THE RELATIONSHIP BETWEEN CHANGES IN CHILD SOCIAL BEHAVIORS AND READING ABILITY RESULTING FROM A CONCURRENT PROGRAM OF COUNSELING FOR MOTHERS AND REMEDIAL READING FOR THEIR CHILDREN

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TABLE OF CONTENTS

LIST OF TABLES

FRONTISPIECE

Although the successful specialist in reading must first of all know reading thoroughly, he cannot safely be merely a specialist in reading. He must be aware of other aspects of child nature and equipment as it is revealed in all phases of school work and of life out of school. It should be noted that the data obtained in a typical diagnosis of reading difficulty may be used to improve the pupil's adjustment in almost every phase of life. Failure in reading, in most instances, is one of the obvious results of failure to provide a child with as intelligent general management as it is now possible to give. The facts in large measure needed to improve instruction in reading are the same facts needed to promote the pupil's development in general (Gates, 1937, p. 415).

It has been amply demonstrated that the preponderant number of reading disabilities respond to a straight eductional approach and involve little or no personality adjustment (Wilking, 1941, p. 278).

CHAPTER I

INTRODUCTION

Context of the Study

Before coming to the United States I worked for eight years in the New South Wales public education system. For the last few years I was a district school counselor. Generically, my function would be most accurately described as a school counseling psychologist. My training prepared me to diagnose and prescribe treatment for psycho-educational problems existing within the school-home relationship. My district included two high schools, five normal stream elementary schools, one elementary school with four classes of gifted children, and two schools for mentally retarded children.

Thus, a child's psycho-educational world, from the ages of four to eighteen, was my focus. In the process of trying to deal with the great variety of behaviors referred to me by children, teachers, parents and social agencies, I was able to prioritize my activities in terms of the frequency, intensity, and negative effects of the behaviors referred to me. The result was that reading behaviors emerged as deserving by far the highest priority.

In the course of working with reading-retarded children, their teachers and parents, I formed an impression of the factors which contributed significantly to the seriousness of reading retardation in my school district. First, reading retardation is often confused with

intellectual retardation, resulting in a critical delay in remediation. Second, its rationalization as a lack of reading readiness further exacerbates the failure to organize reading classes to meet the needs of these children. Third, even though my experience indicates that most reading problems are evident early in first grade, reading retardation is usually not oficially recognized and provided for until second grade, or even later. Fourth, specific reading skills seem to be prerequisites for one another. Consequently, failure to master earlier skills increases the probability that later skills will not be mastered. Fifth, I have been impressed again and again by the apparent relationship between the failure to read at an appropriate level and the failure to make adequate social adjustments. The reading-retarded child is frequently described by both parents and teachers as an unhappy, defeated person. It seems that, very early, competence in reading becomes an indicator of self-worth, and that lack of reading competence negatively affects a child's social relationships at home and at school.

My experience in the United States has revealed similar characteristics and conditions. Both the number of children affected by reading retardation and the feeling I have for their struggle makes this study worthwhile for me. As well, I am both a teacher and a counselor. The major purpose of this dissertation is to further the respective contributions of these two professions to helping children in their struggle with reading retardation. I feel that it represents a satisfactory expression of myself as person and professional.

Scope of the Problem

Introduction and General Definition

The relationship between reading retardation and emotional problems* has been extensively investigated. There have been at least five hundred studies on this topic in the last fifty years. Unfortunately, the effort has produced little resolution that has proven to be of value in remediating reading problems.

Most of these studies provide evidence that reading retardation and emotional problems are functionally or developmentally related. However, there is a considerable difference of opinion as to the number of children with reading problems who also have emotional problems. Fernald (1943) suggests that all children are affected, Monroe (1946) believes almost all, Gates (1941) estimates 75%, Witty and Kopel (1939) estimate 50%, Robinson (1953) states that about one-third can be included, Vernon (1971) estimates 25%, Burt (1937) found 9% as the proportion, while Betts (1940) found little or no relationship. Clearly, definitional ambiguity and variability contribute to this lack of agreement. For example, Gates' (1941) estimate of 75% as the number of children with reading problems who also have emotional problems refers to severely retarded readers. In the same article, he also states that, for all retarded readers, regardless of the extent of disability, the proportion of children with emotional problems is no

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*Unless differentiated further in the context, the term "emotional problems" will be used hereafter to describe social, affective and personality characteristics and behaviors which imply or express a deviance from normal behavior sufficient to warrant attention.

higher than that for nonretarded readers.

The definitional problem is bad enough when only reading retardation is considered (for example, Applebee, 1971, in an analysis of this problem, states that the literature has produced percentages between one and thirty as estimates of the number of school children who have at least a two-year deficit in reading). When the confusion surrounding definitions of "emotional problems" is added, definitional clarity and uniformity are probably impossible to achieve. Perhaps the essential reality is that between five and fifteen percent of school children with normal intelligence (Bateman, 1966, Dept. of HEW, 1969) are retarded in reading, and that the emotional component of this retardation is a potent enough factor to be considered in planning remedial techniques.

Many studies have attempted to delineate characteristics which differentiate the retarded reader from the nonretarded reader. Differentiating characteristics have included facets of personality and intellectual, educational and social functioning. Comparisons of relatively recent findings are found in Hunter and Johnson (1971). There is evidence to the contrary (Connolly, 1969; Farmer & Garfield, 1971; Johnson, 1957; Natchez, 1959; Siegel, 1954). Other results offer part confirmation of a relationship. Norman and Daley (1959), for example, found that while there is no difference in patterns of adjustment between retarded and nonretarded readers there is a difference in total adjustment. Most evidence indicates that retarded readers can be distinguished from nonretarded readers on a number of characteristics of relevance to this study. These characteristics will be discussed

later in this chapter. This study takes the point of view that a lack of precision and comprehensiveness in specifying behavioral variables--and not the absence of a functional relationship between reading problems and emotional problems--is the primary reason for the lack of a greater consensus that retarded and nonretarded readers can be differentiated on emotional characteristics.

The primary contention in the study reported here is that reading problems and emotional problems interact significantly and, further, that this interaction negatively affects a child's social and academic development. Consequently, the concurrent amelioration of those child social behaviors which are considered to be maladjustive by significant others (in this case, mothers) should significantly increase the efficacy of a remedial reading program. It seems that only by selecting and investigating samples in this way can the emotional content of reading problems be given any practical meaning.

Emotional/Personality Characteristics and Reading Retardation

Evidence of the relationship between reading retardation and emotional adjustment has been produced, with somewhat recent abatement, over the last fifty years. The evidence has issued from four main sources: 1) case studies by analysts, educators and physicians; 2) comparisons of groups of retarded versus successful readers; 3) studies of individuals over long periods of time and 4) remedial work emphasizing therapeutic methods (Witty, 1950). Useful summaries of the literature are found in Farmer and Garfield (1971), Johnson (1957), Leeds (1971), Park and Linden (1968), Russell (1953), Tulchin (1935), Wilking (1941) and Witty (1950).

In an analysis of the literature on the relationship between emotional/personality problems and reading retardation, Grams (1952) noted four categories of emotional reactions in retarded readers:

1. nervous reactions (pure affect), for example, sensitivity, tension, anxiety;
2. regressive defense reactions, for example, dependence and infantile behavior;
3. passive-aggressive defense reactions, for example, inattentiveness and disinterest;
4. active-aggressive defense reactions, for example, defiance and destructiveness.

Even though Grams' categories cover a wide range of emotional reactions, when a broader span of the literature is considered, nearly every emotional/personality characteristic imaginable has, at some time, been attributed to the retarded reader. Attempts to combine these into any meaningfully consistent pattern have largely failed (Abrams, 1971; Gates, 1941; Harris, 1956; Johnson, 1957; Townsend, 1965). Johnson (1957) concluded that:

> ". . . there is no single personality trait or combination of traits which is invariably associated with either success or failure in reading. Variability of personality structure, according to the existing evidence, will probably be great within groups of either achieving or retarded readers [p. 20]."

Furthermore, when the other possible etiological sources, for example, specific focal cerebral lesions, chronic illness, visual problems, mixed cortical dominance, developmental lag, improper teaching, and generalized neurological dysfunction, are added, "it is evident that

inadequate reading, like other learning deficiencies, is a symptom rather than a discrete clinical entity in itself [Rabinovitch, 1959, p. 864]." Consequently, "reading retardation" is a generic term, with specific etiologies to be determined in each case.

An evaluation of the relationship between emotional problems and reading retardation is beset by methodological difficulties. First, differentiations between achieving and nonachieving readers are sometimes misleading because of the error of measurement involved in most standardized reading tests. Related to this is the frequent assumption that a given degree of retardation means the same thing at all levels of reading competence (Applebee, 1971; Jerrolds et al., 1971). As well, researchers have sometimes failed to control for intelligence as a possible differentiating factor when reading tests in which comprehension is an important element are used in measuring reading performance. Second, variability within groups sometimes has not been examined. Relatively few studies consider the relationship between particular emotional/personality characteristics and particular reading skills and levels. Third, many studies confuse causation and correlation in making judgments about the relationship between emotional problems and reading problems. Specifically, causation is often inferred when only a correlational relationship has been demonstrated. A separate section in this chapter will be devoted to causation and correlation. Fourth, some researchers espousing a particular theoretical viewpoint have not considered other possibilities. Most of the research on reading and the emotional interactions of families has been undertaken and interpreted from a psychodynamic orientation. Finally, descriptions of emotional behavior are

often too generalized and nonspecific to allow for comparisons among studies. Given these restrictions, an attempt will be made to trace the development of research in this area, and to present studies which represent the main approaches used in relating reading problems and emotional problems.

The earliest identification of reading disability as a deficit unconfounded by either mental retardation or serious visual handicap was reported by Morgan (1896). However, it was not until reading was depicted as a developmental process involving the whole individual that emotional characteristics of reading problems were studied (Grams, 1952). These studies were first undertaken about fifty years ago (Gray, 1925).

The belief that reading disability is a multidimensional problem is one of the earliest themes in the literature. Gray et al. (1922), in commenting on the wide variety of characteristics found in remedial reading cases, stated that "reading is a very complex process and that numerous attitudes, habits and skills are involved [p. 206]." In a four-year longitudinal case history of sixteen instances of school failure, Woolley and Ferris (1923) concluded that, for nine of the children in their study, the dominant cause of (reading) difficulty was neglect. "Neglect" referred to home conditions. In each of the nine cases, a comprehensive description of these children at home revealed inadequate relations between parents and children. Gray et al. (1922) also considered that the attitude of parents toward a child was important in explaining the presence of reading problems.

Van Alstyne (1923) was one of the first to specifically investigate the emotional element in school academic performance. Over a

period of seven months she studied nine children with IQs over 120, whose school marks were comparatively poor. She included an "emotional instability" test among twelve standardized and nonstandardized sources of information. Van Alstyne found that six of the cases had a tendency toward emotional instability. She acknowledged that this proportion might not be different from the general population, but considered that "reconstructive" (emotion-based) work would be necessary for the children to perform at a level nearer that expected of them. It is interesting that among the "rough classification" of causes of children's academic problems was "home environment not normal." The characteristics of this category are pertinent to the present study. They were:

1) too gloomy;
2) emotional disturbances;
3) family prejudices;
4) too much responsibility on the child;
5) too little responsibility on the child;
6) attitude of over-protecetion on part of parents;
7) influence of older children;
8) spoiling of the child, and
9) pressure on the child too great (Van Alstyne, 1923, Pp. 133-4).

Eyre (1936) presented one of the earliest analyses of the "which comes first" issue to be discussed later in this chapter. She mentioned "thwarted emotion" as the "underlying causal factor" of reading retardation. However, she believed that:

> "emotional stress as aroused by, and attributable directly to, reading, spelling and writing difficulties, which operate in the child through loss of self-confidence, is present to a greater degree than has been generally recognized [p. 199]."

She instanced four cases which had no emotional problems before coming to school. In two of the cases, parental expectations and anxiety were prominent aspects.

It should be pointed out that these studies, and others produced about the same time (Blanchard, 1928; Hincks, 1926) did not constitute a numerically large part of the literature on reading problems (Grams, 1952). Further, they were largely unsuccessful in clearly establishing a relationship between emotional disturbance and reading problems (Jastak, 1934).

The main thrust of articles concerned with this relationship occurred between 1930 and 1960 (Fabian, 1955). Since 1960, perhaps as a corollary of an increasing emphasis on the accurate specification and treatment of reading skills, there has been a continued but lessening interest in this area. The main emphases in relatively recent studies will now be examined.

There is some evidence which suggests that the emotional syndrome of the reading retardate is a broad, but distinct, clinical entity. McCarthy and Paroskevopoulos (1969) believe that learning disabled children and emotionally disturbed children differ little in observable social behaviors. The authors isolated three problem clusters. Conduct problem behavior was the primary cluster present in both groups. It is exemplified by acting out behavior, overt aggressiveness, hostility, negativism and hyperactivity in class. The second cluster included immaturity, inadequacy, withdrawal, inattentiveness and dislike for school. The third order cluster was one of neuroticism, self-consciousness, lack of self-confidence, fearfulness, and depression. For the learning disability group, the second and third order factors were of equal importance. For the emotionally disturbed group, immaturity-inadequacy was more common than neuroticism.

Ephron (1953) analyzed a series of case studies and interviews of older retarded readers. She arbitrarily divided responses into "surface threads" and "underlying threads." The differentiating criterion was the specificity of statements. For example, "I am a poor reader" was classed as a surface thread. "I am afraid to fail" was called an underlying thread. Ephron found that underlying threads expressed diffused fear. She stated that:

> "The individual does not sense them as specific fears; he is aware only of vague anxiety, emotional and sometimes physical malice, feelings of helplessness, hopelessness, bewilderment, lack of self-confidence, nervousness and other signals of deep distress [p. 7]."

The broad relevance of fear is a recurring theme in the literature. Both withdrawn and aggressive behaviors have been interpreted as manifestations of underlying generalized fear and anxiety (Abrams, 1971). Strang et al. (1967) describes emotionally troubled readers as fearful, tense, lacking in effort and sustained attention, antagonistic to school, engaging in compensatory behaviors and generally lacking emotional and social responsiveness. Robinson (1949) described them as withdrawn and shy, lacking drive, initiative and interest, often insecure and apprehensive, and sometimes aggressive.

The above indicants are primarily the result of observing or listening to individuals. Other generally corroborating results have come from the analysis of personality and emotional behavior measuring instruments. Vorhaus (1952) analyzed Rorschach responses of 309 reading retarded boys and girls who were aged between six and fifteen. Four response patterns emerged: 1) lack of spontaneity; 2) lack of emotional responsiveness to the outside world; 3) refusal to achieve--is submissive

but feels rebellious; and 4) afraid of feelings of anger and may turn them inward. Bell et al. (1972) factor analyzed the responses of 100 junior high reading retarded boys. They found that the boys adopted one of three adjustive patterns to their reading disability: aggressiveness, negativism or passivity. Glavin and Annesley (1971) found conduct problems, withdrawal and inadequacy-immaturity to be factorially independent dimensions when they analyzed the responses of 150 reading retardates on a behavior problem checklist.

Some researchers have attempted to differentiate retarded and nonretarded readers on the basis of emotional characteristics. Hunter and Johnson (1971) compared twenty 7- to 11-year-old reading-disabled boys with 20 matched controls reading at age-grade level or better. They reported significant differences between the groups on historical, familial, developmental and psychological factors. Differentiating emotional/personality factors were self-confidence and hyperactivity. Gann (1945) compared 74 retarded readers with respective groups of superior and average readers from grades 3 to 6. The children were matched for sex, IQ, mental age and school experience. The retarded readers were judged as less adequate in personality adjustment than either of the other two groups. The poor readers showed insecurity, egocentricity, impulsive emotional reactions, less social adaptability and less security in the face of challenges. Stewart (1950) compared two groups of maladjusted children who were between 8 and 12 years of age. One group was retarded in reading, while the other was superior. Stewart found that the children in both groups were basically insecure, but that the backward readers were more aggressive and self-assertive

than were the good readers. Immaturity and insecurity as differentiating characteristics have also been reported by Blackham (1955) and Abrams (1956).

The studies reported above have been given powerful support in a 30-year longitudinal study reported by Athey and Holmes (1968). In response to four theoretical and methodological objections to previous studies on the relationship between personality factors and reading, the authors developed five personality factors with power to discriminate poor readers from good readers. Erikson's (1950) theory of childhood personality growth was the basis for the development of characteristics which would discriminate between the two groups. Samples were 160 students from grades 7, 8 and 9 (1933-1935), a cross-validation sample of 130, and three samples selected from grades 7, 8 and 9 in 1966. The resultant analysis provided the following discriminatory factors:

1. Social independence--good readers had a belief in the ability to lead one's own life and the desire to make one's own decisions in adult fashion;

2. Self-Concept--good readers had a highly positive self-image in both academic and social spheres;

3. School dislikes--good readers emphasized dislike of school work and teachers, while poor readers complained about the behavior of peers;

4. Self-Decision and family orientation--good readers sought companionship among peers, while poor readers looked to parents and home life for leisure activities.

The fifth factor was a composite of the first four factors. The total scale was called the Self-Interest Inventory. The authors state that:

> ". . . considered together, the scales present a picture of greater self-confidence, independence, and social maturity on the part of the good readers, as predicted [Athey & Holmes, 1968, p. 457]."

By isolating and cross-validating only those personality items related to reading, Athey and Holmes claim that:

> ". . . here, possibly for the first time, is evidence that a certain set of personal values is consistently related to the achievement of reading success in the junior high school grades [p. 459]."

Another finding of relevance to the study to be reported is that of Zimmerman and Allebrand (1965). They studied 71 retarded and 82 nonretarded readers. The subjects were equated as nearly as possible for age, sex, ethnic composition, and intelligence. Personality measures used were the California Test of Personality and Card I of the Thematic Apperception Test. Results were consistant with previous findings that poor readers are significantly more insecure, withdrawn and immature. However, the authors concluded that the results could have been produced because:

> ". . . the good readers appear to have an excellent grasp of the concepts of adjustment and motivation prized by teachers and school psychologists, and they wish to present themselves in this light. The level of inculcation of these 'adult' goals is in contrast to that of the poor readers, who willingly admit to feelings of discouragement, inadequacy and nervousness, . . . [p. 30]."

This observation raises the issue of test falsification--a perennial question in personality studies. To help obviate this, the study reported here combined an impressionistic behavioral description with daily measures of specific overt behaviors.

Other studies have been more concerned with relating emotional variables to the reading situation or process. O'Connor (1968) developed a Reading Apperception Test--similar in approach to the Thematic Apperception Test--to explore the relationship between attitudes toward reading and reading ability. The 72 children of O'Connor's study were divided into average and severely retarded readers, and into primary and intermediate grade children. Not surprisingly, the author found that the severely disabled group showed stronger avoidance toward reading and the reading situation. Interestingly, the remedial treatment situation elicited the strongest avoidance. Of more relevance to the present study was the contention that attempts to change avoidance attitudes and develop an effective remedial reading program involve changing attitudes on a cognitive (thinking), affective (feeling), and fantasy (wishing) level. The author concluded that "the fantasy level would be the most difficult, but probably the most fruitful, level on which to bring about change [p. 81]."

In a well-controlled study, Natchez (1961) compared frustration reactions of 30 reading retarded and 30 non reading retarded children on reading tasks and data gathered from school records, peer ratings, teachers' judgments and a frustration-type task. Fifty-nine retarded readers were added to make analysis of the non-reading task data more divisible into discrete personality characteristics. The children were matched for race, school, class, grade, sex, age and intelligence. Natchez found that the children with reading disability manifested a significantly greater proportion of dependence, aggression and withdrawal reactions during the reading task than did the children

without such difficulties. A second and more contextually important finding was that:

> ". . . frustration-type behavior (dependence, aggression, withdrawal) for the retarded reader in a reading situation can be predicted from what is known of his behavior to frustration in situations other than reading [p. 309]."

Natchez' establishment of a functional relationship between personality variables and the reading situation is of basic importance to the purposes of this study.

Difficulties with reading tasks such as word and letter reversals are seen by some authors as reflecting psychological rather than neurological states. Michael-Smith and Morgenstern (1965) believe that reading reversals are synonymous with psychological defenses which produce maladjustive behaviors.

> "An example of a psychological reversal may be seen in the child who laughs when plagued by other children or who looks down when the teacher tells the class to look up . . . . Thus the substitution of _was_ for _saw_ may reflect the child's way of dealing with anxieties related to looking forward. Similarly transposition of letters within a word (_rage_ for _gear_) may also reflect a feeling tone [p. 177]."

A similar point of view is found in Grunebaum et al. (1962).

A related finding was produced by Rugel (1971). He used GSR increase as a measure of the emotional effect of difficult reading materials on second and third grade readers. He found that the effects were detrimental to the efficiency with which the difficult materials were learned. This study involved only average readers. The author concluded that frustration and anxiety effects would be even greater for the retarded reader. This logical assumption was confirmed in a study by Mussen (1965).

Despite the profusion of studies providing evidence that retarded readers will, more often than not, also have emotional/personality problems, conceptual ambiguities make difficult the use of these data for remedial purposes. In a review of the literature, Sampson (1966) raised the question: "are terms such as 'emotional disturbance,' 'maladjustment,' 'personality defect,' 'unfavourable emotional attitudes,' and so on, to be equated [p. 188]?" Even less global descriptions of emotional or personality maladjustment are difficult if not impossible to apply as behaviorally meaningful facets of reading disability. As an example, Farmer and Garfield (1971) have pointed out the difficulty of interpreting the term "acting out," let alone describing its interaction with reading problems. In their study, they utilized two groups of subjects who had "exhibited antisocial behavior which could be characterized as acting out behavior [p. 560-561]."

The authors comment:

> "Does this imply that the two groups were initially alike with respect to expression of feeling--that is, that they both act out feelings? To 'act out' means that a person expresses unresolved needs and conflicts from his past in his present behavior. However, to say that a person is acting out cannot be taken as an exhaustive description of how this person expresses feelings, nor of what these feelings mean to him [p. 561]."

These comments indicate that, even if agreement could be reached on the meaning of particular terms in descriptions of emotional and personality maladjustment, it is necessary to further refine descriptions of behavioral acts, if those behaviors which generate and perpetuate reading problems in particular children are to be known.

Accordingly, the present study defines emotional/personality problems as specific discrete behaviors which, because of their presence or absence, constitute, for parents, areas of disturbance between each parent and child. In doing this, an assumption is made that personality and emotional maladjustment are expressed in behaviors. Consequently, changes in their occurrence should result in changes in emotional states and personality characteristics.

Intelligence and Reading Retardation

The contribution of intelligence to the impact of a remedial reading program needs to be examined. The sample in this study can be described as a learning disability group (that is, one in which intelligence is not considered to be a significant factor in educational retardation). Over the years, the contribution of intelligence to reading retardation has been debated frequently. There is some evidence that educationally handicapped children with low IQ's differ in personality characteristics from educationally handicapped children with high IQ's. Begley (1970) investigated 96 of these emotionally handicapped children and found that the low-IQ (80-89) group were significantly more immature, more hostile-aggressive and more neurotic than the group with higher IQ's (105-125).

Other studies have sought to differentiate WISC performances of retarded readers and nonretarded readers. Most studies have found that the verbal scores of retarded readers are significantly lower than their performance scores. However, the reported patterns of subtest scores vary considerably. This may be due to the variety of methods

employed by researchers, and the low "n" of many experimental groups (Neville, 1961).

Variability in subtest discrepancy patterns among retarded readers has also been reported in studies using intelligence tests other than the WISC (Jerrolds et al., 1971). Despite this variability, some authors have attempted to relate patterns of intelligence test performance to the process of reading remediation. For example, Neville (1961) states that:

> ". . . they (retarded readers) would profit most from a relatively non-verbal approach utilizing mostly kinesthetic and visual methods of instruction [p. 197]."

One of the most recent studies (Black, 1971) investigated the effect of intelligence on the level of reading achievement of 100 elementary school children with significant reading problems. This investigation was a response to case-study evidence supplied by Ames (1968), which suggested that intelligence is a major causal factor in the learning problems of children with IQ's between 75 and 90. Ames' evidence was rebutted by Kline (1969), who stated that "her (Ames') ideas, as presented in this article, <u>are contrary to the vast body of research and clinical experience in relationship to this particular problem</u> [p. 262]" (underlining added). Black's (1971) evidence only partly confirmed Ames' findings. He found that 55% of his sample had WISC IQ's below 90, and 82% had a full-scale IQ below 100. He acknowledged that his sample could have been biased because they were referrals to a remedial center, and thus could have been more pathological and lower in social class than a normal group of elementary school children.

However, even with this possibly biased population, he did not find a high correlation between reading attainment (as measured by The Reading Subtest of the Wide Range Achievement Test) and WISC Full Scale IQ. Similar findings have been reported by other authors (Lyle & Goyen, 1969; Malmquist, 1958; Neville, 1961; Silberberg & Feldt, 1968).

There is a further reason that intelligence is an irrelevant factor in this context. The present study is not concerned with the limits of reading improvement, or with comprehension (both of which might be related to intelligence (McLeod, 1968), although evidence is not conclusive (Vernon, 1971), but with the acquisition of fundamental word analysis and synthesis skills, most of which are taught by the end of second grade. In this regard, Bliesmer (1954) found that children with IQ's between 116 and 138, and those with IQ's between 72 and 84, who had the same mental age--10 1/2 - 12 1/2 years--were similar in attainment on tests of word recognition, but the more intelligent were significantly superior in grasping the main ideas of the text and in drawing inferences from these ideas.

Consequently, there is little reason to believe that intelligence would contribute a confounding remedial effect of the 23-day teaching program of the present study. Moreover, any confounding influence which could arise from intellectual differences was taken into account when the procedures used to select subjects were determined (see Chapter 2, p. 75).

The use of intellectual capacity as a criterion in making judgments on reading disability has had other effects. Dependent on "capacity," even a substantial deficit in reading level could be accepted because

he was doing "as well as could be expected [Johnson, 1957, p. 15]." Further, the use of capacity as a yardstick meant that reading at grade level could be defined as a reading retardation if an individual's (IQ) potential indicated he could do better. In contrast, the present study is based on the point of view that the term "reading disability" should indicate the degree to which a child has mastered reading skills commensurate with his grade level. If he has, then he is not a retarded reader, irrespective of IQ. If he has not, then he is reading retarded to the degree he does not have those skills. Harris (1971) suggests that primary children reading a half year below expectancy should be considered as disabled. He believes that the discrepancy should be 9 months for fourth and fifth grade children and 1 year for sixth grade children. Wilson (1967) developed a similar system of variable retardation levels. Each grade level was given a retardation criterion, from 3 months in first grade to 22 months for twelfth grade. The present study used a retardation criterion of at least one year. This criterion is consistent with the views of Harris (1971) and Wilson (1967).

While the principle of variable retardation levels seems sound, the use of error-prone normative tests throws doubt on the validity of resultant discrepancy levels. Applebee (1971) has a useful analysis of problems concerned with the definition of reading retardation. Accordingly, in the present study, an attempt was made to use both normative oral reading scores and particular word analysis and synthesis skills in the analysis of results.

The use of oral reading to define reading disability needs to be understood in the context of two further definitional considerations.

First, oral reading scores are those of a particular reading population. Ideally, the sample of the present study will conform to the definition given by Eisenberg (1966):

> "Operationally, specific reading disability may be defined as the failure to learn to read with normal proficiency despite conventional instruction, a culturally adequate home, proper motivation, intact senses, normal intelligence, and freedom from gross neurological defect [p. 352]."

Secondly, it is recognized that oral reading is only one among the several somewhat distinct aspects involved in the process called "reading":

> "Achievement in such different aspects of reading as oral reading, spelling, silent reading comprehension, and speed of reading show only a moderate degree of intercorrelation, and a given student may be retarded in any one, or in any combination of these skills. Though not likely, it is at least possible that the model which will successfully describe retarded reading on one of these dimensions will not be the one that fits some other dimension [Applebee, 1971, p. 110]."

The reading skills mentioned by Applebee are relatively gross definitions of reading behavior. An important purpose will have been served in this study by comparing changes in criterion oral reading scores with changes in scores for particular skills which contribute to oral reading competence.

Family Patterns and Reading Retardation

The contribution of family interrelationships to reading retardation is an important aspect of the present study.* In an examination

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*See bottom of next page for note.

of evidence concerned with the reasons children fail in reading, Robinson (1946) stated:

> "Maladjusted homes or poor interfamily relationships were found to be contributing causes in 54.5% of the cases studied [p. 222]."

While there is some doubt that the relationships between family problems and reading problems reviewed by Robinson are causal, a proportion considerably lower than that found would merit consideration of the home as a factor in optimizing remedial effectiveness.

Hincks (1926), Preston (1939, 1940), Gann (1945), Missildine (1946), Stewart (1950), and Witty (1950), are other earlier writers who stressed the importance of family interrelationships in the development and prolongation of reading retardation. Writers have provided various explanations of the process of influence between family life and reading performance. Lyle (1954) considered that:

> ". . . failure to learn to read is due to an infantile passive dependent relationship with parents, involving an unwillingness to be psychologically weaned from mother [p. 194]."

Lyle considered that this attitude is due to conscious or unconscious attitudes of rejection on the part of the parents. He further believed that the greater incidence of reading retardation in boys is due to the difficulty boys have in changing from a passive mother-dependent pattern to a more active pattern of father-identification as they begin school.

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*This discussion will not include evidence from studies concerned with the influence of social class and economic deprivation. It is recognized that these factors can influence academic performance, and may be present to some degree in children labeled "learning disabled." However, this study is concerned with family relationships in which social class differences and economic deprivation can be considered as non-primary influences.

Grunebaum et al. (1962) used a series of case studies to formulate an explanation of the ways that fathers' attitudes influence learning problems in their elementary-school sons. Fathers were described as believing themselves inadequate despite educational and occupational adequacy. Feelings of inadequacy led them to adopt a "passive or explosively demanding orientation [p. 472]" to their wives and to view their sons as competitors for mother's support and admiration. As a consequence, fathers unconsciously subverted their child's achievement while consciously wishing that he succeed. Mothers' desire for masculinity also produced an unconscious desire to limit her son's attempt to develop an achieving male identification. The authors describe how these neurotic attitudes are internalized by the child and displaced in the school learning situation. The child is seen alternating between chronic fear of failure and of success.

Peck (1971) discusses the role of family dynamics in reading disorders. He believes that a critical ingredient of the family situation for the retarded reader is resistance to change--a well-attested concept in family theory (Peck, 1971). In this family system, communication exchanges are disturbed. More importantly, both parents and child resist change in order to maintain this inhibitory system (Miller & Westman, 1964, 1966; Peck, 1970). This resistance includes a child's being unwilling to alter his reading level, no matter how inadequate. Peck (1971) cites evidence which indicates that negative family reactions can follow improvement in reading ability.

Peck (1971) also describes characteristics of the mother and father in this family system. The mother is described as having the schizo-

phrenogenic characteristics of mothers in problem families--powerful, keeps thoughts to self, frustrates and confuses people who try to influence her, seductive, controlling, desperately occupied with harmony and has had a childhood which has left her feeling intellectually stupid, low in self-esteem, depreciating of her own femininity, and hateful. The father's characteristics include an unhappy childhood with educational problems, an occupational level below potential, a lack of self-confidence, amenability to manipulation by mother, an avoidance of intimate relationships, and a facade of confidence and assertiveness. In this negative atmosphere, any improvement in reading is likely to require an unwanted reappraisal and restructuring of individual roles in the family. The result is a power struggle between the child and his family and other people (such as his teacher), who are identified with his improvement in reading and the resultant disruption to his "stable" family life.

There is no way of knowing how many families of reading retarded children fit this pattern. However, the concept of a power struggle as being a primary constituent of reactions to reading problems is not a new concept. It is clearly consonant with the Adlerian interpretation of reading problems (Dreikurs et al., 1971):

> ". . . the retarded reader has difficulty cooperating with others, particularly with adults. He often displays disdain for and defiance of order. Despite personal affection he may have for adults, he is usually unable or unwilling to follow directions, to accept responsibility, or to do as he is told. The reading difficulty appears then as merely one facet of disturbed interpersonal relations in social maladjustment [p. 221]."

As well, there is evidence which to some degree corroborates Peck's findings. Hall (1963) investigated the behaviors and attitudes of the mothers and fathers of 40 fourth- and fifth-grade reading retarded boys. A semistructured interview procedure yielded responses from fathers on 81 variables and from mothers on 84 variables. Previously established rating scales were used for analyses of responses. There was a 90.5% inter-rater agreement of one point difference across all scales. Thirty-one items differentiated the two groups of mothers. Mothers of the reading retarded boys were significantly more overprotective but less warm. They were higher on punishment aggression, expressed lower esteem for their husbands and more dissatisfaction with their role than control mothers. The father groups were differentiated on 25 items. Fathers of reading retarded boys had a lack of warmth, low self-esteem, high child-rearing anxiety and were significantly more punitive than the control group fathers. An interesting finding which corroborates those cited earlier in this section (Grunebaum et al., 1962; Peck, 1971) was that Hall's theoretical prediction that the relationship of the father to the mother of the reading retardate would be passive and acquiescent was not confirmed. The father was found to be conflictual and disapproving of his wife. The apparent difference in conceptions of the father's role could be resolved by a finding of Peck (1971) that, although the father had a facade of assertiveness toward the mother, he had little self-confidence, and was easily manipulated by her.

Many of the characteristics described by Peck have been produced by other studies. In a comprehensive analysis of the family patterns

of nine-to thirteen-year-old reading retarded boys of average to above average ability, Sperry and others (1958) state that the families "present a picture to the community of stable, successful and serene family life, a picture which is not quite true [p. 99]." Actually, none of the fathers was an unqualified success vocationally. Parents were found to have rationalized or refused to accept unpleasant experiences in family life, be inordinately self-effacing and self-sacrificing, and be fearful of aggressive impulses. They placed considerable stress on being good. They helped their children academically, yet did not convey to them that the children would be successful. Mothers are presented as having an underlying hostility toward men, and as not being able to stand feeling weak, helpless or afraid. However, there is much fluctuation. Such families have a history of competitive problems, frequent acts of renunciatory behavior, and a depreciated father image; an attempt is made to suppress hostility, but it is usually manifested in the behavior of one or more of the children.

In summary, the reading retarded boy is found in a family in which he is the most eligible for the role of the unsuccessful one. The conflict between the positive and negative aspects of his parents' interactions with each other and with him have produced a state in which failing is the most familiar and least threatening reaction.

The studies reported above give no indication of the extent to which the characteristics attributed to the mothers and fathers of retarded readers are found in other populations, including the general population of mothers and fathers. Siegler and Gynther (1960) used the

Interpersonal System of Personality devised by Leary (1957) to determine whether parents of children with reading difficulties differed from parents of nonretarded readers on self-description, attitudes towards each other, and attitudes towards their children. The most significant results differentiating the parent groups were that parents of poor readers:

1) more frequently use critical or derogatory descriptive terms;

2) more frequently describe their children as aggressive, distrustful, or dependent;

3) more often disagree in their descriptions of their child;

4) are more frequently disidentified with their spouses and children;

5) more often devaluated their children's personalities.

The authors concluded that "family conflict is greater in the home of a poor reader than it is in homes in which no child has a reading deficiency [p. 24]."

Another attempt to investigate home relationships of the reading retarded child was that of Della-Piana and Martin (1966). They attempted to simulate home mother-child interactions in a laboratory setting. Twenty-eight mother-daughter pairings of advanced and retarded readers were asked to resolve differences in the way each had completed a vocabulary review and a survey of opinions on parent-child interactions. Two significant findings were that mothers of the reading retarded girls showed fewer positive social-emotional reactions and more negative social-emotional reactions than mothers of the advanced readers. Positive

social-emotional reactions included showing solidarity, raising other's status, giving help or reward, showing tension release, joking, laughing, agreeing, and showing passive acceptance. Negative social-emotional reactions included disagreeing, showing passive rejection, formality, withholding help, showing tension, showing antagonism, deflating other's status, or defending or asserting self. While these results do not indicate the degree to which such differences have a debilitating effect on the reading of underachievers, they provide some evidence that interactions in the homes of retarded readers are more negative than interactions in the homes of nonretarded readers. Furthermore, the characteristics of this negative relationship are not unlike those of the interactional pattern described by Peck (1971).

Indices of home environment practices have been shown to be highly correlated with reading achievement, even where other factors, such as social class and parents' occupations, are controlled. Dave (1964) found a correlation of .80 between six indices of home interaction and fourth-grade achievement. Fraser's (1959) home and achievement factors correlated .75.

Methodological problems make it difficult to compare the results of studies. These include small sample size, lack of replication, insufficient specification of what is being measured, and a failure to control alternative effects on the experimental treatment (Schutz, 1966). As well, supposedly negative characteristics are sometimes found in samples of good readers (Bing, 1963). However, there seems no doubt that the contribution of mother and father to reading competence ought to be investigated further. Della-Piana and others (1968), in a review

of studies on parents and reading achievement, conclude that the existing evidence is sufficient to develop treatment programs for parents for the alleviation of remedial reading problems in their children. This opinion is consistent with the conclusions of other comprehensive reviews (Johnson, 1957; Park & Linden, 1968).

Emotional Behavior and Theories of Reading Retardation

Until 1950, emotional abnormalities had been prominent in theories of reading retardation. Stone and Church (1957) consider that three major groups of theories emerged at different times during this period. All three were "emotional" in implication or substance.

The first theoretical conception was neurological in nature. Emotional complications were said to be inadequate feelings arising from neurological deficits.

The second group of theories gave primary importance to emotional factors. Reading disability was presented as a form of unconscious protest against adult authority.

In the third group, functional sources, such as readiness or developmental lag, were assumed to generate emotional problems which inhibited learning to read. In applying these theoretical foci to subsequent developments in theories of reading retardation, Park and Linden (1968) consider that the most accepted current view is to assume that each of these approaches is "a different syndrome for which in all cases the reading problem is common[p. 320]."

This judgment suggests that reading problems exist in separate groups of interrelated behaviors. Although reading is common, the

relative importance of reading and other behaviors to the process of remediation is not indicated. Presumably, the emotional component in reading retardation would vary considerably among children. Lerner (1971) believes that:

> "There appears to be no common characteristics of personality development for children with learning disabilities. Each child has his own unique way of handling his feelings, his deficiencies, and his environment [p. 243]."

Eisenberg (1967) states that:

> "The patient is a psychological entity, subject both to biological and to social influences in manifesting a psychological continuity of his own [p. 171]."

It is important to determine how inhibitory are emotional factors to the remedial process. Both learning and psychoanalytic theories have attempted to do this (Freud, 1966; Harris, 1961; Higard, 1956). However, there are also theories of reading development which discount or minimize the importance of emotional factors. These include theories of sensory-motor and perceptual-motor development (Getman, 1965; Kephart, 1960; Barsch, 1965; Delacato, 1963), theories of perception and memory (Wepman, 1968; Johnson & Myklebust, 1967; Chalfant & Scheffelin, 1969; Frostig, 1968), theories of language development (Piaget, 1952; Luria, 1961; Chomsky, 1967; McGrady, 1968) and cognitive theories (Guilford, 1967; Neisser, 1967; Stauffer, 1970).

These theories do not emphasize psychodynamic aspects of a child's reading problems. They do not ask the question: "How does the child with learning disabilities <u>feel</u> [Giffin, 1968, p. 75]?" This question has not been invalidated by the development of other theories. Irrespective

of the knowledge about the structure of the reading process contributed by these theories, the effect of emotional and personality variables on remediation remains unclear. Yet it is diminishing in importance:

> "At one time much stress was placed on the idea that many children could not read because they were emotionally upset over failure to learn to read. As a result, most remedial recommendations specified the need to overcome emotional problems before the child could be helped with his reading. The emotional angle was over-used and probably overemphasized. At least the trend lately has been to look elsewhere for causes and obstacles resulting in reading disabilities [Kaluger & Kolson, 1969, p. 25-26]."

Recently, there has been more of an emphasis on the importance of the structure of the formal reading program. In this context, Bateman and Frankel (1972) state that "when a child has severe difficulty in reading . . . he may or may not require . . . counseling"; but they also aver that it is "certain" that "an excellent reading program produces few, if any, children who fail in reading [p. 180]." The primacy of the reading program is not a new idea (see the statement by Wilking (1941) on the Frontispiece of the present study), but growth in knowledge about the reading process, plus a failure to operationalize findings from studies investigating the emotional content of reading retardation, have probably contributed to this appraisal.

However, the continuing importance of the emotional component in remediating reading problems is still being acknowledged, if indirectly. In a recent book, Lerner (1971) is concerned primarily with the theory and educational implications of nonpsychodynamic approaches. Yet she states that "emotional well-being and a favorable attitude are <u>essential</u> (underlining added) prerequisites before effective learning can take place [p. 243]."

The interaction of learning and emotional factors is also fundamental to most personality theories. These theories imply that optimum treatment of reading problems would occur when attention is given to aspects of an individual's functioning other than reading skills. Stanton (1968) considered the relationship of three prominent theoretical systems of personality description to the process of reading remediation. He surmized that:

> "If any of the ideas in these systems are valid, they certainly have implications regarding the development of special remedial reading programs that are skill oriented. There seems to be so many more variables involved other than specific reading skills that a program of this type could do a great deal of harm to the individual. If one takes into consideration Maslow's hierarchy of needs, Rogers' Self, and Freud's Ego Ieal one begins to question the advisability of any structure that provides only for a remedial cognitive program [p. 58]."

Some theorists contend that learning-disabled and normal children differ in their emotional-personality development. Rappaport (1966) believes that the ego development of the learning disabled child is different from that of the normal child. Ego functions are affected when a child's central nervous system is not intact and maturing in a normal and even manner. A disturbance in such functions as motility and perception leads to an inadequate development of ego functions. Failure to master tasks leads to frustration, lack of accomplishment and rejection by self and others. If repeated often enough, the child loses the sense of himself as succeeding as well as failing. Ultimately, a pervasive feeling of self-worthlessness causes him to avoid confrontation with particular skill weaknesses, and makes transitory the pleasure felt at any achievements. Awareness of achievement is quickly dissipated

by his general, negative self-concept. These attitudes are likely to be developed before a child reaches school and to be perpetuated by school and home reactions during his school life (Giffin, 1968; Eisenberg, 1967).

The theories discussed above provide an implication which is fundamental to the study reported here: academic and social behaviors become interdependent. The child is no longer able to constructively separate his academic and social strengths and weaknesses. Consequently, simultaneous attention to both academic and social skills should produce greater positive change in both skill areas than if they were treated singly.

Correlation and Causation in the Relationship Between Reading Retardation and Emotional Problems

Many studies have attested to concurrent or ordinal associations between reading difficulties and personality/emotional difficulties. These studies can be roughly classified into three groups. First, those which emphasize the correlational nature of the relationship (Burfield, 1949; Chansky, 1958; Dechant, 1969; Ephron, 1953; Feinberg & Reed, 1940; Grunebaum et al., 1962; Hopkins et al., 1958; Jackson, 1944; Louttit, 1957; McDonald et al., 1959; Middleton & Guthrie, 1959; Norman & Daley, 1959; Odenwald & Shea, 1951; Robinson, 1949; Sherman, 1939; Solomon, 1953; Spache, 1957; Stewart, 1950, Vorhaus, 1952; Zirbes, 1928).

The other two groups into which studies relating reading and emotional behavior can be classified seek to establish a causal

relationship between the two. There are those which emphasize emotional/personality maladjustment as a primary cause of reading disability (Blanchard, 1928; Challman, 1939; Gann, 1945; Gates, 1941; Harris, 1961; Hollingworth, 1923; McCallister, 1930; McDonald, 1961; Malmquist, 1958; Mary Vera, 1942; Missildine, 1946; Natchez, 1961; Robinson, 1946; Stewart, 1950; Sylvester & Kunst, 1943; Tulchin, 1935; Vorhaus, 1946; Walters et al., 1961; Wilking, 1941).

Others claim that reading disability precipitates personality, emotional and behavioral maladjustment (Ackerman & others, 1971; Eisenberg, 1966; Gates & Bond, 1936; Gregory, 1965; Glick, 1972; Kline, 1972; Johnson & Myklebust, 1967; Ladd, 1933; Meerloo, 1962; Monroe & Backus, 1937; Newell, 1931; Preston, 1940; Reinmuth, 1969; Ridenour, 1935; Sherman, 1939; Strang, 1938).

Not all studies agree that a correlational or causal relationship exists between reading and behavior. There are those who claim that the two are not significantly associated (Anderson & Kelly, 1931; Damereau, 1934; Farmer & Garfield, 1971; Gates, 1941; Harris, 1956; Reger, 1972; Siegel, 1954). There is also some evidence that maladjustment can be conducive to high reading achievement (Haggard, 1957).

The apparent disagreement in the above studies might reflect the complexity of the problem being studied. Reading problems and emotional problems are probably part of a symptom complex rather than separate symptoms (Rabinovitch, 1962). The difficulty of enunciating the relationship is increased further by the fact that traits described for retarded readers may be found among average and superior readers (Johnson, 1957; Natchez, 1959; Siegel, 1954). It is clear that the

methodological sophistication required to isolate causal factors has not been attained in most studies. Some studies used correlational methods to reach causal conclusions (Copple, 1961; Gregory, 1965; Lamy, 1966; McMurray, 1963; Glick, 1972). The relationship between causation and correlation will be briefly discussed and its relevance for the design of this study will be stated.

Drever's (1962) A Dictionary of Psychology defines causality as:

> "The presumption of connection between events or phenomena of such a kind that the occurrence or presence of one is necessarily preceded, accompanied, or followed by the occurrence or presence of another or others [p. 34]."

The same reference defines correlation as:

> ". . . the relation between organs, structure, measurements, etc., which vary together [in psychological statistics] the term is applied to the tendency of two series of measurements to vary concomitantly, in consequence of which, knowledge of the one gives us a basis for drawing conclusions regarding the other, according to the extent or degree of the correlation [p. 52]."

The distinction is basically one of dependence. Causality requires that connected events be operationally related. Correlation does not. Correlated events are ostensibly independent events. Once dependence is established, causality can be ascribed to the relationship. Causation implies correlation, but the converse is not necessarily true:

> "Correlation does not necessarily indicate causation, but a causal law of the type producing mean differences in experiments does imply correlation [Campbell & Stanley, 1963, p. 64]."

The distinction between causation and correlation has important implications for research design:

> "Correlation design involves the comparison of . . . natural units, differing not only in the presence and absence of X, but also in innumerable other attributes. Each of these other attributes could create differences in the Os, and each therefore provides a plausible rival hypothesis to the hypothesis that X had an effect. . . . [p. 64."

On the other hand, the establishment of causation occurs through the experimental isolation of explanatory hypotheses:

> "The . . . correlational approach can produce a preliminary survey of hypotheses, and those which survive this can then be checked through . . . experimental manipulation [p. 64]."

Rival hypotheses are represented by the 12 validity factors discussed by Campbell and Stanley (1963). Any one of these factors can be a rival hypothesis which prevents confirmation of a causal relationship between two or more variables.

There are two reasons that the distinction between causation and correlation is relevant to the present study. First, correlation implies the possibility of a <u>current</u> interaction between variables. Consequently, if reading retardation and emotional problems are correlated, as suggested by much of the literature, experimental concentration on <u>both</u> reading and behavior in a sample of reading retarded children could maximize the gains produced by the reading program.

Second, although causation involves establishing that one variable produced another, it does not necessarily mean that the resultant cannot be an interaction: causation implies correlation--"a causal law of the type producing mean differences in experiments does imply correlation [Campbell & Stanley, 1963, p. 64]." The principle advantage of establishing a causal relationship is that it clearly identifies the most

promising direction and sequence that experimentation should take. The literature on reading retardation and emotional problems is equivocal regarding direction and sequence. This means 1) that a successful remedial reading program could diminish the frequency and intensity of problem behaviors; and 2) conversely, that a counseling program which changes problem behaviors in an appropriate direction could increase reading gains in a remedial reading program. The study reported here deals with the latter proposition. It would have been preferable to include both propositions in the experimental design. This was not possible, primarily because of practical limitations--namely, not enough subjects were obtainable. However, a legitimate and important purpose will have been served if the concurrent effect of changes in problem behaviors on reading competence is clearly evaluated.

In summary, although the distinction between causation and correlation is important in relating reading problems and emotional problems, this distinction was not critical to the design of the present study.

A Review of Previous Uses of Counseling for Retarded Readers

It seems remarkable that the production of hundreds of articles and studies over 50 years attesting to the relationship between reading problems and emotional/personality problems has included very few which have investigated a basic implication: that counseling for the alleviation of emotional/personality problems might contribute significantly to the efficacy of remedial reading programs. A present trend appears to emphasize combining the remedial and therapeutic aspects of

reading instruction into a single role. This role has been called "learning therapist [Waldman, 1972]." The learning therapist:

> ". . . is represented by the teacher who brings to his role a grasp of psychodynamics, an understanding of child development and sufficient clinical sophistication to enhance his teaching and relationship effectiveness [Waldman, 1972, p. 165]."

Unfortunately, there appears to have been no attempt to specify the operational conditions which make this role different from that of the "conventional" remedial reading teacher. Consequently, its effectiveness, compared with other remedial teaching methods, is not known.

"Reading therapist" appears to be a similarly-intentioned term. However, its meaning is confused. It has been used to refer to the use of behavioral reinforcement procedures in overcoming reading problems (Camp & Van Doornick, 1971). It has also been used in place of "remedial reading teacher," without clearly differentiating the new function from conventional remedial methods. Cohn (1972) presents a case-study example of this type of reading therapy.

The few attempts to separate psychological components from educational components of reading retardation have not resolved this issue. One of the earliest attempts to use counseling methods for reading problems was that of Axline (1947). Thirty-seven second-grade children with reading ages from 1.0 to 2.5 were formed into a special class. Their educational program consisted of a variety of "nondirective" play experiences (for example, free dramatics, puppet plays, music, planning for themselves and taking trips). The reading program consisted of four voluntary groups. Exercises included dictating their

own stories, reading them back, listening to stories and reading easy books. The program was based on the assumption that:

> ". . . an experience which would help the children gain a better understanding of themselves and a feeling of success and self-confidence and personal worth was a necessary prerequisite for successful academic work [Axline, 1947, p. 69]."

Axline stated that the program did not include remedial reading instruction. At the end of three months, posttest scores showed that 28 of the 37 children had made gains of over 3.5 months of reading age on at least one of three reading subtests. The figure 3.5 was given as the "normal expectation" for increment.

Unfortunately, this interesting study has an experimental design which makes it difficult to interpret. First, there was no control group. The inclusion of a normal program group and a remedial program group would have provided necessary comparisons. Second, greater increments in reading age would be necessary to control for the possible confounding of treatment effect by the standard error of measurement. Third, the treatment program was inadequately described. Fourth, there is a possibility of a Hawthorne effect arising from the formation of such a special group. An evaluation of subsequent attempts to more clearly specify the effect of play therapy on reading retardation is found in Pumfrey and Elliott (1971). Despite improvements in experimental control, the issue remains unclear, primarily because the relationship between reading and behavioral process and outcome variables lacks clarity.

Other attempts have been made to augment reading gains through counseling. Lawrence (1971) used a predominantly nondirective discussion

method to convey to the child "that he enjoyed his company [p. 120]." There were 48 subjects. Each of four groups included eight boys and four girls. The groups were remedial reading only, counseling plus remedial reading, counseling only, and no treatment. Counseling covered a six-month period. Each child was seen for 20 minutes each week. Topics ranged over major areas of the child's life. Lawrence found that children in the two counseled groups showed significantly higher reading gains than either a remedial group or a control group who received no special treatment. There was a significant difference in reading attainment in the remedial reading only group when compared with the control group. A further result was that the counseled group changed significantly in the desired direction on the "0" Factor of the Cattell Children's Personality Questionnaire. A high score on this factor indicates "an apprehensive, worrying, depressed, guilt-prone tendency [Lawrence, 1971, p. 123]." Lawrence found that the "0" Factor discriminated between good and poor readers.

A more directive type of individual psychotherapy was used in studies by Tierney (1956) and McCollum (1971). Tierney's treatment groups were similar to those used by Lawrence (1971). They were reading instruction, reading plus psychotherapy, psychotherapy, and no treatment. Sujects were 40 boys from a reading clinic. They had adjustment problems as well as reading problems. Results indicated that all groups improved in reading. The order of improvement from greatest to least was reading plus psychotherapy, reading instruction, psychotherapy, and no treatment. The psychotherapy plus remedial reading

group made significantly greater gains than any other group. The only other difference of significance among reading gains was between reading instruction and control groups. The author concluded that:

> ". . . the combined use of psychotherapy and reading instruction is more effective in the reading sphere than either form of treatment alone. Furthermore, the differential effectiveness of psychotherapy or reading instruction does not appear to be great, and either is more effective than no treatment [Tierney, 1956, p. 812]."

All groups improved in personal adjustment. The order of improvement was the same as that for reading improvement. However, none of the experimental groups differed from each other. All differed significantly from the control group.

Tierney's study differs from that of Lawrence (1971) in that reading instruction alone was found to increase reading gains more than counseling alone. However, both studies agreed that counseling plus reading instruction was at least as effective as any other method in overcoming reading problems.

McCollum's (1971) study involved 48 learning disability children who were attending special classes, including reading. All had been medically diagnosed as minimally brain damaged. All children were over 9.5 years of age and had an IQ above 80. The emotional adjustment of the children was measured by a behavior rating scale which was developed for the study. These ratings provided information for ten 45-minute sessions of counseling over a period of 10 weeks. There were three counseling and three control groups. McCollum found that vocabulary scores of the counseling groups improved significantly. However, he also found that the experimental and control groups did not differ significantly on comprehension

of sentences. Additionally, the groups did not differ significantly on measures of positive behavioral adjustment. In McCollum's study, it is impossible to ascertain to what extent the remedial reading program provided instruction necessary for changing comprehnsion scores.

A study which investigated the effect on reading of counseling both children and their mothers was undertaken by Shatter (1956). Psychotherapy was provided (over a nine-month period) for four groups of six boys. It was given 1 hour per week for 36 weeks. Both experimental and control groups were given psychotherapy. No special reading program was provided. Reading instruction was that given in the normal class program. All boys were retarded at least two years in reading. Only the mothers of experimental group boys received therapy. It was provided weekly, in groups, over the same nine-month period.

Results showed that boys whose mothers received therapy made greater reading gains than those whose mothers did not receive therapy. Projective test analysis and teacher ratings indicated a highly significant growth in maturity, self-esteem and independence for the experimental group boys when compared with the control group. This is an interesting finding, considering that all boys received therapy. Shatter also found that experimental group mothers showed a significant qualitative improvement in attitudes toward their children. Quantitative changes in attitudes were not significantly different.

Shatter's use of a nine-month period for counseling is a notable characteristic of his experimental design. It is likely that this period was long enough to generate any effect that psychotherapy might have on reading scores. Another interesting facet of his design was that

children were not given a special reading program. Presumably, mothers and children saw no connection between the psychotherapy program and the reading program. Accordingly, the significant reading improvement of the experimental group boys is likely to be a result of the psychotherapy given to mothers. The fact that psychotherapy for both mother and child had a significantly greater effect on reading scores than psychotherapy given only to the child indicates that the counseling of mothers is important when the purpose is to increase the reading ability of children in a reading program by improving their social adjustment. Although Shatter's study did not include a reading only group, its results are consistent with the previous studies in which reading only groups were included.

The three studies now to be described involved the counseling of mothers only. The study by Russell (1959) had an interesting arrangement of study groups. Mothers who expressed willingness to participate, if required, in counseling groups were assigned randomly to an experimental and a control group. Mothers who refused to participate in the groups constituted a second control group. Only the mothers in the experimental group received counseling. Counseling was devoted toward family-child interrelationships. The child subjects were all boys. They were given a remedial reading program. A normative reading test was used to measure changes in reading ability. An attitude questionnaire was used to measure changes in mothers' attitudes toward their child's reading ability. Mother-child relationships were rated by three judges, initially through case data (interviews and psychological examinations), and finally through structured re-interviews.

Notes taken immediately after each group session were used for qualitative analysis.

Results indicated that all three groups made significant reading gains. However, differences between the three groups were not significant. Thus, the counseling of mothers did not significantly increase reading gains. Further, no significant directional change in mothers' attitudes towards their child's reading ability was found, either within or across groups. However, when direction was ignored, the experimental group showed a significantly greater change in attitudes toward reading than the other two groups. The author concluded that "counseled mothers became courageous enough to express negative attitudes on the questionnaire [Russell, 1959, p. 764]." Additionally, when direction of attitudinal change was ignored and compared with reading gain, the experimental group once again was significantly different from the other two groups. Apparently, attitudes which changed in both directions between positive and negative contributed to a child's reading progress. The inference was that a mother's willingness to express negative attitudes about her child's reading ability could be a condition which positively affects his reading gains.

Russell's investigation of mothers' attitudes toward their child's reading is difficult to interpret. Judges' ratings proved unreliable. Consequently, judgments on attitude change are dependent solely on the mother's pre- and post-responses to the attitude questionnaires. In the absence of judges' ratings, there is no way of knowing whether mothers' posttest attitudes reflected real changes or were expectancy responses. One important observation was that all the boys in the study

had poor relationships with their fathers. To this writer's knowledge, there has been no study of the relationship between fathers' changes in behaviors and gains made in a remedial reading program.

The second study (Studholme, 1964), like that of Russell (1959), involved boys of junior high and high school ages. There were only six subjects. All six were in the treatment group. Group counseling of the mothers was nondirective. There were six two-hour counseling sessions over a three-month period. The boys received two hours special reading tuition per week. Pre and post reading changes were analyzed by both standardized and informal reading tests. A modified version of an instrument used to measure attitudinal change was given to the boys. In addition, a recorded interview was held with each boy to determine whether he had perceived any changes in his mother's attitude and behavior toward him and his reading problem. Weekly observation sheets were kept by the reading teacher. As well, each reading teacher rated, pre and post, each boy on an attitude scale. Three judges rated, under five headings, information from typescript copies of the counseling sessions. Finally, all of the data were organized into mother-son case studies designed to show any progressive changes in mothers' attitudes toward their sons, toward their sons' reading difficulties, and toward themselves.

Findings were presented in descriptive form. Each mother had a long-standing "poor quality" relationship with her child. All mothers showed changes in attitude. Reading teachers reported desirable changes in boys' attitude and reading performance. Four of the boys made gains from eight months to two years over the three-month period. Unfortunately,

Studholme provides no evidence on boys' perceptions of changes in their mothers. In his conclusions, the author suggested that, although changes in mothers' attitudes may be maintained for only the length of the experimental period, the attitudinal changes produced a learning environment that substantially increased the boys' reading gains.

The third study was undertaken by Samuels (1958). The mothers of 40 boys, with a reading retardation of at least two years, took part in "intensive" group discussions to change authoritarian, possessive and rejecting attitudes toward their sons. The boys were equated for age and IQ. The IQ range was between 85 and 125 and the range of chronological ages was between 9 years and 3 months and 13 years and 11 months. Each boy had at least a two-year retardation in reading. The experimental group mothers attended their groups three times a week for five weeks. The control group mothers did not take part in discussion groups. Changes in mothers' attitudes were determined by judges, who listened to selected tape recordings of the sessions from the early, middle and late portions of the experimental period. Additionally, a parent attitude survey was given pre and post. This survey tapped the mothers' authoritarian, possessive and rejecting attitudes toward their sons. The children were randomly assigned to ten reading teachers for remedial instruction. The Metropolitan Achievement Test, a normative instrument, was given pre and post.

The results indicated that the group discussions were successful in changing mothers' attitudes to less authoritative and less possessive. However, degree of rejection of their children did not change in the mothers' ratings. Judges' ratings indicated a slight improvement in

this characteristic. The boys whose mothers were in the experimental group did not make more progress in reading than the boys whose mothers did not take part in the group meetings.

One problem in Samuels' study is that there is no indication of the extent to which individual reading programs were appropriate for each boy's remedial needs. There could have been considerable variation in individual reading deficits, and the use of ten teachers increases the possibility of uncontrolled variability from the interaction between teachers and reading deficits.

Another problem concerns the discussion program. Presumably, judges' ratings provided an independent assessment of the degree to which any posttest changes in mothers' attitudes were consistent with their contributions to group discussions. However, this control is irrelevant if changes in session content reflect mothers' awareness of treatment-desired attitudes, rather than real changes in behavior occurring at home. Further, the fact that the experimental group was chosen from those mothers willing to participate in the groups increases the possibility of bias from this source.

The study reported here will attempt to deal with these problems. First, all children will be taught by the same two teachers. Second, the specific skill deficits of each child will be recorded and changes in performance on these skills will be analyzed for comparison with changes in the normative criterion instrument. Third, specific behaviors which are occurring at home will be the focus of discussion in the experimental groups. Fourth, mothers will provide daily data on

changes in these behaviors. These data will be used for comparison with pre and post changes in these behaviors. Fifth, the control group will participate in groups. They will not discuss child behaviors. To assure that child behaviors have not been discussed, the content of control group sessions will be analyzed.

Previous studies have provided some evidence of the efficacy of a counseling plus remedial reading procedure over counseling alone or reading alone. Differences in findings may be primarily a result of differences in a) the type of reading and counseling programs given to subjects, and b) the instruments used to measure changes. The study reported here will attempt to investigate these factors. In fairness to the studies discussed above, it is noted that only general speculation can be attempted in evaluating their designs. In no cases was description of the experimental treatment in comprehensive enough form to satisfactorily analyze differences.

One final point needs to be stated. The relative lack of studies in which the primary mediators of change are parents operating in their homes should not infer that this type of treatment is inordinately difficult to implement and control. There are a number of well-controlled studies in which parents have been used to modify reading behaviors and social behaviors (without, at the same time, measuring the effect of changes in reading behaviors on the occurrence of social behaviors--and vice versa). Ryback and Staats (1970) list and discuss many of these studies. There is some evidence that parents used as unsupervized monitors of behavior change in their homes produce results which are as

reliable as those produced in the presence of observers (Walter, 1972). Zeilberger and others (1968) have generally concluded that "the most efficient way to modify deviant behavior may be to change the reactions of the natural milieu to that behavior [p. 47]." Accordingly, this study is performed with the confidence that, if both treatment and measurement procedures are clearly understood by the parent, resultant changes in behavior will be real changes.

Purpose of the Study

The purpose of this study was to determine the effect (on reading ability) of counseling the mothers of children in a remedial reading program. The effect of counseling was tested under two treatment conditions. The first condition utilized a behavioral counseling model, in which disturbing behaviors in their children, consequences used to change these behaviors, and the method of information recording were clearly specified for each participating mother. The second condition used a status/attention model, in which topics other than the social behaviors of children were discussed. All children in the study participated in the remedial reading program. The comparative effectiveness of the two treatment conditions was the central focus of this study.

Two general hypotheses can be stated:

1) Behavioral Counseling will result in a significantly greater increase in reading age than will result from Status/Attention.

2) Behavioral Counseling will result in a significantly greater improvement in the frequency and intensity of disturbing behaviors than will result from Status/Attention.

In addition, two further expectations are presented. They concern the effect of Behavioral Counseling and Status/Attention on general descriptions of child behavior. These expectations are intended to provide further evidence on a finding by Walter (1972) that Status/Attention does not effect changes in specific child problem behaviors, but does improve (mothers') perceptions of more generalized descriptions of child behavior. There are two reasons that the expectations are not presented as hypotheses. First, neither of the expectations is critical to the central purpose of the present study. Second, the relatively small sample (n = 12) and the comparatively large number of variables (n = 47) were not amenable to precise inferential analysis by normal statistical procedures. Nevertheless, a partial analysis of this data was possible. Accordingly, the following expectations are presented:

1. Both Behavioral Counseling and Status/Attention will significantly improve general descriptions of child behavior.

2. Changes in general descriptions of child behavior resulting from Behavioral Counseling will not be significantly different from changes resulting from Status/Attention.

CHAPTER II

METHODOLOGY

Introduction

This study was designed to determine whether counseling for changes in specific behaviors can significantly increase gains made in a remedial reading program.

Previous research investigating the relationship between counseling and reading has failed to adequately specify treatment procedures and outcome variables in counseling programs and reading programs. In the case of reading programs, the frequent use of reading age as the sole criterion of changes in reading level provides too imprecise a picture of the acquisition of distinct reading skills. In the case of counseling programs, rarely do individual research studies include an unambiguous specification of a) referral problems, b) the interaction between counselor and counselee, c) techniques used to effect behavior change, and d) measures of behavior change.

This study makes an attempt to do this. The primary aim is not to produce prescriptive or definitive results, but to examine inadequately specified variables from previous research and to provide a clearly stated set of treatment conditions for future examination of the relationship between reading and counseling. In this regard, Campbell and Stanley (1963) have noted that:

> ". . . the course of science consists of further experiments which refine the X [treatment], teasing out those aspects which are most essential to the effect. This refinement can occur through more specifically defined and represented treatments, . . . [p. 33]."

This emphasis on process as critical to an understanding of outcome is of primary importance in the design of the study reported here.

Design

In their book, Experimental and Quasi-Experimental Designs for Research, Campbell and Stanley (1963) discuss twelve factors which contribute to the internal and external validity of experimental designs. According to the authors, the degree to which control of these factors is exercised determines whether a study has a true or quasi-experimental research design. Randomization of experimental procedures is required of a true experimental design:

> ". . . the research person can introduce something like experimental design into his scheduling of data collection procedures (e.g., the when and to whom of measurement), even though he lacks the full control over the scheduling of experimental stimuli (the when and to whom of exposure and the ability to randomize procedures which make a true experiment possible [p. 34]."

Campbell and Stanley (1963) emphasize that true experimental design cannot assure full control over experimental procedures. It represents the degree to which results can be interpreted by rival hypotheses:

> ". . . from the standpoint of the final interpretation of an experiment and the attempt to fit it into the developing science, every experiment is imperfect. [However, a researcher should] design the very best experiment which the situation makes possible, [being] fully aware of the points on which the results are equivocal. While this awareness is important for experiments in which 'full' control has been exercised, it is crucial for quasi-experimental designs[p. 34]."

The experimental procedures of this study were not randomized: a combination of systematic and random methods was used to assign subjects to groups. Consequently, the design is quasi-experimental.

Of the twelve research design validity factors cited by Campbell and Stanley (1963), eight concern internal validity and four concern external validity. The authors define the relationship between these terms:

> "Internal validity is the basic minimum without which any experiment is uninterpretable: Did in fact the experimental treatment make a difference in this specific experimental instance? External validity asks the question of generalizability: To what populations, settings, treatment variables, and measurement variables can this effect be generalized? Both types of criteria are obviously important, even though they are frequently at odds in that features increasing one may jeopardize the other. While internal validity is the sine qua non,,and while the question of external validity, like the question of inductive inference, is never completely answerable, the selection of designs strong in both types of validity is obviously our ideal [p. 5]."

It was indicated earlier that the clear and unambiguous specification of process is a primary concern of this study. This is a question of internal validity. Nevertheless, it is also hoped that such specification will facilitate accuracy of generalization to other situations. Complementarity of internal and external validity factors is desirable if the results of this study are to be maximally utilized.

The design utilized here is a modification of the pretest-posttest control-group design described by Campbell and Stanley (1963). The authors represent this symbolically as:

Group I RO_1 X O_2

Group II RO_3 O_4

> "An X will represent the exposure of a group to an experimental variable or event, the effects of which are to be measured, O will refer to some process of observation or measurement; the Xs and Os in a given row are applied to the same specific persons. The left-to-right dimension indicates the temporal order, and Xs and Os vertical to one another are simultaneous. The symbol R indicates random assignment to separate treatment groups. Parallel rows unseparated by a dashed line represent comparison groups not equated by random assignment [Campbell & Stanley, 1963, p. 6]."

The modification of this design used here can be represented symbolically as:

Group I SRO_1 X O_2

Group II SRO_3 XC O_4

An S before R indicates that assignment to groups combined a systematic procedure with an element of randomization. The assignment procedure of the present study used similar principles to those used in systematic sampling.

> ". . . the choice of the first member . . . determines the whole sample. Systematic sampling has two advantages over simple random sampling. It is easier to draw, since only one random number is required, and it distributes the sample more evenly over the population. For this reason systematic sampling often gives more accurate results than simple random sampling.
>
> "There are two potential disadvantages. If the population contains a periodic type of variation, and if the interval between successive units in the systematic sample happens to coincide with the wave length (or a multiple of it) we may obtain a sample that is badly biased. The second disadvantage is that from the results of a systematic sample there is no reliable method of estimating the standard error of the sample mean [Snedecor & Cochran, 1967, p. 519]."

The application of a systematic-randomization assignment method to the study reported here will be discussed later in this chapter.

The second change which differentiates this study design from the

pretest-posttest control group of Campbell and Stanley is that the control group also has an experimental or treatment function. It is expected to change general, but not specific, behaviors. The symbol XC indicates the treatment-control function of the second group. In reference to the relationship between the experimental and control groups, Campbell and Stanley (1963) have stated that:

> ". . . the comparison of X with no X is an oversimplification. The comparison is actually with the specific activities of the control group which have filled the time period corresponding to that in which the experimental group receives the X. . . . That control group activities are often unspecified adds an undesirable ambiguity to the interpretation of the contribution of X [p. 13]."

Accordingly, the designation of Group II as the Treatment/Control Group in this study is a more accurate term for its function.

A form of systematic sampling was used to assign subjects to the Treatment and Treatment/Control Groups. There were 48 subjects, 24 mother and child pairs. The following criteria were used for selection:

1. Children must be between the chronological ages of 8 and 14.
2. Children must be retarded in reading by at least a grade year, as measured by the Gray Oral Reading Test.
3. Children must not be mentally retarded.
4. Children must be able to attend a reading class for 1 hour each day on 25 consecutive week days.
5. The mother of each child must be willing and able to attend a parent discussion group for two hours, one night a week, over five consecutive weeks.

The difference between reading age and grade level for each of the 24 children selected was listed in decreasing order. Since the study was

undertaken during the summer vacation, the grade each child would commence in the fall was used as the grade level. The children were then placed alternately into two groups. Following this, a coin was flipped to decide which group would be Treatment and which would be Treatment/ Control.

There were two reasons for using this form of assignment to groups. First, my experience with children who have reading deficits has confirmed evidence in the literature that failure in reading programs affects a child's self-esteem. In order to provide teaching conditions which minimized this, and to prevent subsequent withdrawel from the program, it was thought desirable to form reading groups, both within and across treatments, which best associated chronological age, grade level, and months of disparity between grade level and chronological age. Second, it was necessary to exercise control over the number of reading skills which a child has mastered before beginning the program. Logically, the higher a child's reading age the fewer the skills he has to attain in order to significantly increase his reading age score on a normative reading test. Consequently, a simple randomization assignment procedure could provide a false positive result: Significantly greater reading age improvement in the experimental group could be attributed to members' having fewer unmastered skills. It is realised that randomization implies equality. However, the purpose in using the systematic method of assignment described above was to produce a demonstrable rather than a theoretical equality among groups, without sacrificing the statistical power of randomization.

The method of assignment used in this study produces groups which best associate chronological age, grade level and disparity between

chronological age and grade level. It is recognized that failure to use a randomization procedure for assignment to groups has been strongly criticized. In reference to statistical analysis, Lord (1967) states that:

> ". . . there simply is no logical or statistical procedure that can be counted on to make proper allowances for uncontrolled pre-existing differences between groups [p. 305]."

A less critical position is that of Campbell and Stanley (1963). They believe that non-randomization is a usable, but inferior, selection procedure. They consider that randomization is "the all-purpose procedure for achieving pretreatment equality of groups, within known statistical limits [p. 6]" but advocate the use of non-randomized selection procedures "where better experimental designs are not feasible [p.2]."

Snedecor and Cochran (1967) are more favorably disposed toward non-randomization. They consider that knowledge about members of a population can enhance selection procedures:

> "In simple random sampling the selection of the sample is left to the luck of the draw. No use is made of any knowledge that we possess about the members of the population. Given such knowledge, we should be able to improve upon simple random sampling by using the knowledge to guide in the selection of the sample [p. 507]."

It is recognized that the comments of Snedecor and Cochran (1967) specifically refer to survey sample selection methods. However, the main point of their statement is that researchers should use information about members of a population to minimize the error factor in measuring change. This principle has been applied to the selection of groups in this study. I have chosen to forego a demonstrable statistical equality

of groups in order to meet other conditions important to the implementation of this design. As Campbell and Stanley (1963) state:

> "Selection is ruled out as an explanation of the difference to the extent that randomization has assured group equality at time R. This extent is the extent stated by our sampling statistics. Thus the assurance of equality is greater for large numbers of random assignments than for small. . . . This means that there will occasionally be an apparently 'significant' difference between the pretest scores [p. 15]."

The order of reading age-grade level difference scores is shown in Table 1. There is no discernible pattern in these scores which would indicate that bias is likely. This suggests that the purpose served by randomization has been achieved by this selection procedure.

External validity is affected by the interaction of selection procedures with the experimental variable. This interaction affects the representativeness of the sample. Campbell and Stanley (1963) point out that:

> ". . . there remains the possibility that the effects validly demonstrated hold only for that unique population from which the experimental and control groups were jointly selected. This possibility becomes more likely as we have more difficulty in getting subjects for our experiment [p. 19]."

There is a possibility that the sample for this study constitutes a unique population. It was composed of the first 24 subjects who volunteered and who met the criteria mentioned earlier. Eleven were previous referrals to the De Busk Center, a University of Oregon training center for remedial reading teachers. Nine others were obtained from newspaper advertisements. The remaining four came from private referrals.

TABLE 1

STATISTICAL ANALYSIS OF THE SUBJECTS IN THE

REMEDIAL READING PROGRAM

TREATMENT GROUP					TREATMENT/CONTROL GROUP				
Boy/Girl	Chron Age	Grade Level	Reading Age	GL-RA	Boy/Girl	Chron Age	Grade Level	Reading Age	GL-RA
B	14	8.0	1.9	6.1	G	13	7.0	1.5	5.5
B	13	8.0	2.8	5.2	G	10	6.0	2.0	4.0
G	11	6.0	2.0	4.0	B	11	6.0	2.2	3.8
B	10	6.0	2.8	3.2	B	10	5.0	1.7	3.3
G	10	5.0	1.9	3.1	G	10	5.0	1.9	3.1
B*	10	5.0	1.9	3.1	G	9	5.0	1.9	3.1
G	10	5.0	2.1	2.9	B	12	7.0	4.0	3.0
B	9	4.0	1.2	2.8	G	10	5.0	2.1	2.9
B	9	4.0	1.3	2.7	G	9	4.0	1.2	2.8
G	11	6.0	3.7	2.3	G	11	6.0	4.1	1.9
G	8	3.0	1.0	2.0	B	8	3.0	1.2	1.8
B*	9	3.0	1.5	1.5	B	8	3.0	1.5	1.5
N=5 Girls N=7 Boys Averages=	10.3	63.0	24.1	38.9	N=7 Girls N=5 Boys Averages=	10.1	62.0	25.3	36.7

* Replacements

There was considerable variation in reading retardation. The range was from 6.1 years to 1.5 years of retardation. There were 12 boys and 12 girls, a ratio which is dissimilar to that of the general population of reading retardates: estimates are mostly between 4 and 6 boys for each girl (Bentzen, 1963; Critchley, 1964), with some estimates over 10:1 (Rabinovitch, 1959).

These artifacts of the selection procedures connote that generalization of the results of this study to the population of reading-retarded children must be tentative.

Testing procedures can produce error which affects both the internal and external validity of outcome measures. Subjects in this study were pretested during the two weeks preceding the study. They were posttested during the last week of the study. Specifically, mothers were posttested during their fifth (and last) group session, and children were posttested on the last two days of their reading program. All children had received 23 hours of instruction before posttesting. The principal indicants of change were reading age gains and improvement in child social behaviors.

In addition to the pretest and posttest instruments, progress during both reading and counseling treatment programs was monitored by two other instruments. All child subjects were given the reading instrument. The counseling instrument was given to mothers in the behavioral counseling group. It was not given to mothers in the status/attention group. As these instruments were important parts of the treatment programs rather than criteria for pretest-posttest comparisons, they will not be considered in this section. Descriptions of all testing instruments are

found in the section on instrumentation.

Campbell and Stanley (1963) have described testing procedures which affect internal and external validity as reactive effects:

> "The reactive effect can be expected whenever the testing program is in itself a stimulus to change rather than a passive record of behavior [p. 9]."

Two possible sources of reactive testing error which affect internal validity are practice effect and motivational effect. As a result of practice effect, subjects score better in the posttest because they have greater knowledge of the format and requirements of the test instruments. Both achievement and personality tests are known to be influenced by this effect (Campbell & Stanley, 1963). A motivational testing effect occurs when pretesting influences subjects to try harder in the posttest. This can produce changes in outcome scores which are due to a nontreatment source.

In this study, the criterion instruments were given to all subjects. It is assumed that practice and motivational testing effects are manifested equally in the treatment and treatment/control groups. They are therefore discounted as threats to the internal validity of this design.

Testing procedures can affect external validity whenever:

> ". . . the effects of X observed may be specific to groups warmed up by the pretest. [This means that] we are logically unable to generalize to the larger unpretested universe about which we would prefer to speak (Campbell & Stanley, 1963, p. 17]."

This contingency could have affected all subjects in this study, since all were pretested. However, in neither reading nor counseling treatments is it likely that pretesting affected external validity. In the case of reading, the pretest instrument was a test of oral reading,

while the treatment procedure used an instrument which was primarily concerned with phonic skills. Further, it is inconceivable that a child who lacked certain reading skills before pretesting could have gained those skills from a global measure of reading ability which included no remedial feedback.

Information from the Specific Behavior Inventory (SBI) (Appendix A), one of the two pretest instruments administered to mothers, was used as a basis for behavioral counseling treatment procedures. However, the SBI provides only a description of disturbing behaviors. At this time, no indication was given as to how these behaviors might be changed. Furthermore, as behaviors were selected because mothers had been unable to change them, specification of the behaviors should not have produced an additional treatment effect.

Consequently, it is highly unlikely that pretesting produced a confounding variable which would prevent generalization of the results of the study to other groups in the population of retarded readers where similar treatments, but different pretest instruments, are utilized.

The interaction of testing and treatment is a threat to the external validity of a research design. Campbell and Stanley (1963) have described this interaction:

> "The effect of the pretest upon X as it restricts external validity is of course a function of the extent to which such repeated measurements are characteristic of the universe to which one wants to generalize. . . . Where highly unusual test procedures are used . . . designs having unpretested groups remain highly desirable if not essential [p. 18]."

There is little chance that the normative reading test used for pretesting interacted with the remedial reading program. First, the test

content and format are not atypical of children's school experiences. Second, the content of the reading test was not used to prescribe the remedial reading programs for each child. Third, the teaching of skills similar to those in the pretest is a normal part of reading curricula.

The principal counseling criterion instrument was an inventory of child social behaviors which mothers had indicated were disturbing. They were described in terms of their frequency and intensity. The defining of disturbing behaviors in the pretest was not construed as a "highly unusual test procedure," in the sense intended by Campbell and Stanley (1963, p. 18). It is likely that describing the behaviors of their children is a normal experience for mothers. Moreover, this description would be likely to include statements on how often a behavior occurs (frequency) and how the mother feels about the behavior (intensity). However, the method of recording this information would not be a normal experience for mothers. The other counseling criterion instrument asked the mothers to choose one of seven alternatives between two behavioral extremes (for example, sociable-unsociable). It is likely that this form of judgment is an atypical experience for mothers. However, the behaviors were mostly conventional descriptions of functioning (for example, calm, disobedient, boring). Further, these behaviors were not considered during the treatment program. In summary, it is inevitable that, in the course of experimentation, pretesting will provide unusual experiences for subjects. In the present study, it is unlikely that the interaction between the counseling criterion instruments and treatment is highly unusual. Nevertheless, there is a possibility of a test-treatment

interaction which may weaken the generalizability of this study.

In the course of an experiment, there occur specific events other than the event represented by the experimental variable. These historical events must be examined to determine whether they could differentially affect group differences. Both treatment and testing segments of the study could be affected by history. These effects can be determined by examining intrasession (within-group) history and intersession (between-groups) history.

All children in the study attended for one hour each day from Monday to Friday. There were four groups of six children. Classes were held at 9 AM, 10:30 AM, 12 Noon, and 2 PM. Each group met at the same time each day. All children attended the reading program for 23 hours before posttesting. The possibility that intrasession events differentiated the Treatment and Treatment/Control reading groups was lessened by having children in both groups included in each reading group. The method used to establish adequate control of intersession events was a set of instructions asking mothers to give their children only normal reading help, if any, during the experimental period. Mothers complied with this request. Enquiries during the posttest period showed that only two children had received reading help from their mothers during the experimental period. One child was in the Treatment group. His mother had helped him read for approximately fifteen minutes each day. The other child was in the Treatment/Control group and had been helped for about five minutes each day. The reading help given by mothers was minimal, and is not likely to have been a confounding intersession event. Further, the reading program of the

present study took place during the summer vacation. Consequently, supplementary reading instruction can be ruled out as a contributor to differences between the Treatment and Treatment/Control reading groups. In summary, it is unlikely that intrasession and intersession events contributed significantly to within-group and between-group differences in reading ability.

Mothers in the Status/Attention (Treatment/Control) group attended on either Monday or Tuesday nights. The Behavioral Counseling (Treatment) groups were held on Wednesday and Thursday nights. All groups began at 8 PM. As well, it is likely that the use of observers to judge the involvement level of each mother each night she attended was an adequate control for both intrasession history and intersession history events, which could have differentially affected the Behavioral Counseling and Status/Attention groups. The sequence of discussion in each session, carefully recorded by the observers, was used to judge the effect of intrasession history. Summaries of these histories are presented in the Treatment section of this chapter. An analysis of these summaries indicated little likelihood that confounding discussion occurred during the mothers' group sessions.

I was both counselor for the Behavioral Counseling group and facilitator for the Status/Attention groups. It is possible that groups were affected differentially by the involvement level of myself and group members. To examine these effects, two observers rated mothers on seven semantic differential descriptors. This scale is fully described in the section on instrumentation. Its use to express the effects of intrasession history and intersession history is based on

the assumption that these effects will be reflected in involvement level. If the groups do not differ in involvement level, then it can be reasonably assumed that intrasession and intersession events did not significantly affect within-group and between-group differences. No differences were found. Consequently, it is unlikely that history is a rival explanation for differences within and between the Behavioral Counseling and Status/Attention groups.

Campbell and Stanley (1963) emphasize that, if all randomly assigned experimental subjects are treated in a single session and the control subjects in another single session, then unique events become rival hypotheses explaining O_1-O_2 versus O_3-O_4 differences. In this study, there were two groups of Treatment and two groups of Treatment/Control mothers. Primarily because of absences from week to week, there was some movement between sub-groups of each treatment type. It is assumed that this movement over a period of five sessions would tend to equalize any unplanned variability between both sub-groups and main groups. The possibility of non-treatment intrasession variability was further controlled by having raters progressively record the content of each session. An examination of this material determined whether any treatment-confounding discussion had taken place. Finally, the semantic differential ratings on each subject each night provided statistically analyzable information on intrasession differences. There is no evidence that intrasession history is a confounding variable.

The foregoing satisfies the requirements of internal validity. The comprehensive recording of intrasession history facilitates replication of this study. It therefore contributes to external validity. Obviously,

replication cannot produce an identical content of discussion; but a comprehensive recording of intrasession history makes replication possible by fully and clearly describing the topics and themes which differentiated the study groups.

Testing can also be affected by intrasession history. Specific events which occur during the measurement period could provide alternative explanations for the scores which were obtained. Campbell and Stanley (1963) describe the optimal testing situation as:

> ". . . a randomization of experimental (testing) occasions with such restrictions as are required to achieve balanced representation of such highly likely sources of bias as experimenters, time of day, day of week, portion of the semester, nearness to examinations, etc. [p. 14]."

These conditions were approximated in this study by:

1. The Pretesting and Posttesting periods tested both Treatment and Treatment Control individuals over the entire periods. In the Pretest period, individuals were tested as they became available. The time of testing was noted and evaluated, following assignment to groups.

   No discernible group pattern emerged. In the Posttest period, most individuals were tested at the time their group was held. As each group contained both Treatment and Treatment/Control individuals, there is little likelihood of group differences arising from this source.

2. The testing situation (administrator, instructions and room) was the same for all subjects.

These methods controlled for intrasession testing variability as an explanation of differences between Pretest and Posttest scores.

Another variable which confounds internal validity is statistical regression. Campbell and Stanley (1963) describe regression effects as "inevitable accompaniments of imperfect test-retest correlation for

groups selected for their extremity [p. 11]." This effect is a potential threat to this design since the sample of retarded readers were chosen because of their relatively atypical scores on a reading test. Furthermore, since randomization was not used for assignment to groups the effect of regression is unknown. However, the method of assignment used for this study has, a priori, power to control the regression effect. It can do this because the groups were structured in order of extreme scores. Logically, the pretest score with the greatest disparity between reading age and grade level should be most susceptible to this effect. The effect would be least for the smallest disparity between reading age and grade level. Since disparity scores were used alternately to assign subjects to groups, regression should be optimally controlled.

Changes in instrumentation can affect internal validity. In regard to this Campbell and Stanley (1963) state that

> "Instrumentation is easily controlled where the conditions for the control of intrasession history are met, particularly where the O is achieved by student responses to a fixed instrument such as a printed test [p. 14]."

In this study fixed instruments were used to evaluate changes in reading. The pretest and posttest instrument was the Gray Oral Reading Test. It is a normative test and parallel forms were used in the study. The mothers' groups were administered the same instruments pre and post. One instrument required the checking of positions on 47 behaviors. The other required a verbal response to a fixed set of questions. The same form was used for recording pre and post responses.

While intrasession variables pertinent to instrumentation--the "fixed" nature of instruments, the testing of subjects individually and the

pretest and posttest mixing of Treatment and Treatment/Control subjects--are controlled to a degree which prevents instrumentation being a rival hypothesis for explaining O_1-O_2 differences, there is another aspect of instrumentation which is not necessarily free of bias. Campbell and Stanley (1963) aver that, while control of intrasession history controls for invalidating instrumentation effects,

> ". . . where observers or interviewers are used, however, the problem becomes more serious. If observers are few enough not to be randomly assignable to the observation of single sessions, then not only should each observer be used for both experimental and control sessions, but, in addition, the observers should be kept ignorant as to which students are receiving which treatments, lest the knowledge bias their ratings or records [p. 14]."

This study monitored intrasession history by having observers 1) record the course of discussion for each session, and 2) rate each person each session on a semantic differential scale which measured level of participation. There were two observers for the first two weeks of the study. For the final three weeks, one of the observers rated in every session. For the first two weeks, each observer rated one Status/Attention and one Behavioral Counseling group. However, both observers were told the relationship of the ratings to the experimental design. Consequently, it is possible that they biased their ratings so that group differences in participation level did not eventuate. I have chosen to differ from Campbell and Stanley on this point. Instead, I contend that it is unlikely that the truth could have been withheld from observers. Further, withholding is a specified form of bias. I preferred to stress honesty of judgment to the observers and to accept their judgments as unbiased. Finally, it should be

mentioned that a discussion with both raters failed to reveal any conscious bias.

Experimental mortality was not a significant factor in this study. Two boys in the Treatment group were replaced. One subject did not begin the program. His substitute began on the third day of the program. The other boy left after the first day. His replacement began on the sixth day. All children completed 23 hours of instruction before posttesting.

Maturation is a factor which can produce changes between O_1 and O_2 which approximate those produced by the experimental treatment. Campbell and Stanley (1963) describe maturation as:

> ". . . all of those biological or psychological processes which systematically vary with the passage of time, independent of specific external events [p. 7-8]."

The authors make the point that maturational effects are prevalent in remedial education:

> "In remedial education which focuses on exceptionally disadvantaged persons, a process of 'spontaneous remission,' analogous to wound healing, may be mistaken for the specific effect of a remedial X (needless to say, such a remission is not regarded as 'spontaneous' in any causal sense, but rather represents the cumulative effects of learning processes and environmental pressures of the total daily life experience, which would be operating even if no X had been introduced) [p. 9]."

Normally, reading is resistant to spontaneous effects occurring over a period of time as short as that of this study. This is so because reading consists of a series of skills which need both recognition and practice if they are to increase reading level over a short period. Since the children in this study were not concurrently following any school or home program of reading instruction, the effect of spontaneous

learning would be insignificant. As well, since there is no pattern of skill deficits which differentiates the Treatment from the Treatment/Control group there is reason to believe any spontaneous effects would affect both groups. Similarly, therefore, the notion is rejected that maturational effects could significantly and/or differentially change reading scores of children in this study.

There is a possibility that children's social behaviors are more amenable to spontaneous change than are reading skills. Presumably, home reactions to these behaviors would operate throughout the experimental period. However, once again, there is no reason to believe that any differences in reported social behaviors between the two groups would make one group significantly more reactive to spontaneous social pressures than the other. Consequently, marked changes in the social behaviors of children whose mothers were in the Behavioral Counseling group are likely to be legitimate effects of the treatment variable. The fact that this judgment would be based on daily as well as posttest data makes this argument especially cogent.

In summary, this study is classified as a quasi-experimental design because randomization was not the method of assignment to groups. However, the method of assignment used is appropriate for the experimental conditions. It contributes to the evaluation of the effects of the experimental variable and allows for reasonable control of factors which affect internal and external validity. The design is schematically presented in Table 2.

TABLE 2

DESIGN OF THE STUDY

Subjects		Pretest (2 weeks)		Treatment		Post-test (last 2 sessions--children last session--Mothers)	
		Children	Mothers	Children	Mothers	Children	Mothers
GROUP I (Treatment)	N = 24	Gates Oral Reading Test Diagnostic Reading Inventory	Specific Behavior Inventory General Behavior Checklist	Remedial Reading Program: Four groups of N=6 1 hr. per day for 23 instruction hrs. Daily charting of progress on specific skill deficits.	Behavioral Counseling: Mothers taught to apply behavior modification-Adlerian procedures to change children's social behaviors. Daily charting	Gates Oral Reading Test Diagnostic Reading Inventory	Specific Behavior Inventory General Behavior Checklist
GROUP II (Treatment/ Control)		SAME	SAME	SAME	Status/Attention Groups: Discussion of topics not concerned with children's social behaviors	SAME	SAME

Subjects

All but one of the children chosen for this study (N=24) were residents of Eugene, Oregon. They came from three different sources. First, records of the De Busk Center at the University of Oregon were examined. The De Busk Center trains teachers who wish to teach Learning Disability children. In the course of this training, learning-disabled children are offered a program to remediate their learning deficits. All children between the ages of 8 and 14 who were on file as having applied for entry to De Busk were considered. The question of whether they had already participated in a remedial program was irrelevant, since I was interested in their present reading level. Eleven subjects were chosen this way. Second, a newspaper advertisement was used to obtain subjects (see Appendix B). Nine subjects were gained this way. Last, two subjects were referred by mothers who had already been contacted, and two were referred by school personnel who had learned of the program.

All subjects were then tested over a two-week period and were selected if they met the criteria stated earlier in this chapter. The first 24 who met the criteria were selected. A total of 40 were tested to obtain this number. The group was composed of 12 boys and 12 girls. When their mothers are added, the total number is 45. Three of the mothers had two children in the program. One mother had both children in the Treatment group, one had both children in the Treatment/Control group, and one mother had one child in the Treatment group and one in the Treatment/Control group. Table 1 (p.60) contains a statistical analysis of the children who participated in the study.

The influence of IQ was not considered critical enough to administer an IQ test to each subject. The following safeguards were used to prevent children with less than approximately 80 IQ from entering the program:

1. All 11 children from the De Busk Center had already been screened by that center. All had to have average IQ or above to be accepted by that program.
2. Mothers were asked whether their children had been in classes for the mentally retarded.
3. A professional judgment was made on children's responses to the comprehension questions of the Gray Oral Reading Test. This judgment was based on several years of experience in IQ testing and in the differential diagnosis of reading problems.
4. The method of assignment to groups made it likely that any effect of IQ would not be operating in only one group.

These safeguards were considered adequate for controlling IQ as a factor affecting the efficacy of the reading program used in this study.

Descriptive data obtained from mothers indicated that nearly every child had been given special reading help in the past. Most of the older children had participated in several remedial programs. Most children were described by mothers as being poor in self-esteem and sensitive about their failure to read at the appropriate grade level.

Only three of the mothers had a clear idea of behavior modification or Adlerian procedures. Two of the three mothers had their

children in the Treatment/Control group. One mother came from a town 40 miles from Eugene and arranged to have her son stay with his brother on weekdays. Consequently, she could measure his behaviors only on weekends. Despite the possible difficulty in interpreting, comparatively, the effect of behavioral counseling on him, he was included in the program because he had the most serious reading age-grade level disparity of the group. As well, he had behavior problems which greatly concerned his mother.

Counselor/Facilitator

I was the counselor for both Behavioral Counseling groups, and the facilitator for both Status/Attention groups. For each group, there were 5 sessions over a period of 5 weeks. The primary advantage of my undertaking both roles was the avoidance of inter-leader differences. The primary disadvantage of taking both roles was that, because I knew the experimental design, I might differentially respond to groups in favor of my hypotheses. The use of observers was intended to prevent the occurrence of leader bias. Observers recorded the sequence of discussion in each session. These discussions were analyzed for content bias. As well, the rating of each mother, each night she attended, on seven semantic differential criteria of involvement level was considered to be an effective safeguard against leader bias.

I considered myself qualified to undertake both roles. During much of my five years as a school counseling psychologist, I diagnosed social and academic behaviors and counseled children, teachers and

parents for changes in those behaviors. While my work was primarily with individuals, I have also worked with groups of both children and adults. The roles I took in group work varied considerably between facilitating and directive counseling.

Teachers

My wife and I were the teachers for the reading groups. Experimental bias from either of us could have influenced results. At no stage during the experimental period did my wife know which child was in the Treatment or Treatment/Control groups. Further, the content of mothers' sessions was not discussed with her, and she was asked not to discuss the counseling sessions in her infrequent contacts with mothers. I constituted a more likely source of bias. However, the reading needs of children were put before the dissertation hypotheses. In the exciting process of experiencing children making progress in reading, the task of "forgetting" was made easier. At all times, an attempt was made to use need as the primary basis for instruction. As well, I did not have a strong professional reason for favoring my hypotheses, as my experience as both a teacher and a counselor encouraged me to accept the reasonableness of both an acceptance and rejection of my primary hypothesis.

My wife has seven years' experience as a teacher of early elementary grades. This work involved teaching the skills typically lacking in retarded readers. I taught in high schools for four years before transferring to the school counseling psychology section of the Department of Education in New South Wales, Australia. My knowledge of the

diagnostic and teaching process for retarded readers has come from my work in counseling psychology and from practical and theoretical experiences occurring during the completion of a Master of Education degree at the University of Oregon.

Observers

The observers for this study were two women practicum students in Elementary School Counseling. The observer who remained for the entire program was not a practising school counselor. She was in charge of women's physical education in a high school, and was seeking to become a school counselor. The other observer completed two of the five weeks of the program. She was a school counselor who had enrolled in the practicum to learn about behavioral methods. She completed the practicum before leaving the program of this study to return to a Canadian public school for Fall term.

Instruments

The critical measurement questions which this study seeks to answer are: 1) did the subject become a better reader; 2) did specific social behaviors of the subject, as perceived by the mother, decrease in frequency and intensity; and 3) did the subject, as perceived by the mother, have more socially desirable general behaviors? Each of these measurement questions used one instrument to provide an answer. Two further instruments were used to provide data on changes occurring within the reading and behavioral counseling treatment periods, respectively. A final instrument was used to measure the involvement level of mothers in the Behavioral Counseling and Status/Attention groups. Table 3 enumerates the instruments used and the data they provided.

TABLE 3

INSTRUMENTS

Instrument	Purpose	Administered
Gray Oral Reading Test	To measure changes in reading age	Pretest, Posttest
Diagnostic Reading Inventory	1. To diagnose specific reading skills for teaching purposes 2. To record progression in the acquisition of skills	Pretest, Posttest, During reading Program
Specific Behavior Inventory	To measure changes in the number, frequency and intensity of specific disturbing behaviors	Pretest, posttest
Variable Ratio Chart	To record daily changes in the frequency of specific disturbing behaviors	During Behavioral Counseling program
General Behavior Checklist	To measure changes in general descriptions of behavior	Pretest, posttest
Scale of Reactions to Status/Attention	To record Observers' judgments of mothers' involvement level	During the Behavioral Counseling & Status/Attention Programs

Gray Oral Reading Test (GORT)

According to the author, this test has two major functions:

> ". . . first, to provide an objective measure of growth in oral reading from early first grade to college, and second, to aid in the diagnosis of oral reading difficulties [Gray, 1963, p. 3]."

The test has four parallel forms. Each form consists of a series of 13 passages. Each passage represents an increase in difficulty level. Reading ability is analyzed in three ways: time taken to read each passage; number of errors for each passage; and comprehension. Only time and errors are used to calculate reading age. Errors can be analyzed under eight different categories (for example, gross mispronunciation, omission, insertion). As well, reading style can be described under 13 headings (for example, word-by-word reading, poor phrasing). Since this study used the GORT only for a comparison of reading age levels, its diagnostic qualities were not utilized. The comprehension questions were used as a partial contribution to the control of mental retardation as a possible confounding factor in the study.

Subjects discontinue reading when they have made seven or more errors in each of two successive passages. Gray states that most subjects read five or more passages. He considers this an adequate sample of reading ability. Only five subjects in the present study read fewer than five passages.

The author provides only a general description of how difficulty level is increased from passage to passage:

> "The difficulty of each passage is increased by several means: difficulty of vocabulary, syllabic length of words, length and complexity of the structure of sentences and maturity of concept [Gray, 1963, p. 3]."

However, the process of determining the content of passages appears to have been careful and comprehensive. No analysis of the specific skills included in each passage is provided.

All four forms of the GORT have grade level norms for both girls and boys. Norms are based on a sample of 502 subjects from grades 2 through 12. These norms have the advantage of including the standard error of measurement for the grade equivalent of each raw score. The effect of standard error will be discussed in the section on results.

The coefficient of equivalence is the only measure of reliability provided. This was based on a comparison of grade-scores on each of the four forms of each grade level. The intercorrelation ranged from .973 to .982 for all subjects. The standard error of measurement is offered as a second measure of reliability. The author reports that ". . . in general, errors of less than 4.00 points may be expected in the total passage score [the reading raw score] for any pupil 68 percent of the time [p. 30]." A test-retest coefficient is not provided.

No validity data is profferred. The author states that ". . . these tests are valid primarily because of the procedures, described earlier, used in contructing them [p. 30]." This assumption was founded on the five steps used in the construction of the GORT. These were:

1. Procedures were based on validity and reliability data produced by a previous oral reading test by the same author. This test had been in existence forty years;
2. The vocabulary for the test was developed from an examination of 11 basal series readers, teacher and pupil judgments and

the analysis of the Thorndike and Lorge Teacher's Word Book (1944). This analysis included an examination of the density and syllabic length of words;

3. Control over the length of sentences;
4. Passage topics were carefully chosen for their interest level at different ages;
5. Preliminary forms of the test were submitted to a number of reading specialists in various parts of the United States. These people used the test and reported their findings. While there is no substitute for validity data, the use of these procedures provide strong face validity evidence that the GORT is a valid test of oral reading.

Diagnostic Reading Inventory

The Diagnostic Reading Inventory (DRI) consists of a series of eight subtests which emphasize a phonic or blending (sounding out) approach to the process of reading. There is evidence that the phonic method is a more efficient method of teaching reading than the sight word (look-say) method (Chall, 1967). The DRI has been developed specifically to diagnose reading skills for purposes of remediation. Its subtests represent a logical sequencing of skills required in reading. Studies show that, in the absence of data to establish skill hierarchies for maximizing the process of learning to read, such sequencing is an adequate substitute (Briggs, 1968).

The tests include, in order, Consonant Sounds, Vowel Sounds, Blending I (Consonant-Vowel-Consonant, primarily nonsense words),

Consonant Teams (e.g., th, sh, st), Irregular words (e.g., away, said, little), Blending II (Consonant/Consonant Teams-Vowel-Consonant/ Consonant Teams/e), Oral Reading, and Classroom Reader. Each test is timed over either a minute or half a minute.

These tests were used to diagnose problems requiring remediation and to measure the effect of teaching these skills. Subtests appropriate to the needs of each child were given throughout the reading program. The data from performances on the subtests were recorded on variable ratio charts.

The DRI is a criterion-referenced test. It differs radically from norm-referenced tests such as the GORT.

> "In normative tests, the individual performance gains meaning through comparison with other individuals' scores on the same measure. . . . Behavior on criterion-referenced tests is measured against some objective performance standard or criteria [Liberty, 1971, p. 1]."

This distinction is important in its ramifications for validity and reliability. When applied to criterion-referenced tests, reliability is considered redundant (Liberty, 1971). If items have content validity (that is, if they represent a behavior), then differences in the consistency with which items measure the criterion reflect individual differences in skill acquisition rather than differences in item stability. In criterion-referenced tests, the critical issue is whether competence in a skill results in greater competence on the criterion (for example, does competence in blending result in greater competence in oral reading?). Only the accumulation of data will determine more precisely the contribution of DRI skills to the process

of reading. Data accumulated to this time justifies the inclusion of these skills as important elements in learning to read.

Specific Behavior Inventory

The Specific Behavior Inventory (SBI) was designed by the author as a medium for describing social behaviors; a copy is included in Appendix A. Each behavior was first discussed with the mother. When a specific unambiguous description was developed for each behavior, it was recorded. Mothers were then asked to indicate its frequency and intensity. There are four categories of response for frequency, and three for intensity.

The validity and reliability of this instrument are unknown. Categories describing frequency and intensity were designed to cover a clearly differentiable wide range of responses. It is likely that the frequency categories are more reliable than the intensity categories, since frequency is based on number per day or week, while intensity is based on degrees of feeling. Some corroboration for the efficacy of pretest-potttest changes in responses to this instrument is possible from a comparison with the daily charting of mothers' efforts to change these behaviors. Further, it is likely that any lack of reliability in the measure of intensity would be lessened by an assumed relationship between frequency and intensity. That is, it is likely that behaviors that decrease in frequency would also be experienced as decreasing in intensity. These factors will be considered in evaluating the results.

General Behavior Checklist

The General Behavior Checklist (GBC) consists of 47 bipolar, seven-point rating scales with antonym pairs of adjectives defining the extremes (see Appendix C). Each pair of adjectives represents a socially desirable and a socially undesirable characteristic. The scales were sampled from an original factor analytic study in which 123 five-year-old children were rated by teachers and parents on 72 scales (Becker, 1960). Becker categorized the scales into six dimensions of personality characteristics. A subsequent factor analysis of 48 of the original scales, using parents' and teachers' ratings of 70 boys in the first three grades, produced little alteration to the configuration produced by Becker (Patterson & Fagot, 1967). The 47-item GBC used for this study is the result of the latter analysis. It consists of six factors: Hostile-Withdrawal (items 1-10), Relaxed Disposition (11-17), Lack of Aggression (18-25), Submission (26-31), Schoolroom Intelligence (32-39), and Conduct Problems (40-47)

Variable Ratio Chart

The Variable Ratio Chart (see Appendix D) has been included under Instruments because it was used for monitoring changes in both the counseling and remedial reading programs. In both programs, it was expected to have a motivational effect which would influence posttest performances. The daily or near-daily charting of behaviors gave respondents a clear idea of their performance over time. The use of one chart for each reading skill or social behavior allowed differentiation of individual programs. As well, the Variable Ratio Chart was used to compare rate changes and probability changes in evaluating results.

Scale of Reactions to Status/Attention

This scale consists of seven, seven-choice antonym adjectives. They were selected from the General Behavior Checklist. This instrument is shown in Appendix C. The adjectives were used to judge mothers' involvement level. The adjective pairs were Sociable-Unsociable, Warm-Cold, Happy-Depressed, Responsive-Aloof, Relaxed-Tense, Interested-Bored, and Cooperative-Obstructive.

Each mother was judged by an observer on each characteristic each night she attended a group session. Mothers in both the Behavioral Counseling and Status/Attention groups were included in this analysis.

Although no validity data is available on this instrument, a correlational analysis of the relationship between each variable produced correlations ranging from .50 to .82. While this analysis does not necessarily establish that the scale measures involvement level, it suggests that the seven items could be measuring a similar quality. Admittedly, this judgment is only one of several possible interpretations of these data.

The Treatment Program

Pretesting Phase

Pretesting was begun and completed during the two weeks immediately preceding the first treatment session. Each mother-and-child pair was tested in the same session.

Children. The Gray Oral Reading Test was administered first. This was followed by the Diagnostic Reading Inventory. The standardized instructions provided with each test were used for administration. The scoring procedure for the DRI was carefully followed. Since the GORT was to be used for establishing reading age and not for prescribing

skills requiring remediation, errors were not recorded in the way suggested by the manual. Incorrect words were marked only so that reading age could be calculated. Each child in the study began with the first GORT passage and continued until he or she made seven or more errors on two successive passages.

Mothers. Mothers of children who qualified for the reading program were interviewed immediately following the testing of their children. They were informed that a series of five 2-hour parent-discussion groups would be held concurrently with the reading program. They were told that a primary purpose was to obtain their reactions to a variety of topics. It was hoped that topics would be of importance and interest to them. Specific programs were to be worked out when each group met. Each group would have six mothers assigned to it.

The mothers who agreed to participate in the groups were then asked to provide information on the behavior of their children. The Specific Behavior Inventory was used to record specific social behaviors of the children participating in the study. Each mother was asked to describe behaviors in her child which were disturbing to the mother. To provide a standardized structure for the eliciting of responses, behaviors were solicited under the following general areas of parent-child interaction:

1. Relations with mom and dad,
2. Play with brothers and sisters,
3. Chores around the home,
4. Behavior outside the home,
5. Feelings about himself/herself, and
6. Other situations.

Responses were carefully paraphrased in behavioral terms. Each paraphrased behavior was read back to the mother to ensure that the description coincided with the mother's interpretation. The behavior was then recorded on the SBI. Following this, the mother was given the list of behaviors and asked to check the degree of a) frequency, and b) intensity that was appropriate for each behavior.

The second instrument given each mother was the General Behavior Checklist. The instructions printed at the top were read to the mother. The first item (sociable-unsociable) was then interpreted to make sure she understood what was required. [For example: 'If you thought (child's name) was always sociable you would mark "3" on this side (indicated). If you thought he was always unsociable you would mark "3" on this side (indicated). If you thought he was mostly sociable rather than unsociable you would mark "2" on this side. If . . . mostly unsociable . . . "2" on this side. If you thought he was slightly more sociable than unsociable you would mark "1" on this side. If . . . slightly more unsociable . . . "1" on this side. If you are not certain about (child's name) position on this behavior, or if you think he/she is as much one as the other, mark "0".'] After this was completed, mothers were thanked and told they would be informed (within times ranging up to two weeks) as to the day, night and times when they and their child would be asked to participate in the study.

Treatment Phase

Reading. Both group and individual instruction were provided throughout the remedial reading program. There was an average of six

children in each session. The Dr. Spello workbook from the Webster Classroom Reading Clinic was used for group instruction. The Diagnostic Reading Inventory was used for individual instruction. The following procedure was used in most sessions:

1. One teacher took children who could read or follow instructions in Dr. Spello and helped them to continue their progress through this workbook. (The units in this workbook are listed in Appendix F.)
2. The other teacher took children whose skill deficits required greater attention than that provided in Dr. Spello and gave them blackboard instruction in the range of skills appropriate to their needs. These skill deficits were those primarily indicated by the Diagnostic Reading Inventory.
3. When the Dr. Spello group were progressing without regular teacher assistance, both teachers gave individualized instruction to the remaining children. This took two forms. First, aural, perceptual and written discrimination exercises were given. For example, a child who had an o/u confusion might be given practice in discriminating the sounds aurally ("listen to this sound, then point to it on the blackboard"), perceptually ("look at the blackboard; what is this sound?") and aural-written ("write the word 'dog'; now write the word 'dug'"). While one teacher was doing this, the other teacher tested children individually on subtests of the DRI. The subtests chosen were usually those with which the child was

having most difficulty. However, the full DRI battery was given at least three times to every child in the program. This was done to assess to what extent the program was teaching each child DRI skills other than those specifically taught. Each child's progress was charted on variable ratio charts. At the end of two weeks, mothers were invited to suggest rewards for improved performance on particular skills. The child was consulted regarding the level of performance required for these rewards. They were able to watch their progress on the charts. This provision proved to be an excellent motivation toward the maximizing of performance. Following each testing on subtests of the DRI, children were given individualized instruction on their current weaknesses, as indicated by the DRI. As well, skills formerly taught were revised. A record was kept of the teaching and performance program being given each child. (The sheet used for recording the remedial reading program given to each child is shown in Appendix G.)

4. Basal readers and wall charts of regular and irregular words were used at intermittent intervals to test other aspects of individual progress, and to provide variety in the program. Since most of the books were sequenced in difficulty, they contributed to a child's sense of progress.

The structure of the program meant that children with the most skill deficits were given more attention than others. A fundamental assumption of the program was that effective remediation depended critically on the accuracy with which skills preventing each child's

reading progress could be diagnosed. Consequently, provided the diagnosis was correct, it was assumed that children with fewer deficits would require less time to make a significant increase in reading level. Of course, it was unknown whether this 23-day program would be long enough, even allowing for maximum accuracy in specifying reading problems.

Social behaviors. Mothers were divided into four groups. Each group was allocated six members. There were two Status/Attention (Treatment/Control) groups and two Behavioral Counseling (Treatment) groups. Each group met for two hours, one night a week, for five consecutive weeks. The Status/Attention groups met on Monday and Tuesday, respectively; the Behavioral Counseling groups met on Wednesday and Thursday.

The primary aim in each Status/Attention group was to maintain a high interest and participation level in the discussion of current controversial social issues. Care was taken to avoid discussion of strategies for dealing with the social behaviors of children.

In the Behavioral Counseling groups, mothers were taught to be effective agents for the changing of social behaviors in their children. The subject matter for these groups was the disturbing behaviors nominated by the mothers on the Specific Behavior Inventory.

In both Status/Attention and Behavioral Counseling groups, it was permissible for mothers to discuss the progress of their children in the remedial reading program.

Following is a description of the sequence of discussions in the treatment sessions. It was based upon the comprehensive transcript of

each session recorded by observers. The form used for recording the discussion in each session is shown in Appendix H. Subheadings have been inserted to divide the material into its primary segments. Different subheadings are used for new and follow-up behavioral counseling programs. New programs are described in terms of Behavior, Action, Consequence, and Count. Follow-up programs are described under Behavior, Report, and Recommendation.

Where more appropriate, a narrative summary has been used. Comments were added to a session outline whenever discussions within the session could have threatened experimental control.

Sequence of Discussion During Treatment Sessions

Status/Attention--Monday Group (First Meeting)

Leader Opens Session

--Members asked for topics
--Child behaviors to be excluded

Topics Suggested by Mothers

--Issues confronting women when children no longer at home
--How to sustain marital relationships
--Women in society

Purpose of Groups

--Relationship of groups to reading problems
--Home reading help to be nil or as usual
--Purpose: To discuss social issues other than those dealing with the behavior of children

Topic Chosen: Women in Society

Discussion:

--There is no discrimination against women
--Comparative contributions of wife and husband to family
--Wage discrimination
--Definition of discrimination
--Rights of men and women in career choice
--Vote: Can roles be substantially exchanged? Yes: 4, No: 4
--Vote: Willing to work for exchange of roles? Yes: 1, No: 7

Comments. One mother enquired whether the group was intended to help the children with reading problems. She was told that the purpose of the group was to discuss social issues not involving children. No information was given on the difference in function between the Treatment and Treatment/Control groups.

Status/Attention--Monday Group (Second Meeting)

Comments. This session was given to the performance of the "Red-Green" exercise. This exercise is sometimes assumed to measure the degree to which subgroups are willing to work together for the common good. It involves ten separate votes. Each subgroup decides whether it is preferable to make a decision which might benefit them at the expense of one or more of the groups, or whether to vote in a way which is likely to enhance the total group's solidarity. An interesting aspect of the exercise is that a criterion score for "winning" the game is never made clear.

No reference to issues germaine to the experimental design were raised during this session. Consequently, a point-by-point summary of this session is unnecessary.

Status/Attention--Monday Group (Third Meeting)

Reading Program

--Deficiencies in methods used to diagnose reading problems in schools
--Report on progress of children

Debriefing of "Red-Green" Exercise

Comments. Members discussed whether the exercise had social implications. For example, two mothers thought that it was only a game,

with no application to "real" life situations. The remainder saw meaningful analogies to situations ranging from everyday interpersonal relations, through card games to democratic organization and the Paris Peace Talks. Although the effect of the environment on people was discussed, no reference was made to the social behaviors of children or the interaction between parents and children.

Grading of "Worthwhileness" of First Two Nights' Activities on a Scale of 1 (least) to 10 (most)

Status/Attention--Monday Group (Fourth Meeting)

Reading Program

--Report: Positive reactions to reading program at home

Subsequent Reactions to "Red-Green" Exercise

Topic: America should withdraw all forces from Vietnam now

Comments. This discussion was preceded by a survey. Members had to indicate whether they would call themselves Republican (R), Democrat (D), or other (O). They were then asked to vote Yes (Y), No (N) or Don't Know (K) on the issue. A discussion then ensued during which each presented her point of view and had it responded to. After approximately ten minutes of discussion, they were asked to vote again. This vote was based on the strength of the arguments presented. Following a further ten minutes of discussion, members were asked to take into consideration arguments presented and their vote before the discussion began, and vote again on the issue. They were also asked to vote again on their political affiliation. The results showed no cross-overs in political affiliation, but some cross-over in opinions on the issue of discussion.

Topic: Welfare--To Whom Should It Be Given

Comments. Following a short discussion, the session was closed with two further votes. The first asked participants to nominate whether they considered themselves politically active. The second vote asked them whether the evening's discussion had made them want to be more politically active. The results showed one change from the pretest scores, which showed three as considering themselves politically active, and four who did not.

Status/Attention--Tuesday Group (First Meeting)

Leader Opens Session

--Aim: To discuss social issues
--Child behaviors to be excluded
--Reading scores as method by which mothers placed in groups

Reading Program

--Explanation: diagnosis-individualization-materials
--Home reading help to be nil or as usual

Topic Offered and Chosen: Women in Society

Discussion:

--Biological basis of male and female roles
--Roles as functions of individual relationships versus group norms as determiner of roles
--Divorced women--vocational training and working conditions
--Meaning of "fulfillment"
--Is happiness ignorance?
--Effect of overindulgence on children
--Thumb-sucking

Feedback on Value of Discussion

--Greater understanding of women's problems
--Need for women to be aware of men's responsibilities and problems
--Implications of "doing your own thing"

Comments. The effect of overindulgence on children, and thumb-sucking,were topics briefly discussed by the mothers. No member

suggested specific answers to these behaviors. The leader did not participate in this discussion.

Status/Attention--Tuesday Group (Second Meeting)

Reading Program

--Report on progress of each student
--Reward system discussed

"Red-Green" Exercise

Comments. (See previous 'Comments' [p. 93]). As well as carrying out this exercise, this group discussed its implications. The members spent some time analyzing the reasons for their repeated efforts to forego individual advantage in order to work for the common good. The leadership of one woman was considered to be a critical element in this development. The group agreed that the ability to make constructive corporate decisions in the "real" world is affected by the willingness of people to express the conflicts which impinge on their willingness to work for the common good.

There was no reference to relationships between parents and children during this session.

Status/Attention--Tuesday Group (Third Meeting)

Reading Program

--Analysis of each child's progress
--Reading and writing
--Influence of grandparental overindulgence on reading

Choice of New Topic

--Write three topics of importance to you which you would like to discuss in this group
--Discussion of environmental reasons for uncertainty in writing topics

Topic Chosen--Environment Versus Heredity

--Aggressiveness in children
--Cultural roles: Male dominant, females submissive
--Determinism in behavior

Comments. This session included a prolonged discourse on the relationship between parental and child behaviors. Although instances were given (for example, "He said: 'I hate you.' I said: 'I don't hate you; I love you--but I don't like what you are doing.'"); there was no consensus among the mothers about the way to deal with child social behaviors. Essentially, this period involved the presentation of experiences. The leader did not participate in this discussion. The observer noted that the leader "listened to discussion between mothers concerning their problems but made no suggestions and gave no reactions."

Status/Attention--Tuesday Group (Fourth Meeting)

Reading Program

--Report: Reactions to reading program at home

Topic: Abortion

Comments. A vote was taken on the issue before beginning discussion. This showed two for, three against, and one don't know. The following confrontation was so rapid that the observer was not able to record all the points. Two further votes were held. One was held about halfway through the session. The other was held at the end of the session. There were no changes in alignments.

There were occasional brief references to children during this session, but these points were not relevant to the purposes of this experimental design.

Behavioral Counseling--Wednesday Group (First Meeting)

Reading Program

--Explanation: diagnosis-individualization-materials
--Home reading help to be nil or as usual
--Use of rewards to maximize reading progress

Purpose of Group

--Aim: to share and implement ideas on how to deal with specific annoying or disturbing behaviors
--Daily counts of behaviors

Disturbing Behaviors--Counseling Decisions

Behavior: When he doesn't want to listen he waves his arms and makes noises
Action: Say: Will talk to him when he calms down
Consequence: To room for 10 minutes
Count: Waves arms and/or makes noises (maximum of one for each separate period of reaction)

Behavior: She stays out longer than arranged
Action: Minimize words, check that watch is worn
Consequence: If late, stays home remainder of day
Count: Times she comes home late

Behavior: He hits and punches his sister when 1) playing, 2) not playing
Action: 1) Remove him; 2) talk: reveal possible purpose of indiscriminate hitting: to gain attention; 3) father to role-play correct wrestling (playing)
Consequence: To room for 10 minutes
Count: Hits and punches (maximum of one for each separate period of reaction)

Behavior: She comes to me with aches and pains several times a day
Action: Minimal reaction
Consequence: React minimally (e.g., cursory glance; say "uh-huh")
Count: Requests for medical "aid"

Behavior: In arguments with younger sister he a) hits her and/or b) raises his voice ("screams")
Action: Talk: Upsetting to mother. Would he like to prove he can stop this behavior
Consequence: (both together): Chart to be placed where he can see it. Given camera for 20 consecutive days with not more than one argument per day with either hits or screams
Count: Hits sister and/or screams in arguments with sister (maximum: 1 per argument)

Comments. In this session and other behavioral counseling sessions mothers were taught to clearly describe the description, action, consequence and count related to the behavior they wished to change. Mothers were encouraged to contribute consequences to one another. Consequences were not chosen unless a) mothers were confident that they would be repugnant (or gratifying) to the child, and b) they could be consistently applied.

Behavioral Counseling--Wednesday Group (Second Meeting)

Disturbing Behaviors--Counseling Decisions

Behavior: She comes to me with aches and pains several times a day
Report: Some inconsistency in counting and applying consequence
Recommendation: Program reiterated, count charted

Behavior: He hits and punches his sister when 1) playing, 2) not playing
Report: On vacation--somewhat atypical situation--consistent application
Recommendation: Continue

Behavior: In arguments with younger sister he 1) hits her and/or b) raises his voice ("screams")
Report: Son was responsive; Count: number of times he "bugged" his sister
Recommendation: Count changed: 1) sister screams, 1/day; 2) hits sister, 0/day. Both for 20 consecutive days

Behavior: He interrupts when I am talking with other people
Report: Behavior replaced by "says 'Guess what' before beginning a statement
Recommendation: Return to original behavior

Behavior(new): Begins statements with "guess what" and follows with an incomplete statement
Action: Role-play conversation
Consequence: Ignore "guess what" behavior
Count: Says "guess what"

Behavior(new): His older brother hits him
Action: Talk to older brother: hurting his brother affects the family
Consequence: To take timer to room and stay there 10 minutes
Count: Hits brother (maximum of 1 for separate periods of contact)

Comments. Mothers were taught to use a variable ratio chart (see Appendix D)for the daily recording of the frequency of behaviors. The Action, Consequence and Count for each behavior were written on the chart so that mothers could check whether they were following at home the program developed in their group. A notation N (no chance) was introduced to be recorded whenever the behavior could not have been measured.

Behavioral Counseling--Wednesday Group (Third Meeting)

Reading Program--Reports and Questions

Counseling Program--Comments

--Use of calendar to record count
--Children as charters
--Spanking as a consequence

Disturbing Behaviors--Counseling Decisions

Behavior: Complains of aches and pains
Report: Counting problem overcome (calendar used), slow improvement
Recommendation: Continue

Behavior: Older brother hits and yells at younger brother
Report: Ten minutes in room changed to 1/2 hour earlier to bed, working well, children keeping charts to check mother's counting
Recommendation: Continue as changed

Behavior: Hits/screams at younger sister
Report: Very good progress
Recommendation: Continue

Behavior: "Guess what" statements
Report: Decreased
Recommendation: Continue

Behavior (new): Does not complete statements
Action: Teach him what is meant by a complete statement
Consequence: Told to complete the statement
Count: Incomplete statements

Behavior: Hitting sister in 1) play, 2) non-play
Report: Ten minutes in room is working successfully with consistent application
Recommendation: Continue

Behavior: Listening on telephone (Lori)
Report: Stopped listening
Recommendation: Continue

Behavior: Asked to complete chores
Report: Not started yet
Recommendation: To be commenced

Behavior (new): Complaints while doing chores--"complaints" defined as pouting, looks, words, stomping
Action: Any one of complaints per chore to result in consequence
Consequence: Stay in yard rest of day (with no non-family children)
Count: Complaints per chore

Behavior (new): Won't empty garbage when asked
Action: When trash can is full I will ask you once to empty it
Consequence: No TV and bed at 8:30
Count: Number of times asked per emptying

Behavior (new): Gives orders to other people, including mother
Action: Talk--other people should have choice
Consequence: 10 minutes in room
Count: Gives order (appropriateness to be judged by mother)

Behavioral Counseling--Wednesday Group (Fourth Meeting)

Counseling Program--Comments

--Children as charters

Behavioral Counseling Program--Counseling Decisions

Behavior (new): Listening to mother's phone conversations (Teresa)
Action: Talk--People entitled to privacy
Consequence: Stays home rest of day
Count: Picks up telephone when mother or sister is calling
Note: Lori has stopped listening to calls

Behavior: Hits and screams at younger sister
Report: Recurrence--Problem: Boy not aware enough of what is being counted
Recommendation: Mother to specify to him

Behavior: Older brother hitting and yelling at him
Report: Hitting stopped, yelling decreasing
Recommendation: Consistent application of consequence for yelling

Behavior: "Guess what" statements
Report: No longer occurring
Recommendation: Continue

Behavior: Incomplete statements
Report: Decreased
Recommendation: Continue

Behavior: Complains of aches and pains
Report: Decreasing
Recommendation: Continue

Behavior: Giving orders
Report: Effective consequence
Recommendation: Continue

Behavior (new): Does not complete chores (Teresa)
Action: Talk--If she does not complete chores someone else has to
Consequence: Stays home rest of day
Count: Asked to complete chore

Behavior: Interrupts when father and mother talking
Report: Program not begun
Recommendation: Talk--To wait until conversation completed (previously determined consequence and count to be applied)

Behavioral Counseling--Thursday Group (First Meeting)

Reading Program

--Explanation: Diagnosis-individualization-materials
--Home reading help to be nil or as usual
--Use of rewards to maximize reading progress

Purpose of Group

--Aim: to name, count, and change the behaviors in your children that are disturbing to you
--Daily counts of behaviors
--Interaction of reading problems and emotional problems

Disturbing Behaviors--Counseling Decisions

Behavior: He doesn't like to try new activities
Action: Encourage him
Consequence: Reward of his choice when he initiates suggested activity before his sister (more than twice a week)

Count: Does new things a) before, b) after sister

Behavior: She does not complete chores (washing dishes)
Action: Talk on her contribution to family; responsibility before play
Consequence: (both): Stay in house or yard without friends for one hour
Count: Asked to complete chores

Behavior: He interrupts when I am talking with other people
Action: Talk: It is disruptive. Assure him of hearing when finished. Cue words: "Bill, I would like you to wait, please"
Consequence: For each time he interrupts his radio is taken away for rest of day
Count: Interruptions

Behavior: Daughter picks up other phone and listens to my conversations
Action: Talk: People entitled to privacy on phone
Consequence: Cannot use telephone--in or out--for rest of day
Count: Picks up phone when mother is speaking

Behavior: He plays with younger sister but not with older sister
Action: Talk: emphasizing his contribution to both sisters
Consequence: Can take younger sister for a ride if he plays one game with older sister
Count: a) activities with older sister, b) rides with younger sister

Behavior: Throws things and hits her sister in arguments
Action: If sister upsets her, walk away
Consequence: Sent outside to "moo"
Count: Hits/throws (maximum of one for each argument)

Comments. One member wished to know how reading problems and emotional problems interact. She was told that there was an extensive literature on the subject and that there was evidence that each could cause the other. The mothers discussed which was true of their children. It is conceivable that one or more of the mothers could have guessed the primary purpose of the study. However, this was not evident in the short discussion around this point.

Behavioral Counseling--Thursday Group (Second Meeting)

Reading Program

--Reward system discussed

Disturbing Behaviors--Evaluation of Programs

Behavior: He plays with younger sister but not with older sister
Report: Successful program
Recommendation: Continue

Behavior: She throws things and hits her sister in arguments
Report: Change of Count to "yelling/stiff with anger." Satisfactory application of program
Recommendation: Continue with change of count

Behavior: He doesn't like to try new activities
Report: Opportunities for behavior to occur may be too few
Recommendation: Continue for another week

Behavior: When he doesn't want to listen he waves his arms and makes noises
Report: Successful program following initial resistance to consequence
Recommendation: Continue--change consequence to 5 minutes

Behavior: His older brother hits/shouts at him
Report: (Program begun yesterday) Brother believes he can stop hitting, but possibly not shouting
Recommendation: Same program for both behaviors (two charts)

Comments. Mothers were taught to record their counts on variable ratio charts (see Appendix D and previous 'Comments' [p. 100]).

Behavioral Counseling--Thursday Group (Third Meeting)

Reading Program

--Structure of reading programs in schools
--Parental help in reading: Children are usually sensitive to failure
--How to help reading following this program?

Behavioral Counseling Program--Counseling Decisions

Behavior: In arguments, hits and throws things at sister
Report: Working well--now sending either one out to "moo"
Recommendation: Continue

Behavior: Waving arms and making noises when mother talks to him
Report: Change of consequence to 10 minutes in corner
Recommendation: Continue with new consequence

Behavior: Plays with younger but not older sister
Report: Successful
Recommendation: Continue

Behavior (new): Does not put away tools after using them
Action: Talk: Tools cost money, if not put away you could lose them; you would lose their function
Consequence: No use of tools for one full day immediately after
Count: All tools not put away

Behavior (new): "Whines" when refused something
Action: Talk: I don't wish to be present while you whine
Consequence: To room for 10 minutes
Count: Whines (maximum of one possible per separate period)

Behavior (new): Mumbles when refused something
Action: He can mumble if he wishes--but by himself
Consequence: 10 minutes in bedroom
Count: Mumbles (maximum of one for each period)

Behavior (new): She does not put away her belongings
Action: Talk: There are some things that are rules in this house; putting away your clothes is one of them
Consequence: a) put away all items left around, b) forego an activity--to be nominated by mother
Count: Belongings out of place (maximum of one for each observation

Behavioral Counseling--Thursday Group (Fourth Meeting)

Reading Program

--Skills in reading
--Method of presenting results to mothers

Behavioral Counseling--Counseling Decisions

Behaviors (one mother): 1) Hands in air, makes noises; 2) Doesn't put away tools; 3) whining
Report: All no longer problems
Recommendation: Continue

Behavior: Mumbles when refused something
Report: Working well
Recommendation: Continue

Behavior: Putting away clothes
Report: Successful program
Recommendation: Continue

Behavior: 1) Complains while doing chores, 2) she does not complete chores
Report: Cessation following application of consequence
Recommendation: Continue

Behavior: Tries new activities before sister
Report: Not working satisfactorily. Problem: Behavior occurs too few times
Recommendation: Praise whenever he attempts new activity before sister

Behavior (new): Does not do chore when required to do it (excuse: does not hear)
Action: Will be asked question: "Did you hear me?"
Consequence: Stick on legs
Count : Does not do chore when told

Effect of Individual Behavior Changes on Other Members of Family

--Relationship between these behaviors and behaviors resulting from reading problems
--Discussion of child who lets other children do things for her

Comments. One mother asked a question which, if correctly answered, would have revealed the hypothesized connection between reading problems and the removal of disturbing behaviors. The mother was told that this question would be answered in the final week of the counseling program.

Sessions 17-20 (Final Session for all Groups)

The four final sessions had substantially the same format. First, mothers were interviewed individually and asked to complete the Specific Behavior Inventory and the General Behavior Checklist, in that order. Then mothers were read each of the SBI behaviors they had nominated in the pretest as disturbing. For each behavior they were asked 1) how often does this behavior occur? 2) how disturbing is this behavior to

you? Alternatives were those shown in the SBI. Mothers then were asked two further questions: 1) what other behaviors in your child are disturbing to you? The description, frequency and intensity of each behavior was recorded on the SBI; and 2) on the average, how much time each day did you spend in helping your child with his reading problems?

The GBC was then completed, using the same administrative procedures as those of the pretest.

The second part of each session was an explanation of the experimental design. This included a discussion of the relationship between the reading and social problems of children in the study.

The remainder of the session was given primarily to suggesting how particular mothers might best facilitate the reading progress of their children. This discussion focussed on materials, diagnosis, the relationship between school and home, and the level of participation appropriate for each mother.

Comments. Time limitations required revelation of the experimental design to some mothers before posttesting reading level and skills. This could be interpreted as a confounding variable. This procedure involved seven mothers in the Status/Attention groups and three mothers in the Behavioral Counseling groups. All three of the mothers from the Behavioral Counseling groups and two mothers from the Status/Attention groups had a maximum of one full day between knowledge of the experimental design and the testing of their children. Of the remaining five mothers from the Status/Attention groups, three had two days; and two had three days between knowledge and testing.

Since the mothers had already been posttested prior to revelation, only the posttest reading scores could have been affected by any confounding from this circumstance. However, as reading consists of a number of discrete perceptual, aural and oral skills, it is highly unlikely that competence in these skills could have been significantly augmented by changes in social behaviors over such short periods of time.

Statement of the Hypotheses

The general hypotheses concerning the effect of counseling given to mothers on the attainments of their children in a remedial reading program will be expressed as a series of specific hypotheses. They will be stated in terms of the procedures used in this study.

Hypothesis 6 was presented in null form. It is realised that acceptance of the null hypothesis does not constitute proof that no difference exists between groups. Consequently, the chapter on Results will include further analysis of this hypothesis.

Hypothesis 1: The posttest mean reading age of the Treatment Group will be statistically significantly higher than the posttest mean reading age of the Treatment/Control group.

Hypothesis 2: The posttest mean reading age of the Treatment Group will be statistically significantly higher than their pretest mean reading age.

Hypothesis 3: The posttest mean reading of the Treatment/Control group will be statistically significantly higher than their pretest mean reading age.

Hypothesis 4: The posttest means for frequency and intensity of disturbing behaviors for the Treatment group will be statistically significantly less than the posttest means for the Treatment/Control Group.

Hypothesis 5: The posttest means for frequency and intensity of disturbing behaviors for the Treatment Group will be statistically significantly less than their pretest means.

Hypothesis 6: The posttest means of frequency and intensity of disturbing behaviors for the Treatment/Control group will not be statistically significantly different from their pretest means. That is, the null hypothesis will not be rejected.

Other Predictions

In addition to the above 6 hypotheses, 3 predictions are presented. They concern the effect of Behavioral Counseling and Status/Attention on general descriptions of child behavior. They are not presented as hypotheses. The reasons are described on page 51 of this dissertation. Their purpose is to provide supplementary information on findings from a previous study (Walter, 1972).

1) The posttest means of general behaviors for the Treatment/Control group will be statistically significantly more positive than their pretest means.
2) The pretest means of general behaviors for the Treatment group will not be statistically significantly discriminable from the pretest means of the Treatment/Control group.
3) The posttest means of general behaviors for the Treatment group will not be statistically significantly discriminable from the posttest means of the Treatment/Control group.

CHAPTER III

RESULTS

Statistical Procedures

Four statistical procedures were used in this study. Analysis of variance and analysis of covariance were used to examine between-group, pre-post changes in the frequency and intensity of disturbing behaviors. Analysis of variance and analysis of covariance were also applied to changes in between-group, pre-post reading scores. A paired sample procedure was used to analyze pre-post changes within the Treatment and Treatment/Control reading groups. Multiple discriminant analysis was used to examine between-group differences on the General Behavior Checklist. The Mahalanobis D Square statistic was used to determine the significance of differences arising from the multiple discriminant analysis.

Both analysis of variance and analysis of covariance assume randomization of assignment to groups. In this study, assignment was not randomized. In discussing the comparison of groups not formed at random, Cronbach and Furby (1970) consider that:

> "When treatments are applied to groups differentiated by a nonrandom process, the X_∞ distributions within the subpopulations represented by the groups are generally not the same. Consequently, the same observed X score implies a different level of true pretest ability, depending on the group [p. 78]."

The point at issue here is statistical control. Lord's (1967) statement, quoted earlier in this text (p. 58), is worth repeating:

> ". . . there is simply no logical or statistical procedure that can be counted on to make proper allowances for uncontrolled preexisting differences between groups [p. 305]."

This point is acknowledged, but an acknowledgement that statistical procedures lack the power to deal with non-randomization does not necessarily imply that an experimental design is faulty. An earlier discussion of this point (p. 58-59) indicated that randomization gives statistical procedures inferential power, but does not guarantee that a small sample is free from unintended bias. In the present study, the systematic use of reading disparity scores to form groups resulted in close comparability in a number of other subject characteristics: sex, chronological age, grade level and reading age. Table 1 (see p. 60) shows this analysis. The aim of this assignment procedure was to minimize pretest differences, both between and within groups. The minimizing of pretest differences should increase the possibility that the two groups are from the same population. However, it is acknowledged that, when subjects are not randomly assigned to groups, the validity of inferential statistical procedures in analyzing results is affected by an unknown error term. Consequently, although the assignment procedures used in the present study attempted to minimize the possibility of uncontrolled preexisting differences between groups, the effect of these differences cannot be specified.

Multiple discriminant analysis was used for the analysis of scores on the General Behavior Checklist. There were two main reasons for

preferring this statistical procedure. First, factor analytic data was available from a previous study (Patterson & Fagot, 1967) which had used the General Behavior Checklist. Patterson and Fagot used a sample of 70 children to examine the factors produced in the study by Becker (1960), from which the General Behavior Checklist had been developed. There were 123 children in Becker's study. Patterson and Fagot (1967) reported that::

> "The data from the two studies showed a high degree of agreement in identifying these [Becker's] factors [p. 373]."

The comparability of results from the two studies just discussed indicated that factor analytic data from the Patterson and Fagot (1967) study could be used to investigate responses on the General Behavior Checklist in the present study. Accordingly, factor analytic data from the Patterson and Fagot study were used to develop standardized factor scores for the multiple discriminant analysis of the study reported here. The standardized factor scores were used to perform a reduced rank analysis of the General Behavior Checklist.

The second reason for choosing multiple discriminant analysis to analyze responses on the General Behavior Checklist was that, because of the small sample size (n=12) and the number of variables (n=47), alternative statistical procedures would have required more than one analysis of the data. The multiple discriminant analysis requires only one analysis to differentiate between two groups. As such it is:

> ". . . a multivariate generalization of the t test. Given a number of related measurements made on each of two groups, the investigator may want a single test of the null hypothesis that the two populations have the same means with respect to all the measurements [Snedecor & Cochran, 1967, p. 414]."

The paired sample t procedure was used to analyze pre-post changes within the Treatment and Treatment/Control reading groups. The paired sample t procedure was preferred to the normal t procedure because independence of samples could not be assumed. Consequently, an assumption of the normal t procedure--that covariance is equal to zero--was not tenable. By including the correlation between scores in the analysis of results, the paired t procedure satisfactorily accounted for the influence of nonindependence on the within-group differences in the reading groups.

All judgments of significance were made at the .05 level. In most analyses, actual probabilities will be presented.

Hypotheses

The major question to be answered was "did the Treatment group significantly improve in reading when compared with the Treatment/Control group?" Hypothesis 1 stated that the posttest mean reading age of the Treatment group will be statistically significantly higher than the posttest mean reading age of the Treatment/Control group. The dependent variable was posttest scores on the Gray Oral Reading Test. A one-way analysis of covariance was performed, using pretest scores as the covariate. Two major conditions for homogeneity of variance were met--the slopes between experimental groups were not different and were non-zero. The results are presented in Table 4.

The difference between groups was not significant at the .05 level. The null hypothesis was not rejected. The results indicate that the

TABLE 4

COMPARISON OF TREATMENT AND TREATMENT/CONTROL READING GROUPS ON ADJUSTED POSTTEST SCORES FOR THE GRAY ORAL READING TEST

(N = 24)

Source	SS	DF	MS	F	P
Pretest[1]	4529.54	1	4529.54	372.95	
Treatment	.92	1	.92	.08	.79
Error	255.05	21	12.15		

[1]Covariate

Group	N	Group Mean	Adjusted Group Mean	Standard Error
Treatment	12	26.17	26.99	1.01
T/C	12	27.42	26.60	1.01

difference between groups could have occurred by chance alone 79% of the time. Consequently, Hypothesis 1 was not confirmed. The reading improvement of the Treatment group of children was not significantly greater than the reading improvement of the Treatment/Control group.

The other two hypotheses concerned with reading compared pretest and posttest scores for each of the two groups. Hypothesis 2 stated that the posttest mean reading age of the Treatment group would be statistically significantly higher than the pretest mean reading age. Hypothesis 3 made the same assertion for the Treatment/Control group. For both hypotheses, the dependent variable was the difference between pretest and posttest scores on the Gray Oral Reading Test.

A paired sample t analysis was used to examine both hypotheses. A one-tailed test of significance was applied. The results for Hypotheses 2 and 3 are shown in Tables 5 and 6, respectively.

In each analysis, the difference was highly significant ($p < .005$). Therefore, the null hypothesis was rejected for both hypotheses. Hypothesis 2 and Hypothesis 3 were confirmed. Both Treatment and Treatment/Control children made significant gains in their respective reading programs.

In summary, while both the Treatment and Treatment/Control groups experienced a significant increase in reading ability during the reading program, the major expectation of the study--that the increase in reading ability for the Treatment group would be significantly greater than the increase in reading ability for the Treatment/Control group--was not realised.

TABLE 5

COMPARISON OF TREATMENT GROUP PRETEST AND POSTTEST SCORES ON THE GRAY ORAL READING TEST

(N=12)	Paired Sample t Analysis	
	Pretest	Posttest
Mean	20.08	26.17
SD	7.74	13.47
r	.96	
t	t = 3.27 p < .005	df=11

TABLE 6

COMPARISON OF TREATMENT/CONTROL GROUP PRETEST AND POSTTEST SCORES ON THE GRAY ORAL READING TEST

(N=12)	Paired Sample t Analysis	
	Pretest	Posttest
Mean	21.08	27.42
SD	9.63	15.92
r	.96	
t	t = 3.28 p < .005	df=11

The other question of critical importance to this study is: "was Behavioral Counseling significantly more effective than Status/Attention in ameliorating disturbing behaviors?" Disturbing behaviors were measured in terms of their frequency and intensity. Hypothesis 4 stated that posttest means for frequency and intensity of disturbing behaviors for the Treatment groups would be statistically significantly less than the posttest means for the Treatment/Control group. The dependent variable was posttest scores on the Specific Behavior Inventory. One-way analysis of covariance, using pretest scores as the covariate, was performed for frequency of disturbing behaviors. The results of this analysis are presented in Table 7. The results indicated a rejection of the null hypothesis at a highly significant level ($p = .0002$). Therefore, Behavioral Counseling, when compared with Status/Attention, significantly lessened the frequency of disturbing behaviors.

An analysis of covariance was also performed for intensity of disturbing behaviors. Although results indicated a significant difference, in the desired direction, between the Behavioral Counseling and Status/Attention groups, one of the assumptions--homogeneity of slope--was not met. This infers that there was little relationship in the way that subjects discriminated among intensity categories on the pretest and the posttest. Consequently, it is likely that intensity was an unreliable measure in this context. The correlation between the measures was found to be only .05. This reinforces the impression of unreliability. Because of the inappropriateness of analysis of covariance for the intensity measure, analysis of variance was used. The results are shown in Table 8.

TABLE 7

COMPARISON OF BEHAVIORAL COUNSELING AND STATUS/ATTENTION GROUPS ON PRETEST AND POSTTEST SCORES FOR FREQUENCY OF DISTURBING BEHAVIORS

(N=114) Analysis of Covariance

Source	SS	DF	MS	F	P
Pretest[1]	10.21	1	10.21	5.12	
Treatment	30.07	1	30.07	15.08	.0002
Error	221.27	111	1.99		

[1]Covariate

Group	N	Group Mean	Adjusted Group Mean	Standard Error
Treatment	50	1.10	1.01	0.20
T/C	64	2.02	2.08	0.18

TABLE 8

COMPARISON OF BEHAVIORAL COUNSELING AND STATUS/ATTENTION GROUPS ON PRETEST AND POSTTEST SCORES FOR INTENSITY OF DISTURBING BEHAVIORS

(N=114) Analysis of Variance

Source	SS	DF	MS	F	P
Treatment	15.04	1	15.04	11.46	.001
Error	146.93	112	1.31		

	Mean		Standard Deviation	
	Pre	Post	Pre	Post
Treatment	2.18	.94	.75	1.15
T/C	1.92	1.67	.95	1.14

The results indicated a rejection of the null hypothesis at a highly significant level ($p = .001$). Therefore, Behavioral Counseling, when compared with Status/Attention, significantly lessened the intensity of disturbing behaviors.

In summary, Hypothesis 4 was confirmed. Behavioral Counseling was significantly more effective than was Status/Attention in ameliorating disturbing behaviors.

The analyses used to test Hypothesis 4 do not indicate the degree to which the frequency and intensity of disturbing behaviors changed in each group. There is a possibility that Status/Attention significantly ameliorated disturbing behaviors, but that this effect was significantly less than that of Behavioral Counseling. Hypotheses 5 and 6 express these effects. Hypothesis 5 states that the posttest means for frequency and intensity of disturbing behaviors for the Treatment (Behavioral Counseling) group will be statistically significantly less than their pretest means. For both hypotheses, the dependent variable was the difference between pretest and posttest scores on the Specific Behavior Inventory. A paired sample t test was used to analyze pre-post differences. Tables 9 and 10 present the findings for this analysis.

Results for both frequency and intensity of disturbing behaviors for the Treatment group indicate that both Hypothesis 5 and Hypothesis 6 were confirmed at an extremely high significance level ($p < .000005$ for frequency and $p < .00005$ for intensity). A one-tailed test of significance was used for both analyses. The null hypothesis was rejected for both frequency and intensity. Therefore, Hypotheses 5 and 6

TABLE 9

COMPARISON OF PRETEST AND POSTTEST SCORES FOR FREQUENCY OF DISTURBING BEHAVIORS IN THE BEHAVIORAL COUNSELING GROUP

(N=64)	Paired Sample t Analysis		
	Pretest		Posttest
Mean	2.92		1.10
SD	1.26		1.39
r		.06	
t	t = -7.09	p < .000005	df=63

TABLE 10

COMPARISON OF PRETEST AND POSTTEST SCORES FOR INTENSITY OF DISTURBING BEHAVIORS IN THE BEHAVIORAL COUNSELING GROUP

(N=50)	Paired Sample t Analysis		
	Pretest		Posttest
Mean	2.18		.94
SD	.75		1.15
r		.06	
t	t = -6.23	p < .00005	df=49

were confirmed. The Behavioral Counseling program significantly changed the frequency and intensity of disturbing behaviors.

Hypothesis 6 is expressed in null form. It states that the posttest means of frequency and intensity of disturbing behaviors for the Treatment/Control group will not be statistically significantly different from the posttest means. That is, the null hypothesis will not be rejected. The dependent variable was the difference between pretest and posttest scores on the Specific Behavior Inventory. A paired sample t analysis was used to determine the differences between pretest and posttest means. Tables 11 and 12 present the results of this analysis.

For neither frequency nor intensity of disturbing behaviors was the null hypothesis rejected at the .05 level. This result offers some evidence that the Treatment/Control did not significantly lessen the frequency and intensity of disturbing behaviors. However, "acceptance" of the null hypothesis does not prove that it is true; failure to reject the null hypothesis does not necessarily mean that there is no difference between means. A zero difference is only one possibility among many potential differences. Accordingly, it is necessary to determine the extent to which we can be confident that differences between pretest-posttest means, for both frequency and intensity, are small enough to warrant the assertion that Status/Attention had a significantly small beneficial effect on the frequency and intensity of disturbing behavior.

In order to determine the power of the test used to examine Hypothesis 6, confidence interval values were calculated for both frequency and intensity. This was done in three stages. First, a power test was

TABLE 11

COMPARISON OF PRETEST AND POSTTEST SCORES FOR FREQUENCY OF DISTURBING BEHAVIORS IN THE STATUS/ATTENTION GROUP

(N=64)	Paired Sample t Analysis		
	Pretest		Posttest
Mean	2.25		2.02
SD	1.39		1.47
r		.31	
t	t = -1.11	p > .05	df=63

TABLE 12

COMPARISON OF PRETEST AND POSTTEST SCORES FOR INTENSITY OF DISTURBING BEHAVIORS IN THE STATUS/ATTENTION GROUP

(N=50)	Paired Sample t Analysis		
	Pretest		Posttest
Mean	1.92		1.67
SD	.95		1.14
r		.03	
t	t = -1.37	p > .05	df=49

performed to determine the smallest difference (between means) which could be detected, given the obtained variances, at the .05 level of significance. A confidence level of 90% was used for this determination. That is, if differences as small as the one calculated had existed at the .05 level, we could be 90% confident of finding them. Second, the differences between the means for both frequency and intensity were calculated. Third, the smallest difference value was added to the difference between means to determine the range of scores within which the true scores would be found.

The smallest difference value for frequency of disturbing behaviors in the Status/Attention group was .52. The difference between pretest and posttest means was-.23. When .52 was added to -.23, the range of values, within which we can be 90% certain that the true score was located, was from -.23 to .29. This range represented only approximately 25% of one frequency category on either side of a zero difference. There were four categories for frequency of disturbing behaviors: once a week, twice a week, once a day and more than once a day. Consequently, as the differences between means for the Status/Attention group covered only about half of a category, we can confidently state that Status/Attention did not ameliorate the frequency of disturbing behaviors.

Similar calculations were made for intensity of disturbing behaviors for the Status/Attention group. The respective figures were .45 as the smallest difference value, -.25 as the difference between the pretest and posttest means, and -.25 to .20 as the range of values within which the true score was located. Although intensity had only three

categories, we can be confident that Status/Attention did not ameliorate the intensity of disturbing behaviors.

In summary, two main findings resulted from the analysis of data for Hypotheses 5 and 6. First, the Behavioral Counseling program ameliorated the frequency and intensity of disturbing behaviors. Unreliability of the intensity measure may have had a confounding effect on the results. However, the magnitude of the significance of differences between the Behavioral Counseling and Status/Attention groups on frequency of disturbing behaviors suggests that the similar results found for intensity are likely to be real changes. Second, the Status/Attention program did not ameliorate the frequency and intensity of disturbing behaviors.

Other Results

The Status/Attention group in the present study had both a treatment function and a control function. Its expected control function was based on a study by Walter (1972) that Status/Attention changed mothers' perceptions of their children on general descriptors of child behaviors. To further examine this effect in the study reported here, three predictions were presented (see p. 110). These predictions were concerned with changes in general behaviors. They predicted that Status/Attention will significantly improve mothers' estimates of these behaviors in their children, and that the degree of this improvement will be similar for both the Status/Attention and Behavioral Counseling groups.

Prediction 1 states that the posttest means of general behaviors for the Treatment/Control group will be statistically significantly

more positive than their pretest means. The dependent variable was posttest scores on a reduced rank General Behavior Checklist.[1] Multiple Discriminant Analysis was used to test differences between pretest and posttest means for the Status/Attention group.

Results were not significant at the .05 level. The null hypothesis was not rejected. The Mahalanobis D Square value[2] for differences between means was 0.09986 for 5 degrees of freedom. This result indicates that more than 99 times out of 100 this difference would have occurred by chance alone. Prediction 1 was clearly not realised. Consequently, Status/Attention did not improve mothers' perception of disturbing behaviors in their children.

Predictions 2 and 3 are in null form only. Prediction 2 states that the pretest means of general behaviors for the Treatment group will not be statistically significantly discriminable from the pretest means of the Treatment/Control group. Prediction 3 makes a similar assertion for differences between posttest means of the Treatment and Treatment/Control groups.

A multiple discriminant analysis, using reduced rank data, examined both predictions. Results of this analysis for Prediction 2 indicate that the difference between the means was not significant at the .05 level. The Mahalanobis D Square value for pretest means was 1.314 for 5 degrees of freedom. This result indicated that 95 times out of 100 this difference would have occurred by chance alone.

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[1] As noted earlier (see p.113), rank reduction was accomplished using factor loadings obtained by Patterson and Fagot (1967).

[2] Interpreted as χ^2_o.

The Mahalanobis D Square value for differences between posttest values (Prediction 3) was 1.80784 for 5 degrees of freedom. This result indicates that 90 times out of 100 trials this difference would have occurred by chance alone.

The relatively small sample (n=12) and the relatively large number of variables in the General Behavior Checklist (n=47) make conclusions tentative. However, the above analyses provide at least prima facie evidence that neither Status/Attention nor Behavioral Counseling significantly improved mothers' perceptions of general behaviors.

Some additional evidence on the effect of Behavioral Counseling and Status/Attention on general behaviors was gained by looking at patterns of change for each mother. Each of the 47 antonym behaviors in the GBC is judged on a seven-point scale. Consequently, the amount of change from pretest to posttest can be scored between 0 and 7. When the number of positive changes for each Status/Attention mother on each behavior were added, the total was 232. When a similar calculation was done for negative changes, the total was 227. The difference of 5 is extremely small and corroborates the result of the Multiple Discriminant Analysis for Prediction 1.

When the same calculations were done for the Behavioral Counseling group, the total number of positive changes was 349. The total number of negative changes was 185, a difference of 164. These calculations offer some evidence that Behavioral Counseling had a greater positive effect than Status/Attention on mothers' perceptions of their child's general behaviors.

In summary, the present study offers no evidence that Status/Attention is able to positively change mothers' perception of general behaviors in their children.

Observers' Ratings

Observers used seven, seven-point, semantic differential variables to judge the involvement level of the mothers participating in the Behavioral Counseling and Status/Attention groups (see Appendix E). The purpose was to control for the possibility that any difference between Treatment and Treatment/Control mothers was due to involvement level rather than treatment procedure.

There were two observers. Each judged one Behavioral Counseling and one Status/Attention group. However, one observer attended only the first two weeks of the five-week program. The other observer judged all groups for the final three weeks of the program. Thus, the first observer attended only four out of the 20 sessions.

Differences between groups were examined using a one-way analysis of variance for each of the variables. The judgments of each observer were analyzed separately. Table 13 shows the analyses of variance for ratings of the first observer.

Results showed that the first observer (four sessions) significantly differentiated her two groups on three of the seven variables. However, when all the variables were combined, the difference between groups was not significant at the .05 level. Consequently, when all ratings are taken into account, the first observer did not judge her two groups as

TABLE 13

COMPARISON OF THE INVOLVEMENT LEVELS OF MOTHERS IN THE BEHAVIORAL COUNSELING AND STATUS/ATTENTION GROUPS

(N = 24)

FIRST RATER

Analyses of Variance
Sociable-Unsociable

Source	SS	DF	MS	F	P
Treatment	.51	1	.51	.94	.3419
Error	11.99	22	.54		

	Mean	Standard Deviation
Treatment	1.91	.7
T/C	1.62	.77

Warm-Cold

Source	SS	DF	MS	F	P
Treatment	.38	1	.38	.71	.4069
Error	11.62	22	.53		

	Mean	Standard Deviation
Treatment	1.64	.80
T/C	1.38	.65

Happy-Depressed

Source	SS	DF	MS	F	P
Treatment	.13	1	.13	.15	.7069
Error	19.50	22	.89		

	Mean	Standard Deviation
Treatment	1.45	.82
T/C	1.31	1.03

Responsive-Aloof

Source	SS	DF	MS	F	P
Treatment	1.35	1	1.35	1.14	.2971
Error	25.99	22	1.18		

	Mean	Standard Deviation
Treatment	2.09	.54
T/C	1.62	1.39

TABLE 13 (CONTINUED)

Relaxed-Tense

Source	SS	DF	MS	F	P
Treatment	7.55	1	7.55	7.42	.0124
Error	22.41	22	1.02		

	Mean	Standard Deviation
Treatment	1.82	.60
T/C	.69	1.25

Interested-Bored

Source	SS	DF	MS	F	P
Treatment	3.15	1	3.15	8.47	.0081
Error	8.18	22	.37		

	Mean	Standard Deviation
Treatment	2.73	.47
T/C	2.00	.71

Cooperative-Obstructive

Source	SS	DF	MS	F	P
Treatment	3.59	1	3.59	11.23	.0029
Error	7.04	22	.32		

	Mean	Standard Deviation
Treatment	2.55	.52
T/C	1.77	.60

Full Factor

Source	SS	DF	MS	F	P
Treatment	1.93	1	1.93	3.84	.0630
Error	11.04	22	.50		

	Mean	Standard Deviation
Treatment	.31	.57
T/C	-.25	.80

being significantly different in involvement level. Therefore, the involvement level of the mothers who were judged by the first observer did not constitute a significant source of posttest differences between the Behavioral Counseling and Status/Attention groups.

The second rater judged mothers in sixteen out of the twenty sessions. Analyses of variance for the judgments of the second rater are shown in Table 14. Results indicated that on none of the semantic differential variables did the rater perceive a significant difference, at the .05 level, between the involvement level of mothers in the Behavioral Counseling and Status/Attention groups. Therefore, differences in involvement level did not significantly influence posttest differences between the Behavioral Counseling and Status/Attention groups.

The three significant differentiations made by the first observer offer some evidence that involvement level may be an alternative hypothesis in explaining treatment effects. This observation needs to be examined in greater perspective. First, the other four judgments of this observer were not significant. Second, when the variables were combined, the results were not significant at the .05 level. Third, this observer's judgments accounted for only four of the 20 sessions. Judgments made by the second observer for the remaining 16 sessions were all not significant. Consequently, when observers' judgments are examined in totality, mothers' involvement can be discounted as a source of experimental bias. In summary, it can be confidently concluded that involvement level effects did not confound differences between the effects of Behavioral Counseling and Status/Attention.

TABLE 14

COMPARISON OF THE INVOLVEMENT LEVELS OF MOTHERS IN THE BEHAVIORAL COUNSELING AND STATUS/ATTENTION GROUPS

(N = 96)

SECOND RATER

Analyses of Variance
Sociable-Unsociable

Source	SS	DF	MS	F	P
Treatment	.05	1	.05	.04	.8426
Error	125.58	94	1.34		

	Mean	Standard Deviation
Treatment	1.41	1.09
T/C	1.46	1.22

Warm-Cold

Source	SS	DF	MS	F	P
Treatment	.65	1	.65	.55	.4584
Error	109.76	94	1.17		

	Mean	Standard Deviation
Treatment	1.30	.96
T/C	1.14	1.18

Happy-Depressed

Source	SS	DF	MS	F	P
Treatment	.16	1	.16	.12	.7247
Error	123.33	94	1.31		

	Mean	Standard Deviation
Treatment	1.28	1.03
T/C	1.20	1.25

Responsive-Aloof

Source	SS	DF	MS	F	P
Treatment	.59	1	.59	.41	.5228
Error	135.65	94	1.44		

	Mean	Standard Deviation
Treatment	1.72	.91
T/C	1.56	1.42

TABLE 14 (CONTINUED)

Relaxed-Tense

Source	SS	DF	MS	F	P
Treatment	1.35	1	1.35	.84	.3613
Error	135.65	94	1.44		

	Mean	Standard Deviation
Treatment	1.22	1.25
T/C	.98	1.20

Interested-Bored

Source	SS	DF	MS	F	P
Treatment	.34	1	.34	.50	.4801
Error	63.65	94	.68		

	Mean	Standard Deviation
Treatment	2.24	.82
T/C	2.12	.82

Cooperative-Obstructive

Source	SS	DF	MS	F	P
Treatment	.48	1	.48	.83	.3659
Error	54.15	94	.58		

	Mean	Standard Deviation
Treatment	2.26	.83
T/C	2.12	.69

Full Factor

Source	SS	DF	MS	F	P
Treatment	.41	1	.41	.47	.4956
Error	81.89	94	.87		

	Mean	Standard Deviation
Treatment	-.10	.90
T/C	-.23	.96

The Diagnostic Reading Inventory and the Gray Oral Reading Test

The norms provided for the Gray Oral Reading Test are expressed in one monthly units of grade level. There is no indication of the specific reading skills included in each passage. Therefore, it is difficult to know the degree to which each passage is representative of the process called reading. A more serious problem concerns the meaning of differences in reading age levels. Logically, the child with a reading age at the early first-grade level has more skills to attain in order to gain one month of reading age than a child reading at, say, third-grade level. Consequently, equal changes in reading age may reflect considerably different reading accomplishments. To investigate this proposition, individual performances on the Diagnostic Reading Inventory were charted. The charts are shown in Appendix I.

Each chart represents a comparison of changes in GORT reading ages with changes in performance on the seven DRI skills for which both pre and post measures were taken. The charts have several features. First, the graphs are presented in variable-ratio form. This allows degree of slope to be used in comparing results. It is acknowledged that equal changes in rate are assumed to indicate equal changes in performance. However, there seems to be no a priori or empirical reason sufficiently cogent to disallow this assumption as it relates to reading. One effect of a ratio graph is that length of lines is not consistent with absolute changes. Rate of change is the criterion for length of line. For example, a change from 1 to 2 (a two times increase) would have a longer line than a change from 10 to 15 (a 1.5 times increase).

Consequently, in order to make comparisons as comprehensive as possible, both absolute changes and rate changes have been included on each graph. Absolute changes are shown at the top, and rate changes at the bottom, of each line. As well, both pre and post scores can be estimated by reference to the vertical coordinate. Decrements in pre-post performance are indicated by an arrow at the bottom end of the line, and a minus sign next to the amount-of-change figure at the top of the line.

The GORT graph shows that one-third of the reading group (n=8) had increases of either no months or one month. All had a reading age of 1.9 or less. In fact, the amount of reading-age improvement is very clearly related to the reading age on entry. However, when the GORT graph is compared with performances on the DRI skills, there is some deviation from the pattern of performances represented by reading-age changes. The following are the main characteristics of this comparison:

1. In general, gains on the Gray Oral Reading Test were greater the higher the pre reading age. This pattern emerged for all three characteristics shown--amount of increase, range of increase and rate of increase.

2. On only two of the DRI skills did the pattern of subjects' performances approximate the pattern of performances on the GORT. These skills were Oral Reading and Irregular Words. However, the GORT and DRI Oral Reading patterns have some notable inconsistencies. Two children who made only one month of reading age gain were ninth and eleventh, respectively, in amount of DRI Oral Reading gain. Another

two children whose GORT gain was zero were twelfth and fourteenth in amount of Oral Reading increase. Conversely, two others who were third and seventh, respectively, on GORT increase were twentieth and twenty-first on amount of Oral Reading increase. Further, as distinct from the GORT, rate of increase on Oral Reading was greatest for those designated as the poorer readers by the normative test.

The approximate similarity of GORT and DRI Irregular Word patterns is interesting. Irregular words were taught only incidentally in the reading program. Thus, the posttest pattern of performances should substantially reflect the pretest pattern of competence on this skill. However, it is also likely that this similarity gives a clue to what is being measured by the GORT. Between one-third and one-half of the words in each GORT passage are irregular in form. Consequently, children with the better irregular sight vocabulary did better on the GORT. The relatively high proportion of irregular words in the GORT might also help to explain why children could make substantial gains on word analysis and synthesis skills (Blending I and Blending II) without increasing proportionately in GORT reading age.

The fact that one-third of the children showed pre-post decrements in performance on Irregular Words is not surprising, considering that almost no formal teaching of these words was included in the program.

While pre-post range of performance on Irregular Words was similar to that of the GORT, rate of increase was more evenly spread. As well, there were disparities in amount of increase. Admittedly, some random fluctuation is understandable in Irregular Words where there was no formal teaching program.

3. Pre-post performance patterns for the remaining DRI skills show marked deviations from the GORT pattern, with Blending II showing the least, and Consonant Sounds the greatest, disparity. There is no point in laboriously describing the differences in rate, amount and range of change. The slope of each curve is indicative of the degree of disparity. There is some tendency for post scores on the GORT and Blending II to be similar. However, three scores in the top eight for amount, rate and range of increase on the GORT are in the lowest eight for those categories on Blending II. In much greater contrast are scores on Consonant Sounds. The slope of performances on Consonant Sounds is parabolic rather than linear. In fact, it is clear that children who scored lowest on the GORT performed comparably on Consonant Sounds with children who scored highest on the GORT.

Finally, it should be noted that such disparities cannot be explained by error scores. It could be argued that comparatively greater increases in DRI scores for the lower scores on the GORT could be misleading in that error scores increased disproportionately. However, only 26 of 168 posttest error scores were higher than the pretest scores. Further, in only 34 of 168 scores were post error scores four or greater per minute or half minute.

A summary statement concerning the implications of these findings will be included in the Discussion section of this study.

The Behavioral Counseling Program and The Specific Behavior Inventory

This program involved mothers taking daily counts of the frequency of disturbing behaviors in their dhildren. Appendix J shows a complete analysis of daily frequencies of disturbing behaviors and Specific Behavior Inventory pre-post estimates of frequency and intensity for the same behaviors. The following observations seem pertiment:

1. There were 27 behaviors treated. In the first week of the Behavioral Counseling program, treatment was commenced for 12 of these behaviors. Two new behaviors were added to the treatment program on the second week, ten were added in the third week, and 3 in the fourth week.

2. There were 24 behaviors for which data was collected over at least one complete Monday to Sunday period. Of these 24 behaviors, 22 were given treatment programs which sought to reach zero daily frequency. Data for the first full Monday to Sunday week after the commencement of each treatment program show that, on days when counting took place, 17 of the 22 behaviors had more zero frequency days than any other frequency. Thus, treatment effects occurred early in the program.

3. The data indicate that desirable treatment effects were maintained over the course of most programs. In the last complete Monday to Sunday period (the fourth week) before the treatment program ended, 18 of the 21 programs which were current during each day of this week had zero as the most common frequency on days when counting took place.

4. There were twelve treatment programs for which approximately 25% or more of the program days were no-count days. There is no evidence that no-count days were followed by increased frequency of disturbing behaviors. These data provide some evidence that treatment effects carried over periods when there was no opportunity for the behavior to occur and receive a response.

5. In nearly every case, patterns of daily changes are consistent with SBI posttest judgments. Daily data were recorded on twenty-seven behaviors. Since posttest data from the SBI included frequency categories from less than one a week (0) to more than one a day (4), mothers' posttest SBI judgments were compared with the last seven days on which data was collected on a daily basis. Twenty-one of the twenty-seven behaviors had such data. Of these twenty-one, seventeen had no more than one day disparity between daily count and posttest SBI estimates. Nine of the twenty-one behaviors were exactly comparable.

5. Since the pattern of posttest SBI intensity scores was similar to that of the frequency scores, it can be concluded that desirable changes in intensity followed appropriate daily changes in behavior. However, as indicated earlier in this section, there is some doubt that intensity is a reliable measure in this context. Consequently, comparative judgment needs to be tentative.

Further comments on the Behavioral Counseling program are included in the Discussion section of this study.

CHAPTER IV

SUMMARY, DISCUSSION AND RECOMMENDATIONS

The primary purpose of this study was to examine the effect of a behavioral counseling program on gains made in a remedial reading program. A status/attention program was used as a control. Status/attention was also expected to have positive treatment effects on general behaviors. The counseling program involved teaching mothers to 1) state, specifically and unambiguously, social behaviors (in their children) which were disturbing to the mothers, 2) to apply behavioral and/or Adlerian responses and consequences to occurrences of those behaviors, and 3) to record and chart the daily frequency of those behaviors. The reading program diagnosed specific word analysis and synthesis deficits in each child and provided individualized teaching to remediate those deficits and to revise other word analysis and synthesis skills.

The expectation was that the amelioration of disturbing behaviors would produce significantly greater reading gains in a group of retarded readers, when compared with another group of retarded readers whose mothers were not given this counseling. The empirical basis for this expectation was the substantial amount of evidence which attests to the presence of an interaction between reading problems and emotional problems. A logical inference from this evidence was that the amelioration of either group of problems could help ameliorate the other group of problems.

This study failed to demonstrate that the amelioration of children's disturbing behaviors significantly increased the gains made by

these children in a remedial reading program. The counseling program was clearly successful. The reading program increased reading gains for the children of both counseled and non-counseled mothers, but the groups did not significantly differ in amount of reading improvement. Both the reading program and the counseling program have characteristics which might help to more accurately interpret these results. These characteristics will now be discussed.

The Reading Program

A correct interpretation of the effectiveness of the reading program depends on three major questions:

1. Did atypical scores and extreme scores significantly affect group differences?
2. How accurately did the criterion instrument interpret changes in reading ability?
3. How accurately did the treatment instrument interpret changes in reading ability?

In this study, the number of subjects was small enough to be affected by atypical scores. Table 15 shows an analysis of the relationship between Treatment and Treatment/Control group pretest and posttest scores on the Gray Oral Reading Test. Because of the method of assignment to groups, there was no atypicality in between-group pretest scores. Posttest scores indicate that, in general, gains increased from the lowest to the highest pretest reading age. There is no evidence that atypical scores were a critical factor in the lack of a significant difference between groups.

TABLE 15

COMPARISON OF INDIVIDUAL PRETEST AND POSTTEST SCORES ON THE GRAY ORAL READING TEST

Treatment Group			Treatment/Control Group		
Pre	Post	Gain (Months)	Pre	Post	Gain (Months)
1.0	1.0	0	1.2	1.2	0
1.2	1.4	2	1.2	1.3	1
1.3	1.4	1	1.5	1.8	3
1.5	1.9	4	1.5	1.9	4
1.9	1.9	0	1.7	1.8	1
1.9	2.0	1	1.9	2.0	1
1.9	2.6	7	1.9	2.3	4
2.0	2.7	7	2.0	2.3	3
2.1	2.5	4	2.1	3.4	13
2.8	4.2	14	2.2	3.2	10
2.8	4.8	20	4.0	5.7	17
3.7	5.0	13	4.1	6.0	19
		73			76

Within-group differences can be affected by the contribution of extreme scores. Both the Treatment and Treatment/Control groups significantly increased in reading ability. The analysis in Table 15 shows that the three subjects with the greatest reading-age gains in the Treatment group contributed 47 months of the 73 months of reading-age gains. Thus, 24% of the group contributed 64.4% of the gain in reading age. These data strongly suggest that extreme scores influenced the significance of within-group differences. An additional finding that the extreme scores were, with one exception, the highest three pre-reading ages is a characteristic which is noted elsewhere in this study (p. 134, 145).

The reading subgroups are another source of atypical and extreme scores. It is possible that particular subgroups contributed inordinately to either between-group or within-group differences. Table 16 presents an analysis of the relationship between subgroup pretest and posttest scores on the GORT. Atypical between-group scores could indicate that Treatment group or Treatment/Control group children within a reading subgroup were differentially taught. The data in Table 16 indicate that when n is taken into account, reading subgroups II, III and IV are most likely to have been affected by differential teaching. However, as indicated earlier (p. 134) teaching effectiveness may be related to pretest reading age. Further, since Hypothesis 1 was not confirmed, differential teaching did not produce a significant difference in reading gains between the Treatment group and the Treatment/Control group.

In summary, while atypical and extreme reading-gain scores did not significantly influence posttest differences between the Treatment

TABLE 16

COMPARISON OF GROUP SCORES ON THE

GRAY ORAL READING TEST

Treatment Group			Treatment/Control Group		
Pre	Post	Gain (Months)	Pre	Post	Gain (Months)
Group I (9 AM)			Group I (9 AM)		
1.9	1.9	0	1.2	1.3	1
2.1	2.5	4	1.5	1.8	3
			1.5	1.9	4
			2.0	2.3	3
		4			11
Group II (10:30 AM)			Group II (10:30 AM)		
1.2	1.4	2	2.2	3.2	10
1.9	2.0	1	4.0	5.7	17
2.0	2.7	7			
2.8	4.8	20			
		30			27
Group III (12:30 PM)			Group III (12:30 PM)		
1.0	1.0	0	1.2	1.2	0
1.9	2.6	7	2.1	3.4	13
3.7	5.0	13	4.1	6.0	19
		20			32
Group IV (2 PM)			Group IV (2 PM)		
1.3	1.4	1	1.7	1.8	1
1.5	1.9	4	1.9	2.0	1
2.8	4.2	14	1.9	2.3	4
		19			6

group and Treatment/Control group, they may have influenced differences between reading subgroups and differences within both the Treatment group and Treatment/Control group. Differential teaching is a possible explanation for these differences.

Differential teaching effects are also one potential source of within-group differences. The data in Table 16 indicate that subgroups of both the Treatment group and Treatment/Control group were differentially affected by the reading program. The contrast is greatest between groups I and II in the Treatment group, and between groups III and IV in the Treatment/Control group. However, when corrected for n, in neither the Treatment group nor the Treatment/Control group did one subgroup contribute more than 35% to the total gain in reading age. Even where differences occur, differential teaching is only one of several possible interpretations of these differences. For example, pretest reading-age level could also have been a primary contributor to within-group posttest differences in reading-age gain.

The second question in evaluating the effectiveness of the reading program concerns the degree to which the criterion instrument interpreted changes in reading ability. Raw scores on the Gray Oral Reading Test, like scores for all normative reading tests, have a substantial error of measurement. The GORT was chosen partly because it provides a standard error of measurement for each raw score. In the study reported here, when the error score for each posttest raw score was transformed into monthly units of reading age, the "true" scores ranged, depending on reading age, from approximately 3 months to 8 months on either side of the posttest scores. The standard error of measurement increased with reading age. The range of true scores was considerable. In fact,

seven of the 21 gains in reading age between pretest and posttest for subjects in the study reported here were inside the range covered by the standard error of measurement for those scores. Of the 13 gain scores which were likely to be real changes, seven were from the Treatment/Control group and 6 were from the Treatment group. When GORT findings concerned with extreme scores and the standard error of measurement are considered together, the significant differences in pretest-posttest scores on the GORT for both the Treatment and Treatment/Control groups can be accurately interpreted. In stating this, it is not the intention to reflect adversely on the GORT only. All normative tests are similarly affected, to some degree.

A second way that the meaning of changes in GORT scores can be interpreted is to compare GORT and DRI performances. Each passage in the GORT is a sample of the skills required in oral reading. As was indicated in the results, approximately half of the words in each passage are irregular in form. These words are learned as whole units, rather than as analyzed or synthesized units. Since each passage includes only twenty to fifty-five words, knowledge of irregular words is a substantial component of performance on the GORT. Since the reading program used for this study was based on word analysis and synthesis skills, it is possible that the GORT was not sufficiently sensitive to changes in reading ability resulting from increased competence in these skills. Consequently, children may have shown greater changes in reading competence if a normative oral reading test based on phonic skills had been used as the criterion instrument. However,

as was indicated in Chapter III (see pg. 134), performances on the phonetically-based Oral Reading subtest of the Diagnostic Reading Inventory were similar to performances on the GORT. This similarity in patterns suggests that the GORT discriminated among individuals in approximately the same way as did the DRI Oral Reading subtest. Thus, the GORT may be sufficiently comprehensive in phonic skills to adequately represent changes in oral reading ability. However, the DRI Oral Reading subtest has a limited number of phonic skills. Further, there is much less of a relationship between the GORT pattern and patterns for the other DRI skills, excepting Irregular Words (see Appendix I). The patterns for these skills indicate that, even on word analysis and synthesis skills such as Blending I and Blending II, readers who made little or no gain on the GORT performed much more comparably with those whose GORT scores were the higher increases.

The above findings suggest that, apart from Oral Reading and Irregular Words, the GORT and the DRI may be measuring somewhat different reading abilities. The DRI may not include enough skills to adequately represent the GORT passages. Conversely, the GORT may be somewhat insensitive to relatively significant increases in the ability to analyze, synthesize, and thus to read, words.

The above discussion of the representativeness of the DRI as a measure of reading ability leads into the third major question concerned with the effectiveness of the reading program: how accurately did the treatment instrument (the DRI) interpret changes in reading ability? The Diagnostic Reading Inventory is a timed test. Six of

the eight skills were measured using a one-minute time sample. The other two skills were measured using a thirty-second time sample. An implication of using time as a criterion of performance is that there may be a prerequisite order among the skills, based on time as well as number correct and number incorrect. For example, it is not inconceivable that subjects may have to reach certain levels of performance in Vowel Sounds and Consonant Sounds before performing at a given level on Blending I and Blending II. In turn, performance on the latter skills may have to reach a critical level for given levels of competence in Oral Reading.

The data reported for the present study did not provide clear support for a relationship between rate of performance and reading competence. The patterns of performance on particular skills for Vowel Sounds and Consonant Sounds were clearly different from the pattern of performance for Oral Reading. There was a closer relationship between the patterns for Consonant Sounds and Vowel Sounds, and between Consonant Teams, Blending I and Blending II, and between the latter skills and Oral Reading. However, even in these relationships, there was sufficient variability in individual performances to suggest that time may be only of broad relevance in the relationship among skill competence levels. It may be that instantaneous recognition of letters, letter combinations and words is sufficient evidence of competence in a particular skill and that, therefore, rate of performance on particular skills may be unnecessary, except where a competent reader wants to increase the number of words he reads in a given time

period. However, for some children in the reading program of the present study, timed performance seemed to have a positive motivational effect. This motivational effect may have increased the rate by which children overcame their reading deficits. Certainly, discovering the conditions which produce motivation could be important when, for so many reading retarded children, learning to read has been a long, frustrating, negative experience.

An alternative explanation for the lack of a strong relationship in pattern variability among skills is that, by measuring a number of skills of similar type (for example, Consonant Sounds or Consonant Teams), the critical skills lacking in an individual's reading performance have been "covered" by a particular subtest. For example, an individual may have difficulty recognizing b,d,g,q,br,dr,bl,pl,pr,gr and other related sounds. By being taught these sounds, his oral reading might significantly improve when compared with his improvement on Consonant Sounds and Consonant Teams. Once again, specific knowledge, and not time, may be the critical factor.

The preceding explanation makes sense when associated with two other characteristics of this study. First, most individuals' specific deficits were frequently assessed and remediated. Second, it helps to explain why those who had the highest pretest reading age, and who made the greatest increases of reading age on the GORT, did not produce this superiority on most of the skills of the DRI. That is, these individuals lacked certain skills critical to their oral reading growth. When these were attained, they were combined with their already high level of skill attainment to produce a relatively substantial increase

in oral reading ability. Their attainment of these critical but few skills would not necessarily have produced comparably great changes in the DRI categories to which the skills belonged. Of course, it is acknowledged that this explanation would be affected by the extent to which the better performers on particular DRI skills were approaching a "ceiling" of potential performance. This effect was not investigated. Further, it was not an intention of the present study to investigate prerequisite relationships among reading skills. Nevertheless, the above observations are worth further investigation.

Recommendations for Remedial Reading Programs

It is suggested that when the relationship between reading problems and emotional problems is to be investigated the remedial reading program should include the following characteristics:

1. The diagnostic test should include a much more comprehensive list of reading skills than that provided by the DRI. These skills should include prefixes, suffixes and endings. A comprehensive analysis of reading skills would provide data on the relationship between particular reading problems and particular emotional problems.

2. Remedial exercises and measures during the treatment period should make provision for both non-timed and timed measures of specific skill deficits. The time element might be satisfied when the subject can immediately recognize particular letters or letter combinations. The present study does not claim to have comprehensively evaluated the effect of rates of performance on the remediation of reading problems.

However, the results of this study indicate that repeated, timed measures of the same group of skills may be unnecessary.

3. A more useful measure of oral reading competence than a normative test would be a sample of passages taken from basal readers used during the year in particular grades. These passages should be analyzed and controlled for content of skills. This control should include the degree to which the child's pretest deficits are tested by the criterion instrument. Increased passage length and the division of reading age into larger units than one month logically should lessen the "standard error of measurement" and thus make judgments of reading ability more valid. It is realised that, statistically, the standard error of measurement is a concept that applies to normative-referenced data rather than to criterion-referenced data. Nevertheless, it is important that reading tests demonstrate that their content is an appropriate measure both of what is taught (treatment) and of the general ability which the test represents (reading).

The Relationship Between Behavioral Counseling, Status/Attention and Reading

The Behavioral Counseling program was clearly successful. The analysis in Appendix J shows that of the 27 disturbing behaviors dealt with during the program, pretest judgments included 20 behaviors which occurred with greatest frequency--more than once a day. Post-test results showed that, of these 20 behaviors, 9 were judged as occurring with the least possible frequency--at least once a week. An

analysis of results for intensity reveals that 12 behaviors of the 27 behaviors were judged in the pretest as being extremely disturbing. Posttest judgments showed that 6 of these behaviors were judged as not disturbing--the maximum change possible. For nearly all disturbing behaviors, counseling effects began and were maintained from the first few days after the commencement of counseling intervention and counting procedures. This suggests that the reason that counseling did not significantly increase reading ability is not that the counseling period was too short for behavioral changes to occur. Further, there is no reason to believe that the behaviors nominated by mothers were not the most disturbing to them. The use of six major categories of a child's life should have produced all the behaviors which mothers found disturbing in their children. Further evidence for the comprehensiveness of behavioral description and the success of the counseling program was provided by follow-up inquiry at the end of the program. Following posttesting, mothers were asked to name the behaviors which were now disturbing to them. Only four mothers in the Behavioral Counseling group reported any further disturbing behaviors. Two of these mothers reported only one behavior each. In summary, the effects of the counseling program began early, were maintained and significantly ameliorated the frequency and intensity of disturbing behaviors. Consequently, there is no reason to believe that the failure to produce significantly greater reading gains in the Treatment group was due to characteristics of the counseling program.

The Status/Attention condition was expected to provide both a treatment and a control function. Its treatment function was expected

to significantly improve mothers' perceptions of general behaviors. Its control function was expected to result in no change in mothers' perceptions of specific behaviors. The data indicated that Status/Attention exerted only a control function. In summary, Status/Attention did not change mothers' perceptions of either general or specific behaviors in their children.

Therefore, the present study failed to confirm Walter's (1972) finding that Status/Attention significantly improved mothers' perceptions of general behaviors in their children. One explanation is that different instruments were used in each study. Walter asked one question: "Has your child improved?" The present study used a 47-item checklist to measure changes. Another explanation is that Status/Attention is a broad term, which requires clear specification each time it is applied in a study. For example, in Walter's study, the Status/Attention condition allowed the parents to discuss the social behaviors of their children. In the study reported here, they could not do this. Walter's Status/Attention parents indicated that their children had improved, even though they had accurately collected data which indicated that improvement had not taken place. Walter reported:

> "Two possible factors in explaining this puzzling inconsistency in placebo parents' statements are: (1) the reinforcement value of the particular setting in which the statements were made, and (2) the global vs. specific level of the statements [p. 34]."

Consequently, it is possible that the Status/Attention condition needs to be free of any of the content of the treatment program if it is to exercise a purely control function. However, even when it contains

an element of the treatment, it cannot change the frequency of specific behaviors. Both Walter's study and the present study are in agreement on this point. Obviously, there is no justification for more than speculation on the effects of the Status/Attention condition on reading scores. Since the study did not include groups which investigated the influence of the reading program only on reading ability, no judgment can be made about the influence (on reading ability) of Status/Attention vs. no counseling intervention.

The findings of this study provide no basis for associating improvement in social behaviors with changes in reading ability. That is, the efficacy of a remedial reading program is not increased by ameliorating child social behaviors which are disturbing to mothers. As a consequence, it seems reasonable to ask to what extent the disturbing behaviors nominated by mothers represent enduring generalized emotional states and/or personality characteristics in their children. At the beginning of the present study, an assumption was made that "personality and emotional adjustment are expressed in behaviors. Consequently, changes in their occurrence should reflect changes in emotional states and personality characteristics" (see p. 18). The results of this study are not consonant with the above assumption. Logically, if the assumption is valid, Behavioral Counseling should have had a significant effect on general behaviors as well as on specific behaviors. This expectation is reasonable, since the 47 antonym pairs of adjectives forming the General Behavior Checklist have been developed from theory and research in childhood personality (Becker, 1960; Patterson & Fagot, 1967).

Therefore, it is possible that changing the frequency of child

behaviors which are disturbing to mothers does not affect children's emotional/personality characteristics. Further, by implication, if reading disability is interrelated with other aspects of a child's experience, then both generalized and specific characteristics of his functioning may need to be changed in order to positively affect reading ability. Enough evidence has been profferred in the first chapter of this study to indicate that generalized descriptions of behavior alone have failed to establish a consistently positive relationship between changes in reading ability. Consequently, before reading ability can be affected, there may need to be changes in both the generalized and symptomatic aspects of a child's functioning.

The fact that behavioral counseling did not change both specific and general behaviors raises the question of the importance of what is being measured by specific behaviors. While there is both daily and pretest-posttest evidence that real changes occurred in disturbing behaviors, it is possible that the statistically significant changes in these behaviors may not be influential in his academic and/or personal functioning. There is evidence that some of the disturbing behaviors may be transitory in nature. Mothers in the Behavioral Counseling group nominated fifty behaviors in the pretest period. During the behavioral counseling program, 11 of the behaviors were not considered because they were no longer occurring. This finding emphasizes the need for a follow-up study to examine both the permanence of behavior changes and the pattern of behavior emergence and cessation. It is possible that many of the 27 behaviors included in the Behavioral Counseling program may be impermanent actions

which are easily changed and do not affect, or are not affected by, other aspects of the child's functioning, including his reading. Part of the reason for the lack of a relationship between changes in specific behaviors and general behaviors in this study may be that the specific behaviors may not adequately represent more generalized states through which social behaviors, and perhaps reading behaviors, are mediated.

Recommendations for Studies Investigating the Relationship Between Emotional Problems and Reading Problems

1. The major contribution of this study has been to unambiguously specify and relate certain social and reading behaviors of a group of retarded readers. It is recommended that this practice be broadened and refined. In particular, there is a need to operationalize relatively global descriptions of behavior and provide data over time on the differential influence of these behaviors on a child's social and academic functioning. There seems to be no useful purpose served in continuing to produce studies which investigate the influence on reading of only generalized concepts of personality and emotionality. Concepts which are so broad in definition as to make studies non-replicable are of limited usefulness. The literature analysis of the present study has surely demonstrated this point. Concepts such as "aggressive," "immature," "acting out," "insecure," and "withdrawn" are examples of terms which, if operationalized, may have considerable value in future studies investigating reading retardation. Studies which unambiguously

specify reading skills, social behaviors and the relationship between them will help to provide replicable information on the relationship between reading behavior and emotional behavior.

2. There is a need to carefully describe what has taken place in both counseling and reading treatment programs. This description should include the behavior, the action taken to change that behavior, the method used to collect data on the occurrence of that behavior, and the results of this process. This point is undoubtedly elementary, but so many studies say little more than, for example, "counseling was given to increase self-esteem," or "a remedial reading program was given to each child" that it bears underscoring here. Subsequent refinement of experimental procedures cannot occur with generalized descriptions of the treatment process.

3. Although the Specific Behavior Inventory was a useful method for specifying frequency of behaviors, there may have been a greater error factor in making SBI estimations than in recording daily frequencies. Accordingly, a useful provision in future studies would be to include a comparison of SBI estimations with a pre-treatment period of daily frequency counts of the behaviors nominated in the SBI. Provision should also be made for post-treatment counts of the behaviors treated in the experimental period. Follow-up should also include listing all the disturbing behaviors which exist at that time. The above information would provide valuable data on both the pervasiveness and variablity of disturbing behaviors. This data would provide an important element in effective counseling--the ability to recognize

the behavior or behaviors which most influence a person's ability to carry out a specific task.

4. In the present study, mothers were the clients. It is possible that the reason changes in mothers' interpretations of disturbing behaviors were not associated with improvement in reading ability was that only the social behaviors which the child sees as disturbing to himself are able to affect reading. Mother and child may have different perceptions of disturbing behaviors in the child. Accordingly, it seems worthwhile to examine the relationship between specific aspects of a child's reading and self-defined disturbing behaviors.

5. Studies on the relationship between emotional problems and reading problems should include groups which examine the influence of reading programs on social behaviors. As well, an important consideration in any study should be an examination of the effects of the reading program, by itself, on reading ability. The apparent independence of the reading program from the counseling program in the present study may indicate that, for the great majority of reading retarded children, it is the specificity of the reading program for individual needs which is the critical determinant of an effective remedial reading program. Certainly, there is nothing in the results of this study which suggests that counselors could not safely turn their attention to problems other than reading retardation. However, it is also clear that the considerable lack of clarity in the relationship between reading problems and emotional problems has been partly due to the inadequate specification of concepts and treatment procedures.

To the extent that the behaviors which constitute the child's functioning are, to some degree, interrelated, the prevalence and severity of reading problems make it imperative that researchers discover the conditions under which treatment programs can be maximally effective.

APPENDIX A

Specific Behavior Inventory

APPENDIX A

Specific Behavior Inventory

Behavior	Frequency (How often the behavior occurs)				Intensity (How disturbing it is to you)		
	Once a week 1	Twice a week 2	Once a day 3	More than once a day 4	Mildly disturbing 1	Moderately disturbing 2	Extremely disturbing 3

Name _____

Group _____

Date _____

APPENDIX B

Newspaper Advertisement for Subjects

PARENTS

of children who have serious reading problems are invited to apply for inclusion in a remedial reading program.

This program is part of a doctoral study. It is anticipated that it will cover a 25-day period during the month of August. Children will be asked to attend for one hour each day. There will be no cost for the program. For further details call 343-6753 as soon as possible, as only a limited number can be taken.

APPENDIX C

General Behavior Checklist

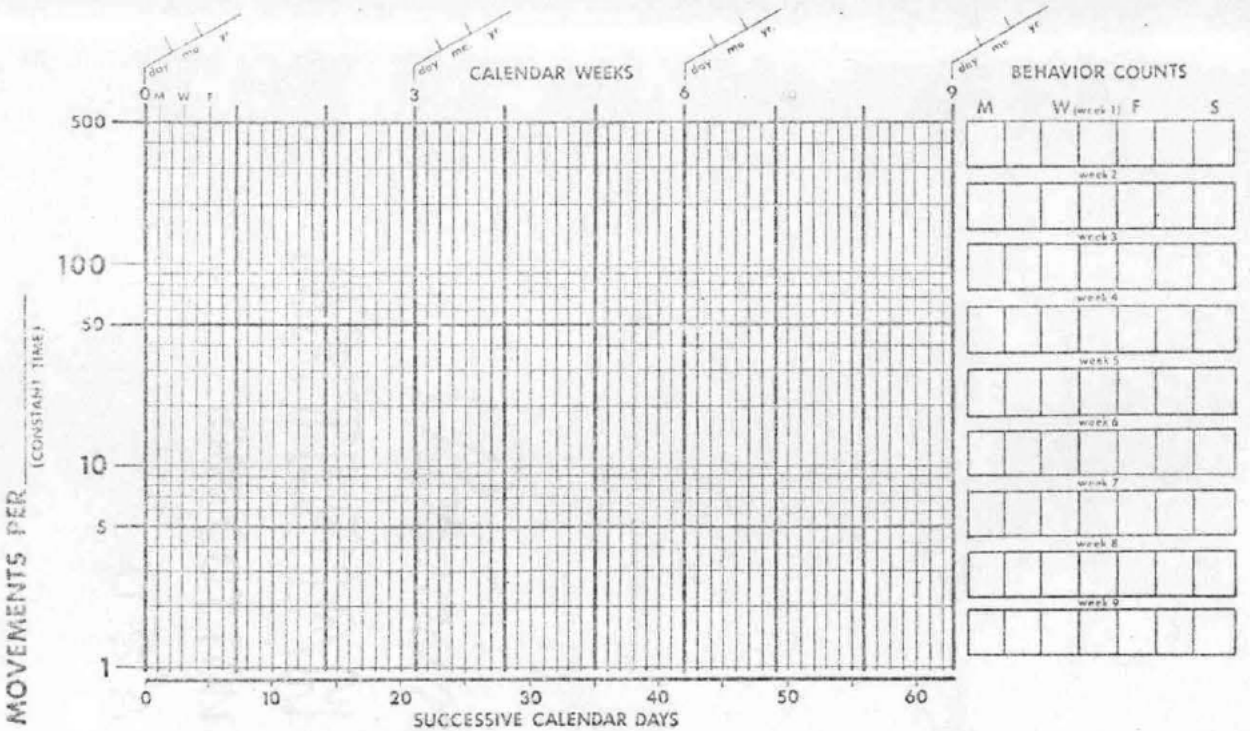
Please place a check mark within the set of parentheses at the point on each scale which most accurately describes your evaluation of your child's behavior.

		3	2	1	0	1	2	3	
1	Sociable	( )	( )	( )	( )	( )	( )	( )	Unsociable
2	Warm	( )	( )	( )	( )	( )	( )	( )	Cold
3	Happy	( )	( )	( )	( )	( )	( )	( )	Depressed
4	Responsive	( )	( )	( )	( )	( )	( )	( )	Aloof
5	Loving	( )	( )	( )	( )	( )	( )	( )	Not loving
6	Colorful	( )	( )	( )	( )	( )	( )	( )	Colorless
7	Extroverted	( )	( )	( )	( )	( )	( )	( )	Introverted
8	Interesting	( )	( )	( )	( )	( )	( )	( )	Boring
9	Optimistic	( )	( )	( )	( )	( )	( )	( )	Pessimistic
10	Trusting	( )	( )	( )	( )	( )	( )	( )	Distrusting
11	Tense	( )	( )	( )	( )	( )	( )	( )	Relaxed
12	Nervous	( )	( )	( )	( )	( )	( )	( )	Placid
13	Excitable	( )	( )	( )	( )	( )	( )	( )	Calm
14	Emotional	( )	( )	( )	( )	( )	( )	( )	Objective
15	Anxious	( )	( )	( )	( )	( )	( )	( )	Nonchalant
16	Fluctuating	( )	( )	( )	( )	( )	( )	( )	Stable
17	Fearful	( )	( )	( )	( )	( )	( )	( )	Not fearful
18	Demanding	( )	( )	( )	( )	( )	( )	( )	Not demanding
19	Prone to anger	( )	( )	( )	( )	( )	( )	( )	Not prone to anger
20	Jealous	( )	( )	( )	( )	( )	( )	( )	Not jealous
21	Prone to tantrums	( )	( )	( )	( )	( )	( )	( )	Not prone to tantrums
22	Impatient	( )	( )	( )	( )	( )	( )	( )	Patient
23	Irritable	( )	( )	( )	( )	( )	( )	( )	Easy going
24	Conceited	( )	( )	( )	( )	( )	( )	( )	Self-critical
25	Self-centered	( )	( )	( )	( )	( )	( )	( )	Outgoing
26	Strong willed	( )	( )	( )	( )	( )	( )	( )	Weak willed
27	Independent	( )	( )	( )	( )	( )	( )	( )	Dependent
28	Dominant	( )	( )	( )	( )	( )	( )	( )	Submissive
29	Adventurous	( )	( )	( )	( )	( )	( )	( )	Timid
30	Tough	( )	( )	( )	( )	( )	( )	( )	Sensitive
31	Noisy	( )	( )	( )	( )	( )	( )	( )	Quiet
32	Dull minded	( )	( )	( )	( )	( )	( )	( )	Intelligent
33	Subject to distraction	( )	( )	( )	( )	( )	( )	( )	Able to concentrate
34	Ineffective	( )	( )	( )	( )	( )	( )	( )	Effective
35	Poor memory	( )	( )	( )	( )	( )	( )	( )	Good memory
36	Meaningless	( )	( )	( )	( )	( )	( )	( )	Meaningful
37	Slow	( )	( )	( )	( )	( )	( )	( )	Quick
38	Subjectively inferior	( )	( )	( )	( )	( )	( )	( )	Self-confident
39	Bored	( )	( )	( )	( )	( )	( )	( )	Interested
40	Responsible	( )	( )	( )	( )	( )	( )	( )	Irresponsible
41	Obedient	( )	( )	( )	( )	( )	( )	( )	Disobedient
42	Cooperative	( )	( )	( )	( )	( )	( )	( )	Obstructive
43	Easily disciplined	( )	( )	( )	( )	( )	( )	( )	Difficult to discipline
44	Organized	( )	( )	( )	( )	( )	( )	( )	Disorganized
45	Helping	( )	( )	( )	( )	( )	( )	( )	Not helping
46	Adult like	( )	( )	( )	( )	( )	( )	( )	Infantile
47	Neat	( )	( )	( )	( )	( )	( )	( )	Disorderly

Name _____ Group _____ Date _____

APPENDIX D

Variable Ratio Chart



PROJECT TEAM

SUPERVISOR _____ BEHAVER _____

ADVISOR _____ AGE _____ LABEL _____

MANAGOR _____ NOTES _____

COUNTER _____ CHAPTER _____

MOVEMENT CYCLE

NAME IT _____

COUNT WHEN _____

_____

_____ OCCURS

NINE WEEK BEHAVIOR CHART

APPENDIX E

Scale of Reactions to Status/Attention

	3	2	1	0	1	2	3	
Sociable	( )	( )	( )	( )	( )	( )	( )	Unsociable
Warm	( )	( )	( )	( )	( )	( )	( )	Cold
Happy	( )	( )	( )	( )	( )	( )	( )	Depressed
Responsive	( )	( )	( )	( )	( )	( )	( )	Aloof
Relaxed	( )	( )	( )	( )	( )	( )	( )	Tense
Interested	( )	( )	( )	( )	( )	( )	( )	Bored
Cooperative	( )	( )	( )	( )	( )	( )	( )	Obstructive

Name _____

Group _____

Rater _____

Date _____

APPENDIX F

Description of Reading Skills and Units Completed in the Dr. Spello Workbook

Dr. Spello Workbook

1. Skills

Unit 1--Learning to hear sounds

Unit 2--Vowel sounds

Unit 3--Consonant sounds

Unit 4--Tricky consonants (c, g, q, x, and y)

Unit 5--Using sounds to spell

Unit 6--Long vowel sounds (includes silent e)

Unit 7--Reviewing vowels

Unit 8--Two-letter consonants (sh, ch, wh, ng, th)

Unit 9--Letters that work together (ou, ow, all, au, aw, ay, ai, oo, oi, oy, or)

Unit 10--Silent letters (gh, ll, gg, dd, ss, ck)

Unit 11--Endings (s, es, ed, ing, er, est)

Unit 12--Compound words

Unit 13--Long words (syllabication)

Unit 14--Reviewing silent letters

Unit 15--Prefixes and suffixes (re, de, dis, ex, pre, pro, com, con, in, im, un, en, ation, ency, ant, ent, ful, ous, ious, able, ible, ble, al, ive)

Unit 16--Accent

Unit 17--Dictionary spelling

Unit 18--Unexpected spellings

Unit 19--Homonyms

Unit 20--Contractions

2. Units Completed by Each Subject

Gort Pre-Reading Age	Reading Age Gain	Dr. Spello Units Completed*
1-0	0	4
1-2	0	4
1-2	1	6
1-2	2	8
1-3	1	6
1-5	3	9
1-5	4	11
1-5	4	8
1-7	1	10
1-9	0	6
1-9	1	11
1-9	1	14
1-9	4	10
1-9	7	9
2-0	3	13
2-0	7	11
2-1	4	11
2-1	13	11
2-2	10	12
2-8	14	18
2-8	20	18
3-7	13	18
4-0	17	19
4-1	19	18

*All subjects began with Unit 1.

APPENDIX G

Reading Program Analysis Sheet

Name_____

READING PROGRAM ANALYSIS SHEET

SKILL DEFICITS

PROGRAM

Date	Skill Taught/ Measured	Method	Results	Other Comments

APPENDIX H

Group Interaction Analysis Sheet

GROUP INTERACTION ANALYSIS SHEET

Group_____ Date_____

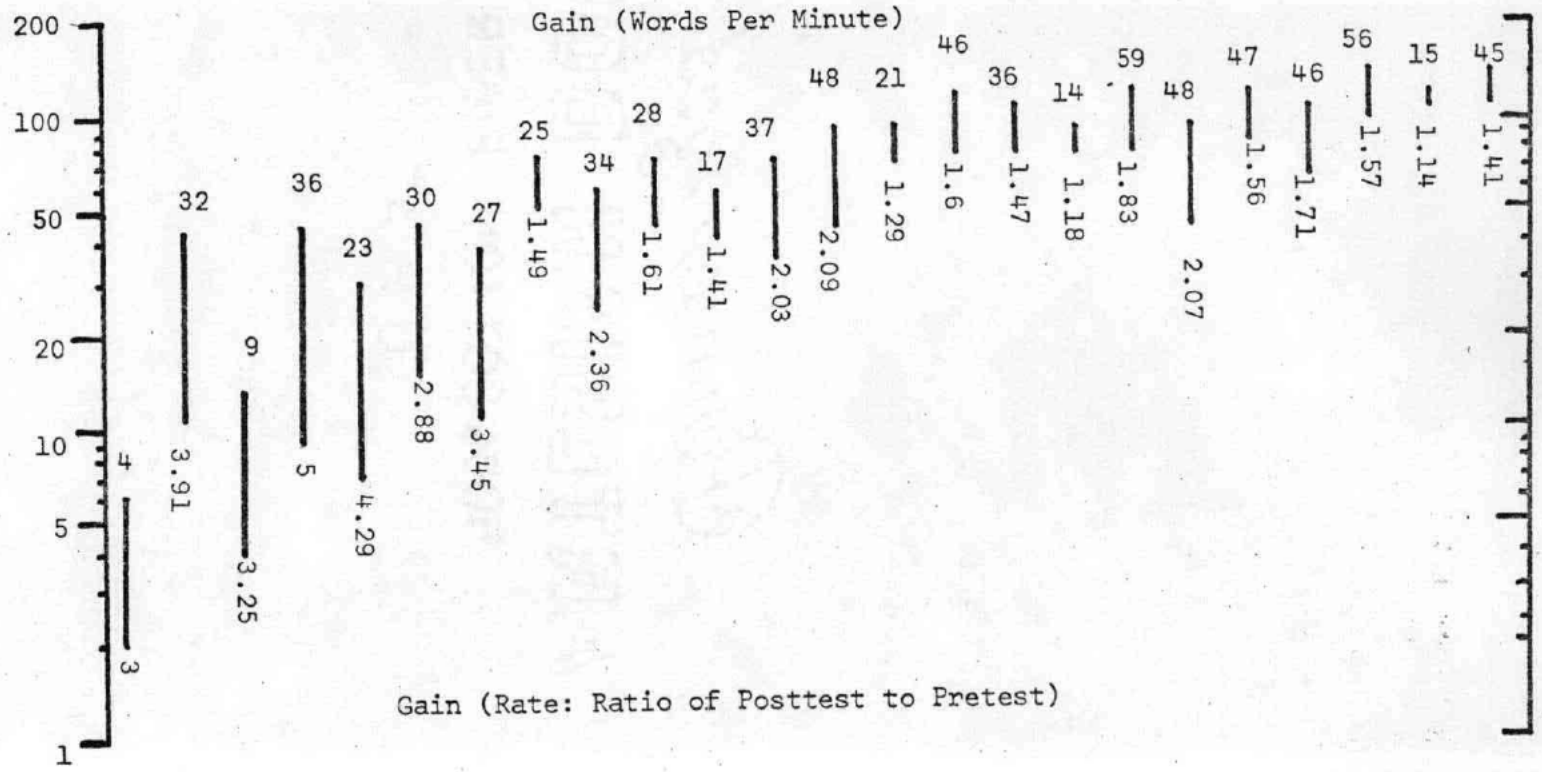
Speaker	What Said	What Decided	Other Comments

APPENDIX I

Comparative Analysis of Scores on the Gray Oral Reading Test and the Diagnostic Reading Inventory

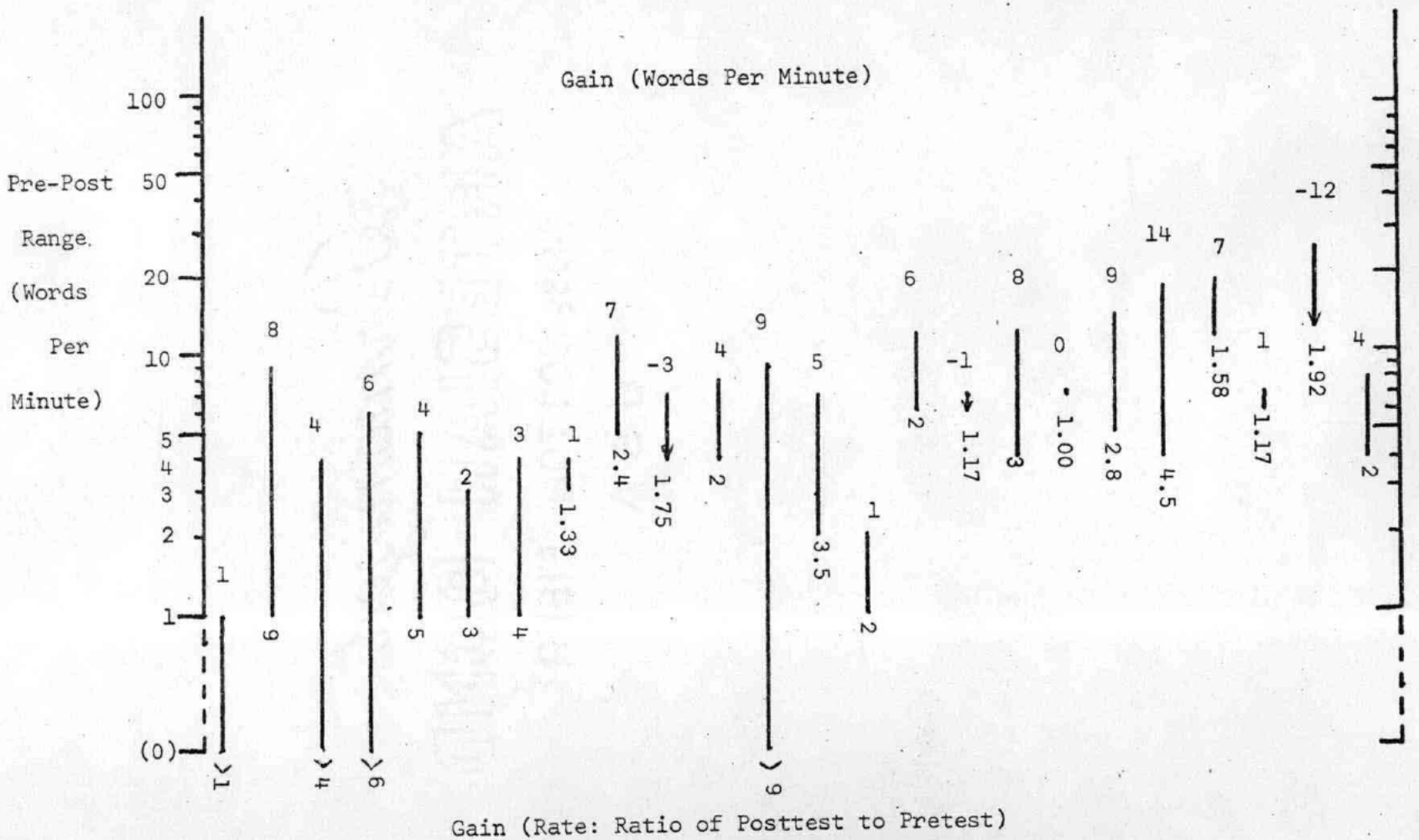
GRAY ORAL READING TEST

DIAGNOSTIC READING INVENTORY - Oral Reading

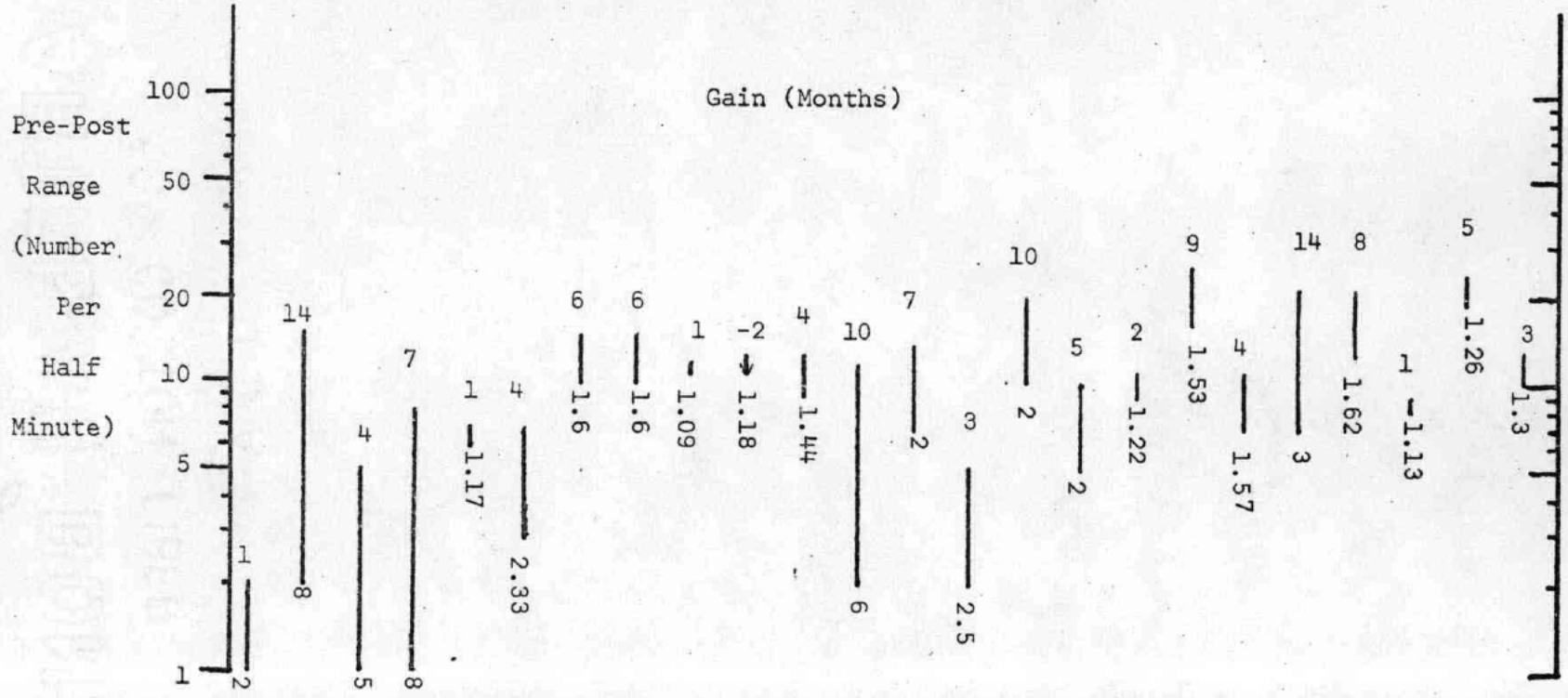


DIAGNOSTIC READING INVENTORY - Irregular Words

DIAGNOSTIC READING INVENTORY - Blending (II)



DIAGNOSTIC READING INVENTORY - Consonant Teams



DIAGNOSTIC READING INVENTORY - Blending (I)

DIAGNOSTIC READING INVENTORY - Vowel Sounds

DIAGNOSTIC READING INVENTORY - Consonant Sounds

APPENDIX J

Comparison of Daily Changes in the Frequency of Disturbing Behaviors with Pre-Post Changes in the Specific Behavior Inventory on Frequency and Intensity of Disturbing Behavior

COMPARISON OF DAILY CHANGES WITH SBI PRE-POST CHANGES IN DISTURBING BEHAVIORS

Behavior Counted*	Day of Program					SBI Pre-Post Scores	
						Frequency	Intensity
	Week 1	Week 2	Week 3	Week 4	Week 5	R=Pre, S=Post	R=Pre, S=Post
	MTWT FSS	MTWT F SS	MTWT F SS	MTW TF SS	MTWTFSS	0 1 2 3 4	0 1 2 3 4
1			1 0 01	000 00 00	000	S R	RS
2	4 333	322N 2 44	3020 1 00	111		S R	S R
3				0 20	0N	S R	S R
4			5 4 32	330 00 00	02	S R	S R
5	100	0000 0 00	0000 0 00	000 01 00	00	S R	S R
6			0 N0	N0N NN 0N	N0N0	S R	S R
7	2 NN3	NNN1 0 10	0110 0 10	0NN 00 00	0100	S R	S R
8	0 NN0	NNN0 0 10	0000 1 02	0NN 00 01	0000	S R	
9	N N40	NN0N N 01	NN0N 0 30	NN0 N0 20	0000	S R	RS
10	N 000	NNNN N 00	NN0N 0 10	NN0 N0 31	NN00	S R	
11		1 1 01	0000 0 N0	100 NN NN	N00	S R	S R
12		2 2 01	1010 1 N0	100 NN NN	N00	S R	S R
13				NN N0	NN2	S R	S R
14			0 01	001 00 20	001	S R	S R
15	11N	1010 N N1	0N00 0 00	000 00 00	001	S R	S R
16			0 00	101 00 00	0000	S R	S R
17			0 0 00	002 00 00	0000	S R	S R
18	N1BNN	NNNN1B1AN	1ANNN1B1AN	1ANN1BN3BN	NNNN	RS	R S
19			0 30	010 01 00	0000	S R	S R
20 older:	132	0111 0 1N	1N00 0 10	011 01 11	1010	R S**	S R
20 younger:	120	1101 1 1N	2N00 0 11	012 01 32	1020		
21				01	1111	R S	RS
22	010	0000 0 10	0000 0 00	000 00 01	0000	RS	S R
23			00	000 00 00	1000	S R	RS
24	10	0000 0 00	1000 0 00	000 00 00	000	S R	S R
25	10N	NNN0 N 00	0100 1 00	000 1N 00	N0NN	S R	S R
26			1 N 00	01N N1 00	N0NN	S R	RS
27			1 N 00	000 0N 01	00NN	S R	RS

*For Behavior titles, see the following page.
**Represents change in the desired direction.
N - Recorded when behavior not observable.

Codes for Behavior Counted

1--Orders given other people

2--Complaints--Aches and pains

3--Asked to do chores

4--T. picks up telephone when sister or mother on other phone

5--Late home

6--Asked to empty garbage

7--Hits and pinches sister while playing

8--Hits sister--Not at play

9--Screams at younger sister

10--Hits younger sister

11--Older brother hits him

12--Older brother yells at him

13--Interrupts when father and mother talking

14--Incomplete statements

15--"Guess what" statements

16--Asked to complete chore

17--Complaining acts while doing chore

18--Does new activities before (b)/after (a) sister

19--Mumbles (M)

20--Invites older sister to play as much as younger sister

21--Does not do chore when told

22--Yelling/"stiff" with irritation/anger

23--Belongings out of place

24--L. picks up telephone while mother on other phone

Codes Continued

25--Hands in air and/or makes noises

26--Tools left out

27--Whines

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