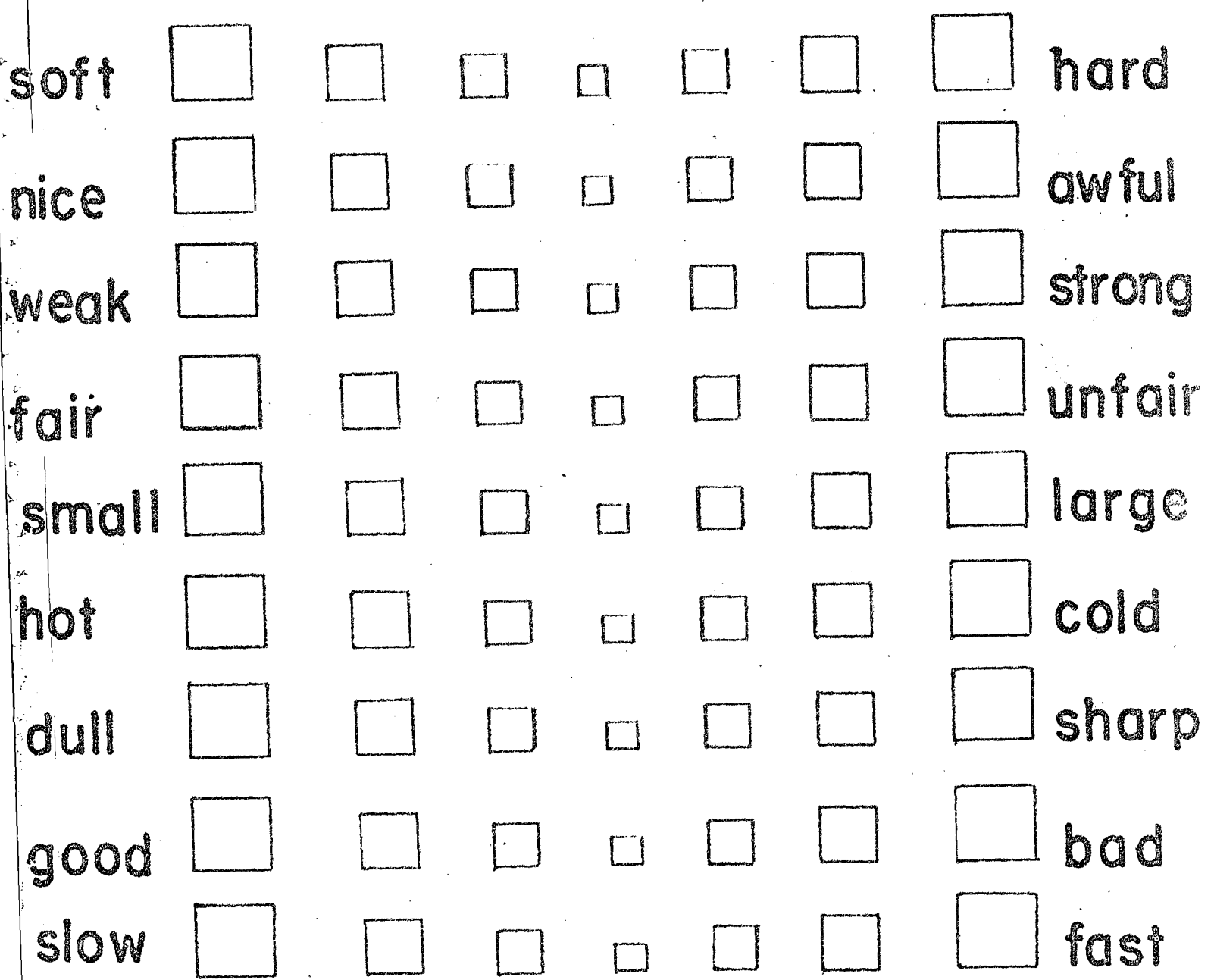
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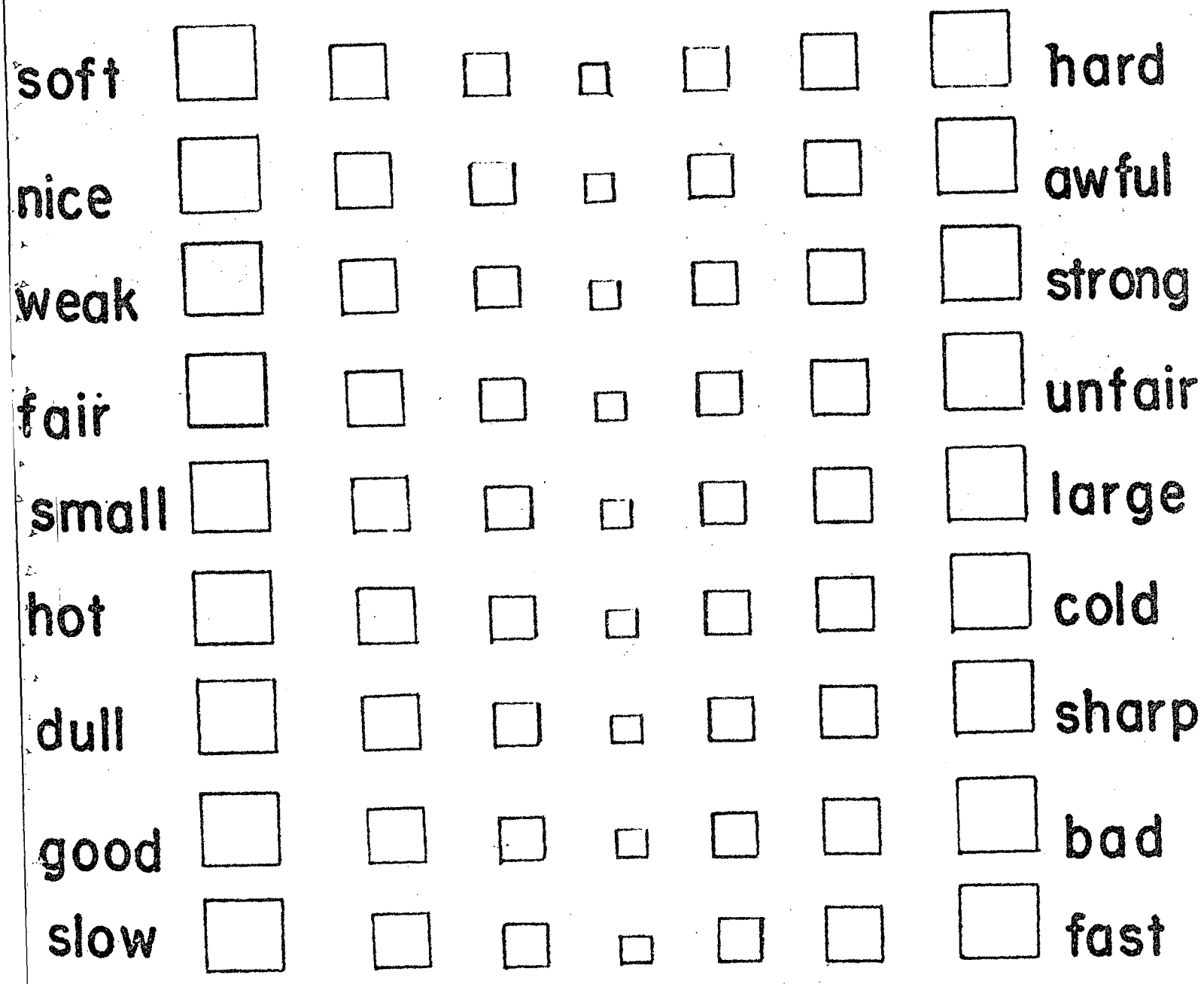
My Teacher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How I would like to be