The Effects of Reading Method on Word Recognition in EMR Children and Changes in Reading Proficiency Related to the WISC

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ABSTRACT

The major purpose of this study was to examine the effects of two experimental methods of teaching reading to educable mentally retarded children. The traditional approach to the reading process acted as the control group. Data was complete with a randomized groups design with two repeated measures, pre-test and post-test word recognition scores. Subtest performance on the Wechsler Intelligence Scale for Children was compared to post-test results on the word recognition task.

Results revealed no significant difference across the reading methods. There was a significant positive relationship between pre-test performance and post-test results after reading treatment. Level of intellectual functioning on the WISC had no significant influence on the post-test results across the reading methods. WISC subtests were not correlated with post-test results. Discussion of various covariance tables revealed those thought processes and psychomotor abilities most closely correlated to the developmental reading process.

Further research should be directed toward a population of educable mentally retarded children located in a more largely populated area. The sample should be such that the subjects would be drawn from one school to control for the variable of educational process which varies from school to school.

For

Boyce, Andy

and Sherri

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It seems that experimental design, statistical analysis and writing in general are lonely islands. Many of us are quite fearful of these not so frequented places, unless we live there. We must never forget that all our productive endeavors arise from foundations built upon solid findings, professional advice, and encouragement of those about us.

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TABLE OF CONTENTS

Chapter Page

Chapter Page

Chapter Page

LIST OF TABLES

Chapter I

INTRODUCTION

Statement of the Problem

Recent trends in both special education and vocational rehabilitation have brought forth a greater mutual understanding of the services and the limitations of these programs. These two disciplines in the past have been separate and independent movements in the United States. Ideally, there should be a cooperative working arrangement between state educators, supervisors, teachers, counselors, and coordinators of university programs (McAlees, 1968). The strides being made at present within these services are toward such a relationship between special education and vocational rehabilitation.

The early identification and remedial activity should begin in the special education and vocational rehabilitation setting and should be in preparation for rehabilitative placement. This placement could be planned by teachers and vocational rehabilitation counselors who are aware of potential candidates. Basic functional skills and social expectations could then receive remedial attention to prepare the child for the opportunity for employment. His employability and his income possibilities would be increased.

The present research was directed toward identifying the educable mentally retarded early in their educational experience and providing them with remedial treatment for their particular learning disability. The following research concerns one of the most frequently occurring problems with the educable mentally retarded, that of reading. If the individual cannot read, he is not going to be able to perform other integral parts of the educational process. Their safety in the complex world they are a part of is decreased by not being able to read signs which give directions, information and warn of danger.

The present investigation demonstrated two experimental methods of teaching reading and their effectiveness on a word recognition task.

Importance of this Study

Research investigations on reading have demonstrated the effectiveness of remedial reading (Kirk, 1972b). The most important variable discovered in past studies in regard to the retarded is the reading method employed (Kirk, 1972b). Given this potential importance of the method, it becomes necessary to determine what methods work more constructively with the educable mentally retarded, and what basic thought processes and psychomotor skills should be worked with intensively to improve reading with this particular population.

Population and Sample

The preceding discussion has stressed the importance of reading to the average functioning individual as well as the educable mentally retarded. Of central importance also is early identification, so that remedial steps may be taken to alleviate the problem or at least the severity of the handicap. Increased reading skills for the educable mentally retarded would increase the possibilities for placement and enhance the number of successful closures.

Thus, the present investigation focused on educable mentally retarded children between the ages of six and fifteen. The finite population consisted of elementary school children from a school district located in northwestern North Carolina in Watauga County. The sample contained thirty-six children, 22 boys and 14 girls, in grades one through eight.

Theoretical Framework

Definitions

The following definitions and their respective abbreviations will be employed throughout this study:

Analysis of Variance (ANOVA) - ANOVA is the statistical technique employed to determine the presence of significant differences between reading methods. The analysis of covariance is utilized to determine correlations between response on the word recognition task and performance on the subtests of the Wechsler Intelligence Scale for Children.

Brain-damaged - organic impairment to the brain

Educable Mentally Retarded (EMR) - Many definitions have been adopted for the EMR. For the purposes of this study, the EMR will be defined as one who because of subaverage mental development is unable to benefit sufficiently from a regular elementary school program. Intelligence quotients range from 50 to 80 (Biehler, 1971).

Endogenous - growing or preceding from within, pertaining to metabolic processes of a cell

Exogenous - having its origin external, derived externally

Full Scale IQ - The Full Scale IQ is designated as the level of intellectual functioning. The score is composed of the Verbal IQ and the Performance IQ.

Intelligence Quotient (IQ) - The intelligence quotient is the level of intellectual functioning according to the Wechsler Intelligence Scale for Children.

Organic - having a physical organization, pertaining to living organisms and a class of chemical compounds

Performance IQ - The Performance IQ is a composite score computed from the six performance subtests of the Wechsler Intelligence Scale for Children.

Rehabilitation Psychologist - The rehabilitation psychologist is a rehabilitation specialist who administers and interprets psychological tests, personality

tests, and vocational inventories. The position also provides for psychological counseling for the individual, the family, and the group. One of the goals of this specialist is to help the individual determine and understand his own assets, liabilities, interests and capacities. He is a consultant to the Vocational Rehabilitation Counselor and helps toward planning for the client and in determining eligibility in specific disability groups, such as mental retardation and behavior disorders.

School 1 - Green Valley Elementary School

School 2 - Parkway Elementary School

School 3 - Hardin Park Elementary School

Slosson Oral Reading Test (SORT) - The SORT is an oral reading test which employs word recognition. It was administered to the children before and after the reading treatments.

Subjects (Ss) - The subjects were the EMR level children who participated in the present research.

Traditional + Fernald - The Fernald technique is characterized by the following steps in the process of reading:

1- the child traces the word while saying it

2- writes the word from memory

3- looks at the word or phrase while saying it

4- writes the word without vocalizing it

5- begins to generalize and read new words on the basis of experience with previous words (Kirk, 1972b).

Traditional Reading Method ("look-and-say") - The control group in the study received the "look-and-say" method of teaching reading which was traditionally used in the schools. Knowing that previous reading

approaches and experiences cannot be eliminated, the the other methods will be referred to as the Traditional + the experimental method to be demonstrated.

Verbal IQ - The Wechsler Intelligence Scale for Children is composed of six verbal subtests which combine to yield a Verbal IQ.

Visual-Auditory-Kinesthetic (VAK) - This method developed by Gillingham and Stillman (1965) is designated as following these steps:

1- child is told the names of letters and then the sounds

2- child is asked to sound the word while tracing it (the present study used sand letters for tracing to capitalize upon the sense of touch)

3- writes the word from memory

4- after learning to sound some consonants and vowels, the child blends the sounds

5- after learning to sound, write, and read three letter words, the words are made into stories and the child reads them silently and then orally

Vocational Rehabilitation Counselor - The rehabilitation counselor is a basic position in the provision of services to disabled clients who qualify for the state or federal program of rehabilitation. He interviews and determines eligibility by three criteria:

1- presence of a physical or mental disability that is a handicap to employment

2- the client is of legal employment age

3- probability of employment is good following the provisions of services

Provided the individual is eligible, and he meets the financial guidelines of the state, the rehabilitation counselor serves as a leader and a coordinator who plans and implements progress

toward gainful employment. He and his client set reasonable goals together. The client is given aid with any problems and difficulties that may obstruct and hinder his obtaining a job.

Wechsler Intelligence Scale for Children (WISC) - The instrument used to obtain the full scale levels of intellectual functioning and to identify the EMR's within the special education classes in the schools. The scale also provided supplementary information as to subtest performance.

Basic Assumption

The present investigation involved Ss from three different schools in Watauga County. The only underlying basic assumption here was that the educational processes were the same at all three schools.

Hypotheses

Previous research has concerned itself with differences in the exceptional child's reading level compared to the average child's reading level. Research also focused on discrepencies in mental ages among children and their performance in the reading process. Remedial instruction has been proved statiscally to be of importance in improving low intelligence children's ability to read (Kirk, Fernald, Hegge, and Coleman, as designated in the bibliography).

The present study was intended to analyze the importance of the method employed to teach reading to the population identified, and the relationships of subtests scores obtained on the Wechsler Intelligence Scale for Children (WISC) to the reading process. Four hypotheses were tested at the .01 and.05 levels of significance:

1- There is no significant difference between reading methods.

2- There is no significant relationship between pre-test grade level and the response on the post-test grade level.

3- There is no significant relationship between the level of intellectual

functioning on the WISC - Full Scale IQ and the post-test SORT scores.

a. There is no significant relationship between the Verbal IQ on the WISC and the post-test SORT scores.

b. There is no significant relationship between the Performance IQ on the WISC and post-test results on the SORT.

4- There is no significant relationship between subtests scores obtained on the WISC and post-test scores on the SORT.

a. There is no significant relationship between the WISC-Coding subtest and post-test results of the SORT.

b. There is no significant relationship between the WISC-Vocabulary subtest and post-test results on the SORT.

Chapter II

REVIEW OF LITERATURE

Introduction

The present study was designed in an effort to look toward one of the concerns with which the disciplines of special education and rehabilitation must deal, the exceptional individual. Whether the intellectually subaverage will be placed in the labor market, protective custody, on welfare or within institutions will be a reflection of cooperative efforts. The ultimate placement of the special education student into suitable, gainful employment is the objective of the special education teacher and the vocational rehabilitation counselor (McAlees, 1968). Successfully achieving this objective, means for the special education student a more productive and happy life.

Special Education and Rehabilitation

In a paper presented to the Western Commission for Higher Education, Dr. Dorothy B. Carr stated:

> You probably heard the story of the blind men who were asked to describe an elephant. As the story went, each man's description of the animal was based upon the area he felt. Since they had not felt the same area, their descriptions of the elephant were different.[1]

Rehabilitation and special education personnel frequently work with the same young person; yet the two disciplines describe him differently (Carr, 1968).

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[1]Dorothy B. Carr, "Rehabilitation and the Special Educator in the Public Schools" (paper presented at the Special Education and Rehabilitation Institute, March, 1968, Phoenix, Arizona).

In defining rehabilitation, Walter L. Case stated that rehabilitation is bringing the person to his highest potential:

> To some, this might be the ability to take care of themselves, but never to enter the employee class. To others, it is the ability to work in a sheltered workshop, but never at the speed of modern industry. To others, it is a workshop experience and then outside employment. We take persons who may never have worked and teach them good work habits along with the ability to get along with others. Sometimes they receive special training too.[2]

Dr. Ernest Willenberg (1966) states that the single purpose of special education was "to prevent children from being lost in education."[3] The goal is to assure every child that he is just as important in regard to his education and development as other children who are more fortunate intellectually and physically....."we must assure them of our regard and esteem, and of their worthiness as individuals, and their rights as citizens to the advantages of their heritage" (Willenberg, 1966).

Common objectives. Common goals and objectives can be detected in the preceding definitions. The objectives of special education and rehabilitation for the handicapped should not be separated, for neither of the specialities can accomplish separately what they could accomplish together. The meeting of the needs of the handicapped should begin at birth and continue through life. The special education class helps prepare the child for future employment and aids in developing the basic skills needed so frequently in public work.

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[2]Walter L. Case, "Let's Talk it Over," Goodwill Industries Newsletter, January-March, 1968 (Long Beach, California, 1968) p. 4.

[3]Ernest Willenberg, "Promises to Keep and Miles to Go." An address given before the California Administrators of Special Education at the annual meeting of the Calif. Administrators of Special Education at the annual meeting at Fresno, Calif., May 11, 1966.

The rehabilitation counselor is in the position to coordinate the findings of the special education teacher and utilize the information she has obtained about the student to work toward a job for the individual when his education is complete. Both disciplines are working to help persons reach their fullest potentials.

Need for Early Identification in the EMR

Both rehabilitation and special education should be involved as early as feasible and both should function as a interdisciplinary plan to meet such needs effectively. Early identification of the EMR would avoid the duplication of services or the allowing of unattended gaps in services (Carr, 1968).

National Council on Rehabilitation of 1942

The National Council on Rehabilitation defined the objectives of rehabilitation as "the restoration of the handicapped to the fullest physical, mental, social, vocational, and economic usefulness of which they are capable."[4]

In 1965, Public Law 333 was passed which brought the most liberal and far-reaching piece of legislation on a national scale that was ever enacted (Cull and Hardy, 1972). This legislation focused on evaluative techniques and services, community sheltered workshops and rehabilitation facilities, "self-care" rehabilitation, and it also greatly expanded the goals of the rehabilitating services. Later services were extended to provide for the mentally retarded, the emotionally disturbed, the socially deprived and the disemployed (McCauley, 1968).

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[4]National Council on Rehabilitation. Symposium in New York, May 25, 1942. Definition adopted.

Recent Trends in Special Education and Vocational Rehabilitation

Recent trends in both special education and vocational rehabilitation have brought forth a greater mutual understanding of the services and limitations of each of these programs. These trends include a greater emphasis on career planning at an early age, the development and orientation of vocational materials in special education classes, the participation of teachers in preparing a person for a job, teacher-referrals for potential candidates of vocational rehabilitation, teacher's provision of personal and educational data for the counselor, counselor's participation in program planning for individuals while they are in school, and vocational rehabilitation emphasizing work with young persons while still in school. Trends have also been toward providing services for the less severely disabled (McAlees, 1968).

Assistance for the Primary Level Child

Helping the primary level child to understand the "whys and wherefores" of getting to school on time is one step toward the concept of punctuality as an obligation to a future employer (McAlees, 1968). By continuously interpreting the implications of school learnings and activities and by adjusting the curriculum as strides in social conditions change the community, the EMR can be prepared for a responsible, gainful position in society.

The elementary special education teacher and the rehabilitation counselor can plan future placement for potential candidates which would be gainful employment (McAlees, 1968). Rehabilitation is a supportive service and a resource, and services should be able to begin where special education in the public schools ends.

Complexity of Society

Society as it presents itself today is more complex, and those individuals with marginal skills cannot cope with this complexity.

Educable mentally retarded children are a larger part of the area of which special education services in the public schools must focus. These EMR children have marginal skills and their intelligence quotients range from 50 to 80. They are capable of achieving some degree of success in traditional academic subjects, and they can be aided toward maintaining themselves independently as adults (Wright and Trotter, 1968).

Significance of Reading to the Handicapped

With the objective of rehabilitation being restoring the handicapped to his fullest physical, mental, vocational and economic usefulness, the EMR must be identified early and the area in which he is so frequently lacking, reading, could be worked with intensively (Carr, 1968). This would be steps toward helping the rehabilitation counselor and the educable mentally retarded individual to achieve his fullest potential.

Early identification would give the child an opportunity to increase his reading abilities within the special education setting (Cegelka and Cegelka, 1970). This should increase his job opportunities and the incomes available with the jobs when he finishes school and possible becomes the responsibility of a rehabilitation counselor. It has become difficult enough for persons with average abilities to maintain a place in society.

Significance for EMR's

The ultimate purpose of educating mentally retarded children is to help them adjust to the community at the adult level as social participants and gainfully employed individuals. Most human communication takes place in the medium of language. People talk and write to convey meanings. They listen and they read to understand what others mean and how they feel. Maintaining a place in a society requires communicative skills. Talking and writing are "broadcasting" parts of communication. Listening and reading are receiving parts of the process of communication (McKee, 1966).

Reading that is effective for the individual is necessary in order to be well-informed generally and to acquire specific information (Witty, Freeland and Grotgerg, 1966).

It is generally recognized that to cope with occupational and civic demands of modern life, a tendency to read is desirable and necessary. A sufficient ability to read for the EMR individual only enhances his opportunity for advancement and employment in his community. The types of work would be much more varied and the young person would not be restricted to a job such as operating machinery. As early as 1932, Channing followed 1000 special class graduates in ten large cities approximately five years after they left school. She found a large proportion of them employed and earning wages not far below those of their normal peers. The subnormal can obtain jobs.(Channing, 1932).

Employability

The case of the slow learner or the educable retarded child is not hopeless (Applegate, 1968). He can be groomed for responsible and self-supporting adulthood as soon as his limitations, aptitudes, interest and capabilities are recognized. The educable child needs to begin training as early in his school career as possible for specific job placement. Kennedy (1948) studied a pool of 485 subjects. 356 of the individuals were subnormal and 129 were normal. The total subject pool revealed more similarities than differences in employment levels and relatively good work records. Charles (1967) did a follow-up study on an original study by Baller in 1936. His target population was the mentally deficient. Charles found that vocationally successful children who were mentally retarded had acquired their skills early. The suggestions of Applegate for early training is supported by Charles' findings.

Rehabilitation possibilities. Considering the EMR obtains the basic skills and early training necessary, the possibilities for rehabilitation into successful employment could be increased (Applegate, 1968). A suitable program may be determined by combined efforts of parents, teachers, psycho-

logists and rehabilitation counselors. The EMR individual could possibly be directed toward such jobs as furniture refinishing, car painting, assisting in rehabilitation therapy, machine operator, nurse's aid, and a post office employee (Applegate, 1968). Of course, many jobs would involve being able to read at least a minimum level. The EMR with additional assistance in this area could tabulate and count inventories, specialize in hotel services, state park employee, or a museum employee (Applegate, 1968).

Income. The rehabilitation possibilities for EMR individuals as designated by Applegate (1968) carry with them various income levels which would be varying from community to community. The more effective and communicative the person, the better his chances are at increased pay at a better position. The educable child is one of mild retardation who can be taught to utilize basic skills (Kirk, 1972). If there is interest, remedial assistance and counseling toward placement, the individual would be disposed to plan for a certain income level, preferably that of lower-middle or middle-middle class.

Mental Retardation

Mental retardation is not a disease, but is a condition (Kirk, 1972). Any definition must pertain to this factor. The difficulty arises when one tries to define a heterogenous group consisting of many factors of various types and degrees. The definition proves to be an overlapping of psychological, sociological, medical, economic, physical and educational factors.

Tredgold's definition. One of the early medical authorities, Tredgold (1937), defines mental retardation as:

> A state of incomplete development of such a kind and degree that the individual is incapable of adapting himself to the normal environment of his fellows in such a way as to maintain existence independently of supervision, control, or external support.

Tredgold was referring to the degree of the adaptation to the total environment that the individual could make.

Edgar Doll's definition. Edgar Doll (1941) asserted a more complex definition when he stated that a mentally deficient person was one that was socially incompetent (socially inadequate and occupationally inadequate). He was one that was retarded intellectually from birth or an early age, or retarded at maturity. The retarded could also be mentally deficient as a result of constitutional origin, through heredity or disease. According to Doll, the condition was essentially incurable (Doll, 1941).

Definition by Heber

Other definitions are very closely related to Tredgold's and Doll's conceptions. In regard to recent years, the most conceptually clear and comprehensive definition of retardation has been formulated by Rick Heber and approved by the American Association of Mental Deficiency. This definition refers to mental retardation as "subaverage general intellectual functioning which originates during the developmental period and is associated with impairment in adaptive behavior" (Heber, 1961).

Subaverage intellectual functioning refers to one standard deviation below the general population mean on a standard intelligence scale or test. Impairment in adaptive behavior refers to deficiencies in maturation, learning and social adjustment. For the purposes of this study, this definition of mental retardation will be adhered to.

Educable Mentally Retarded

Children with low intelligence are classified in four groups:

1- the slow learner (IQ = 80-90)

2- the educable mentally retarded (IQ = 50-80)

3- the trainable mentally retarded (IQ - 30-55)

4- the totally dependent or profoundly mentally retarded (IQ = below 25-30)

The present study concerns itself with the educable mentally retarded child whose intelligence quotient may range from 50-80 (Biehler, 1971). This IQ level of mental retardation is based on the definition by the American Association on Mental Deficiency (Sanzone, 1969). The educable mentally retarded child is one who, because of subaverage mental development, is unable to benefit sufficiently from the regular elementary school program. As designated by Kirk (1972), the EMR is considered to have potentialities for development in three areas. His educability in the academic subjects is at a minimum level, and his educability in social adjustment is at a point where he can get along independently in the community. The occupational adequacies of the EMR are at such a degree that he can later support himself partially or totally at the adult level. The EMR child falls within the educational classification of mental retardation.

In most instances the EMR is not known to be retarded during infancy and early childhood. His mental retardation, growth in mental activities, and growth in social activities can be noticed only if he is observed very closely during his preschool years (Kirk, 1972). The growth is normal and retardation itself is not evident until the child enters school and shows poor, slow learning ability; and often times there are no obvious pathological conditions for mental retardation.

There is an overlap between the EMR and the average child. In height, weight, and motor coordination, some retarded children excel the average child; but many are below average. In mental age there is no overlap because EMR's are below average. An educable mentally retarded child with a chronological age of twelve, will have a mental age of between six and nine years of age (Kirk, 1972). Because of the arbitrariness of IQ divisions, the child with an IQ of 50 will behave much like a trainable mentally retarded child (IQ = 25-50), and as the IQ rises toward the upper limit of 80, the behavior exhibited by an advanced elementary grade child is found (Biehler, 1971). Many school systems find these children incapable of responding to standard curriculum, and cope with them through special classes.

Classification and Main Criterion Difference

The mental age factor is the main criterion difference between the EMR and the average child. The EMR does acquire the particular skills of reading, writing, spelling and arithmetic, but he does not acquire them until he is approximately eight years of age (Kirk, 1972c). This educational delay is related to mental age and the child's age upon gaining these skills. Attempts to improve the performance and general self-accomplishment of the mentally retarded in their education should be focused primarily upon what the author terms "functional" direction which is capitalizing upon what exists and may be worked with. Approaches should be less of an "anatomical" approach which is working to improve deficiencies, such as appropriate IQ levels and sufficient attention span.

Homogeneous Subgroupings of the Retarded

Mentally retarded children constitute a heterogeneous group. To work with them it has also been necessary to divide them into subgroups possessing homogeneous characteristics. These subgroupings are the medical-biological classification, the social-psychological classification, and the educational classification. The EMR is within the educational classification. The rate at which these children progress through school is comparable to the previously discussed concept of "mental age," which is about 1/2 to 3/4 the rate of the average child. As reported by psychologists, by the end of the EMR's formal school career, his academic achievement will probably have reached the second to sixth grade level depending upon his mental maturation and his special abilities (Kirk, 1972c).

Reading

Introduction

Failure in reading is one of the most common points of detection of the retarded, and one of the most frequent types of learning disabilities with which the school system is concerned (Kirk, 1972c). Educable mentally retarded

children have learning disabilities, one of which is reading. If the child cannot read sufficiently, he is not going to be able to meet the other requirements of a school curriculum.

All children are exposed to a reading program, some of which begin at home, some in kindergarden, but most are introduced to reading upon entering the first grade. Kirk did research with mentally retarded children and reading. He states that reading instruction proceeds upon three different levels: (1) developmental, (2) corrective reading, (3) remedial reading (Kirk, 1972c).

EMR's Instructional Level

The present study deals with the EMR who is classified within the third level, remedial reading. Remedial reading programs are necessary as a temporary expedient in elementary schools. One of the most significant aspects of modern remedial programs is attention to individuals and small groups (Witty, Freeland and Grotberg, 1966). There must be an effort to diagnose carefully the varied reading levels and needs of the pupils, to provide useful and stimulating materials, and to offer systematic instruction for a long enough period to assure improvement.

Reading of a remedial nature refers to the procedures used with children whose reading skills are still not developed after exposure to developmental reading and corrective reading (Kirk, 1972). EMR children have special abilities within themselves that require remediation before the child will learn to read. These are said to have learning disabilities.

Intellectual Characteristics of Educable Mentally Retarded Children

The EMR child is not ready mentally for reading, writing and arithmetic when he enters school at the age of six, unless he possesses special abilities (Kirk, 1972). Classification of children on the basis of intelligence scores together with assigning them to special classes leaves little

opportunity for intraindividual differences. Two EMR'S with an IQ of 65 may differ considerably in their abilities and disabilities, and their educational needs in general. Jensen (1970) studied the differences between what he termed "familial" retardation and "cultural" retardation. His research indicated that some children labeled mentally retarded are not retarded on paired-associate learning and digit repetition. These special abilities should be taken into consideration with the education of the EMR. Beery (1969) reported that these children usually score higher on the performance sections of intelligence tests. These sections include tasks such as picture arrangement, block design, picture completion, and object completion.

Word Recognition

Of immediate interest in relation to the EMR and his reading level is "word recognition" and the reading method employed to teach reading. In regard to word recognition, it should not be used solely as an instructional method of teaching reading. It is only an integral part of the reading process and is used in some form in every reading method. Charles C. Walcutt expressed strong views against "word recognition" as a reading method in itself in his book entitled Tomorrow's Illiterates - The State of Reading Instruction Today,[5] as did Arther S. Trace in his What Ivan Knows That Johnny Doesn't.[6] In these publicaions Walcutt and Trace deplore the low reading attainment of American children and youth. In a review of Walcutt's book, it was stated:

> If there is anything guaranteed to rouse the fears of the modern parents, it's the article or

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[5]Charles C. Walcutt, Tomorrow's Illiterates - The State of Reading Instruction Today (Boston: Little, Brown and Company, 1961).

[6]Arther S. Trace, What Ivan Knows That Johnny Doesn't (New York: Random House, Inc., 1961).

book which sweepingly insists that American children are growing up unable to read.....Professor Charles C. Walcutt and six associates estimate that three out of four young Americans are not reading as well as they should or could. Without citing any statistical sources for this, Walcutt..... blames the situation on "word recognition" as a method of reading instruction.[7]

Professor Walcott's statements have some validity in those few schools who rely solely on word recognition techniques. The majority of children are taught to read by a variety of methods and materials (Witty, Freeland, and Grotberg, 1966).

As noted earlier, the EMR child has failed from previous approaches to reading and so therefore his word recognition abilities are low. Word recognition is an integral part of the reading process in the beginning stages of reading, and should be utilized as such. Grotberg (1966) lists the exercises helpful in promoting word recognition to aid in the reading process:

1- The length of words should be noted. For example: "but" is short, "balloon" is long.

2- Differences in configuration of words of the length should be stressed. The words "suddenly" and "suitcase" are the same in length, begin with the same letter, but their configurations are significantly different.

3- Words of similar length and form may be compared in order to provide practice in visual discrimination. Lists of words may be selected from the children's textbooks, placed on the chalkboard and compared for appearance and for meaning.

4- Attention may be directed to the difference in the appearance of words beginning with capital and small letters. Two columns of words may be written on the chalkboard with the words, not capitalized in one column and capitalized in the other column and in mixed order. The children may then be asked to draw lines between two words that say the same thing.

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[7] Newsweek, 58:90, November 13, 1961.

5- Differences should be observed in the singular and plural forms of words written on the chalkboard, as "balloons," "balloon," "hat," and "hats."

6- Practice may be given in recognizing the root forms of words to which "ed" or "ing" have been added. The derived form may be written on the chalkboard and the children may be asked to make another word by erasing part of it. Or the basic form may be given and pupils may be asked to build new words by adding suffixed.

7- Exercises to foster the recognition of rhyming jingles or in lists of words may be introduced.

8- Attention may be called to the two little words which make up a compound word as "sunshine," "sidewalk."

Word recognition is important to the reading process. Thus children are exposed to sight words, auditory perception, and visual perception as the basis for future word-analysis programs and also as a basis for particular reading methods that may be employed.

One of the most specialized aspects of teaching reading and especially teaching the mentally retarded to read is the choice of reading methods that will be most effective in helping them to learn to read and to improve their general reading abilities (Jordan, 1963).

Reading Research Available

A review of the literature reveals some of the research in the area of reading and the educable mentally retarded child and the retarded in general. Braem (1931) emphasized the phonic method with a group of retarded children in a state residential institution and compared their progress with a first-grade group in which the sight-reading method was emphasized. The sight-reading group made three times as many errors and took three times as long to read the Gray Oral-Reading Paragraphs Test.

Kirk (1933) compared the kinesthetic method or manual-tracing method in teaching word recognition with six subjects over a 14-day period. He found no significant difference in favor of the kinesthetic method in the retention scores.

Hegge (1936) reported a study with MR's who were not only mentally retarded, but were reading-disability cases. The Hegge (1936), Kirk (1936) and Kirk (1936) Remedial Readings Drills (a phonetic method) was emphasized. The experimental group progressed from 1.6 to a mean grade level of 4.2 in a one-year-ten-month period. This increase in reading was considered above that expected of normal children. Coleman (1938) and Storey (1936) applied a varied remedial program to retarded children who were below mental age in reading. They also found progressive improvement with a varied method with emphasis on word recognition.

McIntyre (1937) and French (1950) applied systematic phonic instruction to older retarded children who were significantly below their mental ages in reading achievement. The progress under this remedial instruction was marked.

Results cited by Kirk (1940b) demonstrate that slow learners who are or become learning disability cases profit significantly from remedial instruction. In a group of 10 institutional children with a mean chronological age of 12-9 and mean IQ of 75, and average gain of 1.2 grades was achieved through 68 standard lessons, each 30 minutes long, over a period of five months. These cases experienced continued progress in the regular classroom at a rate which that of 100 institutional children who had received no remedial instruction (Bond, 1957).

Brain-damaged children were matched with non-brain-damaged institutionalized children on chronological age, mental age, and IQ (IQ's = 40-70, C.A.'s = 7-13). A prescribed educational program was administered. There were no significant differences between the groups on reading and reading readiness (Vance, 1956). Kirk (1958d) found a gain in IQ for culturally deprived, but not organic mentally retarded children. There was only mild improvement in the children whose retardation was organic.

Capobianco and Miller (1958) conducted a study using exogenous and endogenous institutionalized children. On silent reading achievement, word discrimination, word recognition, and oral reading, the exogenous group scored higher than the endogenous group, although the differences were not statistically

significant. No significant differences were found on the 19 error types (faulty vowels, faulty consonants, reversal error, ommission and addition of sounds or words, repetitions, words added or confused), and on the auditory and visual perception tests no significant differences were found.

Duncan (1964) compared two groups (equated on several variables) of normal first-graders, one of 1355 taught by the phonetic-first approach of reading and the other of 1405, by the look-and-say method. At the end of grades two and three, all differences favored the experimental group. Major differences occurred in groups of average and above-average ability. Research by Duncan showed a preference for a combination of the phonic-first method and the traditional basal text.

Using the new kinds of materials and no readiness activities prior to beginning reading instruction, Rudisill (1964) arranged in order the following four activities for teaching through the primer level: (1) children learned forms, names, and sounds of letters by picture cards; (2) learned new words introduced by illustrations; (3) read and responded to new words used in printed sentence strips; and (4) read a unit from a book. Those in the experimental group were distinctly superior even through compared with norms of children taught for longer periods of time. At least 1/2 the children with mental ages of 4.5 could read at second grade level or higher; all children with M.A.'s of 6.5 or above were reading at the norm for their grade level to the fourth grade level.

Balow (1965) followed severely retarded readers for nine to thirty-six months after intensive summer remediation. He found that the group of pupils that had no further remedial instructions made no further gains. Two other groups that were given far less, but "supportive" remediation, progressed at approximately 75% the normal rate.

Glenn Doman and Carl Delacato recently introduced their Doman-Delacato Theory and Technique of Patterning (Biehler, 1971). The original work was based on remedial treatment of children with reading problems, particularly those who lacked dominance of one hemisphere of the brain. They argue that use of their exercised in patterning leads to gain in overall

intelligence in all types of children, not only those without dominance (Delacato, 1966). In brain-damaged children, the brain patterns of these children can be recirculated so that they reach average or above average intelligence levels, according to the Institute for the Achievement of Human Potential (Biehler, 1971).

Delacato's technique involves exercises which the child performs with the physical assistance of several adults. The parents are required to spend considerable time (up to 12 hours a day) with the child.

Robbins (1966) tested the hypothesis that the technique of Doman and Delacato was of sencondary importance. Using an experimental group which was given training in the Delacato exercises and a control group was given "sham" exercises. He found the Delacato-trained children performed no better than control children (Robbins, 1966). It is quite possible that the Hawthorne Effect is in existence within the Delacato technique.

Chapter III

METHODOLOGY

Research Setting and Sample Characteristics

The site of the present study was three public schools from a small school district located within northwestern North Carolina, in the county seat of Watauga County. Two schools in the study, Green Valley and Hardin Park, were located within the township of Boone. The third school, Parkway, was located approximately 14 miles outside Boone in Deep Gap, North Carolina.

Considering the grade span from kindergarten to grade eight, a total of approximately 1,865 students were attending the three schools in question. The number of special education students attending the schools at the time of the present investigation were 119, of which thirty-six were chosen for study.

The students who participated in the present experiment resided in areas surrounding the town of Boone which included Boone, Deep Gap, Blowing Rock, Meat Camp, Hot Hollow, Perkensville, Chapel Hills, Elk Creek, Stony Point, Brown Chapel, Wildcat, Bamboo and Sugar Grove. These communities were rural areas located in the heart of the Blue Ridge Mountains. The Boone population was approximately 8,754.

The area of Boone was first settled by English-speaking hunters. The first dwelling in Boone was a hunting cabin built in 1769 by a man named Benjamin Howard. The cabin stood on what is now Appalachian State University. Daniel Boone used the cabin as a central base for about eight years until he crossed the "great Appalachian barrier" and moved westward into Tennessee and Kentucky. Some English, Scotch-Irish, and Germans stayed within the rugged environment. The railroad came to the area in 1899 and good easily passed roads were not built until 1940. For quite some time, formal education was available only after

the fall crops were in and usually lasted until time to plow. Meat obtained by the hunters was stored in Meatcamp. The area was comprised of small rural farms and the families made their living from the land. The mountain women were characterized by their excessive conversation, but the men were silent, hence the "strong silent tradition in the mountain men" that was passed down to subsequent generations as a masculine trait. The isolation of the region, a mountainous area with an elevation of 3,333 feet, encouraged and interdependency among family members. For accidents, illness, and hardships, they had to turn to their family members because the distance was to far to go for help. This mountain tradition still remains in the mountainous regions of Appalachia.

With the arrival of the campus of Appalachian State University in 1903, more families of university staff moved into the area. This source comprised a large percentage of middle and upper class families living in the area. The region has a few large land owners and business owners. The Boone area is at present a resort area with very little industry except the tourist industry. The environmental areas from which the subjects came were of low socio-economic status and a greater percentage of them were representatives of the still existent "mountain folk" whose families worked farms, worked in lumber camps, and some tobacco, dairy, and small factory work.

All thirty-six children were Caucasian and American in regard to their nationalty. For the most part, the children came from families of low socio-economic backgrounds with a few who could be classified as lower middle class. These children have benefited from a compensatory educational program set up for the "educationally deprived" which is Title I of the Elementary and Secondary Education Act. The educable mentally retarded with learning disabilities received individualized assistance from ESEA.

The educable mentally retarded of present interest were also characterized by notable accents to their speech and many of them exhibited quite noticeable speech problems. Those with speech problems were receiving assistance in this area. Thus, the target population were 60 EMR children in Boone and sur-

rounding environmental regions. The children were classisfied as EMR and were representative of grades one through eight. From the population, 36 subjects were chosen by way of their meeting the IQ range of 50-80- for EMR's (Biehler, 1971).

The subject pool was made up of 22 boys and 14 girls. All 36 children completed the experiment. As to grade levels and how many children were in each grade, two were in grade 1, four were in grade 2, three in grade 3, nine in grade 4, two were in grade 5, five were in grade 6, four in grade 7, and six were in grade 8. The children represented three schools in the district. Only the subjects from School 3 remained in a special education class for the entire school day. The children from School 1 and School 1 met special education classes one to three times a day. The present study required obtaining the cooperation of four classroom special education teachers, and approximately five regular classroom teachers to consent to incorporate the two experimental reading methods into their activities.

The mean individual intelligence test score on the Wechsler Intelligence Scale for Children (WISC) for the subjects was 66.8, with a standard deviation of 10.0.

Tests and Materials

The preceding chapter discussed the literature and research available in the area of retarded children. More emphasis seems to have been placed on improvement and not on how that improvement came to be. Emphasis was not focused on subtest performance on an intelligence scale such as the WISC, and its relation to the reading process.

The WISC was chosen because of the greater diversity and range of tasks within the various subtests. The skill, from which the subtests are constructed to test in the individual, is clear and can be easily identified. The WISC provided a Verbal and Performance breakdown of subtests and IQ. The test was standardized which was an asset in regard to time. Actual test administration required approximately one hour per child.

The present study contained one repeated measure, the Slosson Oral Reading Test (SORT). The SORT was utilized to obtain a pre-test grade level before the experimental reading methods and the control method began. A post-test measure was obtained with the SORT after treatment to measure changes in reading proficiency and the test itself was not concerned with comprehension scores. Appendix O contains a complete copy of the SORT with an accompanying page of instructions that was administered to each subject. Scores were reported in whole grade levels and months of credit, such as 3.4 was grade 3, four months.

The Traditional + Visual-Auditory-Kinesthetic method (VAK) of teaching reading required the use of letters that the children could trace. Letters were made with sand paper and mounted onto construction paper. Three sets of sand letters were made, one for each school. Extra vowels and consonants were also made to facilitate words which required double letters.

Procedure

Principals and teachers of the three schools were contacted and permission to work with their respective special education class was secured. The four teachers involved were met with individually to explain the basic design of the study and just exactly what the examiner would be looking for. It was explained that the WISC would be the instrument used to determine full scale IQ's. The examiner planned to test all the respective teacher's children in her special education class to determine if their intelligence quotient fell within the span of 50-80. All those children whose IQ's were within the designated range were employed in the study. Permission from parents had already been obtained for psychologicals for previous activities in the school,

The sample construction began at School 1. Several students were tested and found not to meet the IQ requirements. Sixty subjects from the three schools were tested with the WISC before thirty-six were identified for study. As the final preliminary testing neared an end at School 1, the steps

to each of the experimental reading methods were discussed in length with the teacher. The steps for each reading method were outlined and she was provided a copy form which she was not to deviate. The teacher was instructed to administer the SORT as a pre-test measure before she began her three reading methods.

After the pre-test scores were obtained and recorded on cards, the Ss from School 1 were randomly assigned to groups by giving each subject a number from a table of random numbers. The teacher was advised to show no favoritism to any one student so that experimental bias effect would be eliminated as much as possible. The students under each group were to work under the reading method they were assigned to for thirty minutes each day.

The teacher did not deviate from allowing the children to continue along with the same reading materials, since reading materials and workbooks across the three schools were quite similar. Many of the children could not read at all. Materials utilized with them were limited whereby efforts toward reading single words were directed toward early stages of word recognition. The methods at School 1 were run for a 25-day period. The teacher was instructed to allow for a 3-day forgetting curve and then administer the SORT to obtain a post-test measure on changes in reading proficiency.

While the reading methods were in operation at School 1, preliminary IQ testing was begun at School 2. The same procedure mentioned previously for School 1 was also followed for School 2 and School 3. All teachers were provided a xeroxed copy of the WISC sheets and scores were explained and were agreed to be held confidential. As noted previously, the reading methods ran for 25-day periods at School 1 and School 2, whereby School 3 worked with their children for only a 10-day period. This was due to inclement weather, sickness with the children, and the experiment itself running out of time. The method of statistical analysis employed with the data allowed for this difference in the number of days the methods were in effect, as well as the amount of reading exposure across Ss before the experiment began, sex differences, teacher personalities,

differences in educational processes, and age differences.

Testing sessions with the children to obtain the WISC scores were made to coincide with the day's activities. Testing plans were tentatively set one day ahead, but these were often changed because of sickness or involvement in activities in the school. No children were tested during their respective physical education periods or lunch periods. All the WISC results were obtained in the early morning hours when the children had not become involved in the day's activities. Small increments of time were spent in getting to know the Ss and establishing rapport before they were subjected to testing.

Three to four psychologicals were obtained each day with each testing period lasting approximately an hour and a half. The WISC scores were begun in September and were completed in mid November. Because of the time taken to establish rapport, the weather and absences, the preliminary IQ testing extended over a 6-week period.

Final tally of Ss across the three schools revealed thirty-six children who fell within the 50-80 IQ range. Ss were evenly divided among the schools with the final methods showing twelve children in each group or reading method. Because the two experimental methods and the control method were employed at each school, each of the reading methods contained three to four children from each school.

As pre-test and post-test scores were obtained, the data was recorded on cards along with the Ss' IQ, grade in school, and the number as to where he was across the methods. This was recorded as such to aid in easy location of a particular subject and to maintain the data in one particular place. Later, schools, Ss, IQ's, pre-test and post-test scores and various other information was recorded on a Fortran sheet for key punching cards for the computer analysis.

Analysis of Data

The study concentrated on an examination of the effects of reading method on word recognition scores in the EMR population

identified. Also of interest was the relation between changes in reading proficiency or word recognition scores related to subtests of the WISC and other subsequent WISC information.

As was discussed earlier, word recognition consists of two basic elements, word identification and word interpretation. A significant factor in word recognition is that of readability, the level of difficulty of the printed material. Word identification is the differentiation of one symbol from another, such as if a child sees the word "hat," he refers to it as "hat." As soon as the correct identification occurs, the correct interpretation of the symbol occurs. The child may remember a hat that he has seen. Of immediate interest to this study was the effectiveness of two experimental reading methods on word recognition scores of the EMR population chosen.

An outline of the experimental design employed for the study is offered in Table 1. The analysis of data was by a covariance analysis of a randomized groups design with one repeated measure, as was demonstrated by Allen L. Edwards (1962). In the analysis of covariance, there were two observations for each of the 36 subjects, a pre-test and a post-test. The pre-test score obtained on the SORT was the supplementary measure and was held constant, whereby the post-test was the response. As designated, the SORT was administered prior to the treatments so that the pre-test scores were not influenced by the treatments. The post-test results and the differences between their means and standard deviations for the various treatments were of major interest. Covariance analyses were computed for the subsequent information of the WISC (IQ's and subtest scores). The response was post-test SORT score, and the covariable was the respective WISC information (Full Scale IQ, Verbal IQ, Performance IQ, etc.). A Basic Analysis of Variance was computed to determine the differences among reading methods. The response was again the post-test SORT score and the covariable was pre-test score. Additional contrasts and analyses which can be made from such a thesis problem were referred to in the hypotheses section of chapter two.

Computer Program

The analization of data was facilitated through the Computer Center, Department of Mathematics, Appalachian State University, Boone, North Carolina. The program directed the computations of variances between all post-test means of the three methods employed, and directed the covariance analyses between the subject's responses on the post-test measure, the WISC breakdown of IQ's, and the subsequent subtest relationships.

The computer analysis also provided means and standard deviations for all three treatment methods, for the WISC subtests and IQ's (Full Scale, Verbal, and Performance), and for schools. The Basic Analysis of Variance allowed for holding pre-test scores constant, and determined any differences among the three methods. Covariance analyses checked for differences in schools, grade levels, ages, sex, and the amount of exposure to the reading process.

Table 1

Outline of the Experimental Design
in the Analysis of Data

Treatment Groups					
1		2		3	
*X	*Y	X	Y	X	Y
1		1		1	
2		2		2	
3		3		3	
4		4		4	
5		5		5	
6		6		6	
7		7		7	
8		8		8	
9		9		9	
10		10		10	
11		11		11	
12		12		12	

*X and Y represent the pre-test and post-test measures, respectively. The numbering 1-12 indicates the number of subjects assigned to reading treatments.

Chapter IV

RESULTS

Introduction

The following chapter presents the data directly related to the research hypotheses designated in chapter two. As discussed in the preceding chapter, the procedures followed in this study provided an opportunity to gather supplementary data concerning the WISC and its subtests and characteristics of the subject pool itself. This data is of value in understanding the information under analysis, the subjects who participated, and the subsequent supplementary data obtained during the process of the experiment. The data can also be helpful to future research in this area and to theories and practice within the schools.

In regard to this large amount of data, the specific data will be presented here in this chapter which pertains to the present hypotheses designated in chapter two. All supplementary data will be presented for note in the appendices, at the end of the study.

Basic Analysis of Variance for Reading Methods

The review of the theoretical and research studies in chapter two demonstrated various reading methods and their effectiveness with retarded children learning to read. Word recognition was recognized by Kirk (1972) to be of significant value to reading method. With the kinesthetic method over a 14-day period, he found no significant difference in word recognition scores. The first hypothesis in this study considered the variance between two experimental methods of teaching reading (Traditional + Fernald and Traditional + VAK) and the Traditional method of teaching reading ("look-and-say"). As was discussed

in chapter two, School 1 and School 2 ran their methods for 25 days and then allowed for a 3-day forgetting curve, whereby School 3 ran their methods for 10 days and allowed for the 3-day forgetting curve.

As was predicted in Hypothesis 1, no significant difference was found between reading methods. A Basic Analysis of Variance (ANOVA) is presented in Table 2. The F value of 1.0937 was an insignificant value at the .01 level of significance. The data then supports the null hypothesis.

Treatment means and standard deviations are presented in Appendix A. These statistical representations are close in value which results in the low F value. The Traditional Method (Reading Method 2) presented the higher mean post-test score and standard deviation. The variance analysis reported that across the treatments, the Traditional Method obtained higher post-test scores.

Breaking the ANOVA table down further, as presented in Appendix B, School 2 presented the higher mean and standard deviation for the Traditional + Fernald technique.

Covariance Relationship of Pre-test and Post-Test Grade Levels

In addition to the hypothesis concerning the reading methods themselves, this investigation examined the interdependence of pre-test grade levels and the response on the post-test reading treatment. It was hypothesized that pre-test grade levels would not have an influence on the response on the post-test.

Hypothesis 2 stated that there would be no significant positive relationship between the two repeated measures. A covariance analysis was computed to reveal the relationship between the pre-test response and the post-test response after treatment. Table 3 presents the covariance analysis which shows a computed F of 159.675 which was significant at .01 level. The null hypothesis was rejected. Pre-test grade levels of the Ss were of importance to response on the post-test. Post-test results may be predicted from pre-test results.

Table 2

Basic ANOVA for Reading Methods

Source	D.F.	S.S.	M.S.	F
Between Groups	2	18.168	9.084	1.0937
Within Groups	33	274.083	8.336	
Total	35	292.252		

Table 3

ANOVA for Overall Regression of Pre-test Grade Level as to Post-test (Word Recognition Scores)

Source	D.F.	S.S.	M.S.	F
Regression	1	228.325	228.325	159.675*
Error	32	45.757	1.429	
Total	33	274.083		

*significant at the .01 level

The estimate of the overall regression co-efficient was 1.39255. The study represented a paired observation (pre-test and post-test). The Ss were given the SORT before and after the reading treatment which constitued the paired observations. Changing the regression co-efficient becomes .28830 with 32 df. The critical value for the co-efficient at the .01 level of significance was .3978 and at the .05 level it was .2876. The obtained .288 was significant at the .05 level.

In Appendix C, further analysis of the covariance table reveals and F= 180.902 for the Traditional + Fernald technique. The value was significant at the .01 level. The Traditional method and the Traditional + VAK reading method also present significant F values. Pre-test scores seemed to be of more importance in Method 1 (Fernald technique) as to how the subject would perform on the post-test. The Traditional + VAK method also exhibited this observation, although the pre-test levels were not as important as they were for the Fernald technique. The experimental methods were representing the higher F values and pre-test level was of more importance to how the Ss performed on the post-test measure after treatment.

Appendix D illustrates the analysis of covariance between regression. The F value was insignificant which revealed that the regression lines were the same slope, and that they were homogeneous with respect to the covariable. The Ss were in fact randomly assigned to groups. Appendix E represents the regression lines for each method of teaching reading with pre-test and post-test results plotted on the X and Y axes.

Covariance Analysis Between WISC - IQ Results and Response on the Post-test

As reviewed in chapter two, previous research studies were not concerned with the IQ levels and their composite parts, their relation to post-test results across methods, and to the reading process itself. Hypothesis 3 considered

the interrelationships of the subject's numerical IQ's and their subsequent breakdowns to post-test results under each reading method. The null hypothesis was supported. There were no significant differences between the two experimental groups and the control group in relation to the WISC - Full Scale IQ. Table 4 outlines the covariance analysis for the Full Scale IQ between regression.

Appendix F outlines the covariance analysis for overall regression. Full Scale IQ was of no significant influence across treatments. Appendix G and H represent the covariance tables for the two components of the IQ scores for the subjects (Verbal and Performance).

The product moment correlation coefficient was .144 which was an insignificant value. There was a low correlation between WISC - IQ's and post-test performance on the SORT after reading treatment.

Covariance Analysis Between Specific WISC Subtests and Response on the Post-test

The general null hypothesis 4 was supported at both the designated levels of significance. According to the data obtained for the EMR population, specific WISC subtests were not correlated with the reading process or changes in reading proficiency. Although the subtests in question in the present study were not significant at the .01 level, one subtest was significant at the .05 level. It should be noted which subtests had F values close to significance and those basic skills could be utilized to enhance reading proficiency in these target populations.

Covariance Analysis of subtest breakdown revealed an F value of 6.950 for the WISC - Coding subtest. The value was insignificant at the .01 level, but was significant at the .05 level. Table 5 outlines the analysis and presents the computed variances. Coding scores that the subjects received across the three groups had no significant influence on the response on the SORT after treatment. Coding was close to significance to significance for the .01 level.

Table 4

Covariance Analysis Between Level of Intellectual Functioning and Post-test Response

Source	D.F.	S.S.	M.S.	F
Overall Regression	1	5.548	5.548	0.938
Between Regression	2	15.810	7.905	
Error	30	252.723	8.424	
Total	33	274.083		

Table 5

Covariance Analysis of WISC - Coding Subtest and Post-test Word Recognition Scores

Source	D.F.	S.S.	M.S.	F
Regression	1	48.107	48.907	6.950**
Error	32	225.175	7.036	
Total	33	274.083		

**significant at the .05 level

The Coding subtest involved pairing and reproducing symbols with digits, using the numbers as stimuli. Coding utilizes the individual's ability for rapid learning and copying of new symbols, and it also reflects visual imagery and visual-motor skills. The subject must have been able to discriminate between essential and non-essential detail. The correlation coefficient for this particular covariable was .4422. The critical value of the correlation coefficient with 30 df was .296 and for 35 df, it was .275. The interpolated value becomes .2876, which reveals the .4422 a significant value, (at the .01 level).

Hypothesis 4b was also confirmed. Table 6 outlines the covariance analysis for the Vocabulary subtest. The obtained F of 1.829 was an insignificant value at the .01 level. of significance. The overall correlation coefficient was .2441 which was also insignificant. Caution should be exercised here in predicting post-test word recognition scores and in relating the WISC subtests to the reading process. The Vocabulary subtest is a measure of a child's facility in using words correctly, language development and concept formation. The child gives definitions to words. In this EMR population, the children had difficulty in giving a meaning for the particular word, although they recognized it as having seen it before. There is marked difference between word recognition and word definition (Witty, Freeland, and Grotberg, 1966).

Supplementary Results from the WISC

As was related in chpater two, the procedure followed allowed the gathering of supplementary data. The entire WISC was administered to each child which afforded large amounts of information regarding the children's performance.

The Digit Span subtest of the WISC proved to be a non-significant factor, although it represented an F value of approximately half that of the Coding subtest. Appendix I outlines the overall regression and covariance analysis. Although the F value was insignificant (p 7.50 at the .01 level), Digit Span seems to be of some significance or influence. These

Table 6

Covariance Between Vocabulary Subtest and Post-test Word Recognition Scores

Source	D.F.	S.S.	M.S.	F
Regression	1	14.826	14.826	1.829
Error	32	259.257	1.101	
Total	33	274.083		

skills involved here are the child's ability to cincentrate and attend to a specific task. It also utilized immediate memory span for digits and auditory imagery. These same abilities are utilized in the reading process whereby attention and recall are very important.

Of present interest also was Similarities which is outlined in Appendix J. This particular subtest is interesting to note. The F value of 2.812 was insignificant at the .01 level. This subtest utilizes logical and abstract thinking. The ability to recognize relationships between objects and ideas is important. The skills required to score average and above are those such as grouping things to facilitate ease and speed in learning.

Appendix K lists the remaining subtests and their corresponding F values. These values were also insignificant. Post-test performance on the word recognition task could not be predicted from preliminary results seen on these subtests. This particular population was not affected, in regard to the post-test response, by these insignificant covariables.

Reliability of the Slosson Oral Reading Test

The SORT, developed by Richard L. Slosson (1963) is given individually and requires approximately three minutes to administer. The words were taken from standardized school readers and Reading Level obtained from the test represents median or standardized school achievement. A correlation of .96 of variability on a group of 108 children from first grade through high school was obtained with the Standardized Oral Reading Paragraphs by William S. Gray. The Gray mean and standard deviation was 5.0 and 2.0, respectively. The SORT mean is 5.0 with a standard deviation of 2.3.

The reliability of the SORT with a test-retest interval of one week presents a coefficient of .99. The SORT can be used to measure a child's progress in reading and can be highly motivating for the child (Slosson, 1963). It facilitates

immediate reinforcement for performance and helps the child to realize how he is progressing in the process of word recognition and reading. An example of the SORT is located in Appendix O and Appendix P illustrates the table of grade-level equivalents of raw scores.

Reliability of the WISC

The Wechsler Intelligence Scale for Children (WISC) has a mean of 100 and a standard deviation of 15. The test requires about one hour to administer and is given individually. The WISC is a reliable intelligence scale developed by Wechsler and is given only by an individual trained in administering the instrument. The instrument yields a Verbal IQ and a Performance IQ. The trained examiner can identify learning disabilities, psychomotor speed variances, sight and motor problems, and various other skills and disabilities.

Intelligence and the Reading Process for the Educable Mentally Retarded

As discussed previously, intelligence seemed to have no significant influence on post-test results on the SORT. These children were from rural mountain areas, many of them were of them outlying from Boone. Many were "socially" retarded, and there were a large percentage of advanced speech problems. This factor could have been of influence here in this study. Some of the individual subjects appeared to be affected by emotional problems. These factors could have been influential.

Of more importance was the wide IQ span of 50-80. These are arbitrary cut-offs which introduce another aspect. The closer to 80 the individual IQ, the closer to normal range the child is, and he then has the basic skills to carry on average work. As the IQ nears 50, the child is much like a trainable mentally retarded individual where reading is much harder to teach and for the individual to learn. As far as the specific reading methods of the present study, intelligence was of no influence on how the children performed on the post-test. The

two experimental methods employed and the control method were followed step-by-step by the teacher. The techniques of experimental interest were more or less a kinesthetic approach whereby the children manually worked with words and made use of their bodies in the carrhing out of the methods. The children were not forced to depend on their own intellectual capacity to employ the methods. The teachers were approaching them from visual, auditory, and kinesthetic techniques and less of an abstract method.

Basic Skills of the WISC and Changes in Reading Proficiency

The Wechsler Intelligence Scale for Children has been used to classify children for special classes. As has been discussed in the results of the covariance analysis of the data, specific subtests and the skills they require are of relation to those skills necessary in learning to read.

A child must be able to concentrate and attend to a specific task. He must have the ability to learn rapidly. The child also should be able to visually imagine words or ideas and his visual-motor coordination should be such that he could employ the steps of the experimental methods which often involved tracing letters and reading words form cards after he had written them on paper.

Important also in learning to increase skills in word recognition in EMR children was the ability of the child to group things and ideas to facilitate ease in learning. The ability to discriminate essential from non-essential detail was also very important in this population across the methods. Some of the children in the present study exhibitied poor coordination and the inability to attend to a specific task while other events were going on around them. For the most part, they were very distractable, and the short-term memory for this population was poor. Language development was also a deficit in this population which resulted in low Vocabulary subtest scores on the WISC. This was also related to previously mentioned speech problems.

Chapter V

DISCUSSION, CONCLUSIONS, AND RECOMMENDATIONS

Importance of the Study

This chapter considers several important aspects of the present investigation. The statistical results discussed in the previous chapter were in support of earlier research findings which stated that remedial reading in general is effective with all children, retarded and normal (Balow, 1965 and Kirk, 1940). In addition, by discerning the covariance analysis across the treatments between the subject's pre-test and post-test grade levels, it was possible to discover the extent of the relationship between pre-test and post-test results. Moreover, the opportunity was present to ascertain the relative importance of the level of intellectual functioning with these EMR children on their performance in the reading process under certain reading methods. Thus, support for the "functional" approach was developed which states that one should capitalize upon what is present, and avoid a more "anatomical" approach which capitalizes upon what is not present, such as appropriate IQ levels and sufficient attention span.

Except for two children, the remaining subjects made improvement. An additional important factor of the present study was the covariance analysis between response on the post-test of the SORT and specific subtests of the WISC. The subtests most closely correlated with the reading process were integral parts of the Verbal section of the WISC and one subtest was in the Performance section. Specific skills utilized in the WISC could be strengthened in the children by developing tasks that concentrated solely on that set of skills such as, tasks developed in the form of a game which would concentrate on immediate memory span, long-term memory, and auditory imagery.

Interrelationships Between Reading Methods and Changes in Word Recognition Scores

The basic analysis of variance revealed no significant difference between the two experimental reading methods and the control method. Subjects under all methods made improvement. Appendix B shows a breakdown of the Basic ANOVA table which shows School 2 under the Fernald technique. School 2 also presented the lowest mean and standard deviation for the VAK method. From observations made during the screening of these students and in explaining the steps of each reading method to the teachers, teacher personality, her mode of response and how the children respond to her could account for the higher mean score.

In addition, professional individuals possessed their partialities to one of the three methods. Future research could be arranged such that one method would be assigned to each school or the teacher would be allowed to choose the method. The study could also be repeated with a larger N. The design could be repeated again with the larger number within each group or reading method and the treatments could be run within one school in order to control for the educational process that differs among schools.

Relationships Between Pre-test and Post-test

Pre-test grade level in regard to word recognition was a significant factor in post-test performance in these EMR children. Appendix L outlines the pre-test means by schools. Again, as discussed previously, School 2 presented the higher pre-test mean score. Appendix M illustrates the pre-test means and specifically under which method they randomly fell. The higher pre-test mean under methods was for Method 2, the Traditional Method which was the control group.

Appendix N outlines the pre-test and post-test results with improvement scores for each subject and also the children in each method or treatment are ranked according to higher to lower scores that were obtained. The improvement scores for the EMR children who received the Fernald treatment ranged from

.0 (not being able to read at all) to grade 2, second month. Those for the Traditional ("look-and-say") ranged from .0 to grade 7, first month, and those for the VAK method ranged from .1 (first month) to 2.9, grade 2 and the nineth month.

Those subjects who were very low on their pre-test grade levels make very little improvement. Those students who were middle range in their pre-test grade levels made marked improvement. The children who had high pre-test results also made low amounts of improvement. It may be predicted that subjects who are above the mean on pre-test examinations will be above the mean on post-test examinations, whereas those below the mean on the pre-test will more likely be below on the post-test results. The exception for this EMR population was if the child fell within the middle range scoring on the pre-test.

There were exceptions in this population of educable mentally retarded where subjects with below the mean on pre-test scores obtained above the mean on the post-test. This was demonstrated in the Traditional method, Appendix N, wnich was indicative of a negative correlation. Eight subjects out of the 36 had made such improvement. It is interesting to note that in regard to IQ that two out of the eight subjects, according to Wechsler, fell within the Mental Defective range of intellectual functioning. This included 2.2% of the population across the country, ages 10-60. The other six children fell within the Borderline range of intellectual functioning, which is comprised by 6.7% of the people ages 10-60 across the country. The grade levels of these children could be considered middle range (in relation to the post-test results of the SORT).

According to this population study, no child in the EMR range of intelligence should be excluded from a reading program because of a pre-test score at the lower end of this range. All the children improved from the experiment, except for two whose situations must be considered. Both of the children who did not gain from the experiment were having difficulty with their speech and communication, both affected by social retardation. They scored 0.0 on the SORT on the pre-test and

the post-test. The question here is in relation to their speech and language development. There is a positive relationship between reading and the other aspects of language arts (Witty, Freeland, and Grotberg, 1966). There must be some interest in learning to read, listening skills, speaking and writing abilities. Witty, Freeland, and Grotberg also discuss the contributions of the home in the process of reading. The child will continue to be confused in what he is hearing from the teacher during the time he is in school, if he returns home to the family setting where language development is poor. Many aspects perpetuate that the teacher of reading must work with. Learning to read depends on many factors and considerations which includes the physiological, intellectual, emotional, and social development of children (Grotberg, 1966). Children need models to learn, and working with the child with poor speech and language development, poor abilities to listen effectively, and who also presents tendencies toward hyperactivity, requires more than the teacher involved in the elementary school as a model. She requires assistance from the home to help provide a consistent basis for what he is being taught in tne special education classroom.

The population of the present study is an example of the importance of consistency of what a child hears between home and school. The teacher can provide all kinds of stimulation to the child, but struggling with the child who comes from low socio-economic background, and a home where language development is poor as well as the speech development, is fighting a tough battle. What the child is being taught in school and what he is subjected to in the home is very inconsistent. One of the most important factors for progress and change is "follow-up." There must be consistent and additional effort applied toward helping EMR children to read at a beginning level and to improve. The skills needed to learn to read were not present in these children within this study who did not make any improvement. These skills included attentiveness, minimum listening abilities, short-term memory and long-term memory, and the ability to hear sounds correctly.

Positive Relationships Between Word Recognition Scores from the SORT and WISC Subtest Performance

Caution must be applied in relating the various psychomotor abilities and thought processes that each of the WISC subtrsts draws upon. Vocabulary skills would seem to be of importance in teaching EMR children to read and to improving their word recognition skills. As noted in chapter four, the Vocabulary subtest of the WISC involves language development and the child responds with word definitions in order to score. This is different from just being able to recognize the word.

Skills such as short-term memory, rapid learning abilities, pairing and reproducing symbols using numerals as stimuli, and the ability to group items and ideas to facilitate ease in learning could be approached through remedial activities. Though, the F values from the covariance analyses proved to be insignificant, the abilities contained within the subtests that were close to significance could be utilized to provide remedial exercises to improve these necessary abilities.

Not only is it important that the child be told that s-e-e spells "see," but he must also be told that word is related to his eyes, and that the word is associated with the five senses. In the EMR population of the present investigation, it was important that the child be told that a-p-p-l-e spelled "apple," and also that he held the apple and even tasted it. This approach is more concrete and functional. It requires every sense of the body possible to learn the word, be able to spell it, and be able to recall it again when needed. The more abstract the reading method and the process, the less effective on the response on the post-test. The children responded better to activities involving muscular movements where they utilized their whole body. Thus, the learning process was less of an abstract idea for them. Working with the sand letters and tracing the letters, moving their bodies and telling stories with the words being learned made the words more meaningful to them. The child did not have to rely wholly on his verbal abstract level.

Implications for Counseling

One of the most important steps toward striving for adulthood is the area of vocational training (Pikunas, 1969). In today's world, considering the amount of automation, the percentage of unskilled labor continues to decline. Training for jobs and specific vocations takes longer, and the needs of the person often times can not wait until proper training or education has been completed before they are met. For all individuals, the choice made of a vocation or a career is a decisive decision for the person and the counselor involved. It is around this that the client's entire life revolves. Bridging the gap between school and work is a significant challenge for counselors of all disciplines, for the teacher within the classroom and for the parents of the children.

The employment world is one that is rapidly changing and those individuals who participate must be adaptable to these changes. Educational requirements are steadily increasing for jobs (Pikunas, 1969). From the year 1960 to 1970, approximately 26 million young people entered the labor force. The poorly educated of these competed with machines for employment (Pikunas, 1969). The cybernated systems in use today have skills requisite to a high school diploma. The unemployment rate for the youth with limited education will likely rise as many occupations for the unskilled slowly decline.

The counseling program of the Employment Service, United States Department of Labor, was established in 1945. Since the National Defense Education Act of 1960, there has been rapid growth in guidance services offered by the secondary schools (Pikunas, 1969). In 1962 there were 36,500 serving as counselors in the public schools and the number has been steadily increasing. More young people than ever will require vocational counseling.

The counselor is not working with just an individual and a vacant job or position. He is working with the individual and his entire life. The more skills the person possesses, the more open and diversified the job opportunities become.

An individual with a low reading level would not be recommended for college training, technical training which involved manuals or workbooks, or secretarial occupations (Cull and Hardy, 1972). This definitely limits that client and the counselor as to alternative paths toward gainful employment.

The present study is of value to counselors of all disciplines. At the secondary school level, the counselor will be more aware of reading difficulties and the basic skills required for this process. Remedial assistance can be obtained and the individuals employment possibilities can be planned around the skills and educational qualities of the person. If the individuals are still in school, the counselor who is aware of these basic skills can discuss them with the respective teachers who work with the children in the classroom. The move toward employment can then be a combined effort.

For Rehabilitation Psychologists. As discussed in chapter one, the rehabilitation psychologist is a rehabilitation specialist who operates as a consultant for the vocational rehabilitation counselor. He determines eligibility for services and is equipped to identify learning disabilities. The findings of this study would be of help to the rehabilitation psychologist who functions within a rehabilitation setting, as well as the school psychologist and the counseling psychologist in private practice.

Specific WISC results and data analysis concerning the present population of the mentally defective or EMR range children alerts the professional to specific subtest results to look for. Although subtest covariance proved insignificant with post-test results, existent skills from the WISC subtests can be utilized to improve the EMR's abilities.

Often times psychologists find skills lacking in a person that need remedial help. From such studies as the present one, the rehabilitation psychologist can make recommendations for specific remedial assistance on certain skills from which the EMR is deficient.

Particular workshop programs or technical programs can can be designed around the subsequent information offered from

administering the WISC, as can be for those eligible for the Wechsler Adult Intelligence Scale which contains quite similar skills to those found in the WISC. Recommendations for plans toward employment may then be made to the rehabilitation counselor involved and vocational counseling may begin.

For Vocational Rehabilitation Counselors of the Mentally Retarded. Considering the findings of the psychologist, the rehabilitation counselor may take steps toward a remedial program to supplement previous experience within a workshop setting. The present study may be of interest as to the reading process and grade level of the EMR. If remedial instruction does improve the level of the EMR, the rehabilitation counselor should be more favorable toward tutorial work for the mentally deficient. With remedial help the mildly retarded can obtain employment comparable to the normal individual.

The present study suggests the need for early identification of the EMR so that planning may take place between the special education teacher and the rehabilitation counselor of the mentally retarded. The end process becomes less of a non-rewarding, unsuccessful process toward obtaining a level of gainful employment for the EMR individual.

Limitations of the Study and Suggestions for Further Research

This study provided an opportunity to assess the effects of specific reading methods on word recognition in the educable retarded. The data provided support for studies and conclusions made by Kirk (1964), Cegelka and Cegelka (1970). Research has shown no superiority of any one method over another. Intelligence level had no significant influence on word recognition performance and specific subtest skills could be utilized to provide for improvement in abilities to use skills such as, rapid learning, short-term and long-term memory, and coding exercises.

Caution must be taken to note the specific EMR group studied. The research took place at three different schools that presented varied educational processes. The Ss themselves were on different levels of reading ability, different grade levels and a wide age span. Many of the children presented emotional difficulties and speech defects. A limitation of the study was that the Ss themselves were culturally disadvantaged.

The study should be repeated with the reading methods operating under one educational process. The size of the subject pool should be increased. This might would give an opportunity for significant differences to show up among reading methods. It would also be interesting to control the variable of age and reading experience.

Summary

The major purpose of this study was to examine the effects of two experimental reading methods on word recognition in EMR children and changes in reading proficiency related to the WISC. Past research has emphasized the effectiveness of remedial reading instruction in the process (Kirk, 1964), Cegelka and Cegelka (1970) reported that no reading method seems superior over another. Implicit in the basic research is the assumption and conclusions that reading methods are of importance, and that proposed methods work better with retarded children.

This investigation obtained data concerning the Fernald technique of teaching reading, the Visual-Auditory-Kinesthetic method, and the Traditional ("look-and-say") method. Identifiying the children within the IQ range of 50-80 with the WISC, thirty-six EMR children were utilized in the study. By obtaining a post-test and a preliminary pre-test measure with the SORT, covariance analyses were made to determine significant differences among the three methods of reading. The significance of the pre-test grade level to post-test performance was ascertained. The covariance WISC analyses were run on WISC subtests' performance and post-test results on the SORT.

The subjects were 22 boys and 14 girls with IQ's ranging from 50-80 on the WISC. The Ss were drawn from three elementary schools in a mountainous school district in northwestern North Carolina.

Results revealed no significant differences between the reading methods employed. Pre-test level of reading on the SORT had a significant influence on the post-test results of the EMR children. Those individuals with middle range SORT pre-test scores made the most improvement, while all the children made improvement of some degree. The exceptions were those EMR children whose pre-test scores on the SORT were 0.0.

Level of intellectual functioning on the WISC had no significant influence on how the individuals did on each of the methods and across the reading process. WISC subtests and their F values were insignificant as to the effect they had on the post-test results. Thus, the data supported the designated four null hypotheses.

Future research should be directed toward a more concentrated investigation of the WISC itself and the basic skills related to reading in this particular population. Caution should be exercised in controlling for the varied educational processes that prevail from school to school.

Appendix A

Mean Word Recognition Scores By Treatment
(Post-test)

Reading Method	Mean	Standard Deviation
Traditional + Fernald	3.01666	2.71960
Traditional	3.74999	3.61096
Traditional + VAK	2.01666	2.11695

Appendix B

Means and Standard Deviations
According to Schools

Schools	Parkway		Green Valley		Hardin Park	
Reading Method	$\bar{X}$	SD	$\bar{X}$	SD	$\bar{X}$	SD
Traditional + Fernald	3.8333	4.6162	5.2750	5.4921	.7200	1.0899
Traditional	4.7250	6.6690	3.6750	4.6890	2.8500	3.4022
Traditional + VAK	3.4200	4.0351	.5000	.9082	1.7000	2.2350

Appendix C

Group Regression by Treatments

Traditional + Fernald

Source	D.F.	S.S.	M.S.	F
Regression	1	77.094	77.094	180.902
Error	10	4.261	0.426	
Total	11	81.356		

Appendix C (continued)

Traditional

Source	D.F.	S.S.	M.S.	F
Regression	1	109.804	109.804	32.655
Error	10	33.625	3.362	
Total	11	143.430		

Appendix C (continued)

Traditional + VAK

Source	D.F.	S.S.	M.S.	F
Regression	1	42.848	42.848	66.456
Error	10	6.447	0.644	
Total	11	49.296		

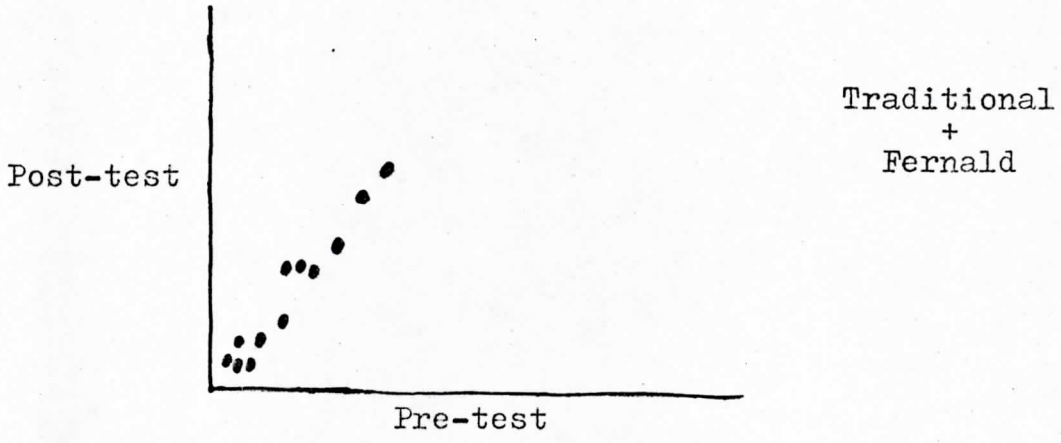
Appendix D

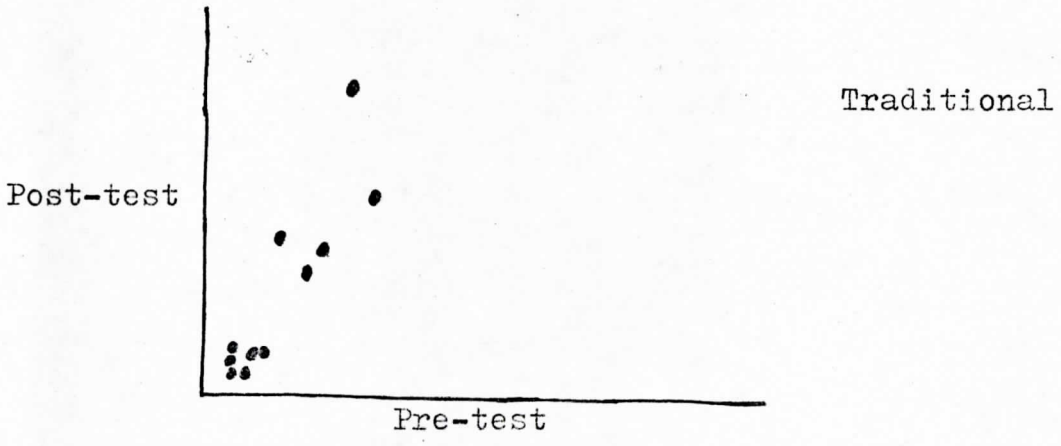
ANOVA Table of Between Regression
(Pre-treatment Grade Levels)

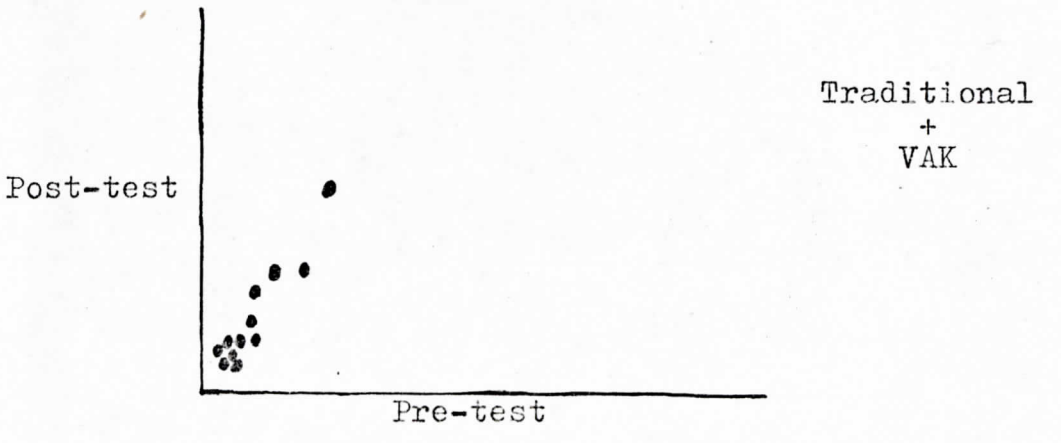
Source	D.F.	S.S.	M.S.	F
Overall Regression	1	228.325	228.325	0.481
Between Regression	2	1.423	0.711	
Error	30	44.334	1.477	
Total	33	274.083		

Appendix E

Pre-test and Post-test Regression Lines







Appendix F

(Full Scale IQ)
ANOVA for Overall Regression

Source	D.F.	S.S.	M.S.	F
Regression	1	5.548	5.548	0.661
Error	32	268.543	8.391	
Total	33	274.083		

Appendix G

ANOVA for Overall Regression
(Verbal IQ)

Source	D.F.	S.S.	M.S.	F
Regression	1	0.112	0.112	0.013
Error	32	273.970	8.561	
Total	33	274.083		

Appendix H

ANOVA for Overall Regression
(Performance IQ)

Source	D.F.	S.S.	M.S.	F
Regression	1	9.169	9.169	1.107
Error	32	264.913	8.278	
Total	33	274.083		

Appendix I

Covariance Analysis for Digit Span (Overall Regression)

Source	D.F.	S.S.	M.S.	F
Regression	1	24.903	24.903	3.198
Error	32	249.179	7.786	
Total	33	274.083		

Appendix J

Covariance Analysis for Similarities
(Overall Regression)

Source	D.F.	S.S.	M.S.	F
Regression	1	22.143	22.143	2.812
Error	32	251.940	7.873	
Total	33	274.083		

Appendix K

Covariance Analyses of Supplementary WISC Subtests (Subtests Not Correlated with Reading)

Subtest	F
General Information	2.241
Comprehension	1.013
Arithmetic	0.212
Picture Completion	0.454
Picture Arrangement	1.311
Block Design	0.938
Object Assembly	0.057
Mazes	0.440

Appendix L

Pre-test Means for Schools

Parkway (School 1)	Green Valley (School 2)	Hardin Park (School 3)
1.8	1.7	0.0
0.0	6.2	0.0
4.9	3.6	1.6
0.4	3.3	0.0
1.8	5.9	0.6
0.0	4.7	3.0
4.9	0.1	1.3
0.1	0.4	0.4
1.8	0.0	3.6
0.6	0.2	0.0
3.9	0.0	3.2
1.3	0.0	0.9
$\overline{X}$ = 1.79166	$\overline{X}$ = 2.1750	$\overline{X}$ = 1.21666

Appendix M

Pre-test Menas for Reading Methods

Traditional + Fernald	Traditional	Traditional + VAK
1.8	.4	0.1
0.0	1.8	1.8
4.9	0.0	.6
1.7	4.9	3.9
6.2	5.9	1.3
3.6	4.7	0.0
3.3	0.1	0.2
0.0	0.4	0.0
0.0	3.0	0.0
1.6	1.3	0.0
0.0	0.4	3.2
0.6	3.6	0.9
$\bar{X}$ = 1.97499	$\bar{X}$ = 2.20833	$\bar{X}$ = 0.99999
SD= 2.10070	SD= 2.12708	SD= 1.33484

Appendix N

Rankings and Amount of Improvement by Treatment

Reading Method	Pre-test and Post-test	Ranking	Improvement
Traditional + Fernald	1.7 - 4.0	1	2.3
	4.9 - 7.0	2	2.1
	1.8 - 3.8	3	2.0
	6.2 - 7.8	4	1.6
	3.6 - 5.2	4	1.6
	3.3 - 5.2	5	.8
	0.0 - 0.7	6	.7
	1.6 - 2.2	7	.6
	0.6 - 1.0	8	.4
	0.0 - 0.3	9	.3
	0.0 - 0.1	10	.1
	0.0 - 0.0	11	.0
Traditional	4.9 - 12.0	1	7.1
	1.8 - 5.7	2	3.9
	3.6 - 5.2	3	1.6
	5.9 - 7.2	4	1.3
	4.7 - 5.9	5	1.2
	3.0 - 4.1	6	1.1
	0.4 - 1.2	7	.8
	0.1 - 0.7	8	.6
	0.4 - 0.9	9	.5
	0.4 - 0.7	10	.3
	1.3 - 1.4	11	.1
	0.0 - 0.0	12	.0
Traditional + VAK	3.9 - 6.8	1	2.9
	1.8 - 4.4	2	2.6
	1.3 - 3.4	3	2.1
	.6 - 2.0	4	1.4
	.2 - 1.2	5	1.0
	3.2 - 3.7	6	.5
	0.1 - 0.5	7	.4
	0.0 - 0.4	7	.4
	0.0 - 0.3	8	.3
	0.3 - 0.3	8	.3
	0.9 - 1.1	9	.2
	0.0 - 0.1	10	.1

record from year to year"

SLOSSON ORAL READING TEST (SORT)

READING LEVEL	
SCHOOL GRADE	

LAST FIRST MIDDLE AGE DATE

SCHOOL

EXAMINER

P (20)	List 1 (40)	List 2 (60)
ee	1. with	1. game
ook	2. friends	2. hide
nother	3. came	3. grass
ittle	4. horse	4. across
here	5. ride	5. around
an	6. under	6. breakfast
want	7. was	7. field
come	8. what	8. large
one	9. bump	9. better
baby	10. live	10. suddenly
hree	11. very	11. happen
run	12. puppy	12. farmer
ump	13. dark	13. river
down	14. first	14. lunch
s	15. wish	15. sheep
up	16. basket	16. hope
make	17. food	17. forest
ball	18. road	18. stars
help	19. hill	19. heavy
play	20. along	20. station

List 3 (80)	List 4 (100)	List 5 (120)
1 safe	1 harness	1 cushion
2 against	2 price	2 generally
3 smash	3 flakes	3 extended
4 reward	4 silence	4 custom
5 evening	5 develop	5 tailor
6 stream	6 promptly	6 haze
7 empty	7 serious	7 gracious
8 stone	8 courage	8 dignity
9 grove	9 forehead	9 terrace
10 desire	10 distant	10 applause
11 ocean	11 anger	11 jungle
12 bench	12 vacant	12 fragrant
13 damp	13 appearance	13 interfere
14 timid	14 speechless	14 marriage
15 perform	15 region	15 profitable
16 destroy	16 slumber	16 define
17 delicious	17 future	17 obedient
18 hunger	18 claimed	18 ambition
19 excuse	19 common	19 presence
20 understood	20 dainty	20 merchant

ist 6 (140)	List 7 (160)	List 8 (180)	High School (200)
nstalled	1 administer	1 prairies	1 traverse
mportance	2 tremor	2 evident	2 affable
nedicine	3 environment	3 nucleus	3 compressible
ebellion	4 counterfeit	4 antique	4 excruciating
nfected	5 crisis	5 twilight	5 pandemonium
esponsible	6 industrious	6 memorandum	6 scrupulous
quid	7 approximate	7 whimsical	7 primordial
emendous	8 society	8 proportional	8 chastisement
ustomary	9 architecture	9 intangible	9 sojourn
alicious	10 malignant	10 formulated	10 panorama
ectacular	11 pensive	11 articulate	11 facsimile
nventory	12 standardize	12 deprecate	12 auspicious
earning	13 exhausted	13 remarkably	13 contraband
naginary	14 reminiscence	14 contrasting	14 envisage
nsequently	15 intricate	15 irrelevance	15 futility
cellence	16 contemporary	16 supplement	16 enamoured
ungeon	17 attentively	17 inducement	17 gustatory
etained	18 compassionate	18 nonchalant	18 decipher
undant	19 complexion	19 exuberant	19 inadequacy
mpliments	20 continuously	20 grotesque	20 simultaneous

SCORE

List P	
List 1	
List 2	
List 3	
List 4	
List 5	
List 6	
List 7	
List 8	
List H. S.	

Raw Score

(Total number of correct words including the words below starting level.)

(Any specific coaching on these particular words will naturally reduce the validity of this test.)

es about 3 minutes
ive and to score.

SLOSSON ORAL READING TEST (SORT)

Keep this test in safe drawer or file.

This Oral Reading Test is to be given individually and is based on the ability to pronounce words different levels of difficulty. The words have been taken from standardized school readers and the ding Level obtained from testing represents median or standardized school achievement. A correlation .96 (variability on a group of 108 children from first grade thru high school: Gray Mean = 5.0, SORT n = 5.0, Gray S.D. = 2.0, SORT S.D. = 2.3) was obtained with the Standardized Oral Reading Paragraphs William S. Gray, published by The Bobbs-Merril Company, Inc., Indianapolis, Indiana. Permission to this test by Gray for purposes of validation is deeply appreciated.

A reliability coefficient of .99 (test-retest interval of one week) shows that this Oral Reading Test be used at frequent intervals to measure a child's progress in reading, providing no specific coaching h these particular words has been given. Such periodic testing can be highly motivating.

DIRECTIONS

Allow the child to read from one sheet while u keep score on another. At the start, say the llowing: *"I want to see how many of these words u can read. Please begin here and read each rd aloud as carefully as you can."* (Indicate at at list to start.) *"When you come to a difficult rd, do the best you can and if you can't read , say 'blank' and go on to the next one."*

Start a child with a list where you think he n pronounce all 20 words in that one list corctly. Note that each list of words is graded. st P (primer) is for the first few months of rst grade, List 1 is for the balance of first ade, List 2 is for second grade, etc. If the arting list is too difficult and the child makes en one mistake, go back until you reach an easier st where he can pronounce all 20 words correctly.

After you have found the starting list, go on to more advanced lists until you find the stopping st, where he mispronounces or is unable to read l 20 words. When you reach a point where the words come very difficult, say: *"Look quickly down this st and read the words you think you know."*

When a child reads very slowly and takes more an 5 seconds on each and every word, move him ong by saying the "blank" for him. Or call out e number of the word at a rate of about 5 seconds each. Still another plan is to use a small card or piece of paper, covering up a word after a 5 second exposure, forcing him on to the next word.

5. Count as an error each mispronounced or omitted word as well as a word which takes more than about 5 seconds to pronounce. (If a child has a speech defect such as a stutter, disregard the 5 second interval and allow as much time as necessary.) Count it an error when a child is uncertain about a word and gives more than one pronunciation, even though one of them may have been correct. Be particularly careful about scoring the word endings as they must be absolutely correct. Keep score by putting a check mark (✓) after each error or a plus sign (+) after each correct word. Enter the number of correct words at the bottom of each list as you go along. An analysis of scatter on the test, as well as an analysis of the types of errors made, will indicate areas of weakness.

6. To find a child's raw score for reading, count the total number of words he was able to pronounce correctly in all lists and add the words below the starting list for which he automatically receives credit. To obtain the Reading Level, look up the value of this raw score in Table 1 below. A simple way to determine the Reading Level is to take half the raw score. For example, if the raw score were 46, half of this number would be 23 and the Reading Level would be 2.3 or the 3rd month of 2nd grade.

TABLE I

CHANGING THE RAW SCORE TO READING LEVEL

Reading Grade Level is given in years and months. For example, 5.2 means the 2nd month of 5th grade.)

ORE	GRADE	SCORE	GRADE	SCORE	GRADE	SCORE	GRADE	SCORE	GRADE	SCORE	GRADE	SCORE	GRADE
-1	0.0	26-27	1.3	52-53	2.6	78-79	3.9	104-105	5.2	130-131	6.5	156-157	7.8
-3	0.1	28-29	1.4	54-55	2.7	80-81	4.0	106-107	5.3	132-133	6.6	158-159	7.9
-5	0.2	30-31	1.5	56-57	2.8	82-83	4.1	108-109	5.4	134-135	6.7	160-161	8.0
-7	0.3	32-33	1.6	58-59	2.9	84-85	4.2	110-111	5.5	136-137	6.8	162-163	8.1
-9	0.4	34-35	1.7	60-61	3.0	86-87	4.3	112-113	5.6	138-139	6.9	164-165	8.2
-11	0.5	36-37	1.8	62-63	3.1	88-89	4.4	114-115	5.7	140-141	7.0	166-167	8.3
-13	0.6	38-39	1.9	64-65	3.2	90-91	4.5	116-117	5.8	142-143	7.1	168-169	8.4
-15	0.7	40-41	2.0	66-67	3.3	92-93	4.6	118-119	5.9	144-145	7.2	170-171	8.5
-17	0.8	42-43	2.1	68-69	3.4	94-95	4.7	120-121	6.0	146-147	7.3	172-173	8.6
-19	0.9	44-45	2.2	70-71	3.5	96-97	4.8	122-123	6.1	148-149	7.4	174-175	8.7
-21	1.0	46-47	2.3	72-73	3.6	98-99	4.9	124-125	6.2	150-151	7.5	176-177	8.8
-23	1.1	48-49	2.4	74-75	3.7	100-101	5.0	126-127	6.3	152-153	7.6	178-179	8.9
-25	1.2	50-51	2.5	76-77	3.8	102-103	5.1	128-129	6.4	154-155	7.7	180-200	H.S.

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