

INFORMATION TO USERS

This material was produced from a microfilm copy of the original document. While the most advanced technological means to photograph and reproduce this document have been used, the quality is heavily dependent upon the quality of the original submitted.

The following explanation of techniques is provided to help you understand markings or patterns which may appear on this reproduction.

1. The sign or "target" for pages apparently lacking from the document photographed is "Missing Page(s)". If it was possible to obtain the missing page(s) or section, they are spliced into the film along with adjacent pages. This may have necessitated cutting thru an image and duplicating adjacent pages to insure you complete continuity.
2. When an image on the film is obliterated with a large round black mark, it is an indication that the photographer suspected that the copy may have moved during exposure and thus cause a blurred image. You will find a good image of the page in the adjacent frame.
3. When a map, drawing or chart, etc., was part of the material being photographed the photographer followed a definite method in "sectioning" the material. It is customary to begin photoing at the upper left hand corner of a large sheet and to continue photoing from left to right in equal sections with a small overlap. If necessary, sectioning is continued again — beginning below the first row and continuing on until complete.
4. The majority of users indicate that the textual content is of greatest value, however, a somewhat higher quality reproduction could be made from "photographs" if essential to the understanding of the dissertation. Silver prints of "photographs" may be ordered at additional charge by writing the Order Department, giving the catalog number, title, author and specific pages you wish reproduced.
5. PLEASE NOTE: Some pages may have indistinct print. Filmed as received.

Xerox University Microfilms

300 North Zeeb Road
Ann Arbor, Michigan 48106

7815365

HUTSELL, MELBA LILLY
DIFFERENCES IN PERFORMANCE ON THE TRADITIONAL
AND OBJECT FORM OF A READING READINESS TEST.

THE UNIVERSITY OF OKLAHOMA, PH.D., 1977

University
Microfilms
International

300 N. ZEEB ROAD, ANN ARBOR, MI 48106

THE UNIVERSITY OF OKLAHOMA
GRADUATE COLLEGE

DIFFERENCES IN PERFORMANCE ON THE TRADITIONAL
AND OBJECT FORM OF A READING READINESS TEST

A DISSERTATION
SUBMITTED TO THE GRADUATE FACULTY
in partial fulfillment of the requirements for the
degree of
DOCTOR OF PHILOSOPHY

BY
MELBA LILLY HUTSELL
Norman, Oklahoma
1977

DIFFERENCES IN PERFORMANCE ON THE TRADITIONAL
AND OBJECT FORM OF A READING READINESS TEST

APPROVED BY

Robert L. Curry
O. D. Piper
Mary Clare Letty
Gene Shepherd

DISSERTATION COMMITTEE

ACKNOWLEDGEMENTS

I would like to express sincere appreciation to those who assisted me in this study. I am especially grateful to Dr. Robert L. Curry, Chairman of the Committee, for his invaluable guidance, continuing encouragement, and genuine concern offered throughout the doctoral program. His generous contribution of time, his critical comments and his helpful suggestions during the preparation of this report will always be remembered and appreciated.

My gratitude is also extended to Dr. Omer Rupiper, Dr. Mary Clare Petty and Dr. Gene Shepherd for their advice and encouragement at various times during my graduate work.

The Lawton Public School District administration, faculty, students and their parents who participated in the study deserve a special acknowledgement.

Genuine appreciation is expressed to my family and friends for their loyal support, patient understanding and many acts of kindness during the years of my graduate study. I wish to dedicate this paper to them and to my husband, Dutch, who furnished the love, encouragement and support necessary for the completion of this work.

TABLE OF CONTENTS

	Page
LIST OF TABLES	v
Chapter	
I. INTRODUCTION	1
Statement of the Problem	
Purpose of the Study	
Hypotheses	
Operational Definitions	
Limitations of the Study	
Assumptions	
II. REVIEW OF RELATED LITERATURE	12
Readiness and Reading Instruction	
Predictive Effectiveness of Reading	
Readiness Tests	
Identification of Contributing Variables	
Other Predictors of Reading Performance	
Form of Test Presentation	
Summary	
III. METHOD AND PROCEDURES	42
Design of the Study	
Procedures of Subject Selection	
Instruments	
Procedures	
IV. ANALYSIS AND INTERPRETATION OF DATA	48
Analysis of Data	
Results of Data Analysis	
Summary	
V. SUMMARY, CONCLUSIONS AND RECOMMENDATIONS	63
Summary	
Conclusions	
Recommendations	
BIBLIOGRAPHY	68
APPENDICES	74

LIST OF TABLES

Table	Page
1. <u>F</u> Values for Subjects' Scores on the Individual Pencil-Paper and Object Form of the <u>Lee-Clark Reading Readiness Test</u> . . .	49
2. Conserver and Non-Conserver Observed Frequencies by Sex Within Socioeconomic Groupings	51
3. Means, Standard Deviations and <u>t</u> Values of Male Subjects' Scores on Individual Pencil-Paper and Object Form of the <u>Lee-Clark Reading Readiness Test</u>	52
4. Means, Standard Deviations and <u>t</u> Values of Female Subjects' Scores on Individual Pencil-Paper and Object Form of the <u>Lee-Clark Reading Readiness Test</u>	55
5. Means, Standard Deviations and <u>t</u> Values of Subjects' Scores for Three Socioeconomic Status Groups on Individual Pencil-Paper and Object Form of the <u>Lee-Clark Reading Readiness Test</u>	57
6. Means, Standard Deviations and <u>t</u> Values of Subjects' Scores for Both Sex Groups and Total Population on Individual Pencil-Paper and Object Form of the <u>Lee-Clark Reading Readiness Test</u>	59
7. Male and Female Conservers and Non-Conservers in Three Socioeconomic Status Levels on Six Piagetian Conservation Tasks	62

Table	Page
A. Group Pencil-Paper, Individual Pencil-Paper and Object Form Total Raw Scores from the <u>Lee-Clark Reading Readiness Test</u> for the Upper Socioeconomic Males	79
B. Group Pencil-Paper, Individual Pencil-Paper and Object Form Total Raw Scores from the <u>Lee-Clark Reading Readiness Test</u> for the Middle Socioeconomic Males	80
C. Group Pencil-Paper, Individual Pencil-Paper and Object Form Total Raw Scores from the <u>Lee-Clark Reading Readiness Test</u> for the Lower Socioeconomic Males	81
D. Group Pencil-Paper, Individual Pencil-Paper and Object Form Total Raw Scores from the <u>Lee-Clark Reading Readiness Test</u> for the Upper Socioeconomic Females	82
E. Group Pencil-Paper, Individual Pencil-Paper and Object Form Total Raw Scores from the <u>Lee-Clark Reading Readiness Test</u> for the Middle Socioeconomic Females	83
F. Group Pencil-Paper, Individual Pencil-Paper and Object Form Total Raw Scores from the <u>Lee-Clark Reading Readiness Test</u> for the Lower Socioeconomic Females	84

DIFFERENCES IN PERFORMANCE ON THE TRADITIONAL AND OBJECT FORM OF A READING READINESS TEST

CHAPTER I

INTRODUCTION

The ability to read is required for successful achievement in virtually every area of life, from meeting one's daily needs to providing a source of spiritual refreshment and enrichment of experience. It is a principal function of the schools to provide reading instruction which enables the student to gain maximum benefit from educational experiences in all areas of the curriculum. Many intellectually capable people find themselves unsuccessful and frustrated because they have not learned to read adequately. Educators have for many years placed emphasis on improving the quality of reading instruction in our elementary schools. Beginning reading instruction has received more attention during the past few years than any other portion of the school curriculum because beginning reading instruction is crucial to a successful total reading instruction program.

Heilman (1972) stated:

The readiness period is viewed as an attempt to synthesize new experiences with the previous experiences that children have had. These previous experiences, or lack of them are extremely important, since they determine to a large degree the kind and amount of experience that is needed and which the school must provide prior to formal instruction in reading. (p.111)

The lack of experiences from which concepts are formed can handicap children in learning. The belief that learning at any age is successful only when the learner is ready is consistent with many learning theories.

Thorndike theorized that new experiences must form a connecting bond with previous knowledge if learning is to occur. For Thorndike, the learner associates objects and events which occur together by contiguity, by similarity, by contrast or by frequency.

Dewey spoke of learning in terms of discovery stating that "Discovery requires a prepared mind which can rearrange and transform new evidence to reach new insights" (Holmes, 1967, p.63). In regard to relevancy, Dewey said that "A symbol which is induced from without, which has not been lead up to in preliminary activites is dead and barren." (Holmes, 1967, p.64)

In Lewin's field theory, learning is discussed in terms of one's life space, psychological set, ideas and conceptions, regions of life space which have positive and negative valences and distance of regions from the center of interest. Lewis cautions that the degree of correspondence between

life space and physical space varies from one individual to another and since there is no way of determining the content of the life space of an individual at a particular time, it is very difficult to make sound predictions about learning behavior (Bigge, 1971).

According to Piaget's (1952) views, the child's development is evolutionary, proceeding through a continuous, consistent process of generalization and differentiation. As previous behavioral patterns become inadequate, they are re-organized to incorporate organizational patterns of a new and superior level. Piaget (1952) discusses the child's awareness developing into differentiation between events, a pre-condition necessary for imitation, which in turn is necessary for oral language. From age four until about age seven, the child is pre-conceptual, developing his ability to use words to express thoughts, and to communicate with others to understand his external environment in part. The child must have experiences and thinking ability in order to organize his experiences with meaning. In the concrete operational stage, the child is concerned with studying the parts and classifying them in relation to wholes. Language that has been used as a tool of communication in the pre-operational stage becomes increasingly employed as a tool of thinking. Piaget has developed conservation tasks which give an indication of how far a child has moved into the stage of concrete operational thought.

Since perceptual organization is necessary to successful beginning reading, the Piagetian conservation tasks may be used to determine how far the child has moved into the concrete stage of thought and to indicate the extent to which the child is guided by perceptual evidence. Investigation should be made to determine whether children who are five and six years old use the additional perceptual guidance afforded by a three dimensional object reading readiness test to greater advantage than the picture symbols on a pencil-paper form of the test which has been used traditionally.

Most learning theorists agree that our experiences are organized into some pattern or form as the result of all previous learning experiences. This notion pre-supposes a set or readiness for learning. Cohen and Cooper (1972) distinguish between readiness for learning and reading readiness. They suggest that many children have not had the experiences that prepare them for a reading readiness program, therefore they propose a readiness for learning program which would teach the child self control in working with others in the classroom; teach him the essential routines of the classroom such as completing activities, developing attention span, conforming to rules and handling of school materials; prepare the child in visual, motor and auditory skills, and teach him the language and concepts necessary for reading readiness activities. The reading readiness areas they consider important to develop

are letter knowledge, visual discrimination of letters and words, an interest in printed symbols, auditory discrimination of sounds in words, developing a love of books, story sense and memory for sequence.

Current reading readiness literature is replete with calls for improved ways to determine reading readiness. Several pre-requisite skills for the reading process are measurable with existing reading readiness tests. These skills include vocabulary for reading or language maturation dealing with words, phrases and constructions as they make up sentence communication. Visual perception of letters and words, letter knowledge with essential phoneme-grapheme associations, auditory discrimination, memory for sequence, story sense and attention to the reading process are several other more important readiness skills which can be measured. Existing reading readiness tests yield information concerning student performance on specified skills if the test items measure what they are supposed to measure.

In 1973, Laird and Cangemi made an extensive review of the literature on reading readiness and found evidence that many children learn to read before they are six years old. They feel that readiness for reading in terms of age six must be re-examined in the context of today's world where four and five year olds are bombarded with engrossing words on signs, posters, labels and television. According to their findings, modern children appear more sophisticated in their language experiences than their predecessors.

Scott (1975) found that the typical child today from lower and middle socioeconomic families come to school with highly developed skills in dealing with visual stimuli, but with considerably less experience in visual-motor behaviors than did his pre-television counterpart. He suggested that vast amounts of television stimulation may produce a deficiency of sensory motor experience which is not readily assessed by readiness tests in current use.

Webb (1974) compared the effects of two different methods of presenting test materials on the Metropolitan Readiness Test scores of first grade students from three socioeconomic levels. Webb found that both sex groups in each of the three socioeconomic groups performed better on the mock-up presentation than on the traditional presentation.

Exendine (1975) found that kindergarten students consistently scored higher on a scaled three dimensional model of the Lee-Clark Reading Readiness Test than on the traditional pencil and paper form of the test. In reviewing this study, advisors from the International Reading Association suggested that the study be repeated with modification to include individual administration of both the written and object forms of the test, since different methods for administering the two forms of the test might have influenced the results. The advisors commented, "The important implication is that it would seriously question the so-called 'item-analysis' of readiness tests as a way of determining skills

and concepts possessed by young children." Further, "It could be a great breakthrough in the reliance upon standardized testing." (Appendix A)

The present study attempted to determine whether some students are being penalized for missing questions on standardized tests when it is the method of presenting testing materials which causes the error rather than the students lack of knowledge concerning the subject matter of the question. The three methods of presenting the test materials used were individual pencil-paper, group pencil-paper and object form administered individually.

Statement of the Problem

The problem was to determine whether there were statistically significant differences among the raw scores of first grade students from three socioeconomic levels and both sexes when the test items of the Lee-Clark Reading Readiness Test (1962 Revision) were presented to the students using three different methods. As a subordinate problem, the Piagetian Conservation Tasks were administered individually to determine whether statistically significant differences exist between conservers and non-conservers in each group.

Purpose of the Study

The purpose of this study was to determine whether the

students perform better when presented with scaled three dimensional objects rather than the traditional printed format. If significant differences exist among the raw scores when both the object form and the traditional pencil-paper form are administered individually, there is some question whether educators should rely upon traditional standardized readiness tests as a way of determining which skills and concepts children possess, particularly for students who could perform better on readiness materials which use less abstract symbolic materials to assess reading readiness.

Hypotheses

- Ho₁ There are no statistically significant mean differences between the upper socioeconomic status males' total raw scores on the Lee-Clark Reading Readiness Test administered individually and their total raw scores from an object form of the test.
- Ho₂ There are no statistically significant mean differences between the middle socioeconomic status males' total raw scores on the Lee-Clark Reading Readiness Test administered individually and their total raw scores from an object form of the test.
- Ho₃ There are no statistically significant mean differences between the lower socioeconomic status males' total raw scores on the Lee-Clark Reading Readiness Test administered individually and their total raw scores from an object form of the test.
- Ho₄ There are no statistically significant mean differences between the upper socioeconomic status females' total raw scores on the Lee-Clark Reading Readiness Test administered individually and their total raw scores from an object form of the test.

- Ho₅ There are no statistically significant mean differences between the middle socioeconomic status females' total raw scores on the Lee-Clark Reading Readiness Test administered individually and their total raw scores from an object form of the test.
- Ho₆ There are no statistically significant mean differences between the lower socioeconomic status females' total raw scores on the Lee-Clark Reading Readiness Test administered individually and their total raw scores from an object form of the test.
- Ho₇ There are no statistically significant mean differences between the upper socioeconomic status students' total raw scores on the Lee-Clark Reading Readiness Test administered individually and their total raw scores from an object form of the test.
- Ho₈ There are no statistically significant mean differences between the middle socioeconomic status students' total raw scores on the Lee-Clark Reading Readiness Test administered individually and their total raw scores from an object form of the test.
- Ho₉ There are no statistically significant mean differences between the lower socioeconomic status students' total raw scores on the Lee-Clark Reading Readiness Test administered individually and their total raw scores from an object form of the test.
- Ho₁₀ There are no statistically significant mean differences between the total male population's total raw scores on the Lee-Clark Reading Readiness Test administered individually and their total raw scores from an object form of the test.
- Ho₁₁ There are no statistically significant mean differences between the total female population's total raw scores on the Lee-Clark Reading Readiness Test administered individually and their total raw scores from an object form of the test.
- Ho₁₂ There are no statistically significant mean differences between the total population's

total raw scores on the Lee-Clark Reading Readiness Test administered individually and their total raw scores from an object form of the test.

Operational Definitions

Socioeconomic strata are the three socioeconomic levels or categories into which participants were placed. Upper socioeconomic strata is defined as a family unit with a calculated score between forty-five and sixty-six on the Hollingshead Four Factor Index of Social Position. Middle socioeconomic strata is defined as a family unit with a calculated score between twenty-five and forty-four on the scale. Lower socioeconomic strata is defined as a family unit with a calculated score between eight and twenty-four on the scale (Note 1).

Limitations of the Study

In order to comply with Public Law 93-380, 93rd Congress, H.R. 69, the FAMILY EDUCATIONAL RIGHTS AND PRIVACY ACT OF 1974, a parent authorization form was sent home with every first grade student attending nine Lawton public elementary schools which were considered to be representative of the district during the 1976-77 academic year. Only the children of those parents who returned the authorization form were considered for the study.

The measuring instruments were limited to the Lee-Clark Reading Readiness Test (1962 Revision), an object form of

each item of the testing instrument prepared to scale and mounted on sheets of masonite, Hollingshead's (Note 1) Four Factor Index of Social Position for determining the participants' socioeconomic status, and Shepherd's Administering the Piagetian Tasks (Note 2).

The independent variables controlled in the study were limited to the students' sex, socioeconomic level and grade level.

Assumptions

1. The test scores obtained on the Lee-Clark Reading Readiness Test are valid and reliable measurements of participating first grade students.

2. The participants were representative of a normal population of first grade students attending Lawton Public Schools.

3. Reading readiness can be measured with a standardized testing instrument.

4. The object form of the items appearing on the Lee-Clark Reading Readiness Test yields a valid and reliable measure of school readiness among first grade students.

CHAPTER II

REVIEW OF RELATED LITERATURE

Readiness and Reading Instruction

A child must be taught to read in order to live happily and intelligently in today's complex society and so that he can learn whatever the school tries to teach him through the medium of reading (Conway, 1969). It is the school's responsibility to provide experiences which enable the student to derive maximum experiences from instruction without doing injury to the child's personal view of himself as a learner. The methods used in teaching the child to read are an integral part of learning to read. These methods are an important factor in his self concept as a reader and in his perception of himself in relation to other students. There is evidence that as a result of rigid adherence to formal school curricula, standardized materials and competitive grading practices, the child's self image is diminished (Manolakes, 1972). Children entering first grade bring with them a repertory of cognitive, linguistic, auditory and visual processing skills. There are, however, individual differences

among children in these skills that will affect their ability to learn to read.

The question of how these various skills relate to the reading process has generated an enormous body of research over the past fifty years. The results of over 130 studies completed before 1950 have been summarized in one publication (Smith, 1950) and 75 studies conducted between 1933 and 1963 are summarized in another (Durrell and Murphy, 1963). Upon making a critical review of research regarding evaluation of reading readiness, MacGinitie (1969) found "...there is not a very clear understanding of the specific roles and the interaction of the various predictors." (p.396) Some of the problems encountered in researching reading readiness are that the skills themselves break into components that require different modes of assessment; that measuring the skills in their "pure" form is nearly impossible, and that there is possible discrepancy between what a skills test purports to measure and what it actually does measure. For example, McNinch (1971) used the WISC Digit Span subtest to measure auditory memory. Performance on this test involves not only memory, but also knowledge of numbers and the intelligence to discover that grouping the numbers facilitates recall. On this point, MacGinitie stressed that researchers must analyze the nature of the tasks and must not rely on the name of the test or the publisher's description of its purpose.

Predictive Effectiveness of Reading Readiness Tests

The thrust of much of the research concerning reading readiness has been to determine the effectiveness of tests to predict reading success or reading failure. In their recorded results of First Grade Studies sponsored by the United States Office of Education, Fry (1965) and Stauffer (1965) reported that the best predictors of reading achievement were tests of intelligence. Their findings supported the earlier conclusions of Durkin (1961) and Steinbeck (1953) that a high degree of relationship exists between intelligence as measured by intelligence tests and reading achievement. Burt (1965) links mental ability with the child's responses to pre-school reading opportunities, citing the eminent Francis Galton and Sir William Rowan as well as other prodigies as examples.

Akers (1969) used the Metropolitan Readiness Test, Form A, as the predictor to determine the effectiveness of readiness tests as predictors of reading achievement for a sample of 630 randomly selected kindergarten students from a large metropolitan school system. The criterion instrument, the Gates-MacGinitie Reading Test, Primary A, Form 1, was administered in the first grade. Akers found significant t values for the total sample on all subtests of the Metropolitan Readiness Test except Word Meaning, but concluded that the total test was the most efficient predictor of reading achievement in first grade for his sample.

Clutts (1969) selected the Metropolitan Readiness Test, Form A and a teacher rating scale of reading readiness which had been designed for the study for predictor variables. The subjects were 235 first grade students in Fairbanks, Alaska. The teacher rating scale was completed before the Metropolitan Readiness Test administration the third week of school. The Stanford Reading Achievement Test, Primary I, Form W, the criterion instrument, was administered at the end of the school year. To determine the predictive validity of the readiness test and scale, Pearson product-moment coefficients of correlations were computed between the predictor variables and the criterion variable. Multiple regression analysis was used to determine the relative predictive value of each of the readiness subtests and scale factors. A correlation of .74 between the Metropolitan Readiness Test and reading achievement measured by the Stanford Achievement Test was reported. The teacher rating scale had a correlation of .67. Both correlations were statistically significant. Clutts concluded that the combination of visual discrimination, desire to read, ability to attend, and auditory discrimination as measured on the teacher rating scale plus the standardized readiness measure functioned as a better predictor of reading achievement than either measure used alone.

Telegdy (1975) investigated the effectiveness of four readiness tests as predictors of first grade academic

achievement. The tests employed were: the Screening Test of Academic Readiness (STAR), the Bender Gestalt Test (BGT), the First Grade Screening Test (FGST), and the Metropolitan Readiness Test (MRT). The BGT and FGST provided a single readiness score, while the MRT and STAR provided six and eight subtest scores, respectively, plus a total readiness score. In addition to the readiness tests, two teachers were asked to rate each child. This provided a fifth predictor variable to test whether teacher evaluations of pupils in kindergarten are as good as standardized readiness test results in predicting first grade success. Two measures of academic achievement were selected to provide criterion variables due to a problem of identification of an acceptable criterion which would provide a direct measure of the predicted variable and yield correlation coefficients large enough to establish predictive validity. The tests used to assess academic achievement were: the Wide Range Achievement Test and the Gray Oral Reading Test. The four readiness tests were administered to children of both sexes at the end of their kindergarten year; all children were reassessed with the two standardized achievement tests at the end of first grade. Twenty-eight boys and twenty-eight girls attending an inner-city school and a suburban school in Windsor Separate School System provided a sample of advantaged and disadvantaged pupils from upper, middle and lower socioeconomic levels. Correlation coefficients were computed to reveal the predictive validity of each readiness test employed, then

multiple correlation coefficients were calculated to reveal whether the combination of the tests into a battery would improve their predictive power. Finally, a combination of the maximum R^2 improvement and stepwise multiple regression procedures were employed to arrive at the best subset of predictor variables. Of the five readiness measures, the MRT was the best predictor. It was found that combining all five predictors into a larger battery would not significantly improve their predictive validity. The STAR and MRT were very close in overall predictive value and were clearly superior to the BGT, FGST and teacher ratings. Teacher ratings were as accurate as the BGT and FGST. Interestingly enough, the Letters and Number subtests of the STAR were as predictive as the entire test composed of all eight subtests! The techniques of stepwise multiple regression and maximum R^2 improvement identified the STAR Letters subtest as the best single predictor while the best combination of four predictors was the BGT, MRT Alphabet, STAR Letters and HFD (Human Figure Drawing). Teacher predictions added significant predictive value when combined with standardized tests.

Telegdy's (1971) study reinforced the observations of Silberberg, Silberberg and Iverson (1972) that letter knowledge is the best single predictor of first grade achievement as measured by reading level and that training in such knowledge does not necessarily result in improved reading

ability. It appears that the basic skills required for good first grade achievement are: good visual-perceptual ability, letter or alphabet knowledge, and the ability to attend to detail or relatively high maturation level according to the findings of this research.

The Olson Reading Readiness Test, the Gates Reading Readiness Test, the Metropolitan Readiness Test, and the Wechsler Intelligence Scale for Children were selected by Johnson (1969) to determine their combined predictive validity. Different predictors were found for first and third grade children when the four predictor variables were compared with subtests Word Reading and Paragraph Meaning from the Stanford Achievement Test, the criterion variables. For the 148 subjects who completed the study, the best predictor for Word Reading and Paragraph Meaning at the first grade level was the Olson Reading Readiness Test, while the best predictor at the third grade level was the combined variable of the Metropolitan Readiness Test and the WISC. The author concluded that the classroom teacher could obtain valuable information using a general reading readiness test in combination with an intelligence test; however, more than one type of readiness test would not appear to yield additional information concerning a child's predicted reading success.

Livo (1970) employed readiness and intelligence tests with several measures of oral language behavior in a study involving sixty-three boys and ninety-three girls who were

randomly selected from thirteen classrooms in six schools. The predictor variables were scores on the Wechsler Preschool and Primary Scale of Intelligence, the Sartain Reading Readiness Test and an oral language sample. The criterion variables were scores for the Metropolitan Achievement Test, Primary Battery and its subtests, Word Knowledge, Word Discrimination, and Reading. Pearson product-moment coefficients of correlation, multiple correlation, and multiple regression statistical techniques were used. The best predictors of reading achievement were two oral language measures (quantity and tentativeness of expression) and the Sartain subtest of Word Memory. The WPPSI Vocabulary was the only predictor variable not significantly related to the Sartain total test score, while the WPPSI Sentences and Sartain Rhyming subtest were the only predictors not significantly correlated with the Reading subtest. The highest correlations ($r = .70$) were reported between the WPPSI Full Scale IQ and both Word Knowledge and Word Discrimination. Livo suggested the use of subtests as a diagnostic tool for identifying individual strengths and weaknesses.

Hopkins and Sitkei (1969) administered the Lee-Clark Reading Readiness Test (1962 Revision) and the California Test of Mental Maturity during the first three weeks of school to all entering grade one pupils in two lower middle class elementary schools. Performance on these tests were correlated with scores on the Lee-Clark Reading Test: Primer (Form A) which was administered at the end of the year, and end of

year teacher marks, using a four category scale. The predictive validity coefficients for the reading readiness test exceeded those for the intelligence test on both criteria, however the differences were not statistically significant. A multiple regression analysis using both the intelligence test score and the readiness test score as predictors yielded multiple correlations greater than the readiness test alone. The readiness test did at least as well in predicting first grade reading performance as the intelligence test, therefore the authors recommend the use of readiness tests for prediction purposes considering the factors of time, expense and difficulty of interpretation of intelligence tests.

First grade scores on the Pintner-Cunningham Intelligence Test, the Murphy-Durrell Reading Readiness Test, and the Metropolitan Readiness Test were used by Pikulski (1973) to assess their predictive efficiency for sixth grade reading and spelling achievement. The tests were administered to 232 first grade children in a Language Arts group and 201 children in the Basal Reader group. At the end of sixth grade, tests were administered to 159 children remaining in the Language Arts group and to 175 children remaining in the Basal Reader group. Scores were correlated to determine predictive values. The results indicated that scores on the early measures were better predictors of later achievement in reading than in spelling. When correlation coefficients were compared, it was found that they were significantly

better for the Language Arts group than for the Basal Reader group.

Lowell (1971) used standardized skill test scores for 209 first grade children who were tested at the beginning and end of the school year as his predictor variables to predict long-term reading performance. The criterion variable was an average grade equivalent score for the Word Recognition, Oral Reading and Silent Reading subtests of the Diagnostic Reading Scales. He concluded that only Knowledge of Alphabet Letter Names was an important predictor of success in reading. In discussing the findings, Lowell reasons that some skills may predict only early reading performance; some may emerge as predictors for later performance, and some may prove to be consistent predictors over a considerable span of time. Reading becomes a more complex process over time since it reflects the increasing complexity of language usage that accompanies learning, experience and maturation. This developmental aspect of reading may influence the predictive efficiency of reading readiness tests.

The fifty-six subjects in this followup study (Muehl, 1976) were from a group originally identified and tested by DiNello (1965). In DiNello's study, the WISC combined with the Harrison-Stroud Reading Readiness Profiles results provided a pool of nineteen different skill test instruments known to be predictors of reading achievement from previous research studies. The criterion reading test scores were

obtained from the Metropolitan Achievement Test, Primary I Battery, Form A in May of the same school year. Reading test scores were available from school testing for grades one through seven for the fifty-six subjects in the followup study. Correlations were obtained between all the H-S and WISC first grade subtest scores and reading scores in grades one through seven. In order to screen for a minimal set of predictors, a number of regression analyses were computed. It became apparent from the analyses that one set of test variables served to predict reading achievement in grades one and two, and a different set for grades three through seven. Letter Naming was a significant independent predictor at all grade levels. Using Symbols and Making Visual Discriminations predicted at grade levels one and two; the Information subtest (WISC) predicted reading all all grades except one and three; and the Arithmetic subtest (WISC) predicted reading in grades three and five. The author suggests that the early skill predictors tell us that the skills which are involved in visual discrimination and associating ideas with graphic symbols are important regarding short-term development of the reading process, while in the long-term development, information background and reasoning or problem solving ability are important. Letter naming ability appears to be a special case, apparently reflecting a maturational factor. It involves the abilities to attend, to make auditory and visual discriminations, to associate between symbols

using two senses to retain and to process language. In short, it is a kind of synopsis of the whole reading process, highly involved with intelligence. Lohnes and Gray's (1972) re-analysis of the first grade study data found that letter naming was one of the three tests most highly saturated with the "g" factor or general intellectual functioning. Muehl draws two conclusions from this study and the related research: first, to the extent that reading reflects a wide spectrum of intellectual skills, attempts to overcome individual differences through instruction will be difficult; and second, to the extent that success in learning to read reflects an underlying maturational process, we encounter another problem that cannot be easily solved through teaching.

An attempt to determine the relative effectiveness of several tests commonly administered to kindergarten children in predicting reading achievement at the second and third grade levels was made by Wood in 1970. The optimum combination of variables in the prediction of reading achievement was also determined. Classroom teachers' ratings, a self-portrait test, the Metropolitan Readiness Test, the SRA Primary Mental Abilities Test, and the author's Kindergarten Inventory were used as predictors. The second grade criterion was the Paragraph Meaning subtest of the Stanford Achievement Test; for the third grade, the Reading Comprehension subtest of the Iowa Test of Basic Skills was used.

Statistically significant correlations were reported for all predictor variables except the Kindergarten Inventory. The Metropolitan Readiness Test proved to be the best predictor of reading achievement using a step-wise multiple regression analysis.

Glazzard (1975) used a reading readiness test, a reading achievement test, and a teacher rating scale to obtain scores for eighty-seven kindergarten students in Lawrence, Kansas. The criterion was a vocabulary and comprehension score at the completion of first grade. A multiple regression equation with analysis of covariance was used to determine which composite predictor variables obtained in kindergarten correlated maximally with first grade achievement. The results indicated that the teacher rating scale was a more efficient predictor than either the reading readiness test or the reading achievement test. All three of the independent predictor variables were statistically significant. The teacher scale with the reading readiness test also proved to be significant in predicting first grade vocabulary achievement.

The population for Elijah's study (1976) consisted of 536 pupils in twenty-six Oklahoma City classrooms. The purpose of the study was threefold: to determine to what extent teacher ratings of reading readiness compare with reading readiness tests results; to determine to what extent teacher ratings of reading readiness compare with

socioeconomic status; and to determine to what extent readiness tests results compare with pupil socioeconomic status. Elijah used the Metropolitan Readiness Test Form B after teacher ranking was done in the first three weeks of the school year. He determined socioeconomic status by using Cecil North and Paul Hatt's scale to classify occupations. The results of the study indicated that there is a significant relationship between teacher ranking of reading readiness, socioeconomic status of pupil and a ranking of students' Metropolitan Readiness Test scores. There is a significant relationship between a ranking of readiness test scores and socioeconomic status, and a significant relationship between teacher rankings of readiness and pupil socioeconomic status.

Identification of Contributing Variables

Another common idea which seems to be prevalent in available literature is a concern to identify every factor indicative of success as early as possible so that these factors may be used for instructional purposes. If the teacher could recognize specific weaknesses and direct instructional procedures toward improving those areas, we would have fewer disabled readers. Austin and Coleman (1963) support early appraisal of readiness and suitable adjustment of the reading program.

Almy (1958) found in her study which explored the

possible relationships between reading experiences before the first grade and success in beginning reading that a significant positive relationship existed between success in beginning reading and the child's responses to opportunities for reading prior to entering school.

Flood (1977) investigated the relationship between parental style of reading to young children and the child's performance on selected prereading related tasks. He found that children who perform best on the prereading measure possessed general verbal ability and that this verbal ability may be the function of sources other than the reading episode between parent and child. It still appears important to Flood, however, to involve children in stories being read to them.

Brown (1977) used the Thomas-Chase-Birch Temperament Scale, the Metropolitan Readiness Test, a tabulation of family intactness and socioeconomic status to study the effectiveness of temperament, home environment characteristics and reading readiness scores as predictors of reading progress. Another study which investigates the relationships of the combined factors of family structure, socioeconomic status and pupil gender to reading readiness involved 223 kindergarten pupils from fifteen elementary schools (Bewley, 1975). Some conclusions drawn from the study were that socioeconomic status apparently affects reading readiness scores; girls can be expected to score

higher than boys; family structure alone is an inadequate predictor of reading readiness scores; and a combination of family structure, socioeconomic status and gender could be used to predict general reading readiness scores.

Binkley (1971) attempted to assess the relative importance of first grade reading readiness test scores upon fourth grade achievement and personality adjustment of the culturally deprived children from thirty-nine schools in Nashville, Tennessee. Variables at school entrance were chronological age, readiness level, sex and race. Significant findings using factor analysis techniques indicated that below average children at readiness level scored low on achievement and personality tests four years later. He recommended preschool testing of culturally deprived children with more refined instruments to determine specific needs before the child enters formal school.

Thompson (1972) asserted that opportunities have been extremely limited for the child in the low socioeconomic level. Teachers must be more sensitive to the deficits that such an environment may have imposed on children. Some of the deficits included in the report are:

...the tendency to have a poor self-concept, low aspirational levels, to be tardy and absent frequently, to be poorly oriented to school and school tasks, to display hostility toward school and school authorities, to resist or reject values which are foreign to them and which are forced on them by teachers whom they tend to distrust.

As a potential reader, the culturally different learner will come to school speaking his natural language which is not the language upon which the curriculum was constructed. (p. 58)

Deutsch (1964) felt that language inadequacy was one reason why so many of the socially disadvantaged children his researchers studied became reading failures. This research supported the findings of earlier research done by Havinghurst (1953) and McCarthy (1952). Children who come from the low socioeconomic levels frequently have not been stimulated in language development by their environment during preschool years, therefore their development is inferior to that of children from more advantaged backgrounds. Because there is a significant relationship between oral language facility and success in beginning reading which was emphasized by the classic research studies of Hildreth (1948), Robinson (1955) and Monroe (1932), these children may be severely handicapped in vocabulary development for reading.

A Duke University study (Wallach, Wallach, Dozier and Kaplan, 1977) confirmed the hypothesis that the troubles poor children frequently have with sounds stem from inadequate skill in phonemic analysis rather than from deficiencies in auditory discrimination. The researchers studied seventy-six disadvantaged and sixty middle-class kindergarten children in North Carolina and Virginia. Tasks were developed which required the children to distinguish between words differing only in single related phonemes and their

ability to analyze phonemes in words. Mann-Whitney tests indicated that the difference between the social classes is highly significant ($p < .001$) and that there were no sex or race differences within social class. The authors concluded that lack of phonemic analysis skills plays a significant role in poor children's frequent difficulties in learning to read and that early identification of children lacking these skills will enhance the likelihood that these skills will be successfully taught.

Cox (1976) studied the effect of conservation ability on reading competency, administering the standard Piagetian conservation tasks of number, area, weight, mass, volume and length to forty matched pairs of children ages seven to twelve. They were matched by age, sex, IQ and socioeconomic level. The Pearson product-moment correlation coefficient indicated that the ability to conserve appears to be unrelated to intelligence, however the correlation between age and ability to conserve for the children in the reading group and for the classroom group was statistically significant. Mean scores for the supplementary reading group was lower than for the classroom group, as might be predicted. There was a greater variation of scores within the supplementary group than within the classroom group. Cox called for a longitudinal study to determine whether conservation at first grade level can predict reading skills at the second grade level.

Roberts (1975) examined the actions which children are expected to perform in the early stages of reading, analysis and synthesis, within the modalities of sound alone and sound with sight. The performance of forty five and six year old children was assessed using four different tasks of analysis or synthesis. Purely auditory synthesis was found to be considerably easier than any other skill, while analysis involving both sound and sight was by far the most difficult. Analysis of variance was used to analyze the data. Significant differences were found between the mean scores of boys and girls. Roberts feels that more concern should be given to blending and analytic ability since the results of the study suggest that English children, especially boys, have a special difficulty in acquiring skills of analysis and synthesis. American, French and Soviet children also lack auditory blending skills which can be taught, according to the research of Chall, Roswell and Blumenthal (1963), Le-Roy Boussion (1963) and Elkonin (1971) respectively.

Other Predictors of Reading Performance

A significant portion of the literature concerning the prediction of reading achievement identifies measures other than reading readiness tests as assessments. One such study was conducted to determine if a listening comprehension test was as valid as a reading readiness test, a visual

motor rest, a group intelligence test, or an individual intelligence test in measuring the reading readiness of first grade pupils. Statistical analysis was also made to determine if a combination of two or more of these tests would yield a significantly higher correlation with reading achievement scores than any one test taken individually would yield (Kreamer, 1973). During the first two weeks of school, fifty-two first grade children were administered the Metro-politan Reading Readiness Test, the Stanford-Binet Intelligence Test, the Bender Visual Motor Gestalt Test and the Durrell Listening-Reading Test. In the last week of April, all students were tested with the Gates-MacGinitie Reading Test. The results indicated that the listening comprehension test can be used in predicting first grade reading achievement as well as the other tests used in the study. No one predictor was found to be significantly better than any other as a predictor of success on vocabulary.

Ferguson (1975) investigated the predictive validity of a pictograph Symbols test developed for children from disadvantaged homes for prereading skills. The Symbols test was developed by the Department of Education of the University College of Swansea. The Burt Rearranged Graded Word Reading List was used as the criterion variable for a multiple regression analysis in which scores from the fourteen developmental tests named below were the predictors. The developmental tests were: Berko's Structure of Language

test, an information test, the English Picture Vocabulary Test, a short-term memory task, a test of knowledge of right and left, Harris' Draw a Man Test, a specifically devised Piagetian numeracy test, a block design test, a copy-forms task, some motor skills tasks and a specifically devised group test of visual perception. The Symbols test and Write-a-Name measure proved to be at least as good predictors of later reading ability as any combination of measures of language skills and developmental maturity. The author stated that there is sufficient evidence to support the use of pictographs and ideographs by nursery and infant teachers for the assessment and teaching of prereading skills.

Thomas and Chissom (1974) used data on two perceptual-motor variables and one academic measure collected for kindergarten children to predict their first grade academic performance. Twenty-eight children were administered the predictor tests, the Frostig Developmental Test of Visual Perception, Shape-O-Ball Test and Composite Teacher Rating. The Metropolitan Readiness Test was administered one year after the kindergarten data were collected and the CTR was used again at the same time. The means, standard deviations and reliabilities were reported as well as correlations between all possible pairs of the tests and subtests. A t test was used to test the differences between the correlations of two measures with the same criterion. The only significant predictor of the MRT total score was the

kindergarten CTR. In an effort to understand why the significant relationships between the perceptual-motor and academic areas obtained in kindergarten in a previous study were not sustained over a period of a year, further analysis was undertaken. Children in the lower two quartiles in kindergarten tended to be spread across all four quartiles in grade one. The authors feel the failure of the perceptual-motor measures to predict academic performance over time may be due to maturation, environmental influences or subject mortality resulting in a biased sample. They conclude that further research is needed in order to determine what changes in academic performances occur to cause the predictive failure of perceptual-motor measures.

The study of Whiton, Singer and Cook (1975) was designed to investigate the relative importance of intra-sensory and cross-sensory integration skills for the acquisition of reading using sixty-four white, middle class boys attending first grade in three private schools in New York City. Stimuli for the sensory integration tasks were presented both sequentially and simultaneously so that the effect of timing of presentation upon the difficulty level of the tasks could be studied. The Primary Reading Profiles, Level I was used as a measure of initial reading skills. The Primary Reading Profile was administered to the subjects six weeks later. Analysis of variance and a step-wise regression analysis was undertaken. Significant differences

were found between cross and intra-sensory tasks for the Word Attack subtest and the Total Reading Score. For each reading subtest, an audiovisual cross-sensory task emerged as the best and most significant single predictor. A longitudinal study of the predictive value of sensory integration skills for reading achievement is called for, since it could show that children with poor audiovisual skills in first grade remain poor readers in subsequent grades.

Roberts (1976) reviewed the literature concerning Piaget's theory of conservation and reading readiness and determined that the child's ability to conserve should be developed before reading instruction begins. The author's interpretation of the literature and research is that this ability can be taught, and that since instruction presented before a child has acquired the developmental competencies is useless, we should begin the teaching of reading by focusing on concrete object words and progress to abstract words as the child's developmental capacities increase.

Brekke and Williams (1975) while studying the prediction of reading achievement found that neither conservation nor intelligence made any statistically significant independent contribution to the prediction of reading measures when group paper-pencil readiness tests were administered at the same time as the conservation tasks. During the first month of the school year, each child was administered the Gates-MacGinitie Reading Tests, Readiness Skills, the SRA Primary

Mental Abilities Test, Grades K-1, and five tasks of conservation of number and substance. At the end of the school year, the Gates-MacGinitie Reading Tests, Primary A were administered. Only the conservation procedures were given individually. The results of statistical analysis indicated the variables are significantly intercorrelated except conservation and vocabulary. Because the conservation measures and measures of intelligence and reading readiness were taken at the beginning of the school year, they were used by the authors as predictors of reading achievement. Both conservation and intelligence were significant predictors of the measures of reading achievement, but neither variable made a significant independent contribution when one of the two variables is paired with the reading readiness measure. Conservation and intelligence together were significantly related to vocabulary and comprehension; however, the reading readiness variable still made a significant independent contribution to both reading test variables, as might be assumed. With reading readiness partialled out, conservation correlated $-.048$ with reading readiness and $.037$ with comprehension. None of the partial correlations were significant.

The relationship between level of cognitive functioning at the beginning of first grade and level of reading at the end of first grade was investigated in a sample of 325 children by Borucki in 1976. The materials used were the EITS Concept Assessment Kit. Conservation was used to

classify the children as being at the pre-conceptual, intuitive or concrete operational stage of cognitive development. Achievement at the end of first grade was assessed using the Stanford Achievement Test, Reading Tests. Borucki's analysis of results indicated a significant main effect for cognitive level for Vocabulary and for Word Reading. There was a significant sex-by-level interaction for Reading Comprehension. Significant differences existed in achievement, favoring the girls in the sample for Word Reading, Reading Comprehension, Word Study Skills and Total Reading.

Form of Test Presentation

The limitations of reading readiness tests as predictors has been reported in much of the research previously cited; however, research which challenges the form of presentation is limited. Webb (1974) compared the effect of two different methods of presenting the test materials on the Metropolitan Readiness Test scores of first grade students from three socioeconomic levels. It was found that both sex groups in each of the three socioeconomic groups performed better on the mock-up presentation than on the traditional presentation.

Exendine (1975) found that kindergarten students consistently scored higher on a scaled three dimensional model of the Lee-Clark Reading Readiness Test than on the

traditional pencil and paper form of the test. The student's t test, a z test, and a Pearson's product-moment correlation were used to test the hypotheses. A summary of the comparisons made between the paper-pencil total scores and the object-form scores recorded for each socioeconomic group showed that the greatest differences resulting from the object-form presentations were experienced by the lower socioeconomic group; however, the differences between the tests experienced by all three socioeconomic groups' total scores were statistically significant.

Gray and Guthrie (1975) studies the effect of variation of the Metropolitan Reading Readiness Test upon scores of culturally disadvantaged children. They modified nine items in the Word Meaning subtest by renaming objects to coincide with the language of the students in the sample of 180 first grade students. Two modified test scores were compared with initial scores on the MRRT. Scores were significantly higher for the culturally modified test.

A study involving ninety first grade boys from a suburban middle-class elementary school to determine if reflective and impulsive first grade boys performed differently on certain aspects of reading readiness, as measured on a standardized readiness test, was conducted by Shapiro (1976). The children were classified as impulsive or were determined to have a reflective conceptual tempo using the Matching Familiar Figures Test to determine their response style.

The criterion instrument was the Gates-MacGinitie Readiness Skills Test. A one way multivariate ANOVA was performed, followed by subsequent univariate F-tests on each subtest. The results indicated that the reflective subjects' scores were significantly higher than the impulsive subjects' on the subtests of Listening Comprehension, Visual Discrimination, Following Directions, Letter Recognition, Visual-Motor Coordination, and Word Recognition. On the subtest of Auditory Discrimination, and on the Auditory Blending subtest, there were no significant differences in performance. On the subtests which presented at least three alternative solutions, the reflective subjects had significantly superior scores. Shapiro's findings indicate that it is the nature of the presentation of the tasks which influences performance of the subjects and not the tasks themselves. The use of reading readiness and beginning reading materials which contain problems unrelated to the subjects' previous experiences are improper for the learning needs and responding behavior of these children.

Summary

A review of the literature reveals that it is possible to identify some children who are likely to have difficulty when presented with formal reading instruction while they are in the prereading stage. The idea that early identification

of these children will enable the instruction to be altered to prevent failure is implied in the research.

Numerous investigations have been undertaken to identify those factors which contribute significantly to reading success; many have been involved with identification of factors contributing to readiness and to reading readiness. In attempting to identify these factors, researchers have tested skills; however, there are inherent problems in attempting to measure specific skills because of their complex nature and because of inadequate testing devices. The purpose underlying much of this research is the development of a diagnostic tool for identifying individual strengths and weaknesses. The results of several studies indicated that Letter Naming was a significant independent predictor at all levels, since it involves abilities which are developmental in nature and highly saturated with intellectual functioning.

Several studies have been completed which identify the importance of experiential background, socioeconomic status, learning and responding style, gender and physiological factors as related to success in reading. Girls can be expected to score higher than boys on reading readiness tests. Children from low socioeconomic level homes tend to score low on readiness tests and to progress more slowly than their classmates from more advantaged backgrounds because their oral language facility has not been stimulated

or developed by their pre-school environment. Children with impulsive responding tempo tend to make more errors on test materials having three or more alternative solutions than do reflective students. It appears that the nature of the presentation of testing materials influences the performance of the subjects and may cause the children to fail tasks that they are capable of completing successfully.

The bulk of the research concerning reading readiness has been to determine the effectiveness of tests to predict reading success or reading failure. Reading readiness tests have not been found to be adequate predictors of later reading achievement, therefore other predictors of reading achievement have been researched. The theory that reading becomes a more complex process over time since it reflects the spiraling complexity of language usage which accompanies maturation, experience and learning has been offered as an explanation for the failure of readiness measures to predict long term academic progress. Authorities in the field have suggested that tests should not be used as much to predict as to diagnose what the child is ready to learn. A general conclusion is that more refined instruments are needed to determine specific instructional needs of the students.

Investigations concerning intelligence and achievement in reading revealed conflicting evidence. It might be stated that the achievement of an individual cannot be accurately predicted from a measure of his intelligence alone, however

there is a close relationship between the intelligence of a child and his success in learning to read.

The limited research which challenges the form of presentation of testing materials indicated that often it is the nature of the presentation of the tasks which causes the students to fail and not the lack of knowledge concerning the subject matter being tested.

There is a common thread running through the reading research which has been reviewed in this study. That is, there is a general concern to identify students who are potential reading failures as early as possible so that instructional procedures and materials can be adapted to provide successful learning experiences for these children.

CHAPTER III

METHOD AND PROCEDURES

Design of the Study

The first grade students attending nine elementary schools representative of the Lawton Public School District were classified into three socioeconomic strata groups using Hollingshead's (Note 1) Four Factor Index of Social Position and randomly selected for participation in this study. From the three hundred thirty-five properly completed parental consent forms which were returned, a total of two hundred ten students participated in the research study. Thirty-five boys and thirty-five girls were randomly selected in each of the lower, middle and upper socioeconomic strata groups. The Lee-Clark Reading Readiness Test was presented alternately using three methods of presentation by trained test administrators. Twelve hypotheses were tested using the data collected from the total raw scores. The purpose of this study was to determine whether first grade students from three socioeconomic levels performed differently when test items were presented using three different methods.

Procedures of Subject Selection

The first grade student attending the nine schools selected by the district were given a parental consent form (Appendix B) which parents completed and returned to the school. From the forms returned approved by parental signature, 335 students were eligible to participate in the study. Seventeen children were eliminated because they were repeating first grade, leaving a total of 318 students who were tested.

Parents provided information concerning parental education necessary for determining socioeconomic status using Hollingshead's Four Factor Index of Social Position (Note 1) on the Parental Consent Form. The school enrollment cards on each of the children were checked for parental occupational information necessary to determine socioeconomic status. Classification into three socioeconomic groups was based on computed scores ranging from 24 to 8 as low social strata; from 44 to 25 as middle social strata and from 66 to 45 as upper social strata. The 318 participants in the study were then classified according to sex within the socioeconomic strata. This classification yielded 48 female and 47 male children who were classified as low socioeconomic strata; 49 female and 75 male children who were classified as middle socioeconomic strata; and 58 female and 41 male children who were classified as upper socioeconomic strata. The children within each of the socioeconomic groups were then

assigned sequential numbers which identified their total raw scores and conservation tasks interpretation. Six students did not complete all four projects; therefore, they were eliminated from further consideration. A table of random numbers was used to select the 210 subjects whose total raw scores would provide the data used to test the twelve hypotheses stated for this study.

Instruments

The Four Factor Index of Social Position by Hollingshead (Note 1) is premised upon four basic assumptions: (1) a status structure exists in our society; (2) positions in this structure are determined primarily by occupation and education; (3) occupation and education may be scaled and combined so that a researcher can reliably and meaningfully estimate the social status of individuals and members of nuclear families in our society; and (4) the status structure may be divided into meaningful strata. The nine step scale for occupational groups is correlated highly with the prestige scores for occupations developed by the National Opinion Research Center ($r = .927$). The hierarchy ranges from low evaluation of unskilled physical labor toward the more prestigious occupations of higher executives, proprietors of large businesses and major professionals. The seven step educational scale ranges from less than seventh grade to graduate professional training with a graduate

degree. Two additional items of importance are sex and marital status. The index of social position score for the one-spouse-gainfully-employed type of nuclear family is calculated on the basis of the employed member's education and occupation. When both spouses are gainfully employed, the education and occupation scores for the husband and wife are summed and divided by two. When the head of the household has never been married, or is divorced and employed full time, the occupation and education of the head of the household is used to calculate the status score. When a separated or divorced person is receiving support payments, but is not employed, the score is calculated from the education and occupation of the supporting spouse. The status score is calculated by multiplying the scale value for occupation by a weight of five (5) and the scale value for education by a weight of three (3). Computed scores range from a high of 66 to a low of 8, and have been divided into groups of scores for this study.

The Lee-Clark Reading Readiness Test, Kindergarten and Grade 1, (1962 Revision) which has been chosen to determine the participants' readiness scores yields measures on four subtests and a total raw score. A split-half reliability, corrected for attenuation by the Spearman-Brown formula ranges from .83 to .94 on the subtests with a correlation of .92 for the entire test. The validity of the test has been reported against a criterion of success at the end of the

first year and on the 1962 edition, a correlation of .88 was obtained (Buros, 1972).

Object forms of each test item were prepared to scale (Exendine, 1975). The letters and figures of the eight-page readiness test were placed on sheets of masonite twenty-two inches by thirty-three inches. The color of the background and the object is as near as possible to the appearance of the items in the paper form of the test. The reliability of the object form of the test was .57 (Exendine, 1975).

The Piagetian Conservation Tasks were used to assess the ability of children to conserve number, liquid, solid, area, length, and weight. The procedures followed were outlined by Shepherd (Note 2).

Procedures

The Lee-Clark Reading Readiness Test (1962 Revision) was presented to the 318 students by professionals who had attended a pre-test training session to insure uniformity of administration. The timing and directions for administration of the test were closely adhered to in all three methods of administration. The tests were presented alternately: one-third of each class beginning with the group pencil-paper test; one-third beginning with the individual pencil-paper test; and one-third beginning with the object form of the test which is administered individually. The order of

presentation of the three forms was rotated to control for test-retest practice effects and other extraneous variables such as fatigue or boredom with the tests. No attempt was made to control either the socioeconomic or sex variable in determining the order of test presentation.

Six Piagetian Conservation Tasks were administered before, after and alternately with the Lee-Clark Reading Readiness Tests by professionals who were trained in the administration of the conservation tasks.

CHAPTER IV

ANALYSIS AND INTERPRETATION OF DATA

Analysis of Data

The statistical analyses were performed on the raw scores (Appendix C) from the two administrations of the Lee-Clark Reading Readiness Test. To insure against biased data, the group pencil-paper mean and standard deviation and the individual pencil-paper mean and standard deviation for the total sample were computed. The results yielded a mean of 53.84 and standard deviation of 8.37 for the group test presentation; the results obtained for the individual test presentation were a mean of 54.93 and standard deviation of 7.61. The t value obtained ($t = 1.39$) was not statistically significant at the .05 confidence level and was interpreted to mean that no significant differences existed between the group presentation raw scores and the individual presentation raw scores. On this basis, the group scores were eliminated and further treatment of the data was based on the individual pencil-paper scores and on the individually administered object form scores.

Table 1

F Values for Subjects' Scores on the Individual Pencil-Paper
and Object Form of the Lee-Clark Reading Readiness Test

Groups	Number of Subjects	Individual Pencil-Paper		Object Form		* <u>F</u> Value
		S. D.	Variance	S. D.	Variance	
Males						
Upper SES	35	2.42	5.86	3.04	9.24	1.58
Middle SES	35	6.91	47.75	5.40	29.16	1.64
Lower SES	35	5.81	33.76	6.36	40.45	1.20
Females						
Upper SES	35	2.90	8.41	3.68	13.54	1.61
Middle SES	35	4.11	16.89	4.69	22.00	1.30
Lower SES	35	8.75	75.56	8.69	75.52	1.01
SES						
Upper	70	2.64	6.97	3.35	11.22	1.61
Middle	70	5.66	32.04	5.02	25.20	1.27
Lower	70	7.37	54.32	7.56	57.15	1.05
Total						
Males	105	5.34	28.52	5.08	25.81	1.11
Females	105	5.78	33.41	6.03	36.36	1.09
Subjects	210	5.55	30.80	5.56	30.91	1.00

* No significant F values obtained at the .05 alpha level

The next step in analysis of the data was to compute the descriptive statistics for each of the groups and for the combined groups necessary to answer the proposed hypotheses. The mean, standard deviation and variance were computed for the male and female groups in their respective socioeconomic stratum, for each socioeconomic strata, for the total male population, for the total female population and for the total population sample.

The .05 level of significance was adopted for rejection of the null hypothesis. The sample variances were tested for significant differences using the F -test. This procedure was necessary in order to determine whether to use the t test for equal variances or t test for unequal variances. In this study, the critical value of F at the .05 level of significance is 1.84 (Gellman, 1973). Since all of the calculated F values were less than this critical value (Table 1), it was concluded that population variances were not significantly different and that the t test for equal variances would be used to test the twelve null hypotheses which were stated before collection of the data.

In order to find a solution to the subordinate problem, to determine whether statistically significant differences exist between conservers and non-conservers in each grouping, the chi-square test of significance was the statistical technique selected to analyze the data concerning the Piagetian Conservation Tasks; however, there was an inadequate number

of conservers in each cell to justify the application of the chi-square statistical technique in a meaningful way (Isaac, 1975), therefore only the descriptive data regarding the number of conservers and non-conservers were reported (Table 2). Children who were able to conserve on four or more of the tasks were considered to be conservers; those who were able to conserve on less than four of the tasks were classified as non-conservers.

Table 2

Conserver and Non-Conserver Observed Frequencies
by Sex Within Socioeconomic Groupings

	Upper SES		Middle SES		Lower SES	
	Male	Female	Male	Female	Male	Female
Conservers	4	1	3	0	4	2
Non-Conservers	31	34	32	35	31	33

Results of Data Analysis

To determine significant differences, twelve t tests were computed between the grouped cell means in two samples of equal size. A t value of 2.00 is necessary to reject the null hypothesis at the .05 alpha level with 68 degrees of freedom; and a t value of 1.96 is required to reject the

null hypothesis at the .05 alpha level with over 120 degrees of freedom (Gellman, 1973).

Hypothesis 1 stated that no statistically significant

Table 3

Means, Standard Deviations and t Values of Male Subjects' Scores on Individual Pencil-Paper and Object Form of the Lee-Clark Reading Readiness Test

Groups	Number of Subjects	Lee-Clark Readiness Test				<u>*t</u> Value
		Individual		Object Form		
		Mean	S.D.	Mean	S.D.	
Upper SES	35	59.74	2.42	58.43	3.04	1.98
Middle SES	35	55.11	6.91	54.09	5.40	.69
Lower SES	35	52.60	5.80	51.91	6.36	.48

* No significant values obtained at .05 alpha level

mean differences exist between the upper socioeconomic status males' total raw scores on the Lee-Clark Reading Readiness Test administered individually and their total raw scores from an object form of the test. Treatment of the data yielded a t value of 1.99, $p > .05$ (Table 3). This hypothesis was accepted and interpreted to mean that no significant differences exist between the total raw score mean for individual pencil-paper presentation and the object form total raw score mean of upper socioeconomic status males.

Hypothesis 2 stated that no statistically significant mean differences exist between the middle socioeconomic status males' total raw scores on the Lee-Clark Reading Readiness Test administered individually and their total raw scores from an object form of the test. A t value of .69 was obtained. Hypothesis 2 was accepted and interpreted to mean that no significant differences exist between the total raw score mean for individual pencil-paper presentation and the object form total raw score mean of middle socioeconomic status males. Though not statistically significant, the scores were slightly higher for the individually administered pencil-paper form of the test.

Hypothesis 3 stated that no statistically significant mean differences exist between the lower socioeconomic status males' total raw scores on the Lee-Clark Reading Readiness Test administered individually and their total raw scores from an object form of the test. Treatment of the

data yielded a t value of .48 (Table 3). This hypothesis was accepted and interpreted to mean that no significant differences exist between the total raw score mean for individual pencil-paper presentation and object form total raw score mean of lower socioeconomic status males.

Hypotheses 4 stated that no statistically significant mean differences exist between the upper socioeconomic status females' total raw scores on the Lee-Clark Reading Readiness Test administered individually and their total raw scores from an object form of the test. Treatment of the data yielded a t value of .58, $p > .05$ (Table 4). Since this value is not statistically significant, the hypothesis was accepted and interpreted to mean that no significant differences exist between the total raw score mean for the individual pencil-paper presentation and the object form total raw score mean of upper socioeconomic status females. Though not statistically significant, the scores were slightly higher for the individually administered pencil-paper version of the test.

Hypothesis 5 stated that no statistically significant mean differences exist between the middle socioeconomic status females' total raw scores on the Lee-Clark Reading Readiness Test administered individually and their total raw scores from an object form of the test. The treatment of the data yielded a t value of 1.50, $p > .05$ (Table 4). Since this value is not statistically significant, the hypothesis was

accepted and interpreted to mean that no significant differences exist between the total raw score mean for individual presentation of pencil-paper version and the object form total raw score mean for middle socioeconomic status females.

Table 4

Means, Standard Deviations and t Values of Female Subjects' Scores on Individual Pencil-Paper and Object Form of the Lee-Clark Reading Readiness Test

Groups	Number of Subjects	Lee-Clark Readiness Test				* <u>t</u> Value
		Individual		Object Form		
		Mean	S.D.	Mean	S.D.	
Upper SES	35	58.89	2.90	58.43	3.68	.58
Middle SES	35	56.03	4.11	54.46	4.69	1.50
Lower SES	35	49.17	8.75	48.94	8.69	.11

* No significant values obtained at .05 level

Though not statistically significant, the scores were slightly higher for the individually administered pencil-paper version of the test.

Hypothesis 6 stated that no statistically significant mean differences exist between the lower socioeconomic status females' total raw scores on the Lee-Clark Reading Readiness Test administered individually and their total raw scores from an object form of the test. A t value of .11, $p > .05$

was obtained. Since this value is not statistically significant, the hypothesis was accepted and interpreted to mean that no significant differences exist between the total raw score mean for individual pencil-paper presentation and object form total raw score mean of lower socioeconomic status females (Table 4). Though not statistically significant, the scores for the individually administered pencil-paper version of the test were slightly higher than scores for the object form.

Hypothesis 7 stated that no statistically significant mean differences exist between the upper socioeconomic status students' total raw scores on the Lee-Clark Reading Readiness Test administered individually and their total raw scores from an object form of the test. The treatment of the data yielded a t value of 1.73, $p > .05$ (Table 5). Since this value is not statistically significant, the hypothesis was accepted and interpreted to mean that no significant differences exist between the total raw score mean for individual presentation and object form total raw score mean of upper socioeconomic status students. Though not statistically significant, the scores were higher for the individually administered pencil-paper version of the test.

Hypothesis 8 stated that no statistically significant mean differences exist between the middle socioeconomic students' total raw scores on the Lee-Clark Reading Readiness Test administered individually and their total raw scores

from an object form of the test. Treatment of the data yielded a t value of 1.53, $p > .05$ (Table 5). Since this value is not statistically significant, the hypothesis was accepted and interpreted to mean that no significant differences exist between the total raw score mean for individual pencil-paper presentation and object form total raw score mean for the middle socioeconomic students. Though not statistically significant, the scores were slightly higher for the individually administered pencil-paper version of the test.

Table 5

Means, Standard Deviations and t Values of Subjects' Scores for Three Socioeconomic Status Groups on Individual Pencil-Paper and Object Form of the Lee-Clark Reading Readiness Test

Groups	Number of Subjects	Lee-Clark Readiness Test				* <u>t</u> Value
		Individual		Object Form		
		Mean	S.D.	Mean	S.D.	
Total Upper SES	70	59.31	2.64	58.43	3.35	1.73
Total Middle SES	70	55.57	5.66	54.18	5.02	1.53
Total Lower SES	70	50.89	7.37	50.42	7.56	.37

*No significant values obtained at .05 level

Hypothesis 9 stated that no statistically significant mean differences exist between the lower socioeconomic status students' total raw scores on the Lee-Clark Reading Readiness Test administered individually and their total raw scores from an object form of the test. The treatment of the data yielded a t value of .37, $p > .05$ (Table 5). Since this value is not statistically significant, the hypothesis was accepted and interpreted to mean that no significant differences exist between the total raw score mean for the individual pencil-paper presentation and the object form total raw score mean of lower socioeconomic students. The scores were slightly higher for the individually administered pencil-paper version of the test, although not significantly higher.

Hypothesis 10 stated that no statistically significant mean differences exist between total male population's total raw scores on the Lee-Clark Reading Readiness Test administered individually and their total raw scores from an object form of the test. A t value of 1.39, $p > .05$ (Table 6). This hypothesis was accepted and interpreted to mean that no significant differences exist between the total raw score mean for individual pencil-paper presentation and the object form total raw score mean of the total male population. The scores were slightly higher for the individually administered pencil-paper form of the test; however, they were not statistically significant.

Table 6

Means, Standard Deviations and t Values of Subjects' Scores for Both Sex Groups and Total Population on Individual Pencil-Paper and Object Form of the Lee-Clark Reading Readiness Test

Groups	Number of Subjects	Lee-Clark Readiness Test				* <u>t</u> Value
		Individual		Object Form		
		Mean	S.D.	Mean	S.D.	
Total Male Subjects	105	55.81	5.43	54.81	5.08	1.39
Total Female Subjects	105	54.70	5.78	53.89	6.03	1.00
Total Sample Subjects	210	55.19	5.55	54.36	5.56	1.53

*No significant values obtained at .05 level

Hypothesis 11 stated that no statistically significant mean differences exist between the total female population's total raw scores on the Lee-Clark Reading Readiness Test administered individually and their total raw scores from an object form of the test. The treatment of the data yielded a t value of 1.00, $p > .05$ (Table 6). Since this value is not statistically significant, the hypothesis was accepted and interpreted to mean that no significant differences exist between the total raw score mean for the individual pencil-paper presentation and the object form total raw score mean of the female population. Though not statistically

significant, the scores were higher for the individually administered pencil-paper version of the test than for the object form of the test.

Hypothesis 12 stated that no statistically significant mean differences exist between the total population's total raw scores on the Lee-Clark Reading Readiness Test administered individually and their total raw scores from an object form of the test. Treatment of the data yielded a t value of 1.53, $p > .05$ (Table 6). This value is not statistically significant, therefore the hypothesis was accepted and interpreted to mean that no significant differences exist between the total raw score mean for the individual pencil-paper presentation and the object form total raw score mean of the sample population. Though not statistically significant, the scores were slightly higher for the individually administered pencil-paper version of the test.

Summary

The results of statistical analysis presented in Table 3 indicate that males in all socioeconomic levels performed slightly better on the individually administered pencil-paper form of the test than on the object form. The observed differences in the data were not statistically significant, however, and may be attributed to chance.

The results of statistical analysis presented in Table 4 indicate that females in all socioeconomic levels

performed slightly better on the individually administered pencil-paper form of the test than on the object form. The observed differences in the data were not statistically significant, however, and may be attributed to chance.

The results of statistical analysis presented in Table 5 indicate that students in all socioeconomic levels performed slightly better on the individually administered pencil-paper form of the test than on the object form. The observed differences in the data were not statistically significant and may be attributed to chance.

The results of statistical analysis presented in Table 6 indicate that the total male sample, the total female sample and the total sample population performed slightly better on the individually administered pencil-paper form of the test than on the object form. The observed differences in the data were not statistically significant and may be attributed to chance.

There were eleven males who conserved when presented with the Piagetian Conservation Tasks. Four upper SES subjects, three middle SES subjects and four lower SES subjects were classified as conservers. Only three females could be classified as conservers, one upper SES, and two lower SES (Table 7).

Observed data indicated that more boys conserve than do girls and that there were more upper SES and lower SES

conservers than middle SES. However, whatever differences appear to exist in the data, they are probably due to chance.

Table 7

Male and Female Conservers and Non-Conservers
in Three Socioeconomic Status Levels on
Six Piagetian Conservation Tasks

	Upper SES		Middle SES		Lower SES	
	C	NC	C	NC	C	NC
Males	4	31	3	32	4	31
Females	1	34	0	35	2	33

CHAPTER V

SUMMARY, CONCLUSIONS AND RECOMMENDATIONS

Summary

The purpose of this study was to assess the level of individual pupil reading readiness using object forms and pencil-paper tests to determine if some children are limited in answering questions on tests by the format of presentation rather than by the lack of knowledge of the correct answer. The problem was to determine if there were significant differences between the performance of first grade students from different socioeconomic levels and sexes on the Lee-Clark Reading Readiness Test (1962 Revision) administered individually and an object form of the identical test material. The first grade students enrolled in nine elementary schools of the Lawton Public Schools system were classified into groups according to their socioeconomic status as determined by Hollingshead's Four-Factor Index of Social Position. Samples of one hundred five males (N=105) and one hundred five females (N=105) were tested using the Lee-Clark Reading Readiness Test (1962 Revision) administered individually and an

object form of the test. Samples of thirty-five boys (N=35) and thirty-five girls (N=35) were randomly drawn from each of the three socioeconomic groups. Test items were alternately presented to the groups by trained test administrators using the individually administered pencil-paper and object form test materials.

Primary comparisons were made by determining the differences among the total scores from the individual pencil-paper presentation and the total scores from the object form presentation. The results of testing the hypotheses regarding the scores of both sex groups indicated that both boys and girls at each socioeconomic level performed slightly better on the pencil-paper version of the Lee-Clark Reading Readiness Test when it is administered individually than on the object form of the test materials. Each socioeconomic group performed slightly better on the pencil-paper version of the test when individually administered than on the object form of the test materials. Though slight gains were shown from the object form presentation of the materials to the individual pencil-paper presentation, it was determined that no significant differences exist between the performance of first grade students from different socioeconomic levels on the individual administration of the Lee-Clark Reading Readiness Test and an object form of the identical test materials. Each sex group performed slightly better on the pencil-paper version of the test when individually

administered than on the object form of the test materials. Though slight gains were shown from the object form presentation of the test to the individual pencil-paper version, it was determined that no significant differences exist between the performance of first grade boys and girls on the individual administration of the Lee-Clark Reading Readiness Test and an object form of the identical test materials.

Conclusions

From the results of the analysis of the data, several conclusions were reached. (1) The student population did not perform at a significantly higher level on the individual pencil-paper version of the Lee-Clark Reading Readiness Test than on the group version of the test. (2) None of the three socioeconomic status male groups performed at a significantly higher level on the individual pencil-paper version of the Lee-Clark Reading Readiness Test than on the object form of the test. (3) None of the three socioeconomic status female groups performed at a significantly higher level on the individual pencil-paper version of the test than on the object form of the Lee-Clark Reading Readiness Test. (4) None of the three socioeconomic groups of students performed at a significantly higher level on the individual pencil-paper version of the Lee-Clark Reading Readiness Test than on the object form of the test. (5) There was no significant difference in performance of the total

male, female and student populations on the individual pencil-paper version of the test than on the object form of the Lee-Clark Reading Readiness Test. (6) Since the number of conservers was so small, the differences which appear to exist between the number of male and female conservers can be attributed to chance.

Recommendations

Several recommendations evolved from this research. Similar studies should be conducted with additional variables controlled, specifically the socioeconomic and sex variables when determining the order of test presentation. Since there is a difference in the results of this study and earlier similar studies additional research should be conducted. Investigators in future studies should omit the group administration of the test since no significant differences existed between the group presentation raw scores and the individual presentation raw scores. The omission of the group test would help to control any leveling effect which might exist. Because no significant differences existed between the group presentation performance of the students and student performance on the individual presentation for the total sample population, it is recommended that school administrators continue to use the group testing method to assess reading readiness since it is more efficient in the use of time and personnel, and it

coincides with the method of instruction which the children will experience.

REFERENCE NOTES

1. Hollingshead, A.B. Four factor index of social position. Working paper, 1975. (Available from Department of Sociology, Yale University, 1965 Yale Station, New Haven, Connecticut 06520)
2. Shepherd, G. Administering the Piagetian tasks. Unpublished manuscript, Oklahoma University, 1976.

BIBLIOGRAPHY

- Akers, J.C. A predictive validity study of the Metropolitan Readiness Tests. Unpublished dissertation, Oklahoma State University, 1969.
- Alder, H.L. & Roessler, E.B. Probability and statistics. San Francisco: W. H. Freeman and Company, 1960.
- Almy, M.C. The importance of children's experiences to success in beginning reading. Research in the three R's. New York: Harper and Brothers, 1958.
- Austin, M.L. & Coleman, M. The first R. New York: MacMillan, 1963.
- Bewley, W.L. The effects of family structure, socio-economic status and pupil gender upon children's reading readiness scores. Unpublished dissertation, University of Oklahoma, 1975.
- Bigge, M.S. Learning theories for teachers (2nd ed.) New York: Harper & Row, Publishers, 1971.
- Bond, G.L. & Dykstra, R. Coordinating center for first grade reading instruction programs. (Final Report, HEW Project No. X-001) Minneapolis: University of Minnesota, 1967.
- Bond, G.L. & Wagner, E. Child growth in reading. Chicago: Lyons and Carnahan, 1955.
- Borucki, D.M. The relationship of Piaget's stages of cognitive development to first grade reading achievement. Unpublished dissertation, Northern Illinois University, 1976.
- Brekke, B.W. & Williams, J.D. Conservation as a predictor of reading achievement. Perceptual and Motor Skills, 1975, 40, 95-98.
- Brown, T.J. Temperament, select home environment characteristics and reading readiness as predictors of reading progress. (ERIC Document Reproduction Service No. ED 137 730).
- Buros, O.K. (Ed.). The fourth mental measurements year-book. Highland Park, New Jersey: Gryphon Press, 1952.

- Buros, O.K. (Ed.). The fifth mental measurements year-book. Highland Park, New Jersey: Gryphon Press, 1959.
- Buros, O.K. (Ed.). The seventh mental measurements year-book. Highland Park, New Jersey: Gryphon Press, 1972.
- Burt, C. What makes a child prodigy. Science Digest, 1965, 53.
- Clutts, J.B.R. Predicting reading success for the first grade child. Unpublished dissertation, University of Missouri, 1969.
- Cohen, S.A. & Cooper, T. Seven fallacies: a reading retardation and the urban disadvantaged beginning reader. The Reading Teacher, 1972, 26, 38-45.
- Cox, M.B. The effect of conservation ability on reading competency. The Reading Teacher, 1976, 30(3), 251-258.
- Deutsch, C.P. Auditory discrimination and learning: social factors. Merrill-Palmer Quarterly, 1964, 10, 277-296.
- Durkin, D. Children who learned to read at home. Elementary School Journal, 1961, 10, 15-18.
- Durrell, D.D. & Murphy, H.A. Reading readiness research in elementary education reading: 1933-1963. Journal of Education, 1963, 146(12), 3-10.
- Elijah, D.V. Jr. A comparison of teacher rankings of reading readiness, Metropolitan Readiness Test score ranking and socioeconomic status rankings of first graders. (Paper presented at the Great Lakes Regional International Reading Association Conference, Milwaukee, Wisconsin, February, 1976). (ERIC Document Reproduction Service No. ED 119 144)
- Elkonin, D.B. The psychology of pre-school children. Cambridge, Massachusetts, MIT Press, 1971.
- Exendine, L.A. An investigation of readiness test results with kindergarten children using object-form and paper-pencil methods. Unpublished dissertation, University of Oklahoma, 1975.
- Ferguson, N. Pictography and prereading skills. Child Development, 1975, 46, 786-789.

- Gellman, E.S. Statistics for teachers. New York: Harper and Row, 1973.
- Glazzard, M.L. An evaluation of teacher rating, reading readiness and kindergarten achievement as predictors of first grade vocabulary and comprehension achievement. Unpublished dissertation, University of Kansas, 1975.
- Gray, L.A. & Guthrie, L.F. The effects of variations of the Metropolitan Reading Readiness Test upon scores of culturally disadvantaged children. Unpublished study, Indiana University Northwest, 1975.
- Havinghurst, R.J. Human development and education. New York: Longmans, Green and Company, 1953.
- Heilman, A.W. Principles and practices of teaching reading (3rd. ed.) Columbus, Ohio: Charles E. Merrill, 1972.
- Holmes, B. The reflexive man. The educated man: studies in the history of educational thought. New York: John Wiley and Sons, 1967.
- Hopkins, K.D. & Sitkei, E.G. Predicting grade one reading performance: intelligence vs. reading readiness tests. The Journal of Experimental Education, 1969 37 (3), 31-33.
- Isaac, S. & Michael, W.B. Handbook in research and evaluation. San Diego: Robert R. Knapp, 1975.
- Johnson, C.I. Predictive validity of selective reading readiness factors. (Paper presented at the International Reading Association Conference, Kansas City, Missouri on April 30, 1969.)
- Kreamer, T.L. Listening comprehension as a predictor of first grade reading achievement. Unpublished dissertation, McNeese State University, 1973.
- Laird, A.W. & Cangemi, J.P. When are children ready to learn to read? Reading Improvement, 1973, 12, 47-49.
- Livo, N.J. Reading readiness factors and beginning reading success. The Reading Teacher, 1970, 24, 124-129.

- Lee, J.M., Clark, W.W. & Lee D.M. Measuring Reading Readiness. Elementary School Journal, 1934, 34, 656-666.
- Lohnes, P. and Gray, M.M. Intelligence and the cooperative reading studies. Reading Research Quarterly, 1972, 7, 466-476.
- Lowell, R.E. Reading readiness factors as predictors of first grade reading. Journal of Learning Disabilities, 1971, 4, 563-567.
- MacGinitie, W.H. Evaluating readiness for learning to read: a critical review and evaluation of research. Reading Research Quarterly, 1969, 4, 396-410.
- Manolakes, T. Introduction: the open education movement. The National Elementary School Principal, 1972, 22 (11), 11-15.
- McCarthy, D. Factors that influence language growth: home influences. Elementary English, 1952, 39, 421-28;440.
- McNinch, G. Auditory perceptual factors and measured first grade reading achievement. Reading Research Quarterly, 1971, 6, 472-492.
- Monroe, M. Children who cannot read. Chicago: University Press, 1932.
- Muehl, S. & DiNello, M.C. Early first grade skills related to subsequent reading performance: a seven year followup study. Journal of Reading Behavior, 1976, 8 (1), 67-81.
- Piaget, J. The origins of intelligence in children. New York: International Universities Press, 1952.
- Pikulski, J.J. Predicting sixth grade achievement by first grade scores. The Reading Teacher, 1973, 27, 284-287.
- Roberts, K.P. Piaget's theory of conservation and reading readiness. The Reading Teacher, 1976, 30, 246-250.
- Roberts, T. Skills of analysis and synthesis in the early stages of reading. British Journal of Educational Psychology, 1975, 45, 3-9.

- Robinson, H.M. Factors which affect success in reading. Elementary School Journal, 1955, 48 (6), 538-49.
- Scott, R. Shifts in reading readiness profiles during the past decade. The Journal of Genetic Psychology, 1975, 126, 269-273.
- Shapiro, J.E. The relationship of conceptual tempo to reading readiness test performance. Journal of Reading Behavior, 1976, 8 (1), 83-87.
- Smith, N.B. Readiness for reading. Readiness for reading and related language arts. Urbana: The National Council of Teachers of English, 1950, 3-33.
- Stauffer, R.G. Teaching reading as a thinking process. New York: Harper and Row, 1969.
- Steinbeck, M.N. Foundations of a successful program. Education, 1953, 73 (5), 543.
- Telegdy, G.A. The effectiveness of four readiness tests as predictors of first grade academic achievement. Psychology in the Schools, 1975, 12, 4-11.
- Thomas, J.R. & Chissom, B.S. Prediction of first grade academic performance from kindergarten perceptual motor data. Research Quarterly, 1974, 45 (2), 148-153.
- Thompson, R. The culturally different child as a learner. Principles and practices of teaching reading (3rd ed.) Heilman, A.W. Columbus: Charles E. Merrill, 1972.
- Wallach, L., Wallach, M.A., Dozier, M.G. & Kaplan, N.E. Poor children learning to read do not have trouble with auditory discrimination, but do have trouble with phoneme recognition. Journal of Educational Psychology, 1977, 69, 36-39.
- Webb, S.L. A comparison of three-dimensional mock-up and paper-pencil presentations of readiness test material to first-grade students from different socioeconomic levels. Unpublished dissertation, University of Oklahoma, 1974.
- Whiton, M.B., Singer, D.L. & Cook, H. Sensory integration skills as predictors of reading acquisition. Journal of Reading Behavior, 1975, 7, 79-89.

Wood, M.H. A longitudinal study of the effectiveness of certain kindergarten tests in predicting reading achievement, school failure and the need for special services. Unpublished dissertation, University of Kansas, 1975.

APPENDIX A

CALL FOR REPLICATION WITH MODIFICATION
BY SUBJECT-MATTER EXPERTS



May 14, 1976

Robert L. Curry
College of Education
820 Van Vleet Oval
Norman, Oklahoma 73069

Dear Dr. Curry:

We are returning your manuscript since we will not be placing it in either of our journals. Thank you very much for thinking of the International Reading Association journals as potential outlets.

Both advisors who reviewed this manuscript commented that it was very well written and urged you to consider revision based on the following suggestions: "Two major problems with the study: 1) Though the results were 'significant' statistically the differences between the raw scores of the two administrations were very small in most cases. I question whether the results have any practical significance--for example, how much effect have they on transformed scores? 2) The method for administering the two forms of the test also differed. The regular readiness test was administered in a group while the modified form was administered individually. This difference might have had an influence on the results. In order to be safe it would seem to me that both forms should have been administered individually. The study deserves to be repeated with modification. The important implication is that it would seriously question the so-called 'item analysis' of readiness tests as a way of determining skills and concepts possessed by young children. This idea should be stressed more if the manuscript is re-submitted."

The other advisor commented that "This study is very interesting and useful. It could be a great breakthrough in the reliance upon standardized testing." If you are interested in submitting a revision, we will be glad to send it to our advisors for further consideration.

Again, thank you for sharing your work with us. We wish you the best of luck with your manuscript and hope you will think of our journals in the future.

Yours,

Janet R. Binkley
Janet R. Binkley, Editor
THE READING TEACHER
JOURNAL OF READING

JRB/nw

APPENDIX B

PARENTAL AUTHORIZATION FORM

PARENT AUTHORIZATION FOR RELEASE OF INFORMATION AND TESTING

The Lawton Public School System has agreed to assist Mrs. Ginger Hutsell in a doctoral research study designed to examine the reading abilities of first year students. Study results will be provided to assist the school in planning each child's special developmental program. If parents desire, the results will be shared with them.

If you consent to your child participating in this study, please sign and return this form to your child's teacher. If your child is selected, he/she will be given an individually administered battery of tests which will require no more than 90 minutes of school time.

In compliance with Public Law 93-380, 93rd Congress, H.R. 69, enacted August 21, 1974, FAMILY EDUCATIONAL RIGHTS AND PRIVACY ACT OF 1974, _____
School

has my permission to release the educational records (except privileged information) of _____ for the 1976-77 school year to Ginger Hutsell. I understand that a copy of the records released will be furnished by the school if requested.

Highest grade or year of school completed by the student's father. Circle one:

Grade School	High School	College
1 2 3 4 5 6 7 8	1 2 3 4	1 2 3 4 5 6 7 8

Highest grade or year of school completed by the student's mother. Circle one:

Grade School	High School	College
1 2 3 4 5 6 7 8	1 2 3 4	1 2 3 4 5 6 7 8

ABSOLUTELY NO PERSONAL INFORMATION WILL BE IDENTIFIABLE IN THE RESEARCH REPORT

Parent's signature

Date

APPENDIX C

GROUP PENCIL-PAPER, INDIVIDUAL PENCIL-PAPER AND OBJECT
FORM TOTAL RAW SCORES FROM THE
LEE-CLARK READING READINESS TEST FOR
THE SOCIOECONOMIC GROUPS

TABLE A

GROUP PENCIL-PAPER, INDIVIDUAL PENCIL-PAPER AND OBJECT
FORM TOTAL RAW SCORES FROM THE
LEE-CLARK READING READINESS TEST FOR
THE UPPER SOCIOECONOMIC MALES

Student Number	Group Pencil-Paper Total Score	Individual Pencil-Paper Total Score	Object form Total Score
1	59	55	56
2	57	60	59
3	57	61	58
4	54	59	53
5	60	57	57
6	60	57	57
7	62	61	63
8	61	59	58
9	60	63	56
10	57	61	58
11	52	55	55
12	60	60	60
13	62	61	60
14	53	52	57
15	62	62	61
16	58	63	63
17	59	61	59
18	63	62	61
19	60	63	56
20	58	58	57
21	61	60	62
22	61	62	62
23	54	59	53
24	60	60	60
25	54	59	53
26	60	60	61
27	60	62	62
28	59	61	59
29	57	60	59
30	61	60	62
31	60	60	60
32	53	58	51
33	57	60	59
34	63	62	61
35	58	58	57

TABLE B

GROUP PENCIL-PAPER, INDIVIDUAL PENCIL-PAPER AND OBJECT
FORM TOTAL RAW SCORES FROM THE
LEE-CLARK READING READINESS TEST FOR
THE MIDDLE SOCIOECONOMIC MALES

Student Number	Group Pencil-Paper Total Score	Individual Pencil-Paper Total Score	Object Form Total Score
1	47	41	49
2	56	54	56
3	52	54	56
4	39	41	42
5	64	64	62
6	44	49	51
7	54	59	50
8	47	41	49
9	52	57	53
10	53	55	52
11	44	55	51
12	61	61	59
13	61	56	55
14	64	63	61
15	60	62	59
16	54	57	51
17	53	55	52
18	62	61	61
19	39	41	42
20	57	56	51
21	57	59	50
22	64	64	62
23	52	56	58
24	51	51	54
25	61	64	56
26	61	59	59
27	56	54	53
28	60	55	59
29	60	59	60
30	48	61	56
31	60	59	60
32	61	59	55
33	60	55	53
34	39	41	42
35	47	51	54

TABLE C

GROUP PENCIL-PAPER, INDIVIDUAL PENCIL-PAPER AND OBJECT
FORM TOTAL RAW SCORES FROM THE
LEE-CLARK READING READINESS TEST FOR
THE LOWER SOCIOECONOMIC MALES

Student Number	Group Pencil-paper Total Score	Individual Pencil-Paper Total Score	Object Form Total Score
1	54	52	58
2	38	46	41
3	58	57	52
4	52	52	52
5	51	50	56
6	57	56	59
7	60	61	58
8	50	58	48
9	55	51	57
10	55	54	53
11	38	46	41
12	57	56	51
13	46	52	55
14	55	59	54
15	46	52	55
16	59	59	61
17	44	51	49
18	55	47	47
19	61	58	57
20	55	51	57
21	57	56	51
22	60	59	57
23	52	52	53
24	31	60	53
25	38	46	41
26	50	58	48
27	50	55	48
28	24	36	33
29	46	38	52
30	56	56	59
31	51	50	56
32	54	52	58
33	38	46	41
34	52	52	53
35	58	57	52

TABLE D

GROUP PENCIL-PAPER, INDIVIDUAL PENCIL-PAPER AND OBJECT
FORM TOTAL RAW SCORES FROM THE
LEE-CLARK READING READINESS TEST FOR
THE UPPER SOCIOECONOMIC FEMALES

Student Number	Group Pencil-Paper Total Score	Individual Pencil-Paper Total Score	Object Form Total Score
1	56	60	62
2	60	61	58
3	62	61	64
4	62	55	53
5	57	59	61
6	52	57	49
7	62	55	53
8	61	62	62
9	62	61	64
10	61	60	60
11	61	59	60
12	59	61	59
13	62	55	53
14	58	55	54
15	59	61	59
16	57	56	60
17	58	58	59
18	62	55	53
19	62	61	63
20	58	55	54
21	59	61	59
22	60	58	56
23	62	63	59
24	57	56	60
25	62	63	63
26	57	54	55
27	57	57	58
28	56	54	54
29	63	61	62
30	59	61	59
31	61	61	60
32	57	63	61
33	59	61	59
34	58	59	61
35	61	62	59

TABLE E

GROUP PENCIL-PAPER, INDIVIDUAL PENCIL-PAPER AND OBJECT
FORM TOTAL RAW SCORES FROM THE
LEE-CLARK READING READINESS TEST FOR
THE MIDDLE SOCIOECONOMIC FEMALES

Student Number	Group Pencil-Paper Total Score	Individual Pencil-Paper Total Score	Object Pencil-Paper Total Score
1	51	53	57
2	50	51	48
3	51	57	54
4	51	57	54
5	61	61	59
6	51	55	52
7	54	53	54
8	59	59	60
9	48	56	54
10	51	57	54
11	63	61	62
12	59	58	57
13	50	48	43
14	61	60	60
15	52	60	55
16	59	57	54
17	50	48	43
18	58	58	58
19	61	61	57
20	46	55	51
21	53	53	54
22	61	60	60
23	51	47	52
24	59	57	60
25	61	61	57
26	54	55	51
27	58	58	58
28	59	57	60
29	40	52	48
30	60	57	51
31	53	58	53
32	50	50	51
33	47	50	57
34	59	60	49
35	61	61	59

TABLE F

GROUP PENCIL-PAPER, INDIVIDUAL PENCIL-PAPER AND OBJECT
FORM TOTAL RAW SCORES FROM THE
LEE-CLARK READING READINESS TEST FOR
THE LOWER SOCIOECONOMIC FEMALES

Student Number	Group Pencil-Paper Total Score	Individual Pencil-Paper Total Score	Object Pencil-Paper Total Score
1	39	39	38
2	55	55	58
3	51	56	43
4	39	35	42
5	39	39	38
6	56	60	57
7	58	50	51
8	56	56	57
9	43	41	30
10	55	51	48
11	55	57	52
12	50	50	60
13	39	39	38
14	57	60	56
15	56	56	57
16	51	56	48
17	48	56	49
18	39	35	42
19	43	41	30
20	58	59	58
21	54	60	58
22	51	56	48
23	39	35	42
24	48	56	49
25	55	55	58
26	56	60	57
27	50	50	60
28	36	51	54
29	57	51	58
30	36	51	54
31	40	37	44
32	35	39	41
33	40	37	44
34	39	39	38
35	50	53	56