GROWTH PATTERNS IN READING ACHIEVEMENT

by

TERESA MANALAD ANDRADE

M.A., National Teachers College, 1957

A DISSERTATION SUBMITTED IN PARTIAL FULFILMENT OF

THE REQUIREMENTS FOR THE DEGREE OF

Doctor of Education

in the Department

of

Education

We accept this dissertation as conforming to the
required standard

THE UNIVERSITY OF BRITISH COLUMBIA

August, 1969

In presenting this thesis in partial fulfilment of the requirements for

an advanced degree at the University of British Columbia, I agree that

the Library shall make it freely available for reference and Study.

I further agree that permission for extensive copying of this thesis

for scholarly purposes may be granted by the Head of my Department or

by his representatives. It is understood that copying or publication

of this thesis for financial gain shall not be allowed without my

written permission.

Department of _____Education_____

The University of British Columbia
Vancouver 8, Canada

Date_____August·15, 1969_____

ABSTRACT

GROWTH PATTERNS IN READING ACHIEVEMENT

Teresa M. Andrade
University of British Columbia, 1969

The Problem

The purposes of this study were (1) to investigate
and analyze patterns of growth in reading achievement from
grade three through grade seven of children with different
initial status of reading readiness and (2) to find out what
early childhood characteristics distinguished those who
have become good and poor readers in grade five.

Methods and Procedures

The first investigation was a retrospective, longi-
tudinal study of the patterns of the means in Word Meaning
and Paragraph Meaning of the Stanford Achievement Test.
The subjects were 300 seventh graders who had available
scores on the Metropolitan Readiness Tests in grade one and
on the Stanford Achievement Test in grades three through
seven. These pupils were randomly selected from a population
of 517 children from 14 elementary schools. Analysis of
variance, t tests and graphs were employed in comparing the
growth patterns exhibited by pupils in the superior, high
normal, average, low normal, and poor risk categories of
reading readiness.

The second part was an ex post facto study in which
the Fisher exact probability test was used in identifying
certain preschool and beginning school characteristics that
differentiated the good from the poor grade five readers.
Case studies were made on sixteen good readers and sixteen
poor readers randomly selected from the top 27 per cent and
the bottom 27 per cent of a population of 315 grade five
pupils from five elementary schools. Information was ob-
tained from the scores on the Metropolitan Readiness Tests,
permanent school records, and interviews with parents.

Conclusions
1. The three highest groups of readiness categories,
   the superior, high normal, and average maintained
   their relative positions throughout the entire
   five-year period. This trend indicated that
   pupils with high initial status of reading readi-
   ness continue to perform well in reading through-
   out the elementary grades.
2. Those in the superior group remained superior,
   on the average, and even tended to progress at
   a faster rate than those in the other cate-
   gories of reading readiness.
3. The slopes of the curves on Paragraph Meaning
   of the average and the low normal groups and on
   Word Meaning of the low normal and the poor risk
   groups tended to be similar.

4. There appeared to be no plateau in grade four in the growth curves of all levels of reading readiness but something like a plateau was noted from grades five to six.

5. There was a steep rise in growth in reading in grade seven for all the five categories of reading readiness.

6. The mean gains from grade three through grade seven were significantly different for all the reading readiness groups.

7. In general, the boys surpassed the girls at all grade levels. The differences, however, were found to be significant in most grades only for the high normal category on Paragraph Meaning and for the high normal and low normal categories on Word Meaning.

8. The characteristics in preschool and early school years that were found to differentiate between the good and the poor readers in the fifth grade were (a) reading readiness category, (b) eagerness to do things by himself, (c) curiosity, (d) interest in reading, (e) congenial relationship with parents, (f) self-confidence, (g) was read to and

given help in reading, (h) visual per-

ception, (i) auditory perception,

(j) richness of verbal concepts, (k) vocabu-

lary, and (l) number knowledge.

ACKNOWLEDGMENT

TABLE OF CONTENTS

LIST OF TABLES

LIST OF FIGURES

CHAPTER I

THE PROBLEM

This chapter presents an introduction to the study
and gives information regarding the (1) importance of the
study, (2) statement of the problem, (3) hypotheses,
(4) definition of terms, and (5) limitations of the study.

I. INTRODUCTION

The importance of readiness in the total reading
development of each child has long been recognized. Since
the early study conducted by Deputy[1] in 1930, the concept
of reading readiness has gained wide acceptance among read-
ing experts, researchers, teachers, and administrators.
Conant claimed that "since reading and the learning of read-
ing are complex, it should be clear that insuring readiness
to read is an important factor in the reading instruction
program."[2] It has been said, too, that "the progress young
children make when they enter school in the primary grades
depends to a large extent upon their readiness for learning

---

[1]Erby C. Deputy, Predicting First-Grade Reading
Achievement: A Study of Reading Readiness (Contributions
to Education No. 425. New York: Bureau of Publications,
Teachers College, Columbia University, 1936).

[2]James B. Conant, Learning to Read (New Jersey:
Educational Testing Service, 1962), p. 4.

and upon the provisions the school makes for variations in readiness."[3] This being the case, Bond and Wagner believed that "an understanding of readiness on the part of the teacher will do much to facilitate the child's reading growth. . . . Readiness will be an ever-present concern of all teachers in every learning situation."[4]

Gates stated that "reading readiness implies that a child will be successful and interested in learning to read if reading is introduced when he is 'ripe' for it and that he is likely to fail and to be annoyed when instruction is begun before that time."[5] Further, Ilg and Ames surmised that "possibly the greatest contribution which can be made toward guaranteering that each individual child will get the most possible out of his school experience is to make certain that he starts that school experience at what is for him the right time. This should be the time when he is truly ready and not merely some time arbitrarily decided upon by custom or by law."[6]

---

[3]Metropolitan Readiness Tests. Directions for Administering and Key for Scoring (New York: Harcourt, Brace and World, Inc., 1950), p. 14.

[4]Guy L. Bond and Eva Bond Wagner, Teaching the Child to Read (New York: The MacMillan Company, 1966), p. 16.

[5]Arthur L. Gates, "Basal Principles in Reading Readiness Testing," Teacher College Record, 40:495 (March, 1939).

[6]Frances L. Ilg and Louise Bates Ames, School Readiness, Behavior Tests Used at the Gesell Institute (New York: Harper and Row Publishers, 1965), p. 14.

Numerous studies aimed at identifying the readiness

factors which are related to success in beginning reading

have been made. While most of these investigations have

attested to the relevance of reading readiness for the

initial stage in reading, there seems to be some disa-

greement as to what readiness factors best predict reading

success. Harrison argued that "since reading is an intel-

lectual process, factors of intellectual development fos-

tering reading readiness are of greater importance than any

group of factors."[7]

Morphett and Washburne[8] concluded that a mental age

of six is necessary for a child to succeed in reading and

that a mental age of six and a half more nearly insures

success. However, research findings by Davidson,[9] Wilson,[10]

and Durkin[11] indicated that some children with mental ages

below six also make progress in reading. Gates contended

---

[7]Lucile M. Harrison, Reading Readiness (Boston: Houghton Mifflin Company, 1939), p. 6.

[8]M.V. Morphett and C. Washburne, "When Should Children Learn to Read?" Elementary School Journal, 31:496-503, March, 1931.

[9]Helen P. Davidson, "An Experimental Study of Bright, Average, and Dull Children at the Four-Year Mental Level," Genetic Psychology Monographs, 9:119-287, March, 1931.

[10]Frank T. Wilson, "Reading Progress in Kindergarten and Primary Grades," Elementary School Journal, 38:442-49, February, 1938.

[11]Dolores Durkin, Children Who Read Early (New York: Teachers College Press, 1966), 174 pp.

that "the crucial mental age level will vary with the materials; the type of teaching; the skill of the teacher; the size of the class; the amount of preceding preparatory work; the thoroughness of examination; the frequency and the treatment of special difficulties, such as visual defects of the pupil; and other factors."[12]

II. IMPORTANCE OF THE STUDY

The relationship of the intellectual, physical, social and emotional factors of reading readiness to reading achievement has continued to be the topic of investigations among educators and researchers. A perusal of the related literature has revealed that most of these studies have used first-grade children as their subjects. However, Gray[13] maintained that studies of beginning reading must be regarded as inconclusive since learning to read is still very incomplete at the beginning stages.

The paucity of research on the relationship of the factors associated with readiness for learning to read to achievement in reading at the higher grade levels has made

---

[12]C.W. Hunnicutt and William J. Iverson (eds.), Research in the Three R's (New York: Harper & Brothers, 1958), p. 57.

[13]William S. Gray, The Teaching of Reading and Writing (London: UNESCO and Evans Bros., 1956), p. 44.

it necessary that further studies be conducted in this area.
A knowledge of the early childhood physical, intellectual,
and emotional characteristics highly related to success in
reading in intermediate grades could be useful to parents
and to teachers of kindergarten and first grade. Since the
foundation for reading is laid in preschool and beginning
school years, parents and teachers could cooperate in pro-
viding the early experiences that would help children grow
into reading.

Many studies on patterns of reading growth have been
based only on cross sections of the population and these do
not necessarily represent the patterns for a particular
group or individual since children grow at different rates
and reach similar developmental stages at different ages.
Most of the longitudinal investigations on reading growth
have been conducted in laboratories or clinics on small
groups or special cases. A few longitudinal studies on
large unselected groups have used either chronological age
or levels of intelligence as base line. There remains a
need to identify patterns of reading growth exhibited by
youngsters in various categories of reading readiness. An
awareness of these patterns would give teachers and adminis-
trators information that could be useful in planning and
carrying out reading readiness programs in schools. If
slowness in reading could be detected early in the children's

development greater focus on preventive and remedial measures could be placed during the earlier school years in order to minimize failures in reading in later years.

III. STATEMENT OF THE PROBLEM

This study was designed to investigate and analyze the patterns of growth in reading achievement that have taken place from grade three to grade seven among a group of children belonging to the superior, high normal, average, below normal, and poor risk categories of readiness at the beginning of first grade. Another purpose of this investigation was to identify physical, intellectual, social and emotional characteristics while in preschool, kindergarten and first grade of good and poor readers in intermediate grades. It attempted to answer the following questions:

1. What is the nature of growth in reading achievement of children in each of five categories of reading readiness?

    1.1. Are the patterns of group means of reading achievement different from one category to another?

    1.2. Is there a plateau in grade four which indicates lack of growth in the reading growth curve for each category of reading readiness?

1.3. Is the mean gain in reading achievement
from grade three to grade seven differ-
ent for each of five categories of
reading readiness?

1.4. Are the reading growth patterns among
boys different from those among girls?

2. What physical, intellectual, social and emotional
characteristics of children before and in grade
one distinguish those who have become good and
poor readers in intermediate grades?

IV. HYPOTHESES

The following hypotheses were tested in this study:

1. There is no difference among the patterns of
group means in reading achievement of pupils
belonging to each of the superior, high normal,
average, low normal, and poor risk categories
of reading readiness.

2. There is a plateau in grade four in the reading
growth curve for each category of reading
readiness.

3. There are significant differences in the mean
gains from grade three to grade seven among
the groups in five categories of reading
readiness.

4. There are sex differences in the reading growth patterns of the five categories of reading readiness.

5. There are some outstanding early childhood physical, intellectual, social, and emotional characteristics that distinguish those who have become good and poor readers in grade five.

V. DEFINITION OF TERMS

1. Patterns of reading growth - the profile of means in reading achievement from grade three to grade seven as assessed by the Stanford Achievement Tests given at the end of each school year.

2. Reading readiness - the timeliness of what we wish to teach in the light of the child's ability to profit from it not only at the beginning stages of learning to read but at every step in the child's progress from simple reading tasks to those that are more complicated.[14]

---

[14]Margaret G. McKim, Guiding Growth in Reading in the Modern Elementary School (New York: The MacMillan Company, 1955), p. 36.

3. Readiness category - a classification in reading readiness as measured by the Metropolitan Readiness Tests.

Category	Score
Superior	90 - 100
High Normal	80 - 89
Average	65 - 79
Low Normal	40 - 64
Poor Risk	0 - 39

4. Reading achievement - the gain from one year to another in Paragraph Meaning and Word Meaning expressed in K-scores as measured by the Stanford Achievement Tests given at the end of each grade.

5. K-scores - standard scores derived from Gardner's K-scale which is claimed to have approximately equal units throughout the entire range of the scale.

6. Significant difference - any difference found to be significant at the five per cent level.

VI.   LIMITATIONS OF THE STUDY

Since this was a retrospective longitudinal study, the investigator had to depend only on measures that exist. The findings of this study were confined mostly to the skills and abilities measured by the Metropolitan Readiness Tests.

CHAPTER II

REVIEW OF RELATED LITERATURE

The acceptance of the concept of readiness as an integral part of the growth of each child has resulted in a large number of studies which have attempted to identify the readiness factors related to success in reading. Research on reading readiness and reading achievement growth related to this study are discussed in this chapter. These investigations have been classified into four categories: (1) predictive studies involving first grade pupils; (2) reading readiness and success in reading in higher grade levels; (3) sex differences in reading readiness and reading achievement; and (4) longitudinal studies on reading achievement growth.

I. PREDICTIVE STUDIES INVOLVING PUPILS IN GRADE ONE

Dean[1] administered the Metropolitan Readiness Tests and the Monroe Reading Aptitude Tests for Prediction and Analysis of Reading Abilities to pupils of five first grade rooms during the first week of the school term to determine to what extent these tests can predict reading achievement. Using the Metropolitan Achievement Test as criterion, he

_____

[1]Charles Dean, "Predicting First Grade Reading Achievement," The Elementary School Journal, 39:609-16, April, 1939.

found that the scores on the Metropolitan Readiness Tests
correlated .59 with reading achievement and the scores on
the Monroe Reading Aptitude Tests correlated .41 with read-
ing achievement. The relation of mental age as assessed by
the Stanford Revision of the Binet-Simon Intelligence Scale
to reading achievement was relatively high, the correlation
being .62. Mental age, therefore, was found to be a better
predictor of the reading achievement of first grade pupils
than readiness tests.

In an attempt to prove that homogeneous grouping
with respect to ability and readiness would make for effec-
tive teaching, Roslow[2] used the Kuhlmann-Anderson Intelli-
gence Tests and the Monroe Reading Aptitude Tests in placing
first grade children in three sections. Children with
mental ages above 6, IQ above 110, and reading aptitude per-
centiles above 60 were assigned to Section 1. Pupils with
mental ages from 5.6 to 6.0, IQ from 95 to 110, and reading
aptitude percentiles from 40 to 60 were placed in Section 2.
Those with mental ages below 5.6, IQ below 95, and reading
aptitude percentiles below 40 were in Section 3. All these
children had been given a program of reading readiness

---

[2]Sydney Roslow, "Reading Readiness and Reading
Achievement in First Grade," Journal of Experimental Edu-
cation, 9:154-59, December, 1940.

activities while in kindergarten. Since the purpose of this placement was to minimize failure in reading, out-of-classroom tutoring had been given to children with reading difficulties while in the first grade.

At the end of grade one, reading achievement was measured by the Gates Primary Reading Tests and the principal's ratings of their oral reading. The principal evaluated the oral reading of each child in terms of A,B,C,D, and F.

The reading achievement of the children as a whole was found to be above the norm for the end of first grade. The results of this study supported the belief that children with mental age below 6, with IQ below 100, and with an aptitude percentile below 50 can successfully be taught to read in first grade under a program including differential placement, reading readiness activities in kindergarten, and remedial and preventive instruction in addition to regular classroom teaching.

Henig[3] determined the forecasting value of the Lee-Clark Reading Readiness Test and of the teachers' estimates of pupils' progress. Using the teachers' marks at the end of the first grade as criterion, he found contingency co-

---

[3]Max S. Henig, "Predictive Value of a Reading Readiness Test and Teacher's Forecasts," The Elementary School Journal, 50:41-46, September, 1949.

efficients of .60 and .55 respectively. This showed that a substantial degree of relationship exists between reading readiness test results and reading achievement. The predictive value of the teachers' judgement was just as high.

In an investigation of the predictive validity of the Metropolitan Readiness Tests, Mitchell[4] tested 1170 pupils in white and negro schools in September. The Metropolitan Achievement Tests, Primary I Battery were administered the following May.

The correlations between the readiness scores and the achievement scores for all subtests and the total tests were computed. Correlations between the subtests of the Metropolitan Readiness Tests and the Metropolitan Achievement Tests ranged from .51 to .63. Mitchell concluded that the readiness tests were good predictors of first grade learning. She found the girls in her sample to be more ready for formal reading instruction than the boys. The mean for the boys in the Metropolitan Readiness Tests was 73.92 while that of the girls was 76.42. The difference of 2.5 was significant at the five per cent level.

---

[4]Blythe C. Mitchell, "The Metropolitan Readiness Tests as Predictors of First-Grade Reading Achievement," Educational and Psychological Measurement, 22:765-72, Winter, 1962.

Dykstra[5] studied the relationship between selected measures of auditory discrimination at the beginning of first grade and reading achievement at the end of first grade.

Each of the 331 boys and 301 girls randomly selected from eight schools was given the Lorge-Thorndike Intelligence Test and seven different auditory discrimination tests in the first four weeks of school. These tests of auditory discrimination were selected from the Murphy-Durrell Diagnostic Reading Readiness Test, the Gates Reading Readiness Test, the Harrison-Stroud Reading Readiness Profiles, and the Reading Aptitude Tests. The following spring, reading achievement was measured by the word recognition and paragraph meaning subtests of the Gates Primary Reading Test.

He found the correlation coefficients between the measures of auditory discrimination and reading achievement to be relatively low (from .19 to .46). He inferred from this study that skill in auditory discrimination is not sufficient to guarantee success in learning to read.

A comparison of the judgment of kindergarten teachers with the results of four standardized tests for predicting

---

[5]Robert Dykstra, "The Relationship Between Selected Measures of Auditory Discrimination and Reading Achievement at the End of First Grade," (unpublished Doctoral dissertation, University of Minnesota, Minneapolis, 1962).

kindergarteners' success in first grade was done by Mattick.[6]
Nine hundred seventy-two kindergarten children were randomly
selected from a population of 14,000 as subjects of the
study.

All the kindergarten teachers in the school district
were asked to rate each child in the classes as having high,
average, or low potential for success in grade one. These
teachers' marks were completed before the standardized tests
were administered.

During late April and May, each pupil took any two
of the following: Lee-Clark Reading Readiness Test, Metro-
politan Readiness Tests, Form R, Lorge-Thorndike Intelligence
Tests, Form A, and the California Short-Form Test of Mental
Maturity.

In October of the following school year, all first
grade teachers made a preliminary rating of their pupils'
achievement as high, average, or low. Correlation coeffi-
cients were computed between the kindergarten teachers'
ratings and the pupils' scores on the foregoing tests and
between the first-grade teachers' ratings and the pupils'
scores on these same standardized tests. The coefficients
of correlation ranged from .546 to .368. The correlation
between the Metropolitan Readiness Tests, Form R, and first-

---

[6]William E. Mattick, "Predicting Success in the First
Grade," The Elementary School Journal, 42:273-75, February,
1963.

grade teachers' ratings was found to be the highest.
Mattick concluded from this study that of the five pre-
dictors of first grade success, the Metropolitan Readiness
Tests were the most effective.

Barrett[7] investigated the ability of seven visual
discrimination tasks to predict first grade reading achieve-
ment. The subjects of the study were 331 boys and 301 girls.
The total sample had a mean reading score of grade 2.3 and
a mean IQ of 102.

The tests used were: 1) Gates Picture Directions
Tests, 2) Gates Word Matching Test, 3) Gates Word-Card
Matching Test, 4) Gates Reading Letters and Numbers Test,
5) Pattern Copying Test, 6) Picture Square Test, and
7) Reversals Test. The Gates Primary Word Recognition Test
and the Gates Primary Paragraph Reading Test were used to
assess the end-of-first grade reading achievement.

A multiple regression analysis showed that Reading
Letters and Numbers was the best single predictor of read-
ing achievement in grade one. The optimum combination for
predicting first-grade reading achievement were Reading
Letters and Numbers, Pattern Copying, and Word Matching.

---

[7]Thomas C. Barrett, "Visual Discrimination Tasks as
Predictors of First Grade Reading Achievement," The Reading
Teacher, 18:257-61, January, 1965.

Thackray[8] used multiple correlations in assessing the predictive value of various aspects of reading readiness: visual and auditory discrimination, mental ability, home environment, and emotional and personal attitudes. He administered to a representative sample of 182 children from eleven schools the following measures: Harrison-Stroud Readiness Profiles, the Kelvin Measurement of Ability Test for Infants, and a multiple-choice Picture Vocabulary Test which he constructed. He also collected the teachers' ratings of general ability, teachers' ratings of language and speech, and made notes on the socio-economic background of the children's homes. The emotional and personal attitudes of the subjects were based on the teachers' ratings of self-confidence, cooperation with adults, cooperation with other children, persistence, stability and prevailing attitude. Using the Southgate Group Reading Test as criterion, he found the auditory and visual discrimination subtests of the Harrison-Stroud Reading Readiness Profiles to correlate highly with reading achievement, the correlation coefficients being .53 and .50 respectively. In this particular sample, the Harrison-Stroud Reading Readiness Profiles proved a valid measure of reading readiness (.59).

---

[8]D.V. Thackray, "The Relationship Between Reading Readiness and Reading Progress," British Journal of Educational Psychology, 35:252-54, June, 1965.

In the analysis of data received by the Minnesota Coordinating Center from twenty seven first grade reading projects, Bond and Dykstra[9] reported that the best single predictor of first grade reading success was the Murphy-Durrell Letter Names Test. This test had coefficient of correlations between .52 and .60 with both the Stanford Word Recognition and the Stanford Paragraph Meaning sub-tests for each of the six treatments used in the investi-gation (basal, i.t.a., phonics, language experience, lin-guistic treatment, and basal and phonics). They found out that the predictive validity of a single subtest such as the Letter Names subtest is about the same as that of the whole reading readiness battery. They concluded that it probably was not necessary to give the entire readiness test if the only purpose was to predict reading achievement·

II. READING READINESS AND READING SUCCESS

IN HIGH GRADE LEVELS

A few researchers have used grade levels other than the first in determining the relationship between reading

---

[9]Guy Bond and Robert Dykstra, "The Cooperative Research Program in First Grade Reading Instruction," Reading Research Quarterly, 2:116-17, Summer, 1967.

readiness and reading achievement. Powell and Parsely[10]
investigated the relationship between the results of the
Lee-Clark Reading Readiness Test administered in September
to 863 first graders and the results of the California
Reading Test given to the same students the following year
at the beginning of the second grade. Relationships were
determined by means of the Pearson product moment correla-
tion technique. The findings indicated that the Lee-Clark
Reading Readiness Test was a useful predictor of reading
success for children in the second grade. It was found
useful primarily as a predictor of the total reading results
of the entire group.

Kingston[11] utilized the Metropolitan Readiness Tests
and the Stanford Achievement Tests for relating first grade
reading readiness to third and fourth grade reading achieve-
ment. The scores of the boys were treated separately from
those of the girls. Multiple regression equations were cal-
culated to determine the relationships of the total scores
and subtest scores on the Metropolitan Readiness Tests and

---

[10]Marvin Powell and Kenneth M. Parsely, "The Relation
Between Grade Reading Readiness and Second Grade Reading
Achievement," The Journal of Educational Research, 54:229-33,
February, 1961.

[11]Albert J. Kingston, "The Relationship of First
Grade Readiness to Third and Fourth Grade Achievement,"
The Journal of Educational Research, 56:61-67, October, 1962.

the total and subtests scores on the third and fourth grade
<u>Stanford</u> <u>Achievement</u> <u>Tests</u>.

First grade readiness scores correlated significantly
with reading achievement at both third and fourth grade
levels (between .3 and .6). However, the prediction of
achievement in the third and fourth grades of individual
pupils from their readiness scores in the first grade was
not feasible as indicated by the size of the coefficient of
correlation obtained in this sample.

III. SEX DIFFERENCES IN READING READINESS AND READING ACHIEVEMENT

There is a general agreement among researchers and
educators that sex differences do exist in reading.
Carroll's[12] study of 1100 children at the first grade level
showed that statistically significant sex differences appear
during the reading readiness period. She concluded that
since they existed before formal teaching in reading took
place, it was probable that such differences might be due
to reading readiness factors alone.

---

[12]Marjorie Wight Carroll, "Sex Differences in Reading
Readiness at the First Grade Level," <u>Elementary</u> <u>English</u>,
25:370-75, October, 1948.

An investigation conducted by Balow[13] in thirteen
first grade classrooms in St. Paul, Minnesota, indicated
significant differences in reading readiness and reading
achievement in favor of the girls. However, when reading
was held constant, the differences between the two sexes
were too small to be significant. The data supported a non-
maturational theory of sex differences in reading achieve-
ment.

Summers[14] found that in every comparison analyzed the
females made significantly greater gains in reading achieve-
ment than males. Even when possible initial differences
between the sexes were controlled by using the covariance
design, the females continued to be significantly superior
to the males.

Konski[15] found no significant sex differences when
she measured reading readiness in twelve selected areas.
However, when the reading achievement tests were given at

---

[13]Irving H. Balow, "Sex Differences in First Grade
Reading," Elementary English, 40:303-06, 320, March, 1963.

[14]Edward George Summers, "An Evaluation of Reading
Growth and Retention Under Two Plans of Organization for
Seventh Grade Developmental Reading" (unpublished Doctoral
dissertation, University of Minnesota, Minneapolis, 1963).

[15]Virginia J. Konski, "An Investigation into Differ-
ences Between Boys and Girls in Selected Reading Readiness
Areas and in Reading Achievement" (unpublished Doctoral
dissertation, University of Missouri, Columbia, 1951).

the end of first grade, the girls scored significantly
higher than the boys.

Wozencraft[16] reported differences in favor of the
girls when she made comparisons between the sexes in res-
pect to the mean scores obtained on Paragraph Meaning,
Word Meaning, Reading Average, Arithmetic Reasoning, Arith-
metic Computation, and Arithmetic Average of the Stanford
Achievement Test. More differences were found to be signi-
ficant in the third grade than in the sixth grade. This
might indicate that while girls started off at an advantage
in school achievement, boys tended to catch up with them in
higher grade levels.

IV. READING ACHIEVEMENT GROWTH

There is little research on reading growth because
studies of this kind are usually slow and costly. Among
the few investigations is the comparison of reading growth
from grade two to seven made by McElroy.[17] This study was
conducted in an upper middle class residential suburban
town. The scores used in this investigation were those

---

[16]Marian Wozencraft, "Sex Comparisons of Certain
Abilities," The Journal of Educational Research, 57:21-23,
September, 1963.

[17]Kathryn Kohn McElroy, "A Comparative Study of
Reading Growth from Grades Two to Seven," The Reading
Teacher, 25:98-101, September, 1961.

from the Metropolitan Readiness Tests in kindergarten; the
California Mental Maturity Test in grades two, four, and six;
and the California Achievement Test in grades three, five,
and seven. The median scores in vocabulary, comprehension
and total reading for each grade were plotted on graphs.
Comparative studies were then made on the growth patterns
revealed on graphs.

McElroy observed an almost identical pattern in voca-
bulary and comprehension from grades two to seven. She found
a lack of growth between the third and fourth grades and
between the fourth and fifth grades. There was, however, an
acceleration of growth between the fifth and sixth grades.

The purpose of Sutton's[18] investigation was "to study
variations in reading achievement of children over a seven-
year period who scored high on measures used in kindergarten
to determine reading readiness, to observe uniqueness in the
individual as he matures, and to discover environmental in-
fluences that tend to foster individuality and independence
in reading."

Two hundred ten pupils were followed up from kinder-
garten through the sixth grade by the investigator. For

---

[18]Rachel S. Sutton, "Variations in Reading Achieve-
ment of Selected Children," Elementary English, 37:97-100,
February, 1960.

each year the parents completed questionnaires about the child's family, health history, child's activities and behavior. The teachers made a summary rating of each child on social adjustment every year. Each child was interviewed by the investigator twice, in the second and sixth grades. An intensive study was made of two children with high achievement potential.

Sutton found that precocity and slowness in reading may be detected early in the child's development. She suggested that through a longitudinal study of pupils in a given community, a school staff could develop its own concept of normality in child growth and could also conceptualize normal reading achievement for each child.

An investigation of the development of reading achievement growth from grades five to nine was done by Shankman.[19] Information on family background, intelligence level, and yearly grade level scores in reading, language, and spelling as assessed by the <u>California Achievement Tests</u> was obtained from the school permanent record cards. Children whose scores deviated more than two standard deviations from the mean were studied as individual cases.

---

[19]Florence Vogel Shankman, "An Investigation of the Development of Reading Achievement Growth from Grades Four to Nine" (unpublished Doctoral dissertation, New York University, 1959).

Additional information with reference to age, sibling placement, course chosen for high school, and parent's occupation was taken by the investigator for case study.

Using analysis of variance she found significant differences in reading achievement from year to year but not between the sexes. No significant relationships were found between sibling placement, course chosen for high school and parent's occupation and reading achievement. There was a negative correlation between reading achievement in the junior high school and reading achievement in the elementary school.

Eddings[20] aimed to identify patterns of reading growth among a group of pupils in grade six. The variables used as areas of investigation in this study were intelligence, physical condition, environmental and experiential background, and emotional and social development.

She constructed three questionnaires on the environmental and experiential background of the subject. These questionnaires were answered by the subjects, their parents and their teachers. Information on the yearly school attendance and general reading achievement of the subjects

---

[20]Inez Clark Eddings, "Patterns of Reading Growth: A Longitudinal Study of Patterns of Reading Growth Throughout the Six Grades in Two Elementary Schools" (unpublished Doctoral dissertation, University of South Carolina, Columbia, 1956).

in the second through the fifth grades was obtained from
school cumulative records. The pupils' general reading per-
formance, intelligence, visual and auditory functioning,
and social and emotional development were measured by the
examiner using standardized tests and individual examinations.
Based on evidence obtained in her study Eddings concluded
that patterns of reading growth are established early among
groups of elementary pupils. She reported that among groups
of normal grade six pupils of comparable mental ability the
reading achievement of girls tends to be higher than that
of boys but within different reading level groups there was
little difference between the patterns of reading growth of
the sexes.

Namkin[21] investigated pupil growth in reading and
arithmetic skills from grade two through grade eight with
the purpose of determining the stability of these growth
patterns and comparing these patterns with those obtained
from longitudinal studies of intelligence. Two hundred
fifty junior high school pupils who had scores available for
the fourth, sixth, seventh, and eighth grades were the sub-
jects of this study. The grade equivalent scores were con-
verted into K-scores to provide an interval scale for the

---

[21]Sidney Namkin, "Stability of Achievement Test
Scores, A Longitudinal Study of the Reading and Arithmetic
Subtests of the Stanford Achievement Test" (unpublished
Doctoral dissertation, Rutgers, The State University, New
Brunswick, 1966).

study of growth from grades four through eight. A subgroup
of seventy pupils was studied from grade two through grade
eight.

He observed that patterns of growth below fourth
grade were less stable than those of higher grade levels.
There was a fairly stable pattern of achievement at the
beginning of grade four which becomes increasingly more
stable at higher grade levels. The greatest gains were
found to be between grades 6.1 and 7.1.

In a study of the reading growth of intermediate
pupils in the public schools of Maob, Utah, Dugger[22] found
significant differences between vocabulary development and
pupil mobility at the 1 per cent level and comprehension and
ability at the 5 per cent level. There were also no sig-
nificant sex differences in reading readiness among white
subjects but there was significant difference in favor of
the girls among Negro subjects. Growth was found to be con-
tinuous in Pattern Copying, Identical Forms, Auditory Dis-
crimination, Phonemes, Word Meaning, and Listening. The
enriched reading readiness program was superior to the basal
readers program in Pattern Copying, Identical Forms, and

---

[22]Jerold Orville Dugger, "A Study of the Reading
Growth of Intermediate Grade Pupils in the Public Schools
of Maob, Utah" (unpublished Doctoral dissertation, Colorado
State College, Greeley, 1961).

Word Meaning but were equivalent in Auditory Discrimination and Phonemes.

Ketcham and Laffitte[23] plotted the individual records of the mental and reading growth of fifty elementary school children and found a high degree of similarity between individual differences in the longitudinal records for mental age and those for reading age. The growth curves revealed that children achieved their mental abilities and reading skills at different rates which led them to express doubts on the accuracy of predicting mental abilities and academic progress at the completion of the elementary school from performances in the early grades.

V. SUMMARY

The table on page 30 summarizes the studies on predictive validity of reading readiness tests. The different readiness measures, with the exception of the auditory discrimination subtest used by Dykstra which had a correlation coefficient of .19, were found to be good predictors of reading achievement at the end of first and higher grade levels.

---

[23]Warren A. Ketcham and Rondeau G. Laffitte, "How Well Are They Learning?" Educational Leadership, 16:37-41, 350, March, 1959.

TABLE I

PREDICTIVE VALIDITY STUDIES OF READING READINESS TESTS

Study	Readiness Test	Reading Test	No. of Cases	Coef. of Correlation
Dean	Metropolitan	Metropolitan	116	.59
	Monroe	Metropolitan	116	.41
Henig	Lee-Clark	Teachers' marks	98	.60
Mitchell	Metropolitan	Metropolitan	1170	.51 to .63
Dykstra	Selected Auditory dis.	Gates	632	.19 to .46
Barrett	Selected Visual dis.	Gates	632	.30 to .61
Thackray	Harrison-Stroud	Southgate	182	.59
Powell & Parseley	Lee-Clark	California	863	.43
Kingston	Metropolitan	Stanford	272	.3 to .6

A perusal of the related literature has revealed that most of the skills measured by different reading readiness tests were significantly related to success in reading. The skills commonly evaluated were visual discrimination, auditory discrimination, muscular coordination and motor

skills, linguistic attainments, and knowledge of letters.

The studies reviewed have shown that sex differences do exist in reading readiness and reading achievement. While girls usually have been found to be significantly superior to boys at the beginning reading stage, boys have tended to catch up at the higher grade levels.

The longitudinal studies on reading growth gave evidence of variations in reading achievement of children at each grade level.

CHAPTER III

DESIGN AND PROCEDURES

The purposes of this study, as stated in Chapter I,
were two-fold. One was to analyze the growth patterns in
reading achievement of groups of children who had been
classified according to levels of reading readiness while
they were in the first grade. The other purpose was to
investigate the early childhood characteristics of good
and poor readers in the intermediate grades. Because these
were two investigations conducted on two different popu-
lations, the description of the design and the procedure of
each are discussed separately in this chapter.

I. GROWTH PATTERNS IN READING ACHIEVEMENT

The Design

To investigate the growth patterns in reading achieve-
ment a retrospective longitudinal study was made of the
development in reading achievement of a group of 300 pupils
who were in grade seven in September, 1967. This group con-
sisted of 150 boys and 150 girls belonging to five different
categories of reading readiness when they were in first
grade. The initial readiness status of each subject was
determined from the total readiness score on the Metropolitan

Readiness Tests taken when he was in first grade in September, 1961. Growth in reading achievement was measured by the subtests on Paragraph Meaning and Word Meaning of the Stanford Achievement Test administered every May from 1964 through May, 1968, that is, at each grade level from third through seventh.

A multifactor analysis of variance with repeated measurement design was made on four variables: sex, reading readiness category, "trial" or repeated measurement, and replication. There were five levels of the readiness factor: superior, high normal, average, low normal, and poor risk. Five "trials" were made, one for each grade from grade three through grade seven. There were two replications. The replication factor was introduced into the design because the groups of students in the readiness categories were not random groups. For this reason a category by "trial" interaction might result from initial differences between the groups other than those due to differences in level of reading readiness. Separate analyses were done for Paragraph Meaning and Word Meaning.

Comparisons of the growth patterns of groups of pupils in the various reading readiness categories were made by submittingtto graphical and statistical analyses the results of the subtests on Paragraph Meaning and Word

Meaning of the Stanford Achievement Test. Figures were
employed to depict graphically the trend of the means of
the different categories of reading readiness. The slope
of the line for each category was computed. This slope
described the rate of increase in reading achievement
accompanying the increase in grade level of pupils belonging
to each category of reading readiness. Tests of signifi-
cant differences were made between each pair of slopes. If
the difference was found to be significant at the .05 or
better than the .05 level, it was concluded that the slopes
were significantly different for the categories being com-
pared.

For each category of reading readiness, t tests of
significance between each pair of consecutive grades were
made to determine if plateaus in the growth patterns existed.

Mean gains from grade to grade and the overall mean
gain from grade three through grade seven for each of the
five categories of reading readiness were computed and com-
pared to discover if they were positively related to initial
status of reading readiness.

Sex differences in reading achievement growth were
determined statistically by means of the t test, and graphi-
cally by plotting and comparing the means in Paragraph
Meaning and Word Meaning by grade and by sex for the super-
ior, high normal, average, low normal, and poor risk cate-

gories of reading readiness.

The Population and Selection of Subjects

The population consisted of all the pupils enrolled
in the seventh grade of the public elementary schools in
Richmond, British Columbia, who took the Metropolitan
Readiness Tests when they were in first grade in 1961 and
the Stanford Achievement Test when they were in grades three
through seven. Of a total of seventeen schools in the
school district with grade seven classes, fourteen were
found to have pupils with complete records of the results
of the Metropolitan Readiness Tests and the Stanford Achieve-
ment Test from grade three through grade seven. Table II
on page 36 shows the distribution of subjects among the
schools.

The 517 children with complete records of the reading
readiness test and the reading achievement tests results
were classified into five categories of reading readiness
according to their total scores on the Metropolitan Readiness
Tests, Form R, taken when they were in first grade in
September, 1961. The result of the categorization is shown
in Table III on page 36.

The listing of the boys was done separately from the
girls. An equal number of pupils for each sex was randomly
selected for each group to be able to do an exact and com-
parable analysis. Since thirty came out to be the smallest

TABLE II

DISTRIBUTION OF SUBJECTS INCLUDED IN THE STUDY

School Number	No. of Grade 7 Pupils	No. with MRT and SAT Results (Gr. 3-Gr. 7)	No. of Pupils Included in the Sample
1	120	84	53
2	73	16	14
3	53	12	9
4	87	51	26
5	94	56	35
6	88	66	37
7	90	40	22
8	88	5	2
9	84	34	15
10	86	19	14
11	73	44	22
12	47	19	13
13	38	18	10
14	90	83	28
Total 14	1111	517	300

TABLE III

DISTRIBUTION OF PUPILS ACCORDING
TO READINESS CATEGORIES

Readiness Categories	Total Score	No. of Pupils Boys	Girls
Superior	90 - 100	30	33
High Normal	80 - 89	44	54
Average	65 - 79	80	84
Low Normal	40 - 64	71	57
Poor Risk	0 - 39	33	31
Total		258	259

number among the groups, thirty boys and thirty girls were randomly selected for each of five categories of reading readiness. For purposes of replication these groups of thirty subjects were each further randomly divided into two groups of fifteen for each category.

Procedures in Collecting Data

The testing program in Richmond provided for a district-wide testing schedule every school year. Hence, longitudinal records of intellectual and academic growth of pupils were available in almost all of the elementary schools in the school district. However, the records varied from school to school and sometimes from class to class. Many of the pupils had school permanent record cards which did not include the subtest results and had to be excluded from the sample.

The Metropolitan Readiness Tests results and the yearly grade level scores on the Word Meaning and Paragraph Meaning subtest in reading as determined by the Stanford Achievement Test were obtained from the school permanent record cards. Data not available from the school permanent record cards were taken from reports on promotion and Stanford Achievement Test class records and class analysis charts prepared by the teachers after each examination. The results of the tests listed in Table IV on page 38 were utilized in this study.

TABLE IV

STANDARDIZED TESTS USED IN THE STUDY

Name of Test	Form of Test	Date Given
Metropolitan Readiness Tests	R	Sept., 1961
Stanford Achievement Test	J	May, 1964
Stanford Achievement Test	K	May, 1965
Stanford Achievement Test	J	May, 1966
Stanford Achievement Test	K	May, 1967
Stanford Achievement Test	W	May, 1968

Parallel forms of the fourth edition of the Stanford
Achievement Test, Forms J and K, were alternately used when
the pupils were in grades three through six but Form W of
the fifth edition was used in grade seven. However, the
equivalence of the two editions has been determined by the
publishers from grades five through nine which makes it
possible for the users of the tests to compare performances
on the two editions. Hence, the scores on Form W were
converted to equivalent scores on Form J and Form K by
using a table provided by the publishers.

The grade equivalent scores on the Word Meaning and
Paragraph Meaning subtests were converted into K-scores
by using the K-tables found in the Manual to the Stanford
Achievement Test. This procedure was necessary because

grade equivalents do not constitute series of equal units. A gain of one year from grade one to grade two may not represent the same amount of growth in ability as does a gain of a year from grade six to grade seven. Since this study involved accurate measurement of growth in reading achievement, there was a need for a scale of equal units.

The K-scales[1] have units that are approximately equal throughout the entire range of the scale. Each unit is equal to one-seventh the standard deviation of the national grade five frequency distribution. The average performance of grade 10 children was selected as the reference point and was assigned a grade score of 100.

K-units are obtained by fitting a series of over-lapping frequency curves on the same abscissa in such a way that the proportions of pupils in consecutive grades who obtain the same score in a particular test correspond to the proportions given by the original data. Equal units then are equal distances along the common abscissa.

Description of the Tests Used in the Study

The Metropolitan Readiness Tests. The Metropolitan Readiness Tests are designed to measure the different as-

---

[1]Eric F. Gardner, "Comments on Selected Scaling Techniques with a Description of a New Type of Scale," Journal of Childhood Psychology, 6:38-43, 1950.

pects of readiness for school instruction of beginning
pupils. These tests are usually administered at the end
of kindergarten or beginning of first grade. The six sub-
tests contained in a sixteen-page booklet are Word Meaning,
Sentences, Information, Matching Numbers, and Copying.
These subtests are devised to measure traits and abilities
of school beginners such as richness of verbal concepts,
comprehension of phrases and sentences, visual-perceptual
skills, knowledge of numerical and quantitative relation-
ships, and sensory-motor abilities.

The reliability data for the Metropolitan Readiness
Tests are shown in Table V below. The correlations given
are median values of six measurements of groups of first
graders.

TABLE V

RELIABILITY COEFFICIENTS AND RELATED DATA,
METROPOLITAN READINESS TESTS, GRADE I*

Test	Rel. Coef.	1st Testing Mean	S.D.	2nd Testing Mean	S.D.	Stan. Error Meas.
Word Meaning	.583	15.61	2.51	15.92	2.26	1.62
Sentences	.535	10.52	2.39	10.86	2.27	1.63
Information	.586	12.02	2.06	12.39	1.89	1.33
Matching	.773	13.19	4.23	14.19	3.75	2.02
Numbers	.839	13.50	4.78	14.38	4.85	1.92
Copying	.762	5.26	2.76	5.31	2.75	1.35
Tests 1-4	.828	51.07	8.83	53.20	8.13	3.66
Tests 1-6	.890	69.71	13.92	72.96	13.12	4.62

* Metropolitan Readiness Tests, Form R, Direction for
Administering and Key for Scoring (New York: Harcourt,
Brace and World, Inc., 1948), p. 30.

Reviewers of the Metropolitan Readiness Tests claimed that these tests are among the most widely used and among the superior readiness tests now available.[2] Table VI below shows the correlation between the Metropolitan Readiness Tests and the Metropolitan Achievement Tests.

TABLE VI

PREDICTIVE VALIDITY OF METROPOLITAN READINESS TESTS
AS FOUND FOR THE 919 FIRST-GRADE PUPILS IN THE
WHITE SCHOOLS OF A COUNTY SYSTEM*

Met. Read. Tests	Word Knowledge	Word Discrim.	Reading	Ave. Rdg. Tests	Arith. Concepts and Skills	Mean	S.D.
	Correlation with Metropolitan Achievement Tests (1959 Edition, Primary 1 Battery)						
Tests 1-4	.467	.462	.427	.482	.544	53.4	9.3
Test 5	.563	.581	.512	.589	.622	15.1	5.1
Tests 1-6 (Total)	.558	.557	.511	.578	.632	75.1	15.6
Mean	1.87	1.99	2.01	1.96	2.31		
S.D.	.44	.61	.59	.52	.61		

* Blythe C. Mitchell, "The Metropolitan Readiness Tests as Predictors of First-Grade Achievement," Educational and Psychological Measurement, 22:767, Winter, 1962.

The coefficients of correlation between the Metropolitan Readiness Tests and the Metropolitan Achievement Tests ranged from .427 to .632. In this large sample of 919 pupils these coefficients of correlation which are significant at the .005

[2]Oscar K. Buros (ed.), Fourth Mental Achievement Yearbook (Highland Park: The Gryphon Press, 1953), p. 570.

level[3] proved that the Metropolitan Readiness Tests are good predictors of success at the first grade level.

The Stanford Achievement Test. The Stanford Achievement Test is designed to measure outcomes of elementary school instruction. It consists of different levels of batteries for various grades and covers different subjects. Periodic revisions of this test have been made.

The Word Meaning subtest of the Stanford Achievement Test is a multiple-choice type. It consists of items which measure knowledge of synonyms, of simple definitions, and ready associations. There are also items which measure higher-level comprehension of concepts represented by words, and fullness of understanding of terms. Words included in this test are those that occur most frequently in children's speaking and reading vocabularies.

The Paragraph Meaning subtest measures the child's comprehension of the paragraph by selecting the proper word for each omission in the paragraph. It tests also the pupil's ability to understand connected discourse. Paragraphs selected are graduated in difficulty and are on subjects of interest to children. These paragraphs are

---

[3]George A. Ferguson, Statistical Analysis in Psychology and Education (New York: McGraw Hill Book Company, 1966), p. 413.

based on general reading materials, science, geography, history, fine arts, and literature.

Reviews of the Stanford Achievement Test are favorable. Agatha Townsend[4] said that the Stanford Achievement Test holds a position of importance in the testing program which is hard to duplicate because it can be used with or without the whole battery; it has five equivalent forms for each level; its scoring system permits a longitudinal growth study over a wide range; and the results within these limits are unusually dependable. James R. Hobson[5] remarked that the reading subtests of the Stanford Achievement Test are the oldest in a widely used achievement battery and remain one of the most satisfactory reading tests. Mariam M. Bryan stated that "the 1964 edition of the Stanford Achievement Test still rates high among standardized test batteries designed for use at the elementary school levels. . . . The Stanford Achievement Test will offer keen competition to most other standardized tests because (a) it offers a means of continuous measurement from grade 1 through grade 9 and (b) many test users feel comfortable working with it as a

---

[4]Oscar K. Buros (ed.), Fifth Mental Measurement Yearbook (Highland Park: The Gryphon Press, 1959), pp.656-57.

[5]Oscar K. Buros (ed.), Fourth Mental Measurement Yearbook (Highland Park: The Gryphon Press, 1953, p. 555.

result of long experience."[6] Robinson[7] commented that this
test is a dependable measure of reading achievement and
among the best survey tests for elementary schools because
of its format, contents, standardization, norms, and ease
of administration and scoring.

II. EARLY CHILDHOOD CHARACTERISTICS OF GOOD
AND POOR READERS IN GRADE V

The investigator had originally planned to conduct
this part of the study on the same population used for the
growth study. However, because of the retrospective nature
of this study, it was necessary to depend on data already
available on permanent record cards and other school records.
Unfortunately, in the school district where the growth study
was undertaken, there were no records of the subtests
scores on the Metropolitan Readiness Tests. The data from
these subtests scores were necessary in the second part of
this study because they are standardized measures of initial
status in various aspects of readiness. Therefore, rather
than drop this part of the study which was considered impor-

---

[6]Oscar K. Buros (ed.), Sixth Mental Measurement
Yearbook (Highland Park: The Gryphon Press, 1965), p. 26.

[7]Oscar K. Buros (ed.), Fifth Mental Measurement
Yearbook (Highland Park: The Gryphon Press, 1959), p. 656.

tant, it was decided to select another school district

where subtests scores of the Metropolitan Readiness Tests

were available.

The Design

The ex post facto design was used in this second part

of the study. Ex post facto research is one "in which the

independent variable or variables have already occurred and

in which the researcher starts with the observation of a

dependent variable or variables. He then studies the in-

dependent variables in retrospect for their positive rela-

tions to, and effect on, the dependent variable or

variables."[8]

In the ex post facto study an investigator takes

things as they are. He can not control the independent

variables. Neither can he make use of randomization be-

cause the subjects and treatments are already assigned to

groups. Because of this lack of control it is difficult

to draw valid conclusions from ex post facto research.

There is always a danger of making erroneous interpretations

because of the inability to manipulate independent variables

that already exist in the individuals studied. Great care

---

[8]Fred N. Kerlinger, Foundations of Behavioral
Research (New York: Holt, Rinehart and Winston, Inc.,
1967), p. 360.

and caution should be practised when interpreting the results of ex post facto investigations.

In this particular study, the dependent variable was reading achievement in grade five. The independent variables were school entrance age, home background, and early childhood physical, intellectual, social, and emotional characteristics which could not be manipulated.

It was not the purpose of this study to state any causal connection between the dependent variable and any of the independent variables but to find out which, if any, of these independent variables were related to and might influence success in reading in the intermediate grades.

Case studies were made on a sample of good and poor readers. Parents were interviewed to gather facts about their child's preschool, kindergarten, and first grade experiences that might have contributed to his becoming a good or a poor reader by the time he was in grade five. The data on readiness category, richness of verbal concepts, vocabulary, visual perception, auditory perception, number knowledge, and motor control were based on the results of the Metropolitan Readiness Tests administered to each child when he was in kindergarten.

To be able to ascertain which of the characteristics investigated distinguished the good readers from the

poor readers, the Fisher exact probability test[9] was used. This test determined whether the traits studied differentiated significantly between the successful and unsuccessful readers in the fifth grade.

Selection of Subjects for the Study

The population for this part of the study consisted of 315 grade five pupils, 154 boys and 161 girls, in five elementary schools in Vancouver who took the Gates-MacGinitie Reading Tests in May, 1968. The children belonging to the top 27 per cent were classified as good readers and those in the bottom 27 per cent were considered as poor readers. Twenty-seven per cent was chosen as the cut-off point because Kelley[10] has shown that for normally distributed scores, in order to yield upper and lower groups which are unquestionably different with respect to the trait in question, and at the same time to minimize loss of information, 27 per cent should be selected at each extreme.

The subjects for the case studies were selected from the top 27 per cent and the bottom 27 per cent of the popu-

---

[9] Sidney Siegel, Nonparametric Statistics (New York: McGraw-Hill Book Company, Inc., 1956), pp. 96-103.

[10] Truman L. Kelley, "The Selection of Upper and Lower Groups for the Validation of Test Items," The Journal of Educational Psychology, 30:17-24, January, 1939.

lation. It was arbitrarily decided that an investigation of sixteen pupils from each group would be sufficient to show distinguishing characteristics in preschool and beginning school years of good and poor readers. A sampling plan in which 20 per cent of students was selected randomly from each of the five schools was used to obtain the thirty-two subjects for case studies.

Procedures in Collecting the Data

The school entrance age, readiness category, subtest scores and total score on the Metropolitan Readiness Tests administered to the subjects in May, 1963 were obtained from a list compiled by the Department of Research and Special Services of the Vancouver School Board. The date of birth, address and name of parents, and the results of the Gates-MacGinitie Reading Tests were gathered from the school permanent record cards.

An interview guide was used while interviewing parents to gather pertinent information on traits and experiences of their child before he went to school and during his early school years. The Interview Guide[11] included background information, physical, intellectual,

_____

[11]See Appendix A, pp. 124-127.

social, and emotional characteristics in early childhood
days of the subject of the case study.

III. SUMMARY

This study consisted of two separate investigations.
The first was a retrospective longitudinal study of the
patterns of growth in reading achievement of 300 grade
seven children with different initial status of reading
readiness. Reading achievement growth was based on K-scores
on Word Meaning and Paragraph Meaning subtests of the
Stanford Achievement Test administered yearly from grade
three through grade seven. The growth patterns were analyzed
and compared graphically and statistically by using the
analysis of variance and the t test.

In the second investigation the ex post facto method
was used in determining early childhood characteristics
that were related to the reading achievement of sixteen good
readers and sixteen poor readers in grade five. The Fisher
exact probability test was applied to determine which of
the traits investigated distinguished the poor from the
good readers.

CHAPTER IV

PRESENTATION AND ANALYSIS OF DATA

The presentation and analysis of data are presented
in the order in which the hypotheses are stated. The find-
ings on the study of growth patterns in reading achievement
of groups of children with different initial status of
reading readiness are discussed first. This is followed
by the discussion of the characteristics in preschool,
kindergarten, and first grade of children who have become
good and poor readers in the fifth grade.

I. ANALYSIS OF VARIANCE

Tables VII and VIII present the results of the
analysis of variance made to determine if there were signi-
ficant differences among the fixed factors: sex, reading
readiness category and "trial" and the random factor,
replication. The difference between sexes was found to be
significant at the .05 level. The five categories of
reading readiness and the "trial" or the repeated measure-
ments each year from grade three through grade seven were
significantly different at the .01 level on both Paragraph
Meaning and Word Meaning subtests of the Stanford Achieve-
ment Test.

Interactions between replication and "trial" reached
the .025 level in Word Meaning. The category by "trial"

TABLE VII

ANALYSIS OF VARIANCE (PARAGRAPH MEANING)

Source of Variation*	Sum of Squares	df	Mean Square	Expected Mean Square	F	
Between Ss.						
A	140.5760	1	140.5760	$750\,\sigma_A^2 + 5\,\sigma_{e_1}^2$	1.18	
B	634.7972	1	634.7972	$750\,\sigma_A^2 + 375\,\sigma_{AB}^2 + 5\,\sigma_{e_1}^2$	220.26	$p < .05$
C	20623.9319	4	5155.9830	$300\,\sigma_C^2 + 150\,\sigma_{AC}^2 + 5\,\sigma_{e_1}^2$	137.24	$p < .001$
AB	2.8821	1	2.8821	$375\,\sigma_{AB}^2 + 5\,\sigma_{e_1}^2$	.02	
AC	150.2778	4	37.5695	$150\,\sigma_{AC}^2 + 5\,\sigma_{e_1}^2$	.32	
BC	1223.0769	4	305.7692	$150\,\sigma_{AC}^2 + 75\,\sigma_{ABC}^2 + 5\,\sigma_{e_1}^2$	2.16	
ABC	566.4859	4	141.6215	$75\,\sigma_{ABC}^2 + 5\,\sigma_{e_1}^2$	1.19	
I(ABC)	33230.6025	280	118.6807	$5\,\sigma_{e_1}^2$		
Within Ss.						
D	55543.0581	4	13885.7645	$300\,\sigma_C^2 + 150\,\sigma_{AC}^2 + 1\,\sigma_{e_2}^2$	529.68	$p < .001$
AD	104.8608	4	26.2152	$150\,\sigma_{AC}^2 + 1\,\sigma_{e_2}^2$	1.36	
BD	253.7168	4	63.4292	$150\,\sigma_{AC}^2 + 75\,\sigma_{ABC}^2 + 1\,\sigma_{e_2}^2$	1.77	
CD	808.2451	16	50.5153	$60\,\sigma_{CD}^2 + 30\,\sigma_{ACD}^2 + 1\,\sigma_{e_2}^2$	4.00	$p < .01$
ABD	143.1619	4	35.7905	$75\,\sigma_{ABC}^2 + 1\,\sigma_{e_2}^2$	1.86	
ACD	202.1592	16	12.6349	$30\,\sigma_{ACD}^2 + 1\,\sigma_{e_2}^2$	.66	
BCD	297.6321	16	18.6020	$30\,\sigma_{ACD}^2 + 15\,\sigma_{ABCD}^2 + 1\,\sigma_{e_2}^2$	1.05	
ABCD	282.9653	16	17.6853	$15\,\sigma_{ABCD}^2 + 1\,\sigma_{e_2}^2$	.92	
ID(ABC)	21523.0273	1120	19.2170	$1\,\sigma_{e_2}^2$		

*A = Replication (random)
B = Sex (fixed)
C = Category (fixed)

D = Trial (fixed)
I = Subject (random)

TABLE VIII

ANALYSIS OF VARIANCE (WORD MEANING)

Source of Variation*	Sum of Squares	df	Mean Square	Expected Mean Square	F	
Between Ss.						
A	93.4534	1	93.4534	$750\,\sigma^2_A + 5\,\sigma^2_{e_1}$	.75	
B	1481.2533	1	1481.2533	$750\,\sigma^2_A + 375\,\sigma^2_{AB} + 5\,\sigma^2_{e_1}$	416.00	$p < .05$
C	24425.1082	4	6106.2770	$300\,\sigma^2_C + 150\,\sigma^2_{AC} + 5\,\sigma^2_{e_1}$	199.61	$p < .001$
AB	3.5607	1	3.5607	$375\,\sigma^2_{AB} + 5\,\sigma^2_{e_1}$	.03	
AC	122.3613	4	30.5903	$150\,\sigma^2_{AC} + 5\,\sigma^2_{e_1}$	.25	
BC	11283.1128	4	320.7782	$150\,\sigma^2_{AC} + 75\,\sigma^2_{ABC} + 5\,\sigma^2_{e_1}$	1.68	
ABC	764.5945	4	191.1486	$75\,\sigma^2_{ABC} + 5\,\sigma^2_{e_1}$	1.54	
I(ABC)	34728.8027	280	124.0314	$5\,\sigma^2_{e_1}$		
Within Ss.						
D	83015.0498	4	20753.7625	$300\,\sigma^2_C + 150\,\sigma^2_{AC} + 1\,\sigma^2_{e_2}$	298.91	$p < .001$
AD	277.7227	4	69.4307	$150\,\sigma^2_{AC} + 1\,\sigma^2_{e_2}$	2.94	$p < .025$
BD	939.1133	4	234.7783	$150\,\sigma^2_{AC} + 75\,\sigma^2_{ABC} + 1\,\sigma^2_{e_2}$	15.38	$p < .025$
CD	5098.8418	16	318.6776	$60\,\sigma^2_{CD} + 30\,\sigma^2_{ACD} + 11\,\sigma^2_{e_2}$	14.53	$p < .001$
ABD	61.0438	4	15.2609	$75\,\sigma^2_{ABC} + 1\,\sigma^2_{e_2}$	.65	
ACD	350.8730	16	21.9296	$30\,\sigma^2_{ACD} + 1\,\sigma^2_{e_2}$	.93	
BCD	360.1548	16	22.5097	$30\,\sigma^2_{ACD} + 15\,\sigma^2_{ABCD}$	1.73	
ABCD	208.0773	16	13.0048	$15\,\sigma^2_{ABCD} + 1\,\sigma^2_{e_2}$	.55	
ID(ABC)	264657.9944	1120	23.6232	$1\,\sigma^2_{e_2}$		

*A = Replication (random)
B = Sex (fixed)
C = Category (fixed)
D = Trial (fixed)
I = Subjects (random)

interaction was significant at the .01 level in Word Meaning and highly significant at the .001 level in Paragraph Meaning. This means that it is possible that factors other than readiness category might be responsible for the differences among the groups of children included in this study. However, this would be a slim possibility because the replication by category by "trial" interactions were not significant. This would mean that the category by "trial" pattern was the same for both replications. Thus if it was not category that accounted for the difference, it would have to be something else systematic and common to both samples such as socio-economic background or parents' education.

II. HYPOTHESIS 1

There is no difference among the patterns of group means in reading achievement of pupils belonging to each of the superior, high normal, average, low normal, and poor risk categories of reading readiness.

The mean K scores of the total group of subjects used in this investigation on Paragraph Meaning and Word Meaning are shown in Table IX and Table X on page 54. A grade to grade comparison of these means between readiness categories presented in Table XI reveals significant differences beyond the .05 level for almost all pairs of

TABLE IX

MEAN K SCORES BY GRADE ON PARAGRAPH MEANING IN
THE STANFORD ACHIEVEMENT TEST OF BOTH SEXES
IN THE SUPERIOR, HIGH NORMAL, AVERAGE,
LOW NORMAL AND POOR RISK CATEGORIES
OF READING READINESS

Readiness Category	Mean K Scores				
	Grade 3	Grade 4	Grade 5	Grade 6	Grade 7
Superior	82.24	86.58	92.66	95.65	102.82
High Normal	77.65	81.66	86.84	89.67	96.60
Average	76.17	79.48	84.13	86.70	93.13
Low Normal	75.35	77.93	81.74	85.31	91.54
Poor Risk	75.21	77.44	82.16	84.35	89.92

TABLE X

MEAN K SCORES BY GRADE ON WORD MEANING IN THE
STANFORD ACHIEVEMENT TEST OF BOTH SEXES
IN THE SUPERIOR, HIGH NORMAL, AVERAGE,
LOW NORMAL AND POOR RISK CATEGORIES
OF READING READINESS

Readiness Category	Mean K Scores				
	Grade 3	Grade 4	Grade 5	Grade 6	Grade 7
Superior	75.04	78.28	87.44	94.02	104.52
High Normal	72.35	75.50	81.30	85.99	94.77
Average	70.62	73.29	78.31	83.04	90.25
Low Normal	70.29	73.29	76.52	80.53	86.69
Poor Risk	69.18	72.42	76.67	79.39	86.15

TABLE XI

COMPARISON OF MEANS BETWEEN READINESS CATEGORIES BY
GRADE OF BOTH SEXES

Grade	Readiness Categories Compared	Paragraph Meaning t Value	t Prob.	Word Meaning t Value	t Prob.
3	Superior, High Normal	7.269	.000	5.919	.000
	Superior, Average	10.389	.000	9.138	.000
	Superior, Low Normal	12.580	.000	10.690	.000
	Superior, Poor Risk	11.707	.000	13.082	.000
	High Normal, Average	3.042	.003	4.008	.000
	High Normal, Low Normal	5.192	.000	5.324	.000
	High Normal, Poor Risk	44.820	.000	8.095	.000
	Average, Low Normal	2.183	.028	0.792	.435*
	Average, Poor Risk	2.146	.031	3.383	.001
	Low Normal, Poor Risk	0.369	.712*	2.902	.004
4	Superior, High Normal	5.592	.000	4.706	.000
	Superior, Average	8.157	.000	8.856	.000
	Superior, Low Normal	11.193	.000	8.905	.000
	Superior, Poor Risk	11.721	.000	9.994	.000
	High Normal, Average	2.651	.008	4.329	.000
	High Normal, Low Normal	5.202	.000	4.363	.000
	High Normal, Poor Risk	5.820	.000	5.751	.000
	Average, Low Normal	2.205	.027	0.011	.939*
	Average, Poor Risk	2.862	.005	1.724	.082*
	Low Normal, Poor Risk	0.821	.418*	11.724	.082*

TABLE XI (continued)

Grade	Readiness Categories Compared	Paragraph Meaning t Value	t Prob.	Word Meaning t Value	t Prob.
5	Superior, High Normal	6.030	.000	5.970	.000
	Superior, Average	9.110	.000	10.002	.000
	Superior, Low Normal	13.091	.000	12.220	.000
	Superior, Poor Risk	11.337	.000	11.602	.000
	High Normal, Average	3.064	.003	3.891	.000
	High Normal, Low Normal	6.584	.000	6.404	.000
	High Normal, Poor Risk	5.358	.000	5.892	.000
	Average, Low Normal	3.244	.002	3.122	.002
	Average, Poor Risk	2.343	.019	2.632	.009
	Low Normal, Poor Risk	-0.588	.565*	-0.247	.792*
6	Superior, High Normal	6.489	.000	6.384	.000
	Superior, Average	10.467	.000	9.173	.000
	Superior, Low Normal	12.789	.000	12.115	.000
	Superior, Poor Risk	12.840	.000	13.292	.000
	High Normal, Average	3.567	.001	2.759	.006
	High Normal, Low Normal	5.544	.000	5.599	.000
	High Normal, Poor Risk	6.189	.000	6.872	.000
	Average, Low Normal	1.951	.049	2.803	.006
	Average, Poor Risk	2.969	.003	4.151	.000
	Low Normal, Poor Risk	1.302	.191*	1.498	.131*

TABLE XI (continued)

Grade	Readiness Categories Compared	Paragraph Meaning t Value	t Prob.	Word Meaning t value	t Prob.
7	Superior, High Normal	5.633	.000	6.707	.000
	Superior, Average	9.092	.000	11.072	.000
	Superior, Low Normal	11.052	.000	13.711	.000
	Superior, Poor Risk	12.372	.000	14.124	.000
	High Normal, Average	3.283	.001	3.514	.001
	High Normal, Low Normal	5.003	.000	6.228	.000
	High Normal, Poor Risk	6.461	.000	6.642	.000
	Average, Low Normal	1.641	.098*	3.214	.002
	Average, Poor Risk	3.232	.002	3.698	.000
	Low Normal, Poor Risk	1.712	.084*	0.479	.638*

* not significant

readiness categories. The comparisons that did not reach
the .05 level were those on Paragraph Meaning between the
low normal and poor risk groups in grades three through
seven and between the average and low normal groups in
grade seven only and on Word Meaning between the low normal
and poor risk groups in grades four through six, between
the average and low normal groups in grades three and four,
and between the average and poor risk groups in grade four.

It can be seen in Table XII that there were signifi-
cant differences at better than the .01 level between the
slopes of the growth curves of the different reading readi-
ness categories. Only the comparisons between the average
and the low normal groups on Paragraph Meaning and the low
normal and poor risk groups on Word Meaning fell short of
the .05 level. It is probable that because of the large
sample most of the differences became significant although
not obviously important. Moreover, when slopes were com-
pared least squares straight lines were fitted to the data.
Although "linear regression equations may serve quite well
to describe statistical relations that are roughly like
linear functions"[1] the tests of difference between the

_____

[1]William L. Hays, Statistics for Psychologists (New
York: Holt, Rinehart and Winston, 1960), p. 539.

TABLE XII

COMPARISON OF SLOPES BETWEEN READING
READINESS CATEGORIES OF BOTH SEXES

Readiness Categories Compared	df	Paragraph Meaning		Word Meaning	
		t Value	t Prob.	t Value	t Prob.
Superior, High Normal	118	3.425	.000	16.030	.000
Superior, Average	118	6.803	.000	20.588	.000
Superior, Low Normal	118	7.832	.000	25.000	.000
Superior, Poor Risk	118	10.417	.000	27.692	.000
High Normal, Average	118	3.546	.000	4.964	.000
High Normal, Low Normal	118	4.667	.000	11.189	.000
High Normal, Poor Risk	118	7.180	.000	13.115	.000
Average, Low Normal	118	0.714	.455*	7.246	.000
Average, Poor Risk	118	3.333	.000	8.571	.000
Low Normal, Poor Risk	118	2.817	.007	0.915	.355*

* not significant

slopes in this particular sample should be treated with considerable caution. Table XV on page 68 shows that the mean gains from grade to grade were not relatively constant. The differences in the "trial" means were large in grades four to five. They became very small in grades five to six but increased again in grades six to seven. Figures 1 and 2 on pages 60 and 61 show graphically the trend of the means of the total group for each category of reading readiness in Paragraph Meaning and Word Meaning, respectively. The figures reveal that the plots are curvilinear, hence fitting straight lines to them is apt to give only a crude picture of their trend.
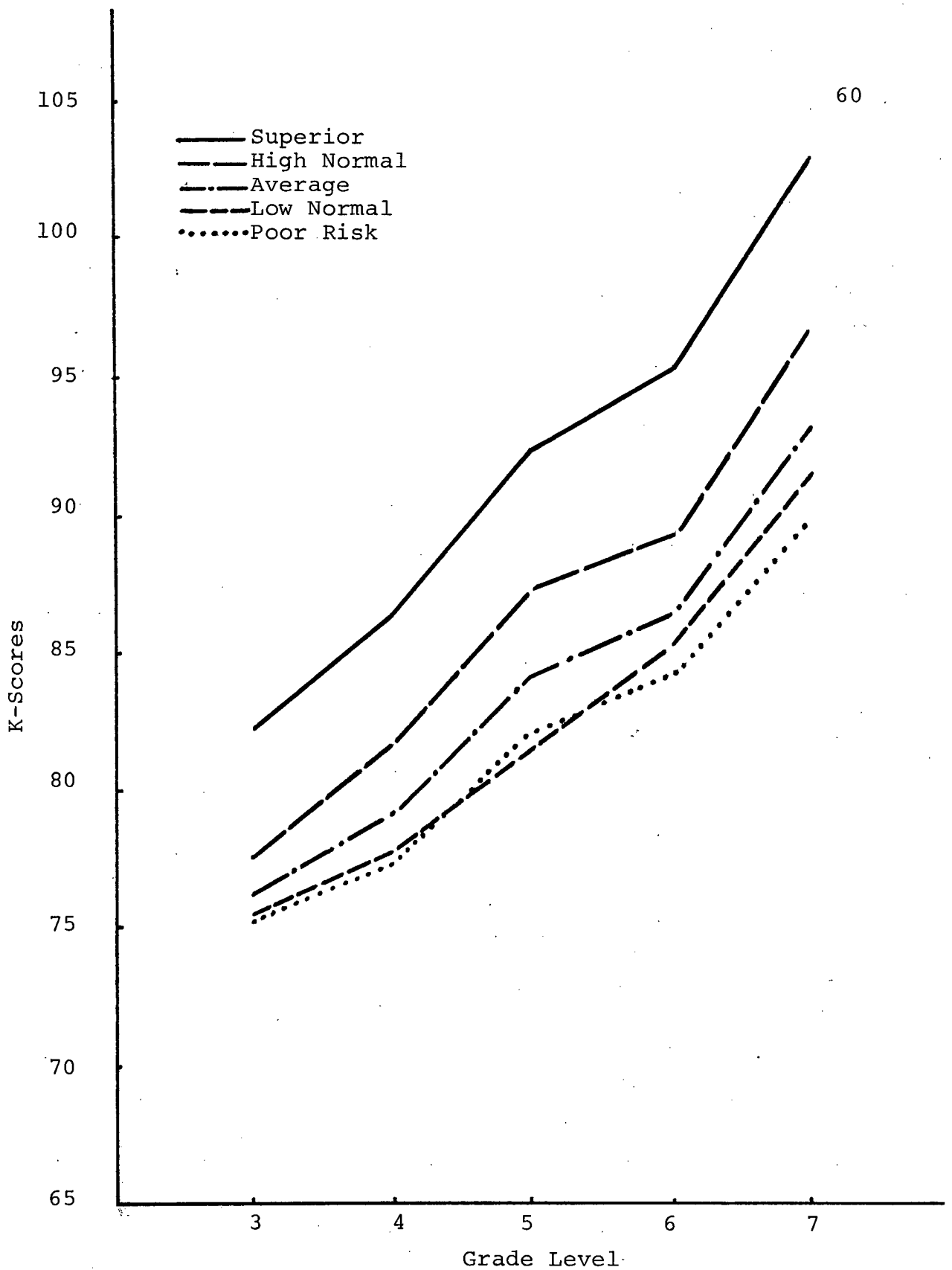
Figure 1. Trend of means on Paragraph Meaning of both sexes in five levels of reading readiness.
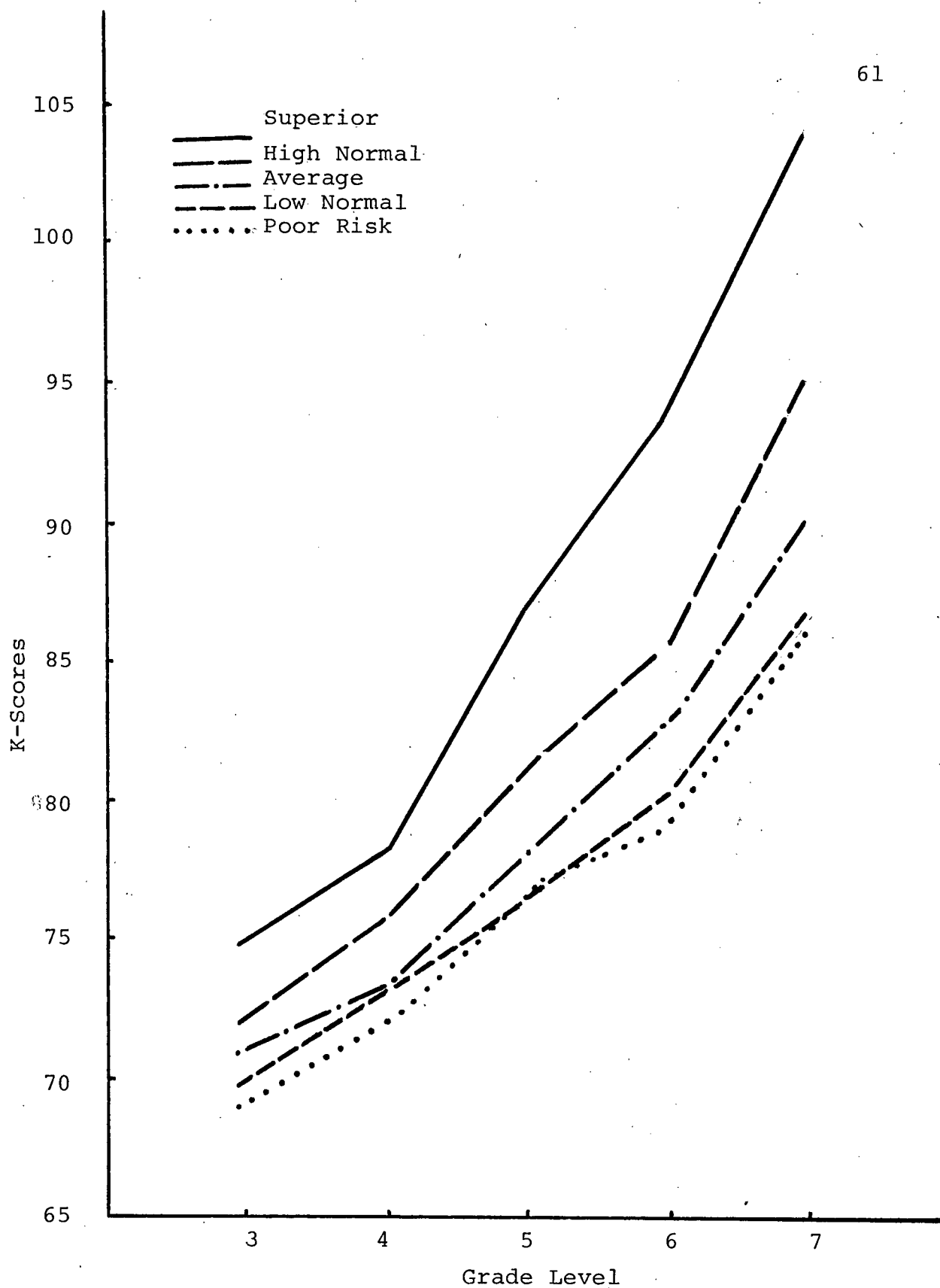
Figure 2.   Trend of means on Word Meaning of both sexes
   in five levels of reading readiness.

On Paragraph Meaning, the greatest difference be-
tween the superior group and the high normal group was in
grade six. The difference was greatest in grade five be-
tween the high normal and average groups and between the
average and low normal groups. The low normal and poor
risk groups appeared to be most different in grade seven.
The difference, however, was slight and was not significant.

On Word Meaning, the greatest difference was in grade
seven for the three highest categories of reading readiness.
The biggest difference between the low normal and the poor
risk groups was in grade six.

The growth curves reveal that pupils who started
superior in reading readiness, on the average, remained
superior through grade seven. They even tended to progress
more rapidly than those children in other categories of
reading readiness with a faster growth rate on Word Meaning
than on Paragraph Meaning.

The high normal and the average groups exhibited
patterns of growth on Paragraph Meaning that appear simi-
lar to the superior group except for the general levels.
However, the semi-plateau in grades five to six is more
marked in the high normal and average groups than in the
superior. On Word Meaning, the rate of growth of the high
normal group slowed down from grade four through grade six.

The pupils in the three higher categories maintained their superiority over those in the two lower groups from grade three through grade seven.

Tests of difference between the means of the low normal and the poor risk groups showed that their growth patterns did not differ significantly. However, while the pupils in the low normal category had a slow but continuous growth from the third grade through the seventh grade, the rate of growth of those in the poor risk category fluctuated from grade to grade.

It is interesting to note that the increase in growth in reading achievement was more marked in grade seven than in any other grade. This may be explained by the fact that since "achievement in school . . . tends to be an expression of total growth"[2] the spurts in reading achievement growth most likely accompany spurts in sex maturing, general physical growth, and intellectual development during pre-adolescent years. It is also possible that many of the children would already have mastered the skills in reading by the time they were in grade seven and thus got higher scores on the reading subtests of the Stanford Achievement Test.

---

[2]William C. Olson and Byron O. Hughes, "Concept of Growth - Their Significance to Teachers," Childhood Education, 21:53-63, October, 1944.

Based on the evidence presented, the hypothesis that
there is no difference among the patterns of group means in
reading achievement was rejected for the superior, high norm-
al, and average categories but was accepted for the low
normal and poor risk categories of reading readiness.

III. HYPOTHESIS 2

There is a plateau in grade four in the reading growth
curve for each category of reading readiness.

To find out if such plateaus exist in the reading
growth curve for each of the superior, high normal, average,
low normal, and poor risk categories, a t test of signifi-
cance was made on the difference of the means of the scores
on the <u>Stanford Achievement Test</u> between each pair of con-
secutive grades.

Table XIII on page 65 shows the comparison of means
between grades by readiness category on Paragraph Meaning
and Table XIV on page 66 presents the comparison on Word
Meaning. The computed t values for the comparisons made
between grade three and grade four for each category of
reading readiness were all found to be significant at better
than the .01 level. Contrary to the findings of previous
research, these results indicated that no plateau existed
from the month of May in grade three to the month of May in
grade four in the reading growth curve for each category of

TABLE XIII

COMPARISON OF MEANS BETWEEN GRADES BY READINESS
CATEGORY ON PARAGRAPH MEANING OF THE
STANFORD ACHIEVEMENT TEST

Readiness Category	Grades Compared	t Value	df	t Prob.
Superior	Gr.4, Gr.3	4.878	59	0.000
	Gr.5, Gr.4	6.332	59	0.000
	Gr.6, Gr.5	3.458	59	0.001
	Gr.7, Gr.6	8.367	59	0.000
High Normal	Gr.4, Gr.3	5.229	59	0.000
	Gr.5, Gr.4	6.184	59	0.000
	Gr.6, Gr.5	3.403	59	0.001
	Gr.7, Gr.6	8.851	59	0.000
Average	Gr.4, Gr.3	4.773	59	0.000
	Gr.5, Gr.4	7.432	59	0.000
	Gr.6, Gr.5	3.807	59	0.000
	Gr.7, Gr.6	7.581	59	0.000
Low Normal	Gr.4, Gr.3	5.076	59	0.000
	Gr.5, Gr.4	6.661	59	0.000
	Gr.6, Gr.5	6.402	59	0.000
	Gr.7, Gr.6	8.368	59	0.000
Poor Risk	Gr.4, Gr.3	5.451	59	0.000
	Gr.5, Gr.4	7.262	59	0.000
	Gr.6, Gr.5	3.054	59	0.003
	Gr.7, Gr.6	7.139	59	0.000

TABLE XIV

COMPARISON OF MEANS BETWEEN GRADES BY READINESS
CATEGORY ON WORD MEANING OF THE STANFORD
ACHIEVEMENT TEST

Readiness Category	Grades Compared	t Value	df	t Prob.
Superior	Gr.4, Gr.3	4.370	59	0.000
	Gr.5, Gr.4	10.146	59	0.000
	Gr.6, Gr.5	6.009	59	0.000
	Gr.7, Gr.6	9.795	59	0.000
High Normal	Gr.4, Gr.3	5.697	59	0.000
	Gr.5, Gr.4	7.776	59	0.000
	Gr.6, Gr.5	5.204	59	0.000
	Gr.7, Gr.6	8.776	59	0.000
Average	Gr.4, Gr.3	5.165	59	0.000
	Gr.5, Gr.4	8.361	59	0.000
	Gr.6, Gr.5	5.784	59	0.000
	Gr.7, Gr.6	7.728	59	0.000
Low Normal	Gr.4, Gr.3	6.394	59	0.000
	Gr.5, Gr.4	7.258	59	0.000
	Gr.6, Gr.5	8.757	59	0.000
	Gr.7, Gr.6	6.760	59	0.000
Poor Risk	Gr.4, Gr.3	9.748	59	0.000
	Gr.5, Gr.4	8.354	59	0.000
	Gr.6, Gr.5	5.475	59	0.000
	Gr.7, Gr.6	9.578	59	0.000

reading readiness. Perhaps the grade four reading program in the school district where this study was conducted has been carefully evaluated and provisions have been made to meet the needs of the pupils during this transition period from primary to intermediate grades.

The comparisons made between all other grades were also found to be significant. Figure 1 previously shown on page 60, however, reveals semi-plateaus in grades five to six on Paragraph Meaning for all categories of reading readiness except the low normal. There is a possibility that the growth rate in reading began to slow down because attention given to reading has decreased during this period. It is also possible that teachers were still developing literal comprehension and giving less emphasis on the handling of ideas in their teaching of reading.

The hypothesis that there is a plateau in grade four in the reading growth curve of each of the category of reading readiness was rejected.

IV. HYPOTHESIS 3

There are significant differences in the mean gains from grade three through grade seven among the groups in five categories of reading readiness.

The increments of the means of both sexes by readiness category on Paragraph Meaning and Word Meaning are

given in Table XV. These data reveal that there were
differences in the amount of gains from grade three through
grade seven among all categories of reading readiness.
Generally, the highest category yielded the greatest gain on
both Paragraph Meaning and Word Meaning. The poor risk group,
the lowest category, produced the smallest gain on Paragraph
Meaning but on Word Meaning, the poor risk group yielded a
slightly more but insignificant gain than the low normal
group.

TABLE XV

MEAN GAINS (K SCORES) IN THE STANFORD
ACHIEVEMENT TEST OF BOTH SEXES

Readiness Category	Grades 3-4	Grades 4-5	Grades 5-6	Grades 6-7	Grades 3-7
(Paragraph Meaning)					
Superior	4.34	6.08	2.99	7.17	20.58
High Normal	4.01	5.18	2.83	6.93	18.95
Average	3.31	4.65	2.57	6.43	16.96
Low Normal	2.58	3.81	3.57	6.23	16.19
Poor Risk	2.23	4.72	2.19	5.57	14.71
(Word Meaning)					
Superior	3.24	9.16	6.58	10.50	29.48
High Normal	3.15	5.80	4.69	8.78	22.42
Average	2.67	5.02	4.73	7.21	19.63
Low Normal	3.00	3.23	4.01	6.16	16.40
Poor Risk	3.24	4.25	2.72	6.76	16.97

The tests of significance made on the total mean gains from grade three through grade seven for the total group of subjects gave the data found in Table XVI. The differences between mean gains of almost all pairs of reading readiness categories compared were significant beyond the .05 level. Only the comparison between the low normal and poor risk groups on both Paragraph Meaning and Word Meaning failed to reach significance at the .05 level.

TABLE XVI

COMPARISON OF MEAN GAINS FROM GRADE 3 TO GRADE
7 BETWEEN READING READINESS CATEGORIES
OF BOTH SEXES

Reading Readiness Categories Compared	df	Paragraph Meaning t Value	Paragraph Meaning t Prob.	Word Meaning t Value	Word Meaning t Prob.
Superior, High Normal	118	5.471	.000	5.330	.000
Superior, Average	118	8.332	.000	8.822	.000
Superior, Low Normal	118	10.985	.000	10.600	.000
Superior, Poor Risk	118	10.627	.000	10.935	.000
High Normal, Average	118	2.729	.007	3.112	.002
High Normal,Low Normal	118	4.876	.000	4.953	.000
High Normal,Poor Risk	118	5.030	.000	5.501	.000
Average, Low Normal	118	1.940	.052	2.116	.034
Average, Poor Risk	118	2.373	.018	2.862	.005
Low Normal, Poor Risk	118	-0.709	.486*	-0.871	.389*

* not significant

Figure 3 and Figure 4 on page 71 give a clearer pic-
ture of the increments. The curves of the mean gains of the
five categories of reading readiness differ somewhat in
detail but the general trend is similar, with the exception
of the curve for the low normal group. The curves for the
superior, high normal, average, and poor risk categories,
show a rhythmical trend. It is a rhythm of an increase in
increments from grade four to grade five followed by a
decline from grade five to grade six, and a rapid increase
from grade six to grade seven. The curve of the increments
for the low normal group shows a gradual increase from grade
three through grade seven on Word Meaning. However, on
Paragraph Meaning, there is a slight decrease from grade
five to grade six followed by a rapid increase in grade
seven.

The children's rapidly expanding curriculum and
interests have possibly contributed to the decrease in the
mean gain in Paragraph Meaning from grade five to grade six.
Many unfamiliar words they have met in such subjects as
science and social studies might have caused difficulty in
comprehension at this level because they probably have not
yet developed independent reading habits and skills. There
should be provisions in the reading program for a continu-
ous development of skills appropriate to the kind of read-
ing tasks the children are expected to perform at each rung
of the educational ladder.
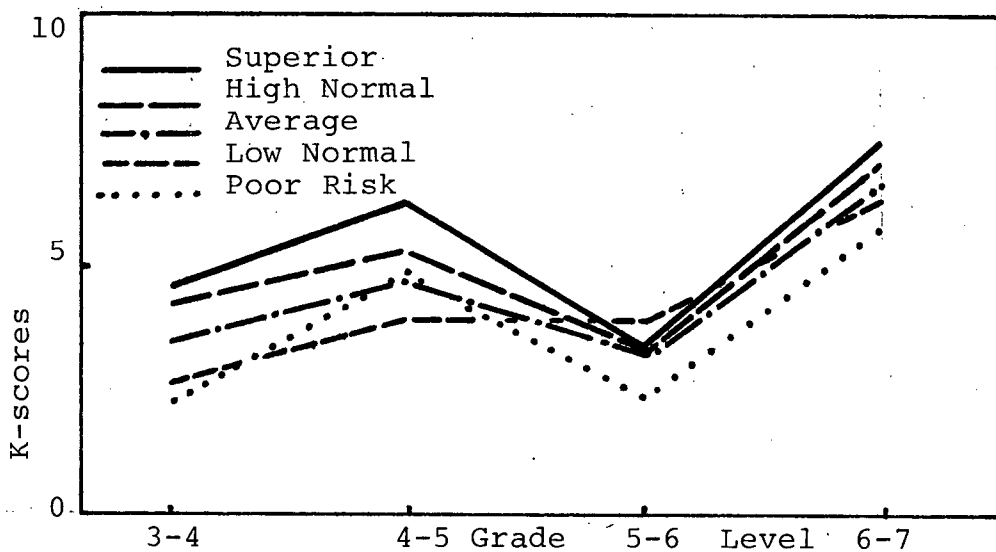
Figure 3. Mean Gains (K-Scores) on Paragraph Meaning.
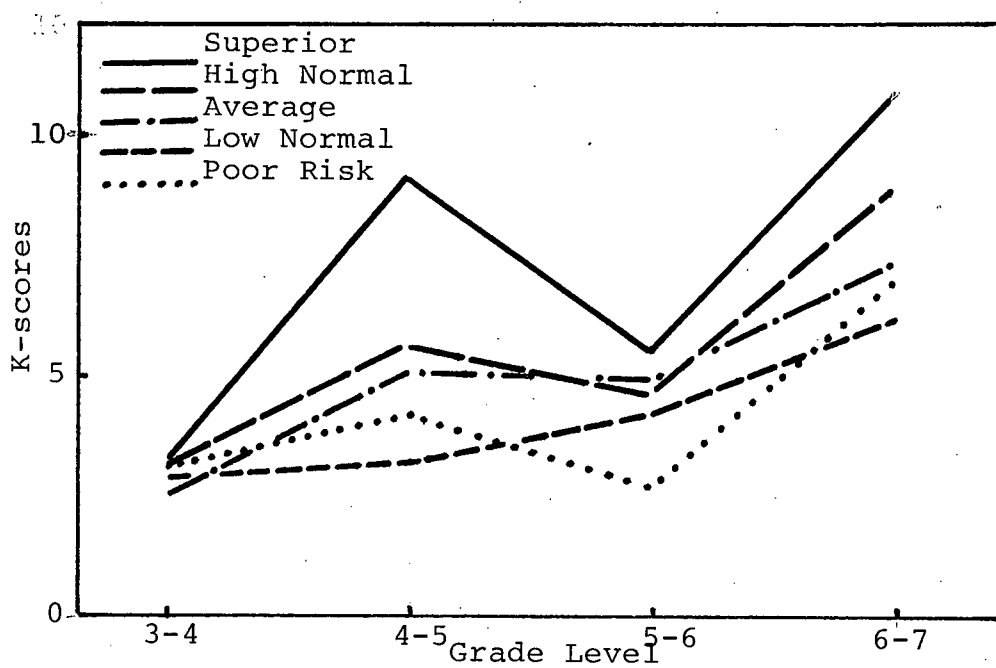
Figure 4. Mean Gains (K-Scores) on Word Meaning.

It is also possible that many of the teachers who
had instructed the children in this study had limited train-
ing in developmental reading and made few attempts to
diagnose the reading difficulties of these grade five and
six pupils. An unbalanced reading program with more em-
phasis on teaching reading as a mechanical process rather
than as a tool for better understanding and interpretation
in content areas also might have been responsible for the
pupils' failure to maintain rapid growth in reading compre-
hension.

By the time the pupils were in grade seven many would
have mastered the mechanics of reading faily well, which
would have enabled them to read more effectively during
this period of rapid growth in comprehension, speed and
reading interest.

Except for the comparison between the low normal
and poor risk groups, it may be stated with reasonable con-
fidence, that in general, there were significant differences
in the mean gains from grade three through grade seven for
the group in each of the categories of reading readiness.

V.   HYPOTHESIS 4

There are significant sex differences in the reading
growth pattern of the five categories of reading readiness.

From Table VII and Table VIII previously given on pages 51 and 52, it was shown that there were significant sex differences at the .05 level. A comparison of the means in Paragraph Meaning and Word Meaning separately by readiness category between the boys and the girls would show more clearly where the differences exist and the extent of such differences.

The mean K scores of the boys and the girls in the superior, high normal, average, low normal, and poor risk groups are given in Table XVII and Table XVIII. A comparison

TABLE XVII

MEAN K SCORES BY GRADE ON PARAGRAPH MEANING IN THE
STANFORD ACHIEVEMENT TEST IN THE SUPERIOR,
HIGH NORMAL, AVERAGE, LOW NORMAL,
AND POOR RISK CATEGORIES OF
READING READINESS

Readiness Category	Mean K Scores				
	Grade 3	Grade 4	Grade 5	Grade 6	Grade 7
a. Boys					
Superior	82.29	88.01	94.71	96.19	103.56
High Normal	78.46	83.81	89.18	91.66	99.82
Average	75.66	78.55	83.38	86.42	92.88
Low Normal	75.34	78.03	82.55	86.45	93.23
Poor Risk	75.11	76.53	82.41	84.38	90.62
b. Girls					
Superior	82.19	85.15	90.62	95.11	102.08
High Normal	76.84	79.50	84.51	87.69	93.39
Average	76.68	80.41	84.89	86.97	93.39
Low Normal	75.36	77.83	80.92	84.18	89.86
Poor Risk	75.31	78.36	81.92	84.32	89.23

TABLE XVIII

MEAN K SCORES BY GRADE ON PARAGRAPH MEANING IN THE
STANFORD ACHIEVEMENT TEST IN THE SUPERIOR,
HIGH NORMAL, AVERAGE, LOW NORMAL,
AND POOR RISK CATEGORIES OF
READING READINESS

Readiness	Mean K Scores				
Category	Grade 3	Grade 4	Grade 5	Grade 6	Grade 7
a. Boys					
Superior	75.57	78.40	89.06	96.98	105.90
High Normal	73.19	76.13	83.53	89.55	98.95
Average	69.62	72.42	78.08	82.46	90.46
Low Normal	71.00	73.65	77.70	82.07	89.32
Poor Risk	69.37	72.00	77.22	80.08	88.00
b. Girls					
Superior	74.51	78.15	85.82	91.07	103.15
High Normal	71.52	74.86	79.06	82.42	90.58
Average	71.62	74.17	78.54	83.62	90.05
Low Normal	69.58	72.93	75.34	78.98	84.06
Poor Risk	68.99	72.85	76.12	78.70	84.32

of these means is shown in Table XIX on page 75.

Sex differences in reading achievement growth are best depicted by comparing the growth curves of boys and girls separately by reading readiness category. Figures 5 to 9 show these comparisons on Paragraph Meaning. In the superior, high normal, and low normal groups, the boys surpassed the girls at all grade levels. The difference between the boys and the girls in the superior group was greatest in grade five which was significant at the .04 level. This was followed by a decreasing rate of growth

TABLE XIX

COMPARISON OF MEANS BETWEEN BOYS AND GIRLS BY READINESS CATEGORY AND BY
GRADE ON PARAGRAPH MEANING AND WORD MEANING OF THE STANFORD
ACHIEVEMENT TEST

Readiness Category	Grades Compared	Paragraph Meaning			Word Meaning		
		df	t-value	t-probability	df	t-value	t-probability
Superior	3	54	-0.065	0.905	54	-1.051	0.298
	4	56	-1.555	0.122	56	-0.191	0.828
	5	56	-2.060	0.042*	51	-1.425	0.156
	6	55	-0.571	0.577	56	-2.218	0.029*
	7	52	-0.661	0.519	55	-0.938	0.355
High Normal	3	49	-1.505	0.135	52	-2.157	0.034*
	4	48	-2.719	0.009*	54	-1.182	0.241
	5	53	-2.674	0.010*	39	-2.580	0.013*
	6	56	-2.271	0.026*	41	-3.386	0.002*
	7	54	-3.131	0.003*	50	-3.069	0.004*
Average	3	56	1.195	0.235	52	2.222	0.029*
	4	55	1.150	0.254	56	1.861	0.065
	5	54	0.885	0.384	51	0.378	0.707
	6	56	0.359	0.720	54	0.576	0.574
	7	56	0.249	0.792	49	-0.185	0.832
Low Normal	3	56	0.026	0.928	45	-1.912	0.059
	4	56	-0.170	0.841	56	-0.762	0.455
	5	54	-1.351	0.179	41	-2.221	0.030*
	6	56	-1.768	0.079	44	-2.025	0.046*
	7	56	-1.861	0.065	46	-2.429	0.018*
Poor Risk	3	54	0.214	0.814	49	-0.491	0.631
	4	52	1.541	0.125	56	0.804	0.430
	5	56	-0.292	0.764	56	-0.840	0.409
	6	54	-0.038	0.921	55	-0.927	0.361
	7	55	-0.716	0.484	56	-1.654	0.100

* significant

Figure 5. Comparison of boys and girls in the superior group on Paragraph Meaning.

Figure 6. Comparison of boys and girls in the high normal group on Paragraph Meaning.
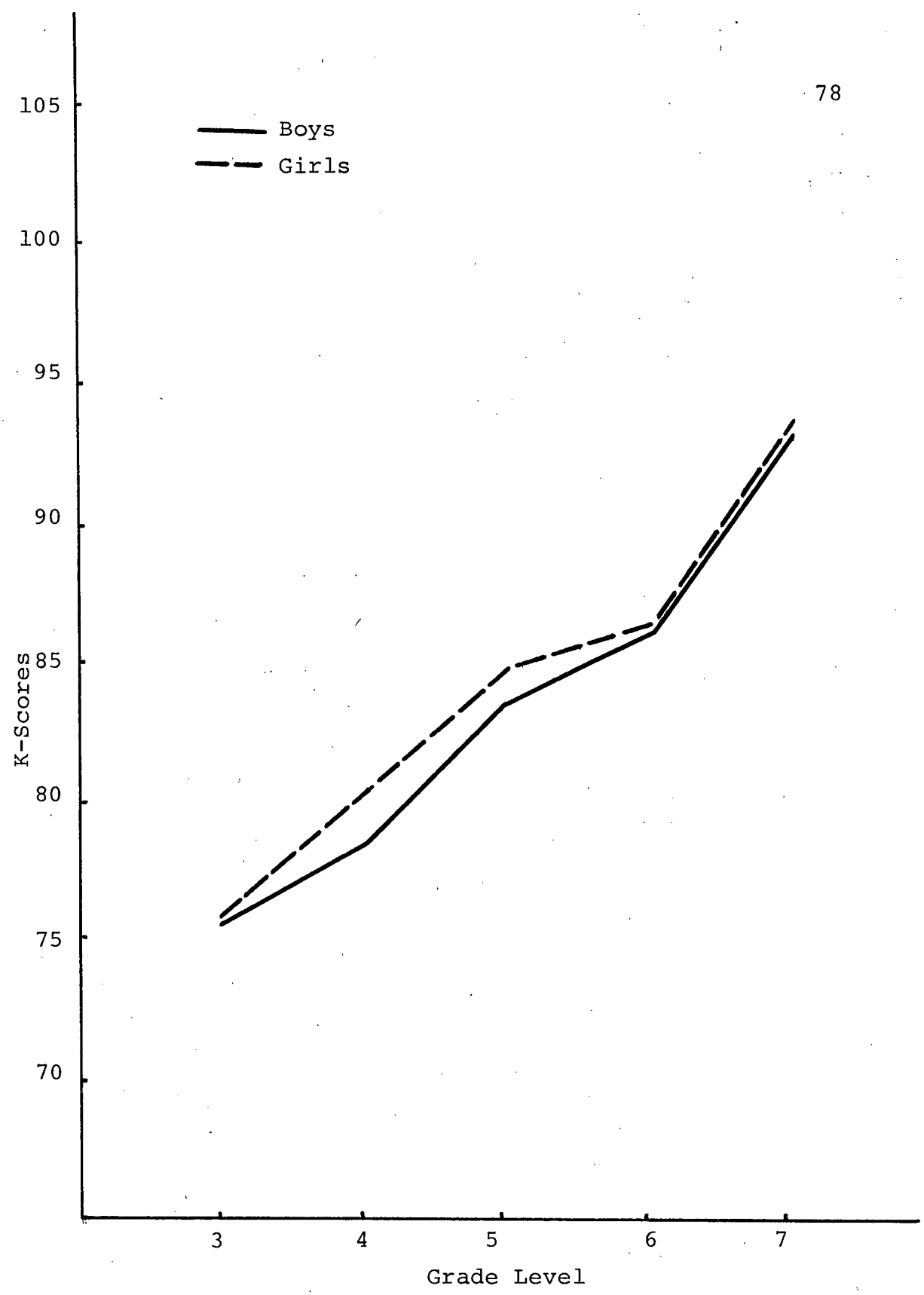
Figure 7. Comparison of boys and girls in the average
group on Paragraph Meaning.
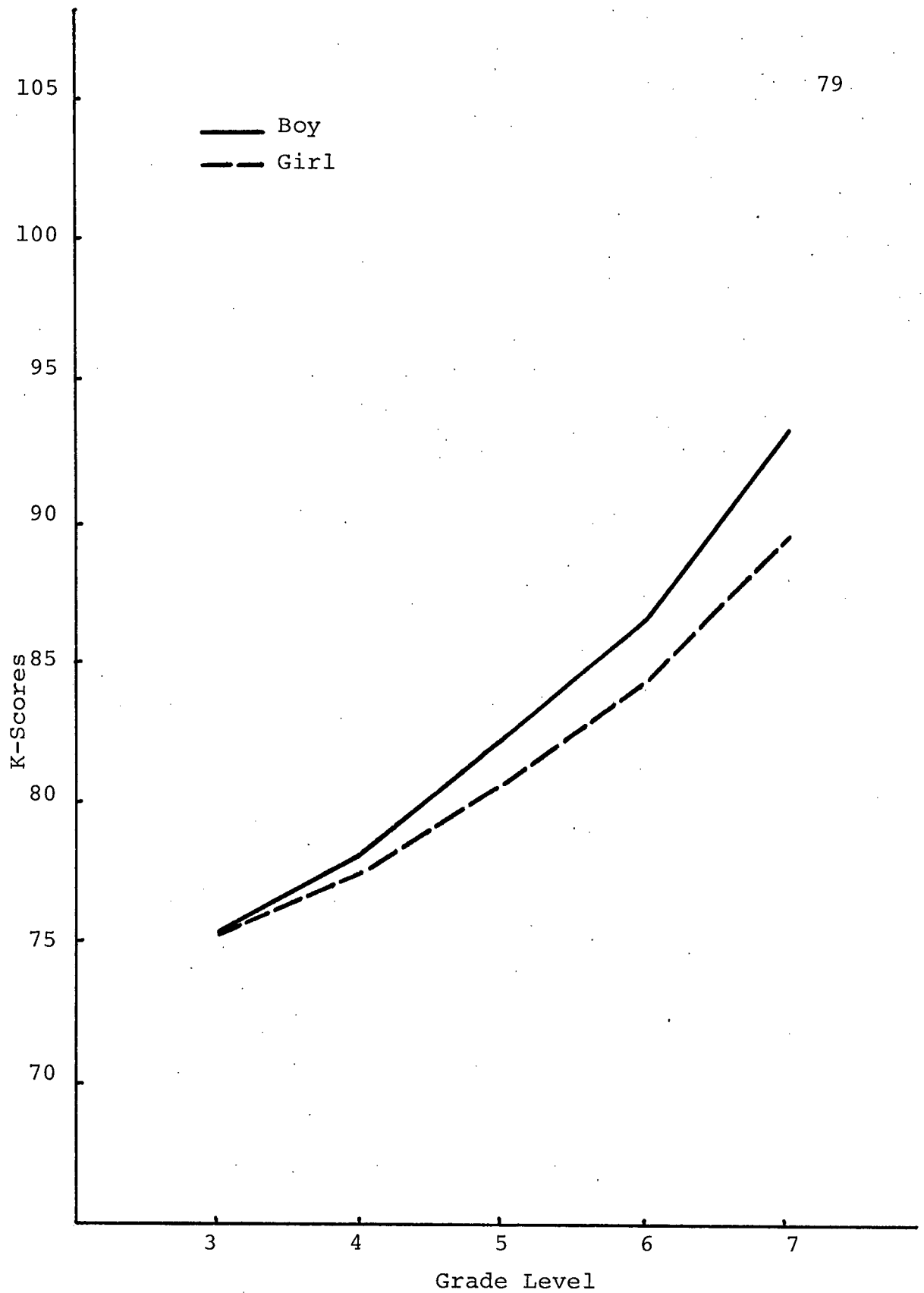
Figure 8. Comparison of boys and girls in the low
normal group on Paragraph Meaning.
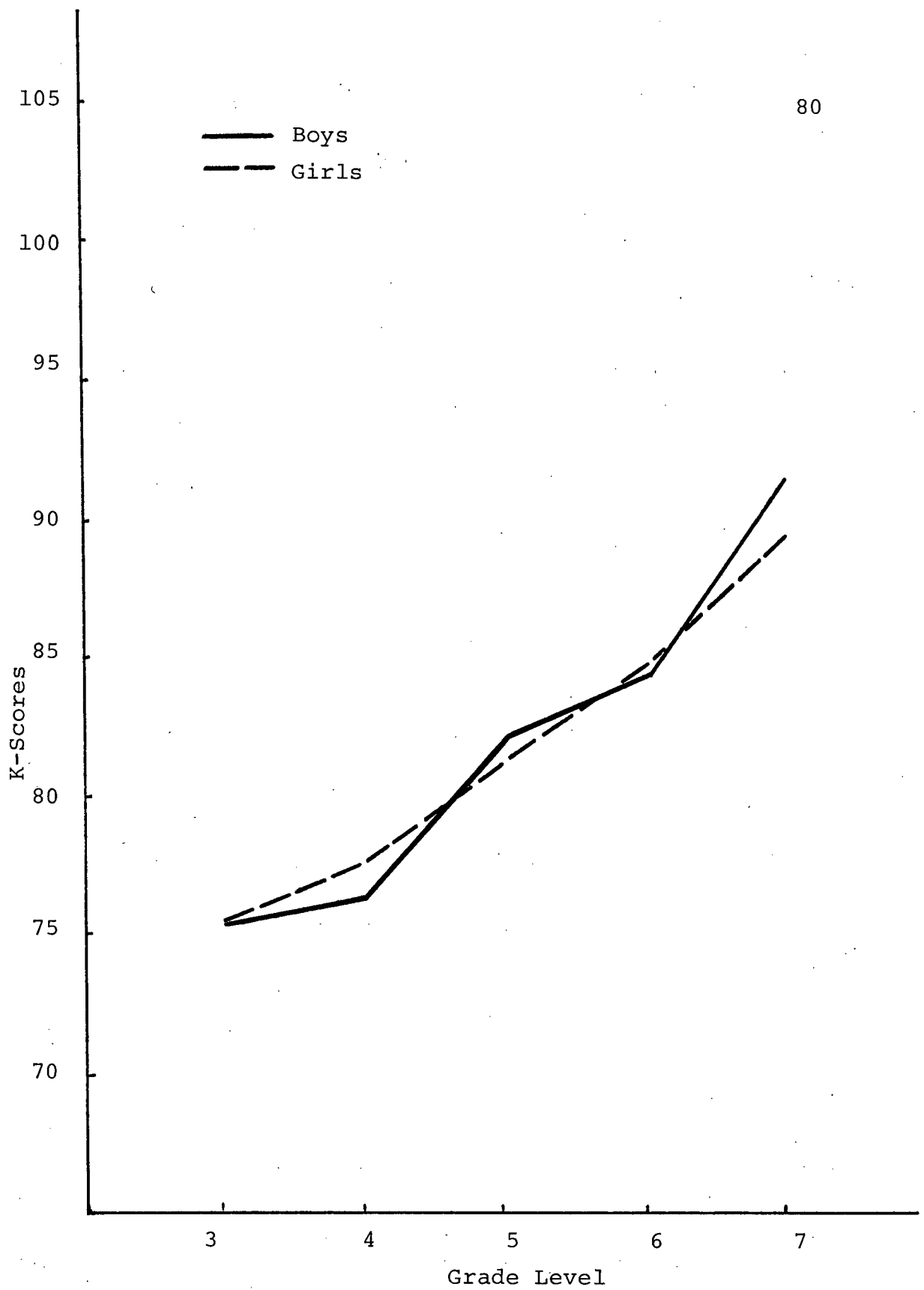
Figure 9. Comparison of boys and girls in the poor risk group on Paragraph Meaning.

for the boys, thus bringing the two sexes closer together in grade six and grade seven.

The growth patterns for the two average groups are so similar that sex differences can be disregarded. Here

There was a marked sex difference in the high normal group. The boys exhibited a more rapid rate of growth than the girls. The differences in grades four through seven were found to be significant at better than the .05 level.

The growth patterns for the two average groups are so similar that sex differences can be disregarded. Here the boys fell below the girls. There was a slackening of growth from grade five through grade six. No significant differences between the sexes were found in the low normal group.

The girls in the poor risk group showed a constant rate of development, the curve approximating a straight line. The curve for the boys in this group is somewhat irregular falling below the girls in grade three and grade four, exceeding the girls in grade five, falling below again in grade six and going up again in grade seven. No significant differences, however, were found between the boys and the girls in the poor risk group.

The comparisons between the boys and girls on Word Meaning are shown in Figures 10 to 14. The means of the boys were consistently higher than the means of the girls from grade three through grade seven in the superior, high normal, and low normal categories. The differences were found to be significant at better than the .05 level only

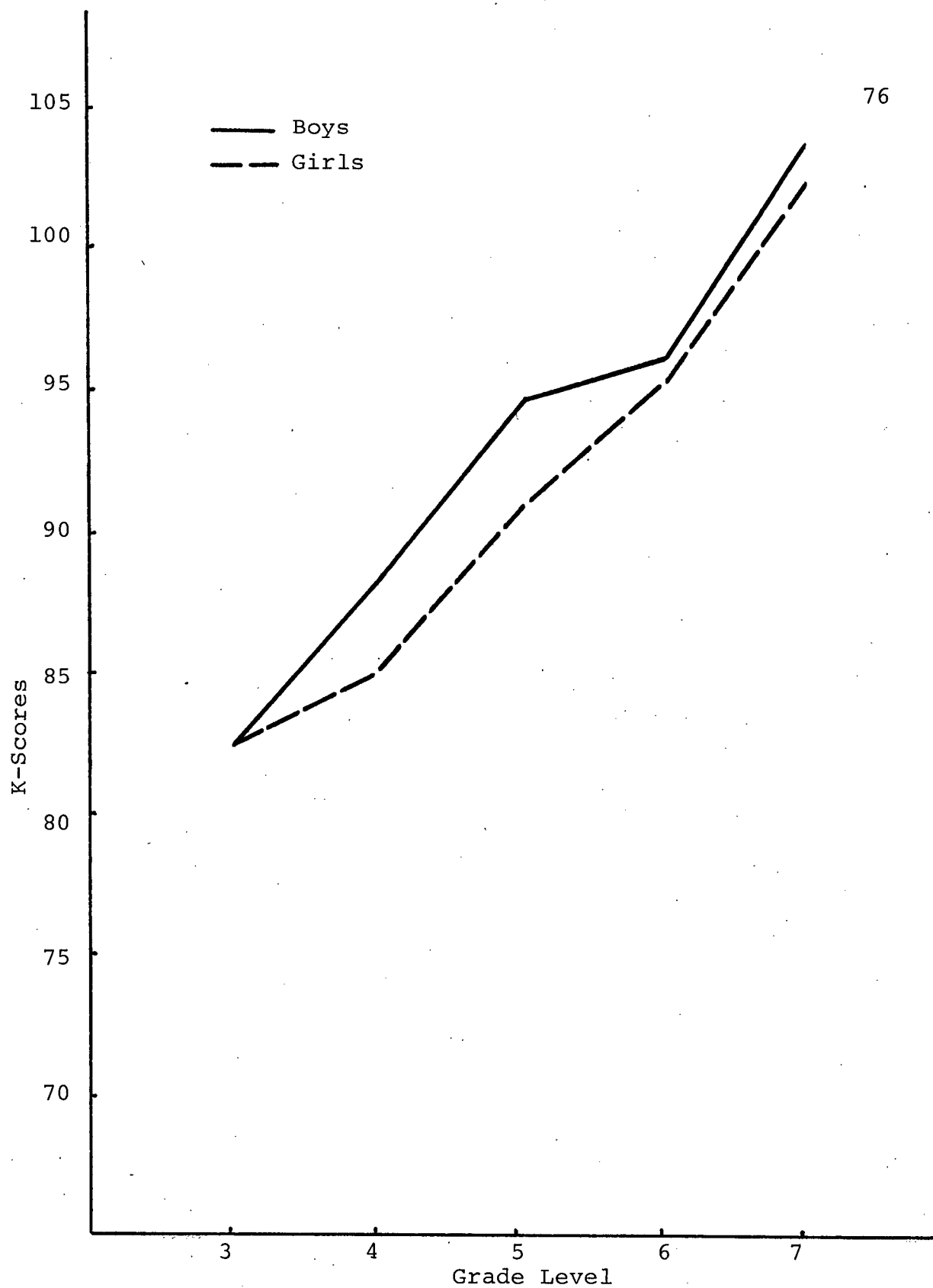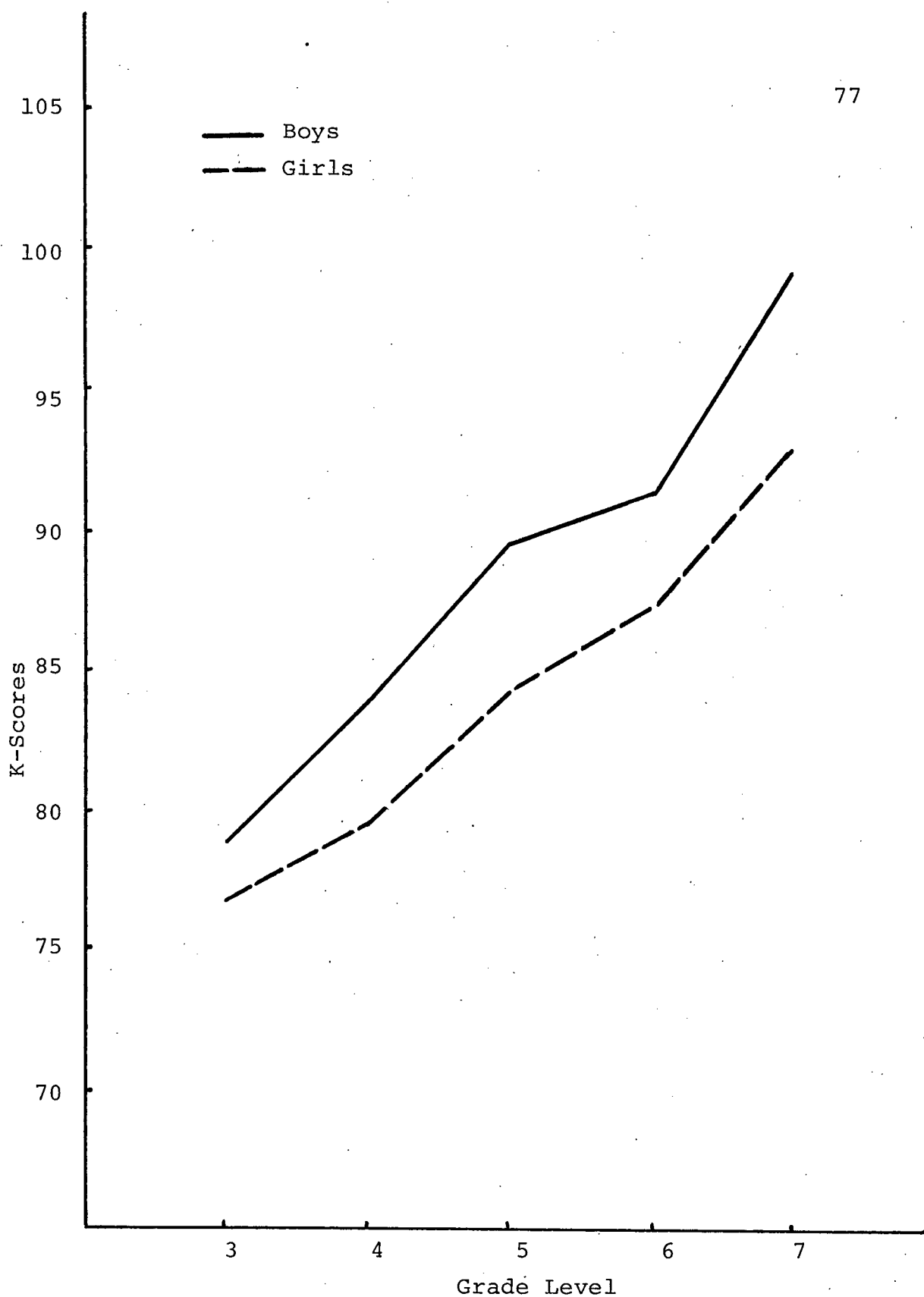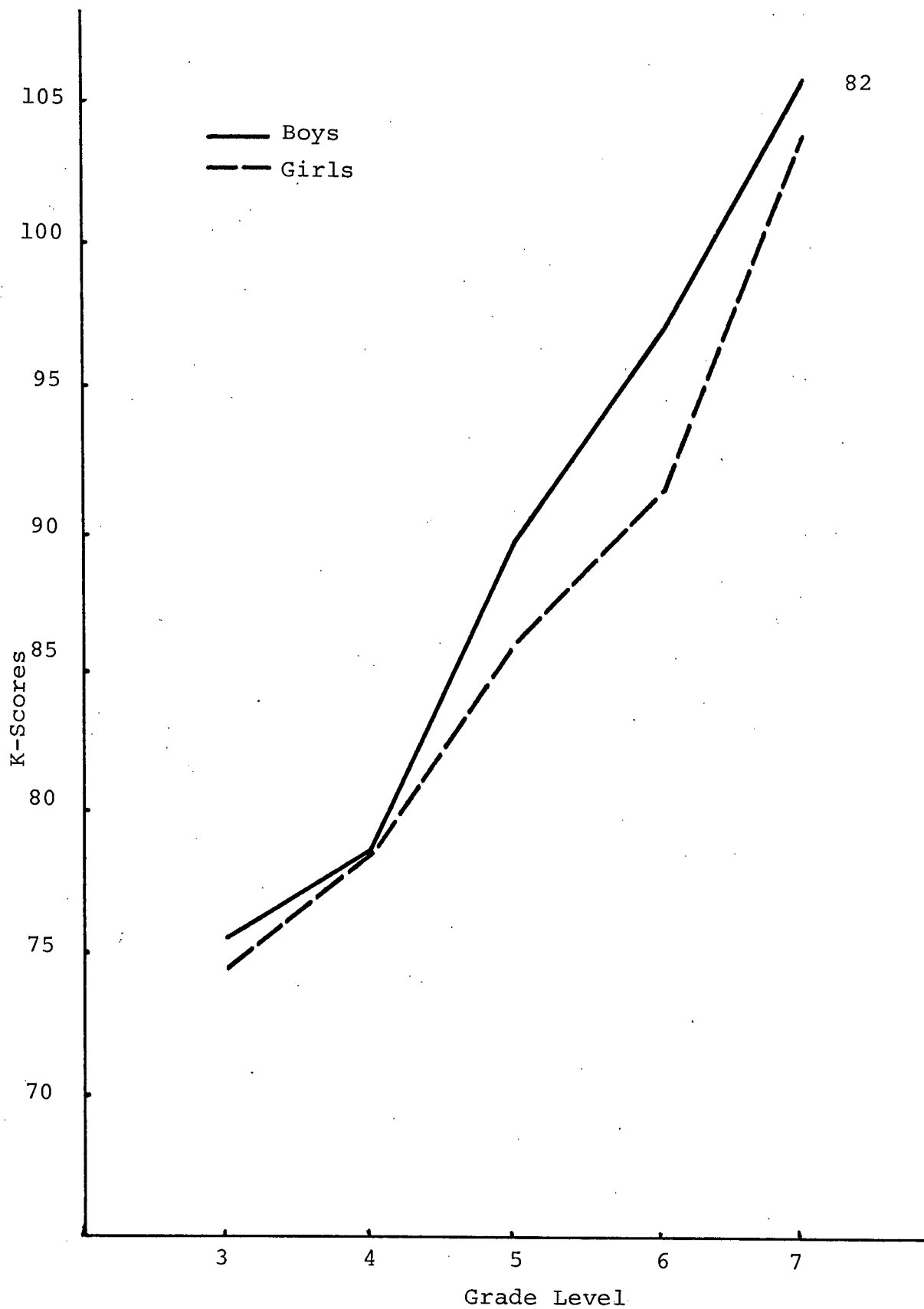Figure 10. Comparison of boys and girls in the superior group on Word Meaning.
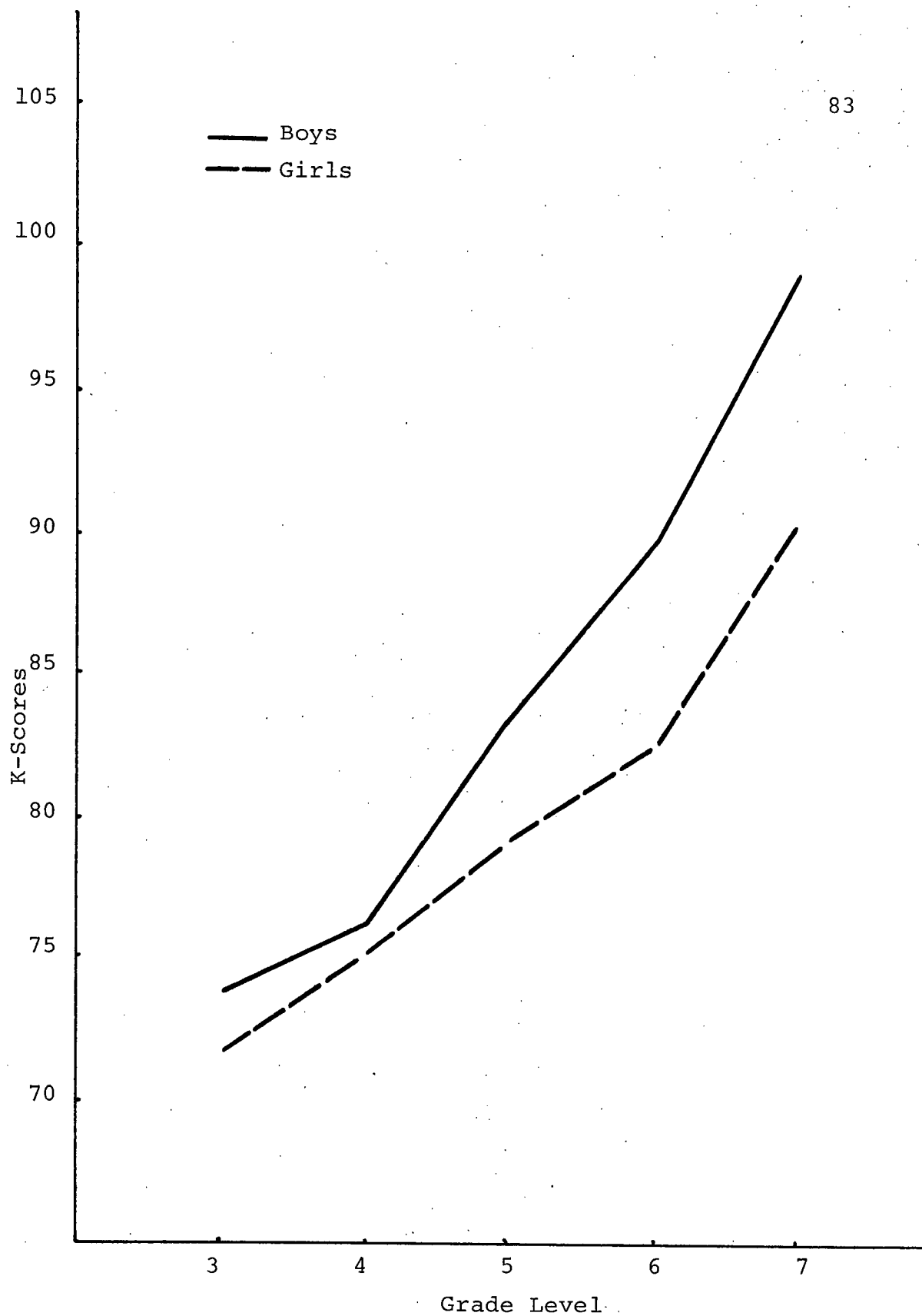
Figure 11. Comparison of boys and girls in the high normal group on Word Meaning.
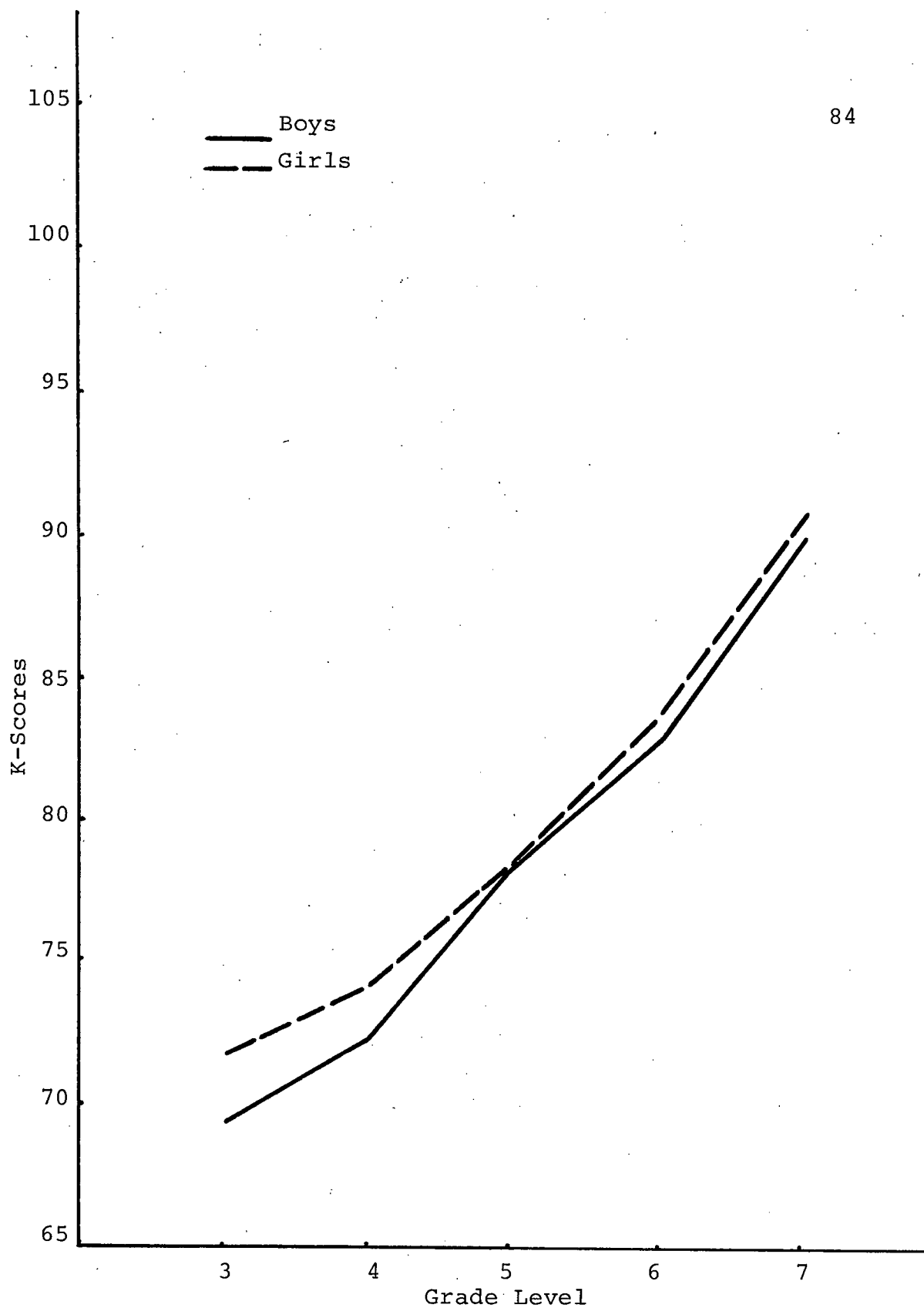
Figure 12.   Comparison of boys and girls in the average
group on Word Meaning.
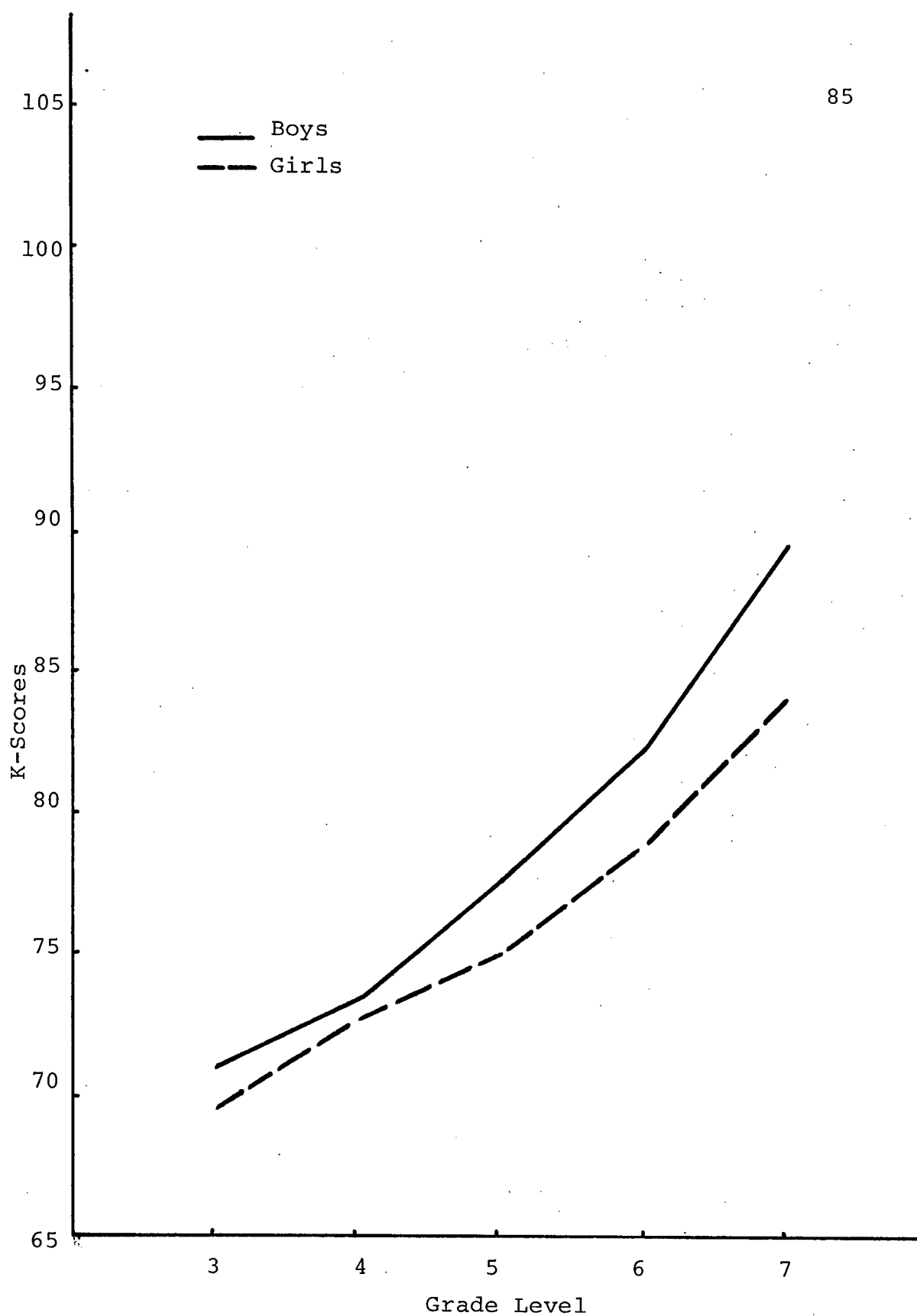
Figure 13. Comparison of boys and girls in the low normal group on Word Meaning.
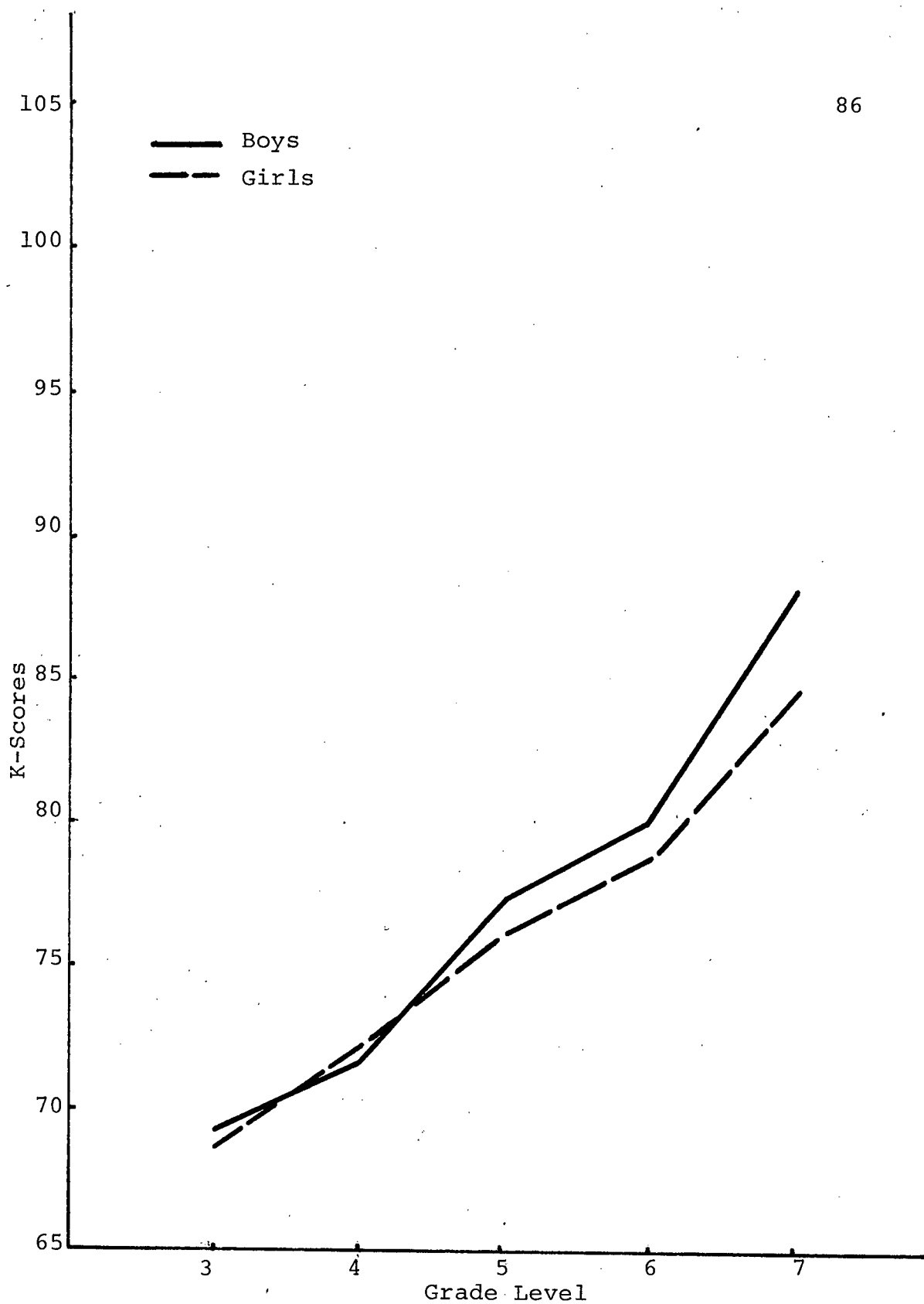
Figure 14. Comparison of boys and girls in the poor risk group on Word Meaning.

in grade six in the superior group, in grade three in the average group, and in grades five, six and seven in the low normal group. The differences were significant at all grades except grade four in the high normal group. In the poor risk group, the boys' means were also higher than the girls' means for all grades except in grade four. However, in the average group, the boys fell below the girls from grade three to grade six and went slightly higher than the girls in grade seven. The extent of the difference between the two sexes appeared to become bigger from grade five to grade seven for all categories of reading readiness with the exception of the average group.

The degree of significance of the differences be-between the slopes of the curves of the boys and the girls has been determined statistically. The results of these comparisons are shown in Table XX.

TABLE XX

COMPARISON OF SLOPES BETWEEN BOYS
AND GIRLS BY READINESS CATEGORY

Readiness Category	Paragraph Meaning		Word Meaning		
	t-Value	t-Prob.	t-Value	t-Prob.	df
Superior	0.162	.875*	5.562	.000	58
High Normal	2.324	.023	10.363	.000	58
Average	1.218	.228*	3.134	.006	58
Low Normal	0.698	.510*	5.329	.000	58
Poor Risk	2.609	.018	4.788	.000	58

*not significant

As explained previously on page 58 the significant

probabilities might have resulted from forcing linearity on

curvilinear data. Figures 15 to 18 reveal curvatures in the

trend of the means of the boys and the girls for all cate-

gories of reading readiness.

VI. HYPOTHESIS 5

There are some outstanding early childhood physical,

intellectual, social, and emotional characteristics that

distinguish those who have become good and poor readers in

grade five.

Information on the early childhood characteristics

of the subjects selected for this second part of the inves-

tigation was obtained by the investigator from the school

permanent record cards, from subtest results of the Metro-

politan Readiness Tests, and from parent interviews. A

letter explaining the purpose of the study and requesting

permission to conduct the interview was sent to the parents

of each child included in the sample. The interviewees

were requested to select the time most convenient for them.

Information was elicited by the interviewer through informal

conversation[3] with both parents in three cases, with the

---

[3]See Appendix B, pp. 128-132.
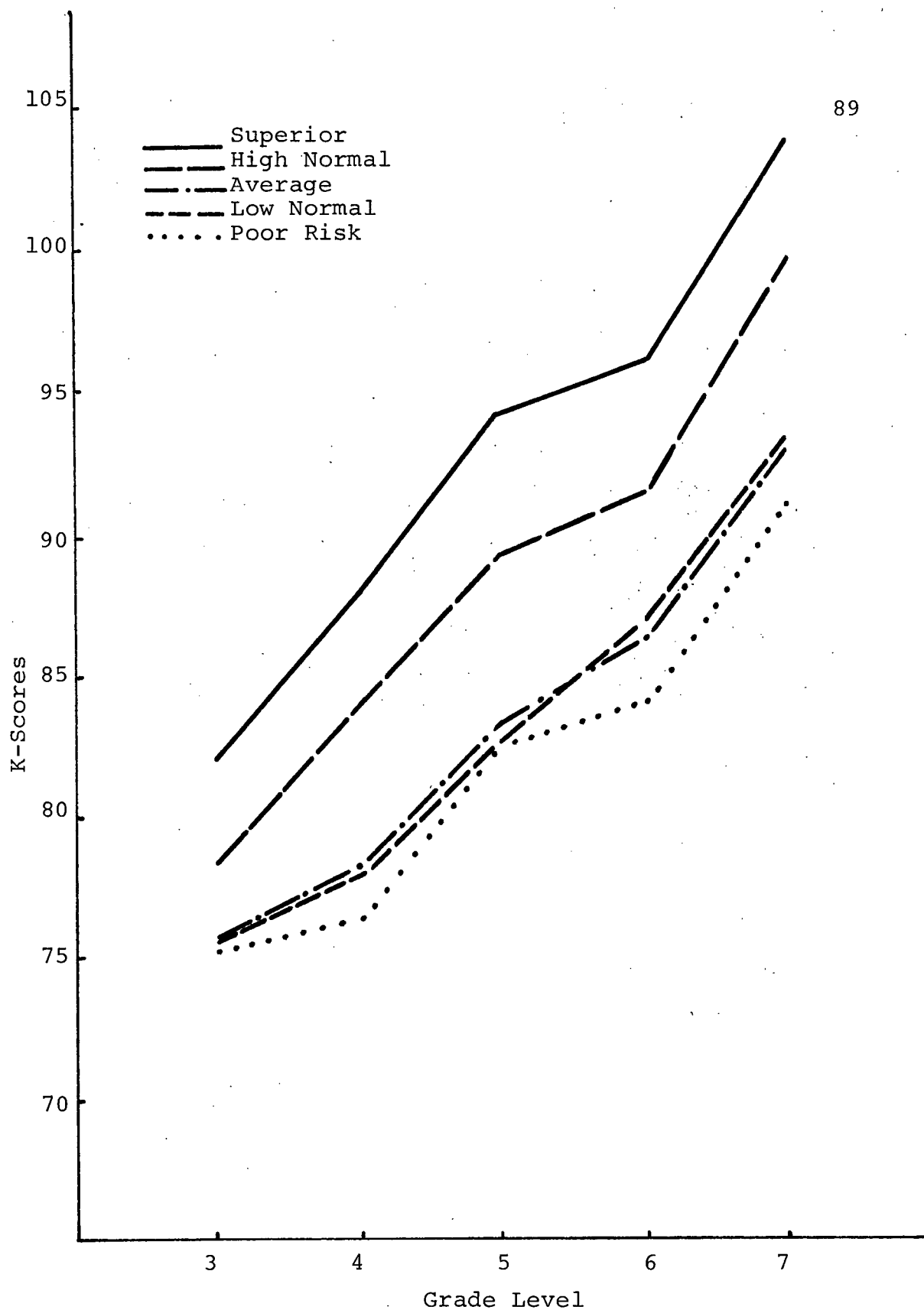
Figure 15. Trend of means on Paragraph Meaning of boys in the five levels of reading readiness.
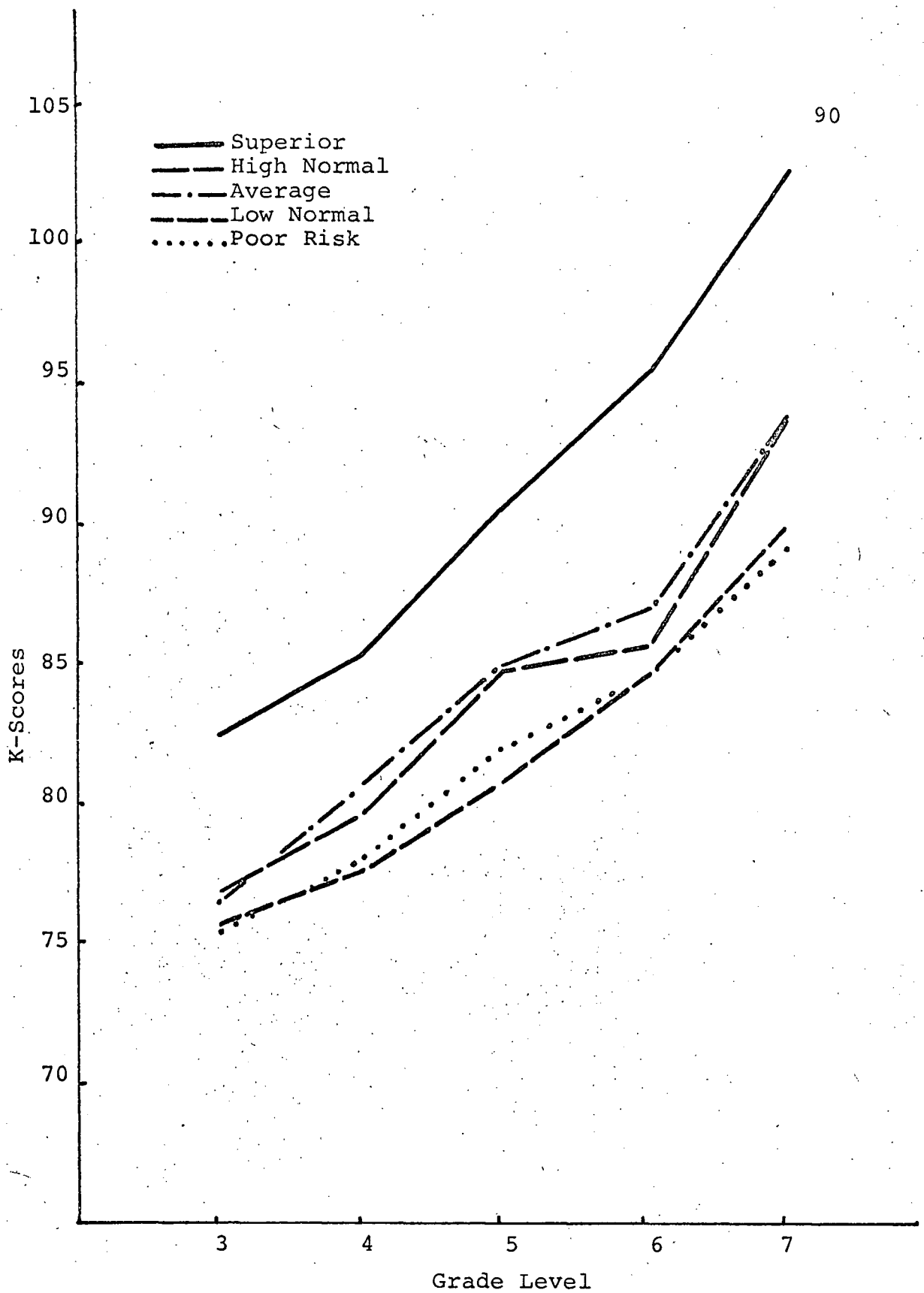
Figure 16. Trend of means on Paragraph Meaning of girls
in the five levels of reading readiness.
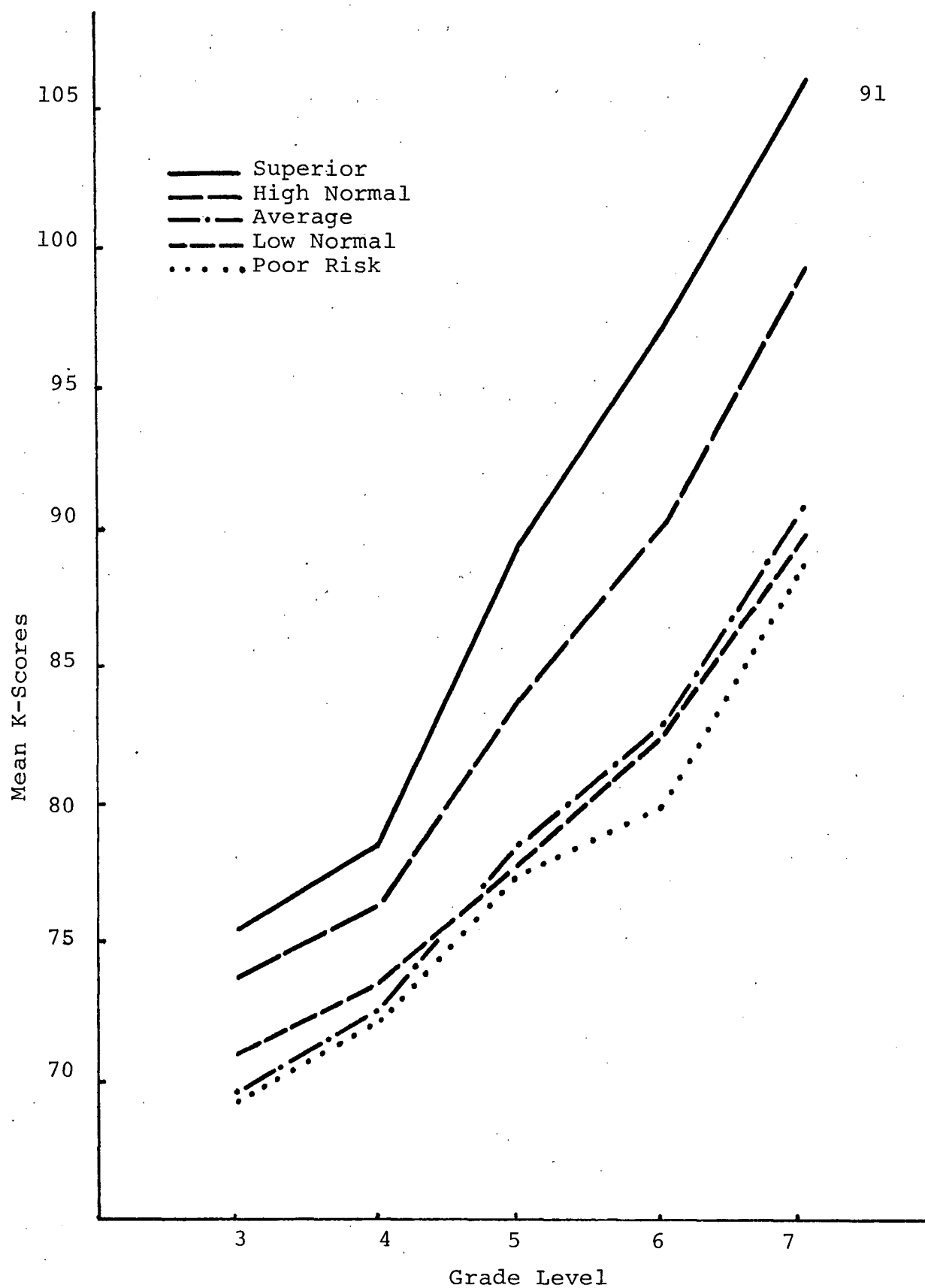
Figure 17. Trend of means on Word Meaning of boys in
the five levels of reading readiness.
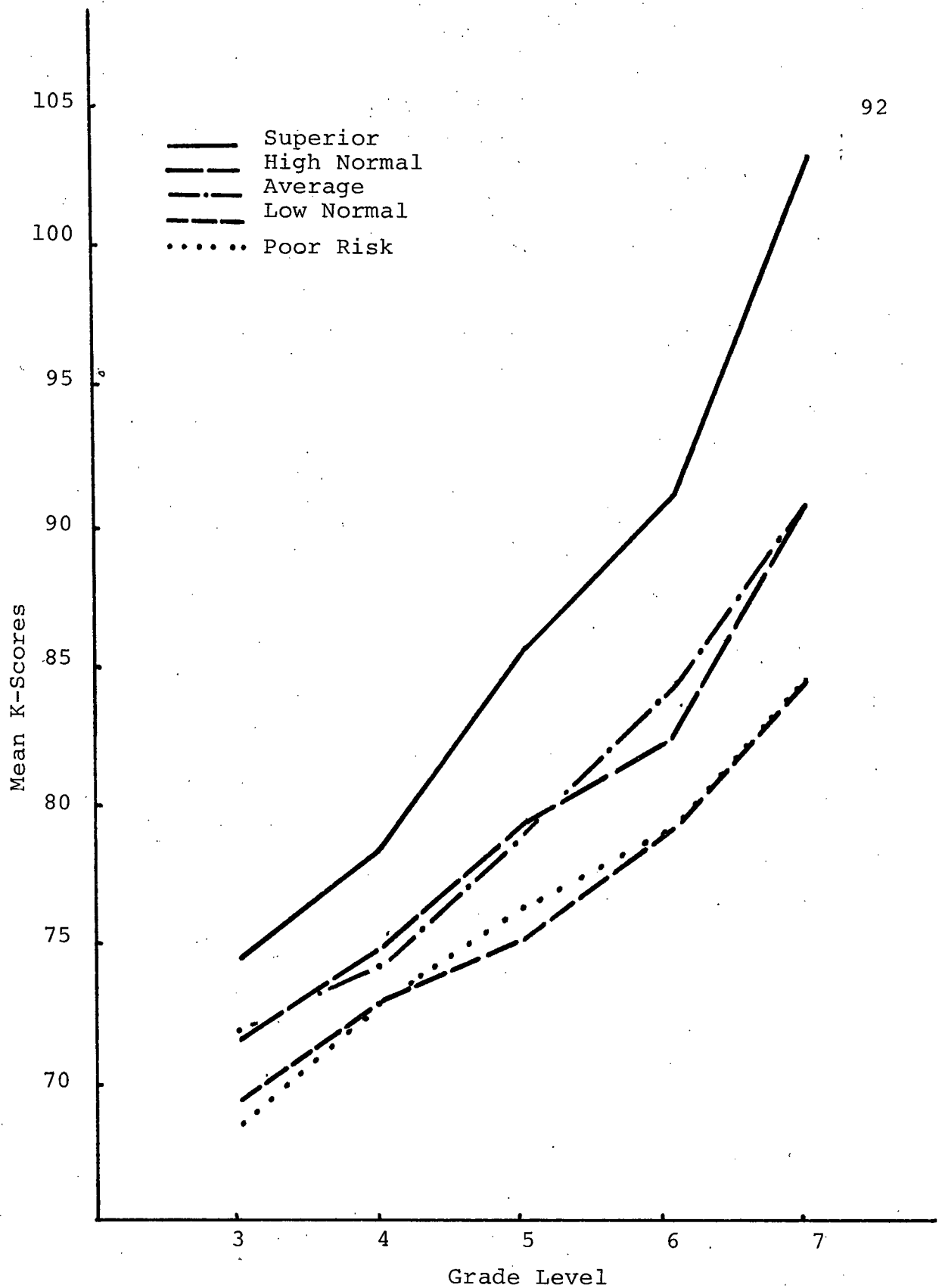
Figure 18. Trend of means on Word Meaning of girls in
the five levels of reading readiness.

fathers in two cases, and with the mothers in twenty-seven cases. The investigator wanted to include information about occupation and educational level of parents since these could color the whole set of replies elicited during the interview. Local School Board restrictions, however, prevented the inclusion of questions related to these data in the interview guide.

The description of the characteristics in preschool and early school years of sixteen good readers and sixteen poor readers in the fifth grade is presented in the form of case studies.[4] The information from each case study has been summarized under a number of categories for ease of analysis of data.

Summary of the Data on the Case Studies

The data from the case studies have been summarized to uncover certain traits in early childhood common among good readers and also those characteristics relating to poor readers in the fifth grade. The summary follows closely the presentation of the information by major headings done in the description of the case studies.

Since the sample size was small (N = 32) and most of the tables were with a single degree of freedom, the use of chi-square tests on these data was ruled out. The results

[4]See Appendix C, pp. 133-174.

of chi-square tests on tables with more than one degree of freedom would also have been meaningless because more than 20 per cent of the cells had expected frequencies of less than 5. There were also some cells with expected frequencies of less than 1.

The Fisher exact probability test was used in determining the significance of the proportions of good and poor readers possessing the characteristics studied. All the categorizations were dichotomized and the dotted lines in the summary of the data indicate where the division was made.

Those children six years of age and over were put together because they are generally considered to be mature enough for school work.

The pupils with average readiness category were classified as likely to succeed in first-grade work so they were grouped with those in the high normal and superior categories. The same division was done with all the traits taken from the subtest scores on the Metropolitan Readiness Tests.

The first-borns were joined with "only children" because they were generally treated as "only children" before the rest of the children in the family were born.

The display of energy characteristic was dichotomized as indicated because it was assumed that children with

more than average energy are physically well and could be
better learners than those with just average or less energy.

	Good Reader			Poor Reader		
	Boy	Girl	Total	Boy	Girl	Total
Background information						
School entrance age						
Below 69 months	4	3	7	3	5	8
69-72 months	4	2	6	1	0	1
Above 72 months	0	3	3	4	3	7
Readiness category						
Superior	1	0	1	0	0	0
High Normal	4	3	7	0	2	2
Average	3	4	7	6	0	6
Low Normal	0	1	1	2	5	7
Poor Risk	0	0	0	0	1	1
Language spoken at home						
Monolingual	7	5	12	5	6	11
Bilingual	1	3	4	3	2	5
Number of children in family						
4 or more	3	3	6	2	3	5
1 to 3	5	5	10	6	5	11
Position in the family						
Only child	0	2	2	1	0	1
First	3	2	5	1	2	3
Intermediate	2	2	4	3	3	6
Last	3	2	5	3	3	6

	Good Reader			Poor Reader		
	Boy	Girl	Total	Boy	Girl	Total
Physical characteristics						
*Visual perception						
Superior	3	3	6	0	1	1
High	3	2	5	4	2	6
Average	2	1	3	0	2	2
....						
Low	0	1	1	4	1	5
Poor	0	1	1	0	2	2
*Auditory perception						
Superior	3	1	4	0	1	1
High	1	5	6	3	0	3
Average	4	1	5	0	2	2
....						
Low	0	1	1	5	3	8
Poor	0	0	0	0	2	2
*Motor control						
Superior	1	0	1	0	2	2
High	3	2	5	3	1	4
Average	1	0	1	1	0	1
....						
Low	3	6	9	3	2	5
Poor	0	0	0	1	3	4
Display of energy when playing						
More than average	2	1	3	3	4	7
....						
Average	4	5	9	3	4	7
Less than average	2	2	4	2	0	2

---

*From subtests scores on the Metropolitan Readiness Tests.

	Good Reader			Poor Reader		
	Boy	Girl	Total	Boy	Girl	Total

Intellectual characteristics

Participated in
conversation

	Boy	Girl	Total	Boy	Girl	Total
Yes	8	3	11	7	1	8
No	0	5	5	1	7	8

Curious, asked questions,
explored new things

	Boy	Girl	Total	Boy	Girl	Total
Yes	8	4	12	0	1	1
No	0	4	4	8	7	15

Displayed interest in
reading

	Boy	Girl	Total	Boy	Girl	Total
Yes	7	8	15	0	1	1
No	1	0	1	8	7	15

*Richness of verbal
concept

	Boy	Girl	Total	Boy	Girl	Total
Superior	2	1	3	1	1	2
High	6	6	12	3	1	4
Average	0	1	1	3	2	5
. . . .	. . . .	. . . .	. . . .	. . . .	. . . .	. . . .
Low	0	0	0	1	2	3
Poor	0	0	0	0	2	2

*Number knowledge

	Boy	Girl	Total	Boy	Girl	Total
Superior	1	2	3	0	1	1
High	3	4	7	2	1	3
Average	3	1	4	2	2	4
. . . .	. . . .	. . . .	. . . .	. . . .	. . . .	. . . .
Low	1	1	2	3	2	5
Poor	0	0	0	1	2	3

---

*From subtests scores on the Metropolitan Readiness
Tests.

	Good Reader			Poor Reader		
	Boy	Girl	Total	Boy	Girl	Total
*Vocabulary						
Superior	6	3	9	3	2	5
High	2	4	6	0	1	1
Average	0	1	1	5	0	5
....						
Low	0	0	0	0	3	3
Poor	0	0	0	0	2	2
Social characteristics						
Enjoyed being with others						
Yes	8	4	12	6	3	9
No	0	4	4	2	5	7
Liked teachers						
Yes	7	7	14	6	6	12
No	1	1	2	2	2	4
Shared toys and games						
Yes	8	4	12	5	5	10
No	0	4	4	3	3	6
Harmonious, not shy						
Yes	8	3	11	7	4	11
No	0	5	5	1	4	5
Emotional characteristics						
Congenial relationship with parents						
Yes	7	6	13	2	3	5
No	1	2	3	6	5	11

---

*From subtests scores on the Metropolitan Readiness Tests.

	Good Reader			Poor Reader		
	Boy	Girl	Total	Boy	Girl	Total
Congenial relationship with teacher and schoolmates						
Yes	5	5	10	3	3	6
No	3	3	6	5	5	10
Had self-confidence						
Yes	8	4	12	0	4	4
No	0	4	4	8	4	12
Had the ability to concentrate						
Yes	4	2	6	3	2	5
No	4	6	10	5	6	11
Overdependent						
Yes	0	0	0	1	1	2
No	8	8	16	7	7	14
Experiential background						
Travelled outside Province						
Yes	5	4	9	6	4	10
No	3	4	7	2	4	6
Went on outings with family or friends						
1 or more times/week	5	3	8	4	4	8
Less often than once a week	3	5	8	4	4	8
Was read to						
1 or more times/week	4	3	7	1	1	2
Less often than once a week	4	5	9	7	7	14

	Good Reader			Poor Reader		
	Boy	Girl	Total	Boy	Girl	Total
Was told stories to						
1 or more times/week	6	4	10	4	4	8
Less often than once a week	2	4	6	4	4	8
Was given help in reading						
Yes	3	1	4	0	0	0
No	5	7	12	8	8	16
Watched television						
15 or fewer hours a week	6	5	11	4	6	10
More than 15 hours a week	2	3	5	4	2	6

Findings from the Case Studies

The probability for each trait obtained by using the Fisher exact probability test was listed under the main headings.

Characteristics	Probability
Background information	
School entrance age	.260
Readiness category	.007*
Language spoken at home	.283
Number of children in the family	.271
Position in the family	.161

Characteristics	Probability
Physical characteristics	
Visual perception	.049*
Auditory perception	.001*
Motor control	.277
Display of energy while playing	.099
Intellectual characteristics	
Participated in conversation	.162
Eager to do things by himself	.000*
Curious, asked questions	.000*
Displayed interest in reading	.000*
Richness of verbal concept	.022*
Number knowledge	.024*
Vocabulary	.022*
Social characteristics	
Enjoyed being with others	.161
Liked teachers	.241
Shared toys and games	.226
Harmonious	.296
Emotional characteristics	
Congenial relationship with parents	.005*
Congenial relationship with teacher and schoolmates	.109

Characteristics	Probability
Had self confidence	.006*
Had the ability to concentrate	.271
Overdependent	.470
Experiential background	
Travelled outside Province	.264
Went on outings with family or friends	.276
Was read to	.049*
Was told stories to	.219
Was given help in reading	.050*
Watched television	.271

_____

*significant

Background information. There were eight children in the poor readers' group and seven in the good readers' group who entered school below 5 years and 9 months. The number of children with school entrance ages above 6 years was larger among poor readers than among good readers (7 vs. 3). This indicates that school entrance age probably does not affect success in reading in the intermediate grades.

None of the poor readers belonged to the superior category of readiness and there were only two poor readers with high normal initial readiness status. Among the good

readers there was one in the superior group and seven in the high normal category of readiness. Only one good reader started with a low normal readiness level while eight poor readers were in the lower levels of readiness. The probability calculated on these data is .007. This implies that initial reading readiness may be a factor that distinguishes good readers from poor readers at the fifth grade level.

Since an almost equal number of good and poor readers (4 and 5, respectively) was found speaking two languages, it can not be inferred in this study that bilingualism affects reading success in the intermediate grades. The language spoken at home, the number of children in the family and the position in the family fell short of the 5 per cent level of significance.

Physical characteristics. Visual perception (p = .049) and auditory perception (p = .001) as determined by the initial readiness test distinguished significantly the good readers from the poor readers. The exact probability test performed on motor control and display of energy while playing failed to reach the 5 per cent level of significance.

Intellectual characteristics. The parent interview data showed marked differences between good and poor readers in three traits under this heading. They were eagerness to

do things by himself, curiosity, and display of interest in reading. With probabilities of .000 these characteristics differentiated significantly between good and poor readers in the fifth grade. Also, richness of verbal concept (p = .022), number knowledge (p = .024), and vocabulary (p = .022) as assessed by the Metropolitan Readiness Tests distinguished significantly the good from the poor grade five readers.

Social characteristics. The good and poor readers were found to be very similar in relation to the social characteristics selected for this study. The Fisher exact probability test did not reveal any significant difference between the frequencies obtained for the good and the poor readers' groups.

Emotional characteristics. Among the emotional characteristics investigated during the parent interviews two showed significant differences between the good and the poor readers. Good readers tend to be more congenial at home (p = .005). A probability of .006 implies that self-confidence in preschool and early school years is a trait which distinguishes good from poor readers in later elementary grades. Good concentration ability, a feeling of security in school, and independence developed early in the formative years did not reach the 5 per cent level of significance.

Experiential background. The amount of travel and television viewing and the number of outings with family and/or friends failed to show any distinction between good and poor readers. There were almost as many good readers as there were poor readers who had been told stories before they went to school and during the beginning school years. Four of the good readers and none among the poor readers were given preschool help in reading. Exact probability computed on these data showed significant difference at the 5 per cent level.

All the good readers except one were read to by their mothers or by their older brothers or sisters during their early childhood days. Six of the poor readers were never read to before they went to school. Only two of the poor readers were read to once a week and eight were read to less often. The Fisher exact probability test on these data yielded a probability significant at the .049 level.

CHAPTER V

SUMMARY, CONCLUSIONS AND IMPLICATIONS

The discussion in this chapter has been divided
into four sections: (1) the summary of the design and pro-
cedures, (2) the summary of findings, (3) educational im-
plications, and (4) suggestions for further research.

I. SUMMARY OF DESIGN AND PROCEDURES

The aim of the first part of this study was to
investigate, in retrospect, the growth patterns in reading
achievement of a group of grade seven children who started
schooling with different levels of reading readiness.
Growth in reading was defined as the measured gain in read-
ing achievement from year to year.

The procedure consisted in gathering continuous
records of the results on the Paragraph Meaning and Word
Meaning subtests of the Stanford Achievement Test given to
the same children at yearly intervals for a period of five
years, from grade three through grade seven. The curves
of growth in reading for each group of children in the
superior, high normal, average, low normal, and poor risk
categories of reading readiness were based on the K-scores
derived from the pupils' actual scores. The findings and
conclusions of this part of the study were based on statis-

tical and graphical comparisons of the trend of the means
exhibited by each of the groups in the five levels of
reading readiness. Analysis of variance and the t test of
significance were employed in the statistical treatment of
the data.

The purpose of the second part of the study was to
identify certain preschool and beginning school character-
istics that distinguish those who have become good and poor
readers in grade five. To do this, case studies were made
on sixteen good readers and sixteen poor readers selected
from the top 27 per cent and the bottom 27 per cent of a
population of 315 grade five pupils from five elementary
schools. The objectively measured characteristics of good
and poor readers were obtained from the results of the
Metropolitan Readiness Tests and other significant data
recorded in the school permanent record cards. Other per-
tinent information was obtained by means of interview with
parents of each of the sixteen good and sixteen poor
readers.

Statistical analysis of the data was done by applying
the Fisher exact probability test. The computed probability
showed which of the early childhood characteristics selected
for the study significantly differentiated the good readers
from the poor readers in the grade five level.

II. SUMMARY OF FINDINGS

Growth Patterns in Reading Achievement

A thorough examination of the trend of the mean
scores on the Paragraph Meaning and Word Meaning subtests
of the Stanford Achievement Test exhibited by groups of
children in grade seven with different initial reading
readiness status has led to the following conclusions:

1. The three highest groups, the superior, high
normal, and average maintained their relative positions
throughout the entire five-year period. This trend indi-
cated that pupils with high levels of reading readiness at
the beginning of their formal reading experience continued
to perform well in reading throughout the elementary grades.

2. Those with superior initial reading readiness
status remained superior, on the average, and even tended
to progress at a faster rate than the other categories of
reading readiness.

3. The slopes of the curves on Paragraph Meaning
of the average and the low normal groups and on Word Mean-
ing of the low normal and the poor risk groups tended to
be similar.

4. There appeared to be no plateau in grade four
in the growth curves of all levels of reading readiness but
something like a plateau was noted from grade 5 through
grade 6.

5. There was a steep rise in growth in reading in grade seven for all the five categories of reading readiness.

6. The mean gains from grade three through grade seven were significantly different for all the reading readiness groups. The superior group yielded the greatest gain on both Paragraph Meaning and Word Meaning. The poor risk group had the smallest gain on Paragraph Meaning but exceeded the low normal group on Word Meaning by .57 K-score points.

7. In general, the boys surpassed the girls at all grade levels. The differences, however, were found to be significant in most grades only for the high normal category on Paragraph Meaning and for the high normal and low normal categories on Word Meaning.

It is possible that the use of more masculine-oriented materials in the elementary grades in the schools where the investigation was conducted might have contributed to the better performance in reading by the boys.

Characteristics of Good and Poor Readers

Conclusions derived from the findings of the investigation on the early childhood characteristics of good and poor readers in grade five were summarized as follows:

1. Good readers in grade five generally had higher initial reading readiness status as measured by the Metropolitan Readiness Tests in kindergarten.

2. More grade five good readers were eager to do things by themselves and they were more self-confident and independent during their early childhood days than were poor readers.

3. Good readers in grade five, in contrast to poor readers, were generally curious about their environment during their preschool and beginning school years. They usually asked a lot of questions and demanded explanation for almost anything.

4. More good readers in grade five displayed pre-school interest in reading than did the poor readers. They often requested that stories be told or read to them and enjoyed picture books and magazines.

5. More good readers than poor readers in grade five were emotionally well adjusted at home during their preschool and early school years. Good readers tended to be more congenial at home during these years.

6. More good readers than poor readers in grade five were read to and given help in reading during their early childhood days.

7. School entrance age did not differentiate significantly between good and poor readers in grade five.

Good readers and poor readers were found to be similar in relation to language spoken at home, number of children in the family, and position in the family.

8. The skills and abilities measured by the subtests of the <u>Metropolitan Readiness Tests</u> that were found to be useful as predictors of reading achievement at the fifth grade were richness of verbal concept, auditory perception, vocabulary, visual perception, and number knowledge. Only subtest 6, Copying, which measures motor control, failed to reach significance at the 5 per cent level.

III. EDUCATIONAL IMPLICATIONS

This study has shown that the child's readiness for reading should be of great concern to parents, teachers, and administrators. Parents should be aware of the effect the early environment of the child has on his later reading patterns. Long before a child goes to school parents should stimulate reading readiness by providing various experiences at home. They should expand the child's pre-school experiences by supporting his curiosity by answering patiently and promptly his queries. They should encourage the child to do things for himself, to explore and discover new experiences, and to solve his own problems. They should foster the child's love for reading by telling or reading well-selected and appealing stories to him.

Children come to kindergarten and first grade with different reading potentials and readiness for reading. The teacher should be able to observe evidences of readiness for reading in each child in her class to guide her in her teaching. Teachers should make use of the results of readiness tests. This could be supplemented by other information obtained from parents. It is ideal to introduce a child to the reading process at the time when his desire to read is strong and when he is ready to read. But reading readiness is not something to be waited for. It can be developed through providing the children with a variety of experiences such as letting them talk about their personal experiences or retell stories read or told to them. Teachers can arouse in children a desire to read by making picture books, story books and other reading materials available to them.

The administrator should plan an effective readiness program. Harris surmised that "an effective readiness program should make use of readiness tests that can locate areas of weakness and should provide specific learning sequences in each area in which a weakness is found."[1] King contended that " a stimulating pre-reading program,

---

[1]Albert J. Harris, "Key Factors in a Successful Reading Program," Elementary English, 46:69, January, 1969.

which includes literature, language, and specific visual

and auditory training, will contribute directly to learning

to read."[2]

The administrator should see to it that the reading

program provides for a systematic development of the read-

ing skills appropriate to the kind of reading tasks the

children will meet at each grade level from kindergarten to

college. Special attention should be given to the period

when the children's progress in reading begins to bog down.

More emphasis should be placed on interpretation and under-

standing of what has been read rather than on mere word

recognition in the preparation of the reading curriculum.

A good working relationship between administrator,

teachers and parents is necessary in order that they can

plan together on how to help the children grow into reading.

There should be frequent conferences, especially with

parents of preschool, kindergarten, and first grade pupils

so that they could discuss the roles that each can play in

laying a strong foundation for the children's reading growth.

IV. SUGGESTIONS FOR FURTHER RESEARCH

This study has brought to a focus a number of issues

needing further research.

---

[2]Ethel M. King, "Beginning Reading: When and How,"
The Reading Teacher, 22:553, March, 1969.

The findings of this study showed a consistent drop in the rate of reading growth at the fifth and sixth grade levels in all categories of reading readiness except the low normal group. An investigation of the factors that contributed to this drop in rate of reading growth is suggested.

A replication of the study on the early childhood characteristics that distinguished good from poor readers in the higher grades should be made using sources of information in addition to parents. The data might be gathered from kindergarten and first grade teachers' written observations and recollections, health records, cumulative records, and the results of readiness and other standardized tests administered to the children during their preschool and early school years. Other characteristics worth looking into are onset of language, age at which the child started to walk, education of parents, and home literary environment.

Since it is generally accepted that the foundations of reading are laid long before a child goes to school and that the parents are the child's first teachers, how would the attendance of parents in a parent education course be related to the child's readiness for reading and reading achievement? The answer to this question may ultimately lead to the need for parent education as a part of the

regular school program. An exploration into this possibility is currently relevant.

Would an early start in school, especially for those children who come from poor home environment, affect reading achievement in later years? Many preschool experiences were found to contribute to success in reading. Hence early schooling for children whose parents could not provide them with favorable conditions would be a suitable topic for research.

Kindergarten programs have been fostering social and emotional growth. Would an emphasis on cognitive growth in kindergarten result in better reading achievement in the elementary grades?

One limitation of the study on growth patterns was the fact that it was retrospective in nature and had to depend mostly on data available in schools. A longitudinal study of individual pupils deliberately planned to be followed up from kindergarten through grade seven using reliable research instruments may yield more comprehensive information and may reveal more reliable patterns of reading growth.

BIBLIOGRAPHY

A.   BOOKS

Bond, Guy L. and Eva Bond Wagner. Teaching the Child to Read. New York: The MacMillan Company, 1966.

Buros, Oskar K. (ed.). Fourth Mental Measurement Yearbook. Highland Park: The Gryphon Press, 1965.

_____. Fifth Mental Measurement Yearbook. Highland Park: The Gryphon Press, 1966.

_____. Sixth Mental Measurement Yearbook. Highland Park: The Gryphon Press, 1967.

Conant, James B. Learning to Read. New Jersey: Educational Testing Service, 1962.

Deputy, Erby C. Predicting First Grade Reading Achievement: A Study of Reading Readiness. Contribution to Education No. 425. New York: Bureau of Publications, Teachers College, Columbia University, 1936.

Durkin, Dolores. Children Who Read Early. New York: Teachers College Press, 1966. 174 pp.

Ferguson, George A. Statistical Analysis in Psychology and Education. New York: McGraw-Hill Book Company, 1966. 446 pp.

Gray, William S. The Teaching of Reading and Writing. London: UNESCO and Evan Bros., 1956.

Harrison, Lucila M. Reading Readiness. Boston: Houghton Mifflin Co., 1939. 255 pp.

Hess, Robert D. and Roberta Meyer Bear. Early Education: Current Theory, Research and Action Change. Chicago: Aldine Publishing Company, 1968. 272 pp.

Hunnicutt, C.W. and William J. Iverson (eds.). Research in the Three R's. New York: Harper and Brothers, 1958.

Ilg, Frances L. and Louise Bates Ames. School Readiness: Behavior Tests Used at the Gesell Institute. New York: Harper & Row, Publishers, 1965. 396 pp.

Johansson, Bror A. _Criteria of School Readiness_. Stockholm: Almqvist & Wiksell, 1965. 333 pp.

Kerlinger, Fred N. _Foundations of Behavioral Research_. New York: Holt, Rinehart and Winston, Inc., 1967.

McArdle, Sister Marguerite (ed.). _The Teaching of Reading in the Elementary Schools_. Washington: The Catholic University Press, 1956.

McKim, Margaret. _Guiding Growth in Reading in the Modern Elementary School_. New York: Harcourt, Brace and World Inc., 1950.

Myers, Jerome L. _Fundamentals of Experimental Design_. Boston: Allyn and Bacon, 1966.

Ostle, Bernard. _Statistics in Research_. Ames: State University Press, 1963.

Russell, David. _Children Learn to Read_. Boston: Ginn and Company, 1961. 612 pp.

Siegel, Sidney. _Nonparametric Statistics_. New York: McGraw-Hill Book Company Inc., 1956.

B.   PUBLICATIONS OF THE GOVERNMENT, LEARNED
SOCIETIES, AND OTHER ORGANIZATIONS

Anastasi, Anne (ed.). _Testing Problems in Perspective_. Washington: American Council on Education, 1966, 671 pp.

Metropolitan Readiness Tests, Form R, Directions for Administering and Key for Scoring. New York: Harcourt, Brace and World, Inc., 1950.

Readiness for Reading and Related Language Arts, A Digest of Current Research. Champaign: National Conference on Research in English, 1950.

C.   PERIODICALS

Bagford, Jack. "Reading Readiness Scores and Success in Reading," _The Reading Teacher_, 21:324-28, January, 1968.

Baker, Emily V. "Reading Readiness is Still Important," Elementary English, 32:17-23, January, 1955.

Balow, Irving M. "Sex Differences in First Grade Reading," Elementary English, 40:303-06, 320, March, 1963.

Barrett, Thomas C. "Visual Discrimination Tasks as Predictors of First Grade Reading Achievement," The Reading Teacher, 18:257-61, January, 1965.

Bond, Guy L. and Robert Dykstra. "The Cooperative Research Program in First Grade Reading Instruction," Reading Research Quarterly, 2:116-17, Summer, 1967.

Bradley, Beatrice E. "An Experimental Study of the Readiness Approach to Reading," Elementary School Journal, 56:262-67, February, 1956.

Carroll, Marjorie Wight. "Sex Differences in Readiness at the First Grade Level," Elementary English, 25:370-75, October, 1948.

Davidson, Helen P. "An Experimental Study of Bright, Average, and Dull Children at the Four-Year Mental Level," Genetic Psychology Monographs, 9:119-287, March, 1931.

Dean, Charles. "Predicting First Grade Reading Achievement," The Elementary School Journal, 39:609-16, April, 1939.

Dobson, James C. and Kenneth D. Hopkins. "The Reliability and Predictive Validity of the Lee Clark Readiness Test," Journal of Developmental Reading, 278-281.

Gardner, E.F. "Comments on Selected Scaling Techniques with a Description of a New Type of Scale," Journal of Clinical Psychology, 6:38-43, 1950.

Gates, Arthur I. "Basal Principles in Reading Readiness Testing," Teachers College Record, 40:495-506, March, 1939.

_____, and Guy L. Bond. "Reading Readiness, A Study of Factors Determining Success and Failure in Beginning Reading," Teachers College Record, 37:679-85, May, 1936.

Grant, Albert. "The Comparative Validity of the Metropolitan Readiness Tests and the Pintner-Cunningham Primary Mental Tests," The Elementary School Journal, 38:599-605, April, 1938.

_____. "A Comparison of the Metropolitan Readiness Tests and the Pintner-Cunningham Primary Mental Test," The Elementary School Journal, 38:118-26, October, 1937.

Hanson, Harlan S. "The Impact of the Home Literary Environment on Reading Attitude," Elementary English, 46:17-23, January, 1969.

Hanson, Earl and H. Alan Robinson. "Reading Readiness and Achievement in Primary Grade Children of Different Socio-Economic Strata," The Reading Teacher, 21:52-56, 70, October, 1957.

Harris, Albert J. "Key Factors in a Successful Reading Program," Elementary English, 46:69-76, January, 1969.

Henig, Max S. "Predictive Value of a Reading Readiness Test and of Teachers' Forecasts," The Elementary School Journal, 49:41-46, September, 1949.

Hilliard, George H. and Eleanor Trexell. "Information Background as a Factor in Reading Readiness and Reading Progress," The Elementary School Journal, 38:255-63, 1938.

Kelley, Truman L. "The Selection of Upper and Lower Groups for the Validation of Test Items," The Journal of Educational Psychology, 30:17-24, January, 1939.

Ketcham, Warren A. and Rondeau G. Laffitte, Jr. "How Well are They Learning?" Educational Leadership, 16:37-41, 350, March, 1959.

King, Ethel M. "Beginning Reading: When and How," The Reading Teacher, 22:550-53, 581, March, 1969.

Kingston, Albert J. Jr. "The Relationship of First Grade Readiness to Third and Fourth Grade Achievement," The Journal of Educational Research, 56:61-67, October, 1962.

Mattick, William E. "Predicting Success in the First Grade," The Elementary School Journal, 42:273-75, February, 1963.

McElroy, Kathryn Mohn. "A Comparative Study of Reading Growth from Grades Two to Seven," The Reading Teacher, 25:98-101, September, 1961.

Mitchell, Blythe. "The Metropolitan Readiness Tests as Predictors of First Grade Achievement," Educational and Psychological Measurement, 22:765-72, Winter, 1962.

Morphett, M.V. and C. Washburne. "When Should Children Learn to Read?" The Elementary School Journal, 31:496-503, March, 1931.

Olson, William C. and Byron O. Hughes. "Concepts of Growth-Their Significance to Teachers," Childhood Education, 21:53-63, October, 1944.

Powell, Marvin and Kenneth M. Parsley, Jr. "The Relationship Between First Grade Reading Readiness and Second Grade Reading Achievement," The Journal of Educational Research, 54:229-33, February, 1961.

Prescott, George A. "Sex Differences in Metropolitan Readiness Tests Results," Journal of Education, 48, April, 1955.

Roslow, Sydney. "Reading Readiness and Reading Achievement in First Grade," Journal of Experimental Education, 9:154-159, December, 1940.

Sanderson, A.E. "The Idea of Reading Readiness: A Re-examination," Educational Research, 6:3-8, November, 1963.

Sutton, Rachel S. "Variations in Reading Achievement of Selected Children," Elementary English, 37:97-100, February, 1960.

Thackray, D.V. "The Relationship Between Reading Readiness and Reading Progress," British Journal of Educational Psychology, 35:252-54, June, 1965.

Wilson, Frank T. "Reading Progress in Kindergarten and Primary Grades," The Elementary School Journal, 38:442-49, February, 1938.

D. UNPUBLISHED MATERIALS

Covell, Harold M. "A Study of the Characteristics of Good and Poor Readers of Social Studies Materials at the Eleventh Grade Level." Unpublished Doctoral dissertation, Tallahasse, Florida State University, 1955.

Dugger, Jerold Orville. "A Study of Reading Growth of
     Intermediate Grade Pupils in the Public Schools of
     Maob, Utah." Unpublished Doctoral dissertation,
     Boulder, Colorado State University, 1960.

Dykstra, Robert. "The Relationship Between Selected
     Measures of Auditory Discrimination and Reading
     Achievement at the End of First Grade." Unpublished
     Doctoral dissertation, Minneapolis, University of
     Minnesota, 1962.

Eddings, Inez Clark. "Patterns of Reading Growth: A
     Longitudinal Study of Patterns of Reading Growth
     Throughout the Six Grades in Two Elementary Schools."
     Unpublished Doctoral dissertation, Columbia, Uni-
     versity of South Carolina, 1950.

Konski, Virginia J. "An Investigation into Differences
     Between Boys and Girls in Selected Reading Readiness
     Areas and in Reading Achievement." Unpublished
     Doctoral Dissertation, Columbia, University of
     Missouri, 1951.

Namkin, Sidney. "The Stability of Achievement Test Scores,
     A Longitudinal Study of Reading and Arithmetic Sub-
     tests of the Stanford Achievement Test." Unpublished
     Doctoral dissertation, Rutgers - The State University,
     New Brunswick, 1966.

Shankman, Florence Vogel. "An Investigation of the Develop-
     ment of Reading Achievement Growth from Grades Four to
     Nine." Unpublished Doctoral dissertation, New York
     University, 1959.

Summers, Edward George. "An Evaluation of Reading Growth
     and Retention Under Two Plans of Organization for
     Seventh Grade Developmental Reading." Unpublished
     Doctoral dissertation, University of Minnesota,
     Minneapolis, 1963.

APPENDICES

APPENDIX A

INTERVIEW GUIDE

I. Home and Family Background

Language spoken at home:

_____ Monolingual
_____ Bilingual
_____ Multilingual

Number of children in the family:

_____ Number of brothers
_____ Number of sisters

Position of child in the family:

_____ First
_____ Intermediate
_____ Last
_____ Only child

II. Physical Characteristics

When playing how much energy did the child have compared to children his age?

_____ definitely more than average
_____ above average
_____ definitely less than average

In what type of activities did the child do especially well?

_____ outdoor, active games
_____ indoor, quiet games

III. Intellectual Characteristics

Did your child participate in conversations?

_____ Yes
_____ No

Was he eager to do things by himself?

        _____ Yes
        _____ No

Was he curious?

        _____ Yes
        _____ No

Did your child show any preschool interest in learning to read?

        _____ Yes
        _____ No

IV.   Social Characteristics

Did your child enjoy being with others?

        _____ Yes
        _____ No

Did he share his toys and games with others?

        _____ Yes
        _____ No

What was the child's behavior like before he started school?

        _____ got into quite a lot of trouble
        _____ shy
        _____ harmonious

Did your child attend kindergarten?   _____ Yes   _____ No

        _____ 1 year
        _____ 6 months
        _____ less than 6 months

Did he like his teacher in kindergarten?

        _____ Yes
        _____ No

Did he like his teacher in first grade?

        _____ Yes
        _____ No

V.   Emotional Characteristics

How do you think your child and you got along with each other before he entered school?

_____ some trouble
_____ sometimes poor behavior
_____ no trouble at all

When your child first attended school did he say he wanted to stay home?

_____ Yes
_____ No
_____ Only in the beginning
_____ intermittently
_____ most of the time

Did your child feel self-confident?

_____ Yes
_____ No

How did the child react when he was engaged in some work or game?

_____ gave up easily
_____ sometimes he gave up, sometimes he didn't
_____ worked to the end of the task

Was your child overdependent?

_____ Yes
_____ No

VI.   Experiential Background

Did you travel anywhere outside Vancouver with your child before he started school? _____ Yes _____ No

If so, where did you go? _____
How long did you stay there? _____

Did you go on outings with your child before he started school?
_____ Yes _____ No   If so, how often?

_____ once a week
_____ once a month
_____ less often

Did you tell him stories before he started school?
_____ Yes _____ No If so, how often?

_____ every day
_____ once a week
_____ less often

Did you or anybody else give the child preschool help with reading?

_____ Yes
_____ No

Did the child watch television before starting school?
_____ Yes _____ No If so, how often?

_____ 5 or fewer hours per week
_____ 6 to 15 hours per week
_____ 16 or more hours per week

What valuable learnings do you think your child acquired from watching television?

_____ interest in written words
_____ vocabulary development
_____ information about history

Did you read to him before he started school? _____ Yes
_____ No If so, how often?

_____ every day
_____ two or three times a week
_____ less often

How did your child react when you told him or read him stories?

_____ very interested
_____ slightly interested
_____ not interested

APPENDIX B

AN INTERVIEW WITH A PARENT.

The following is a sample interview with a parent.
All names except the interviewer's are fictitious. The
interviewee was the mother of a girl who had been classified
as a good grade five reader based on her scores on the Gates-
MacGinitie Reading Tests. The school records showed that
she entered school at the age of 68 months. Her initial
readiness status was average.

Interviewer (approaching the parent in a relaxed and
friendly manner): Good evening, Mrs. Bell. I am Teresa

Andrade. I phoned you about your daughter Ann.

Parent (knowing the purpose of the visit because of a
letter sent in advance by the interviewer and a telephone
call confirming the date and time of the interview): Come in,

Miss Andrade. Have a seat.

Interviewer: Ann's school records show that she has

been getting pretty good marks in reading since the

first grade.

Parent: Oh, she sure loves to read. Reading is her

favorite subject. There is hardly a day you can see

her come home without any library book.

Interviewer: It is possible that many of Ann's char-

acteristics during her early childhood days are re-

lated to her being a good reader now? Could you

possibly look back and try to recall which ones?

Parent: Oh, well, let us see. What I remember fully
well is that as a child she had been curious about
written words on television. She would always
ask what a word says till she could finally iden-
tify TV commercials. And she seemed to be very
interested in the letters of the alphabet so that
she knew already how to read and write them be-
fore she went to school.

Interviewer: Who taught her the letters of the
alphabet?

Parent: I did. Because she seemed to be so inter-
ested in them I was encouraged to teach her.

Interviewer: You probably read or told her stories
too.

Parent: Oh yes. She is an only child and I could
give her the best attention and care. I did it
almost every night before she went to bed.

Interviewer: And was she interested in them?

Parent: Yes, she was. She would even ask questions
about them. She was a curious child and demanded
explanation for everything. Sometimes she would
even ask us what we had been doing when we were kids.

Interviewer: I hope you won't mind if I ask you how
you and your child got along with each other be-
fore she went to school.

Parent: Oh, not at all. Sometimes Ann was mis-
chievous but she was good on the average. She
was a happy girl.

Interviewer: Could you possibly tell me how much
energy Ann had when playing compared to other
children her age?

Parent: I should say just average. She liked playing
with the neighbors but she easily gave up. Al-
though she could get along with others, she often
times preferred playing alone.

Interviewer: Was she willing to share her toys with
her playmates?

Parent: Yes, she did share her toys most of the time,
especially with Shirley, her best friend. They are
very good friends and Ann liked very much to go to
kindergarten school with her.

Interviewer: Did she like her teachers in kinder-
garten and first grade?

Parent: She liked them, especially Miss Clarke, her
sweet kindergarten teacher.

Interviewer: Do you speak any other language aside
from English?

Parent: No.

Interviewer: Do you remember if Ann usually took
part in conversations?

Parent: My, she was a good talker. She would talk
with anybody who came to see us.

Interviewer: Was she eager to do things by herself?

Parent: Ann was independent as a small child. She
had self-confidence. She never asked what should
be done. She tried to do things by herself, but
just like in playing she would give up before the
task was done.

Interviewer: How often did Ann watch television
before she went to school?

Parent: Not too much. I was afraid it would spoil
her eyes so she spent only about an hour a day
watching television.

Interviewer: Did you go on outings with her before
she started school?

Parent: We went on outings almost every weekend and
we still do it now.

Interviewer: It was nice talking to you and hearing
about these interesting behaviors of Ann during
her preschool days.

Parent: It was a pleasure to think back. It would
really be interesting to find out whether what
happened in the past is related to acchild's
achievement right now. I hope to hear about the

result of your study.

Interviewer: I will do that, Mrs. Bell. Thank you
for giving me a part of your precious time.
Goodbye.

APPENDIX C

CASE STUDIES

The early childhood characteristics of thirty-two good and poor readers in grade five are described in the following case studies. Each case study has been numbered and a code used to identify each subject. In each code the first letter, G or P represented a good reader or a poor reader respectively, and the second letter, B or G represented "boy" or "girl" respectively. Thus, there were four coded groups, GB, GG, PB, and PG. The third symbol in each code was a numeral representing the number of the subject in each of the four groups.

The information relating to each case study has been written informally to suggest the flavor of the interview with the parents. The main headings in each case study were background information, physical characteristics, intellectual characteristics, social characteristics, emotional characteristics, and experiential background. Under each main heading are short statements describing traits or behaviors of the child during preschool and early school years as re-called by the parent(s) during the interviews and as gathered from school permanent record cards and records of the Metropolitan Readiness Tests. The following characteristics were based on the subtest results of the Metropolitan Readiness Tests:

Richness of verbal concept
(involving comprehension of   Test 1 - Word Meaning
spoken words)

Auditory perception
(involving comprehension of   Test 2 - Sentences
spoken sentences)

Vocabulary   Test 3 - Information

Visual perception   Test 4 - Matching

Number knowledge   Test 5 - Numbers

Motor control   Test 6 - Copying

Categorizations for Tests 1 to 4 and Test 6, which
were not provided for in the manual, were done using the
same proportions as indicated in the manual for the total
readiness scores. Categorization for Test 5 was provided
for in the manual.

Categories	Tests 1 +4	Tests 2 + 3	Test 6
Superior	18-19	13-14	10
High Normal	15-17	11-12	8-9
Average	12-14	9-10	6-7
Low Normal	8-11	6- 8	4-5
Poor	0- 7	0- 5	0-3

Case Study No. 1 GB1

Background information

      School entrance age - 67 months
      Readiness category - High Normal
      Language spoken at home - monolingual (English)
      Number of children in the family - 2
      Position in the family - 1

Physical characteristics

      Visual perception - High Normal
      Auditory perception - Superior
      Motor control - Low Normal
      Display of energy when playing - more than average

Intellectual characteristics

      Liked to converse with guests
      Eager to explore
      Asked a lot of questions
      Interested in pictures
      Memory - good
      Richness of verbal concept - superior
      Vocabulary - superior
      Number knowledge - high normal

Social characteristics

      Enjoyed the company of playmates
      Shared toys with friends
      Liked teachers in kindergarten and first grade
      Harmonious

Emotional characteristics

      Got along pretty well with parents
      Liked school
      Had self-confidence
      Finished work begun

Experiential background

      Travelled to the States
      Frequently went on outings with family
      Was read to every day
      Was told stories once a week
      Watched television for five or more hours per week

Case Study No. 2   GB2

Background information

      School entrance age - 71 months
      Readiness category - High Normal
      Language spoken at home - monolingual (English)
      Number of children in the family - 3
      Position in the family - 1

Physical characteristics

      Visual perception - superior
      Auditory perception - average
      Motor control - average
      Display of energy when playing - average

Intellectual characteristics

      A good conversationalist
      Eager to explore
      Curious
      Liked books very much
      Richness of verbal concept - high normal
      Vocabulary - superior
      Number knowledge - average

Social characteristics

      Enjoyed playing with others
      Shared games and toys
      Liked teachers
      Harmonious

Emotional characteristics

        Sometimes got into trouble at home
        Congenial in school
        Independent
        Gave up work easily

Experiential background

        Went to the zoo and the museum
        Listened to stories told almost every day
        Was read to every day
        Watched television from six to fifteen hours a week

Case Study No. 3   GB3

Background information

        School entrance age - 67 months
        Readiness category - High Normal
        Language spoken at home - bilingual (English and German)
        Number of children in the family - 6
        Position in the family - 6

Physical characteristics

        Visual perception - superior
        Auditory perception - high normal
        Motor control - high normal
        Display of energy when playing - average

Intellectual characteristics

        Answered questions asked
        Wanted to try new things
        Wanted to know almost everything
        Requested parents to read to him often
        Richness of verbal concept - high normal
        Vocabulary - superior
        Number knowledge - high normal

Social characteristics

       Liked teachers
       Enjoyed the company of sisters and brother
       Friendly

Emotional characteristics

       Had no trouble at all at home
       Liked school
       Worked till end of tasks

Experiential background

       Travelled to the Prairies
       Went fishing with friends and family
       Went to library with members of the family who all
          love to read
       Did not watch television in preschool days because
          the family had no television set at that time
       Was read to two or three times a week
       Was told stories every day

Case Study No. 4   GB4

Background information

       School entrance age - 67 months
       Readiness category - average
       Language spoken at home - monolingual (English)
       Number of children in the family - 6
       Position in the family - 6

Physical characteristics

       Visual perception - average
       Auditory perception - average
       Motor control - high normal
       Display of energy when playing - average

Intellectual characteristics

      Always ready to talk about anything
      Eager for new experiences
      Demanded explanation
      Did not show preschool interest in learning to read
      Richness of verbal concept - high normal
      Vocabulary - high normal
      Number knowledge - average

Social characteristics

      Harmonious
      Liked teachers
      Joined quiet games such as checkers and building blocks

Emotional characteristics

      Got along well with the family
      Cried in school only in the beginning
      Was not interested in first grade

Experiential background

      Seldom went on outings with family
      Was not given help in reading at home
      Was read to less often than once a week

Case Study No. 5   GB5

Background information

      School entrance age - 67 months
      Readiness category - average
      Language spoken at home - monolingual (English)
      Number of children in the family - 5
      Position in the family - 2

Physical characteristics

      Visual perception - average
      Auditory perception - superior
      Motor control - low normal
      Display of energy when playing - less than average

Intellectual characteristics

      Curious, asked why things happen
      Solved his own problems
      Enjoyed going over picture books
      Richness of verbal concept - high normal
      Vocabulary - superior
      Number knowledge- low normal

Social characteristics

      Socially well-adjusted
      Shared toys with friends

Emotional characteristics

      Found no trouble at home or in school
      A happy child
      Gave up work sometimes

Experiential background

      Seldom went on outings with family
      Was read to two or three times a week
      Watched television from six to fifteen hours per week
      Was told stories less often than once a week

Case Study No. 6   GB6

Background information

        School entrance age - 72 months
        Readiness category - High Normal
        Language spoken at home - monolingual (English)
        Number of children in the family - 3
        Position in the family - 2

Physical characteristics

        Visual perception - high normal
        Auditory perception - superior
        Motor control - superior
        Display of energy when playing - less than average

Intellectual characteristics

        Liked to do things without help
        Imitated other children
        Very interested in stories told or read
        Creative, loved to paint and draw
        Richness of verbal concept - high normal
        Vocabulary - superior
        Number knowledge - high normal

Social characteristics

        Liked teachers
        Friendly
        Harmonious

Emotional characteristics

        Had self-confidence
        Lack concentration when engaged in some task
        Liked school, extremely interested in grade one

Experiential background

> Given preschool help with reading, taught phonics.
> Was read to two or three times a week
> Travelled to North America
> Went on outings once a month

Case Study No. 7   GB7

Background information

> School entrace age - 72 months
> Readiness category - superior
> Language spoken at home - monolingual (English)
> Number of children in the family - 3
> Position in the family - 2

Physical characteristics

> Visual perception - superior
> Auditory perception - average
> Motor control - high normal
> Display of energy when playing - more than average

Intellectual characteristics

> Shared in relating experiences especially during
>   mealtime
> Asked questions
> Had a library corner and liked library books
> Very interested in stories told
> Creative, enjoys drawing
> Richness of verbal concept - high normal
> Vocabulary - superior
> Number knowledge - superior

Social characteristics

> Enjoyed companionship
> Shared toys with playmates

Emotional characteristics

>   Congenial at home
>   Did not like first grade teacher
>   Worked to the end of task

Experiential background

>   Was read to every day
>   Watched television for five or fewer hours per week
>   Had plenty of reading materials at home
>   Was told stories often

Case Study No. 8   GB8

Background information

>   School entrance age - 70 months
>   Readiness category - average
>   Language spoken at home - monolingual (English)
>   Number of children in the family - 3
>   Position in the family - 3

Physical characteristics

>   Visual perception - high normal
>   Auditory perception - average
>   Motor control - high normal
>   Display of energy when playing - average

Intellectual characteristics

>   Exchanged experiences with friends
>   Observant and interested in things
>   Interested in books
>   Curious about printed words on television commercials
>   Richness of verbal concept - high normal
>   Vocabulary - high normal
>   Number knowledge - average

Social characteristics

> Lovable, a friend of everybody
> Liked teachers
> Shared toys and games

Emotional characteristics

> Did not get into trouble
> Shy at the beginning in kindergarten school
> Not consistent with job undertaken, sometimes gave
> up, sometimes did not

Experiential background

> Travelled in North America
> Went on outings once a week with parents and friends
> Was read to every day
> Was told stories every day
> Watched television for more than sixteen hours per week

Case Study No. 9   GG1

Background information

> School entrance age - 76 months
> Readiness category - average
> Language spoken at home - bilingual (English and German)
> Number of children in the family - 3
> Position in the family - 1

Physical characteristics

> Visual perception - superior
> Auditory perception - average
> Motor control - low normal
> Display of energy when playing - average

Intellectual characteristics

Observant but did not talk much probably because of
language difficulty; parents did not speak English
Loved to look at pictures in books.
Richness of verbal concept - high normal
Vocabulary - high normal
Number knowledge - high normal

Social characteristics

Enjoyed the company of other children
Liked teachers
Shy with adults, especially with strangers, before
going to school but became socially well-
adjusted later.

Emotional characteristics

Did not want to go to school in the beginning because
of language handicap.
Quite shy before starting school

Experiential background

Parents speak a foreign language and could not give
the child help with reading. But the child was
exposed to the environment, hence she easily picked
up words. They went on outings once a week and
travelled to out-of-town places. Through television
viewing the child developed her vocabulary and be-
came interested in reading.

Case Study No. 10 GG2

Background information

School entrance age - 66 months
Readiness category - low normal
Language spoken at home - monolingual (English)
Number of children in the family - 5
Position in the family - 3

Physical characteristics

      Visual perception - average
      Auditory perception - low normal
      Motor control - low normal
      Display of energy when playing - average

Intellectual characteristics

      Did not talk much
      Eager to do things by herself
      Interested in stories read or told to her
      Loved books
      Creative, enjoyed painting
      Richness of verbal concept - high normal
      Vocabulary - high normal
      Number knowledge - low normal

Social characteristics

      Shy
      Played only with sisters and brothers
      Liked teachers

Emotional characteristics

      Cried in school in the beginning
      Congenial at home
      Has self-confidence

Experiential background

      Mother too busy to give any preschool help in reading
      Read to by elder brothers once a week
      Was told stories by members of the family less often
          than once a week
      Had not travelled
      Seldom went on outings with family

Case Study No. 11   GG3

Background information

      School entrance age - 74 months
      Readiness category - average
      Language spoken at home - bilingual (English and German)
      Number of children in the family - 4
      Position in the family - 1

Physical characteristics

      Visual perception - low normal
      Auditory perception - superior
      Motor control - low normal
      Display of energy when playing - less than average

Intellectual characteristics

      Curious, eager to learn
      Very interested in stories read or told her
      Richness of verbal concept - high normal
      Vocabulary - superior
      Number knowledge - average

Social characteristics

      Liked teachers
      Shy with adults
      Would not share toys with others

Emotional characteristics

      Bossy with other children
      Did not like school at the beginning
      Had no self-confidence, gave up easily when working
         or playing

Experiential background

> Sickly and could not go on outings often
> Read to every day
> Mother told stories and asked questions on the
>   story almost every day
> Did not watch television during preschool days, no
>   television set at the time

Case Study No. 12   GG4

Background information

> School entrance age - 68 months
> Readiness category - average
> Language spoken at home - monolingual (English)
> Number of children in the family - 1
> Position in the family - only child

Physical characteristics

> Visual perception - poor
> Auditory perception - high normal
> Motor control - low normal
> Display of energy when playing - average
> Richness of verbal concept - high normal
> Vocabulary - superior
> Number knowledge - high normal

Intellectual characteristics

> A good talker
> Demanded explanation for everything
> Wanted to know what parents do when they were kids
> Wanted to do things by herself
> Interested in the letters of the alphabet
> Curious about written words on television

Social characteristics

    A happy child
    Got along well with others
    Liked kindergarten and grade one teachers
    Shared playthings with friends

Emotional characteristics

    Liked very much to go to school with a girl friend
    Had self-confidence
    Mischievous at times
    Easily gave up when engaged in some tasks

Experiential background

    Learned to read and write the alphabet before going
        to school through parents' help
    Was told stories every night
    Watched television for five to fewer hours per week
    Went on outings with parents once a week

Case Study No. 13   GG5

Background information

    School entrance age - 76 months
    Readiness category - high normal
    Language spoken at home - monolingual (English)
    Number of children in the family - 1
    Position in the family - only child

Physical characteristics

    Visual perception - high normal
    Auditory perception - high normal
    Motor control - low normal
    Display of energy when playing - more than average

Intellectual characteristics

> Curious as a child
> Loved to mimic
> Enjoyed conversing with others
> Started walking at 10 months
> Said big words heard on television
> Richness of verbal concept - superior
> Vocabulary - high normal
> Number knowledge - superior

Social Characteristics

> Always greeted people and bade them goodbye
> Shared toys with other children
> Liked teachers

Emotional characteristics

> A happy child
> Had good power of concentration
> Loved parents and grandmother very much
> Self-confident

Experiential background

> Watched television and learned new words
> Exposed to the environment. Mother took her out and
>   showed her things around
> Went on outings with parents once a week
> Was read to every day
> Was told stories and asked questions on them once
>   a week

Case Study No. 14   GG6

Background information

> School entrance age - 71 months
> Readiness category - high normal
> Language spoken at home - monolingual (English)
> Number of children in the family - 2
> Position in the family - 2

Physical characteristics

  Visual perception - superior
  Auditory perception - high normal
  Motor control - high normal
  Display of energy when playing - average

Intellectual characteristics

  Did not participate much in conversations
  Alert, quick to grasp things
  Interested in books and magazines
  Creative, loved to draw
  Showed eagerness to do things by herself
  Richness of verbal concept - high normal
  Vocabulary - superior
  Number knowledge - superior

Social characteristics

  Played only with sister
  Shy
  Liked teachers

Emotional characteristics

  Mother was strict; usually screamed at children when
    giving orders
  Congenial in school
  When engaged in some work or game sometimes she gave
    up easily and sometimes worked till the end of
    task

Experiential background

  Travelled to North America
  Father has a keen mind and usually asked questions
  Was read to less often than once a week because
    mother was too busy
  Was seldom told stories
  Went rarely on outings

Case Study No. 15   GG7

Background information

    School entrance age - 69 months
    Readiness category - high normal
    Language spoken at home - English
    Number of children in the family - 2
    Position in the family - 2

Physical characteristics

    Visual perception - superior
    Auditory perception - high normal
    Motor control - high normal
    Display of energy when playing - average

Intellectual characteristics

    An energetic conversationalist
    Interested in books and always asked mother to
        read for her
    Loved to imitate others
    Richness of verbal concept - high normal
    Vocabulary - high normal
    Number knowledge - high normal

Social characteristics

    Very friendly and cooperative
    Liked kindergarten and first grade teachers
    Shared toys and games
    Harmonious

Emotional characteristics

    Felt secure at home
    Liked school all the time

Experiential background

      Travelled to North America
      Went on outings once a month
      Had plenty of books at home
      Was not told stories at home during early school year
      Watched television for more than one and a half
          hours per week

Case Study No. 16   GG8

Background information

      School entrance age - 66 months
      Readiness category - average
      Language spoken at home - bilingual (English and Chinese)
      Number of children in the family - 4
      Position in the family - 2

Physical characteristics

      Visual perception - high normal
      Auditory perception - high normal
      Motor control - low normal
      Display of energy when playing - less than average

Intellectual characteristics

      Not much of a talker because of language barrier
      Had self motivation, explored new things
      Curious about printed words
      Enjoyed books and other reading materials
      Richness of verbal concept - average
      Vocabulary - average
      Number knowledge- high normal

Social characteristics

>   Hated outdoor games
>   Preferred to play by herself at home
>   Liked teachers

Emotional characteristics

>   Congenial at home and in school
>   Worked till end of task
>   Had self-confidence

Experiential background

>   Was not given any help in reading because parents
>   speak a foreign language at home
>   Older sister sometimes read stories to her
>   Did not go on outings with family

Case Study No. 17   PB9

Background information

>   School entrance age - 67 months
>   Readiness category - average
>   Language spoken at home - monolingual (English)
>   Number of children in the family - 2
>   Position in the family - 2

Physical characteristics

>   Visual perception - high normal
>   Auditory perception - high normal
>   Motor control - average
>   Display of energy when playing - average

Intellectual characteristics

Observant
Enjoyed talking with playmates
Did not show interest in reading, preferred play
    periods in school
Not curious
Richness of verbal concept - average
Vocabulary - average
Number knowledge - low normal

Social characteristics

Harmonious
Shared toys and games with others
Liked teachers
Enjoyed company of friends

Emotional characteristics

Got along well with members of the family
Congenial in school
Finished work begun
Lacked self-confidence

Experiential background

Was never read to, parents are non-readers
Was not given any preschool help with reading
Watched television for six to fifteen hours per week
Went on outings once a week
Travelled to United States
Was told stories once a week

Case Study No. 18   PB10

Background information

School entrance age - 76 months
Readiness category - low normal
Language spoken at home - bilingual (English and
    Chinese)

Number of children in the family -11
Position in the family - 7

Physical characteristics

Visual perception - low normal
Auditory perception - low normal
Motor control - low normal
Display of energy when playing - less than average

Intellectual characteristics

Bashful with adults
Showed no interest in learning to read
Not eager to discover new things
Never asked questions
Richness of verbal concept - high normal
Vocabulary - average
Number knowledge - low normal

Social characteristics

Withdrawn
Bashful
Shared toys with playmates
Liked teachers

Emotional characteristics

Shy in school, had inferiority complex
Lazy, unwilling to do any work
Did not get much attention from parents because of
     too many children in the family

Experiential background

Was not read to nor was told stories because parents
     speak a foreign language
Did not go on outings with family
Environment not conducive to learning
Watched television more than sixteen hours a week
     but claimed he did not learn anything from it
Travelled to the States and North America

Case Study No. 19   PB11

Background information

      School entrance age - 66 months
      Readiness category - average
      Language spoken at home - bilingual (English and Italian)
      Number of children in the family - 3
      Position in the family - 3

Physical characteristics

      Visual perception - high normal
      Auditory perception - high normal
      Motor control - high normal
      Display of energy when playing - average

Intellectual characteristics

      Enjoyed talking with friends
      Did not display any interest for reading
      Not inquisitive
      Richness of verbal concept - low normal
      Vocabulary - superior
      Number knowledge - average

Social characteristics

      Socially well adjusted
      Harmonious
      Shared games and toys
      Liked teachers

Emotional characteristics

      Father died when he was still very young and mother
         got very sick
      Inattentive, slightly interested in stories read or
         told to him
      Left work undone

Experiential background

>   Was read to once a week
>   Was told stories once a week
>   Very seldom went on outings
>   Watched television from sixteen or more hours a week
>   Was not given any preschool help with reading

Case Study No. 20   PB12

Background information

>   School entrance age - 76 months
>   Readiness category - average
>   Language spoken at home - bilingual (English and German)
>   Number of children in the family - 2
>   Position in the family -1

Physical characteristics

>   Visual perception - high normal
>   Auditory perception - low normal
>   Motor control - high normal
>   Display of energy when playing - more than average

Intellectual characteristics

>   Enjoyed conversing with playmates
>   Did not show any preschool interest in learning
>   to read
>   Not curious
>   Richness of verbal concept - high normal
>   Vocabulary - average
>   Number knowledge - average

Social characteristics

>   Happy and polite child
>   Harmonious
>   Liked teachers

Emotional characteristics

  Restless in first grade
  Easy-going
  Inattentive
  Gave up work or game easily
  Did not like school in the beginning

Experiential background

  Seldom went on outings with parents
  Parents are not fond of reading, they never told
    him stories
  Seldom read to
  Travelled to North America

Case Study No. 21 PB13

Background information

  School entrance age - 70 months
  Readiness category - average
  Language spoken at home - monolingual (English)
  Number of children in the family - 2
  Position in the family - 2

Physical characteristics

  Visual perception - high normal
  Auditory perception - low normal
  Motor control - high normal
  Display of energy when playing - more than average

Intellectual characteristics

  Enjoyed talking about experiences
  Eager to do things for himself
  Asked questions
  No preschool interest in learning to read
  Richness of verbal concept - high normal
  Vocabulary - superior
  Number knowledge- low normal

Social characteristics

Enjoyed companionship
Shared toys and games
Liked teachers

Emotional characteristics

Congenial at home and in school
Smiling, sunny disposition
Worked to the end of any task given him
Slightly interested in stories told or read to him

Experiential background

Was read to every day
Was told stories every day
Went on outings with parents frequently
Watched television from six to fifteen hours per week
Had too much parental permissiveness

Case Study No. 22   PB14

Background information

School entrance age - 66 months
Readiness category - low normal
Language spoken at home - monolingual (English)
Number of children in the family -11
Position in the family - 7

Physical characteristics

Visual perception - low normal
Auditory perception - average
Motor control - poor
Display of energy when playing - average

Intellectual characteristics

Took part in conversations
Not interested in reading in spite of the many
    reading materials available at home
More interested in drawing and trumpet playing
Not inquisitive
Never attempted to do things by himself
Richness of verbal concept - average
Vocabulary - average
Number knowledge - poor

Social characteristics

An extrovert
Harmonious
Shared toys with friends
Liked teachers

Emotional characteristics

Neat with his work and belongings
Finished work begun
Moody; sometimes poor behavior, sometimes good
Belongs to a big family and quite insecure at home
Felt more secure at school
Lacked self-confidence

Experiential background

Went on outings with family once a week
Was read to less often than once a week
Was told stories only when information was asked for
Was not given any help with reading
Watched television for more than sixteen hours per
    week
Had plenty of books in the house

Case Study No. 23   PB15

Background information

        School entrance age - 73 months
        Readiness category - average
        Language spoken at home - monolingual (English)
        Number of children in the family - 3
        Position in the family - 3

Physical characteristics

        Visual perception - low normal
        Auditory perception - high normal
        Motor control - low normal
        display of energy when playing - more than average

Intellectual characteristics

        Joined conversations
        Did not show any preschool interest in learning
            to read
        Not curious
        Did not display eagerness to do anything by himself
        Richness of verbal concept - average
        Vocabulary - superior
        Number knowledge - high normal

Social characteristics

        Harmonious with friends
        Shared toys with playmates

Emotional characteristics

        Hated teacher in first grade because she scolded
            him in class and he got embarrassed; not at
            all interested in first grade
        Behavior at home was sometimes good and at other
            times bad

Experiential background

> Went on outings with family once a week
> Travelled in North America and the States
> Was read to once a week
> Was told stories once a week
> Was told stories once a week
> Watched television for more than sixteen hours
> per week

Case Study No. 24   PB16

Background information

> School entrance age - 74 months
> Readiness category - average
> Language spoken at home - monolingual (English)
> Number of children in the family - 1
> Position in the family - only child

Physical characteristics

> Visual perception - low normal
> Auditory perception - low normal
> Motor control - low normal
> Display of energy when playing - less than average

Intellectual Characteristics

> Had no interest in learning to read during preschool
> years
> Restrained in conversations
> Not inquisitive
> Did not attempt to do things by himself
> Richness of verbal concept - superior
> Vocabulary - average
> Number knowledge - high normal

Social characteristics

>Very shy and quiet
>Did not share toys with others
>Did not like his teachers in early grades

Emotional characteristics

>Over dependent
>Cried most of the time in kindergarten school
>Gave up easily when playing or working

Experiential background

>Seldom went on outings with parents
>Seldom was told stores or read to
>Watched television for 16 or more hours per week
>Was not given preschool help with reading

Case Study No. 25   PG9

Background information

>School entrance age - 67 months
>Readiness category - low normal
>Language spoken at home - bilingual (English and
>   Chinese)
>Number of children in the family - 3
>Position in the family - 1

Physical characteristics

>Visual perception - average
>Auditory perception - poor
>Motor control - high normal
>Display of energy when playing - average

Intellectual characteristics

        Was inhibited from engaging in conversations
            because of poor command of language
        Not inquisitive
        Did not show any sign of interest in learning to read
        Richness of verbal concept - low normal
        Vocabulary - poor
        Number knowledge - low normal

Social characteristics

        Bashful in school
        Did not enjoy the company of other children

Emotional characteristics

        Had inferiority complex because of language difficulty
        Lacked parental attention because parents are too
            busy with their business and hardly have time
            left for the children

Experiential background

        Never went on outings with parents
        Was not told stories or read to
        Nobody else gave the child preschool help with reading
        Watched television for six to fifteen hours a week
            where she learned English
        Lived in a community where playmates were bilingual
            too, speaking a second language different from
            her own.

                    Case Study No. 26 PG10

Background information

        School entrance age - 67 months
        Readiness category - poor risk
        Language spoken at home - monolingual (English)

Number of children in the family - 6
Position in the family - 5

Physical characteristics

Visual perception - poor
Auditory perception - poor
Motor control - poor
Display of energy when playing - more than average

Intellectual characteristics

Hardly talked with people other than members of the
family
No interest at all in reading during preschool years
No initiative to do any kind of work
Not inquisitive
Richness of verbal concept - poor
Vocabulary - poor
Number knowledge - poor

Social characteristics

Got into quite a lot of trouble with the other
children
Did not like kindergarten teacher but liked the first
grade teacher
Did not share toys with others

Emotional characteristics

Behavior at home was sometimes good and sometimes bad
Restless
Left work unfinished sometimes
Suffered by comparison with a brighter sister
Had self-confidence

Experiential background

Had travelled in North America
Went on outings with parents once a week
Watched television from six to fifteen hours a week

Was told stories before he started school less
    often than once a week
Was not given any preschool help with reading
Was not read to

Case Study No. 27   PG11

Background information

    School entrance age - 75 months
    Readiness category - high normal
    Language spoken at home - monolingual (English)
    Number of children in the family - 2
    Position in the family - 2

Physical characteristics

    Visual perception - superior
    Auditory perception - high normal
    Motor control - superior
    Display of energy when playing - average

Intellectual characteristics

    Answered in monosyllables when talked to
    Was not eager to do things by herself
    Not curious
    Not interested in books
    Richness of verbal concept - high normal
    Vocabulary - superior
    Number knowledge- high normal

Social characteristics

    Very shy
    Preferred to work alone
    Liked teachers
    Would not share toys with others

Emotional characteristics

> Not interested in school
> Busy, always doing something but did not always
>   complete the task
> Had self-confidence

Experiential background

> Travelled in North America
> Was read to every day
> Was told stories every day
> Watched television from six to fifteen hours per week
> Went on outings once a month with parents
> No help was given in early reading

Case Study No. 28   PG12

Background information

> School entrance age - 74 months
> Readiness category - low normal
> Language spoken at home - monolingual (English)
> Number of children in the family - 3
> Position in the family - 1

Physical characteristics

> Visual perception - poor
> Auditory perception - average
> Motor control - poor
> Display of energy when playing - more than average

Intellectual characteristics

> Seldom talked
> Was not interested in learning to read
> Did not ask questions
> No initiative

Did not show any desire to do things by himself
Richness of verbal concept - low normal
Vocabulary - high normal
Number knowledge - poor

Social characteristics

Enjoyed being with playmates
Liked teachers
Shared toys
Harmonious

Emotional characteristics

Congenial at home
Liked school although she was not good with her
    school work
No confidence in self
Gave up easily when engaged in some work

Experiential background

Went on outings with parents once a week
Was not told stories
Was not read to
Watched television for sixteen or more hours per week
Was not given any help in reading

Case Study No. 29 PG13

Background information

School entrance age - 67 months
Readiness category - low normal
Language spoken at home - monolingual (English)
Number of children in the family - 3
Position in the family - 3

Physical characteristics

      Visual perception - average
      Auditory perception - low normal
      Motor control - superior
      Display of energy when playing - more than average

Intellectual characteristics

      Participated in conversation only when asked
      Not inquisitive
      Did not show any interest in learning to read
      Was not eager to do things by herself
      Richness of verbal concept - poor
      Vocabulary - low normal
      Number knowledge - low normal

Social characteristics

      Shy
      Liked teachers
      Unwilling to share toys with others
      Preferred to play alone

Emotional characteristics

      Cried intermittently in kindergarten school
      Had no confidence in oneherself
      Felt secure at home
      Worked till end of task
      Depended too much on older sister

Experiential background

      Travelled in North America
      Went on outings once a week with parents
      Was read to three times a week
      Was told stories once a week
      Watched television five or fewer hours per week
      Was not helped with preschool reading

Case Study No. 30   PG14

Background information

> School entrance age - 73 months
> Readiness category - low normal
> Language spoken at home - monolingual (English)
> Number of children in the family - 4
> Position in the family - 2

Physical characteristics

> Visual perception - poor
> Auditory perception - low normal
> Motor control - low normal
> Display of energy when playing - average

Intellectual characteristics

> Reticent
> Not eager to explore
> Not interested in learning to read
> Did not show any interest for books
> Richness of verbal concept - average
> Vocabulary - low normal
> Number knowledge - average

Social characteristics

> Timid
> Did not like teacher in first grade but liked the
>   kindergarten teacher
> Preferred quiet games
> Shares toys with brother and sisters

Emotional characteristics

> Carefree
> Inattentive
> Lacked concentration
> Gave up easily any work engaged in
> self-confident

Experiential background

> Went on outings very seldom
> Was told stories less often than once a week
> Was read to rarely
> Watched television for sixteen or more hours a week
> Was not given help in reading during preschool years

Case Study No. 31   PG15

Background information

> School entrance age - 68 months
> Readiness category - low normal
> Language spoken at home - bilingual (English and French)
> Number of children in the family - 4
> Position in the family - 4

Physical characteristics

> Visual perception - high normal
> Auditory perception - low normal
> Motor control - poor
> Display of energy when playing - more than average

Intellectual characteristics

> Asked many questions
> Interested in many things around her
> A good conversationalist at home but not in school
> Read aloud well but poor in comprehension
> Wanted to try new things
> Showed interest in learning to read before going
>   to school
> Richness of verbal concept - average
> Vocabulary - low normal
> Number knowledge - average

Social characteristics

        Enjoyed the company of other children
        Liked teachers
        Harmonious
        Shared toys and games

Emotional characteristics

        Very close to parents
        Wanted to go home during first days in school
        Self-confident
        Had good concentration ability
        Finished all tasks started

Experiential background

        Went on outings once a week
        Mother answered all questions asked
        Watched television for fewer than five hours per week
        Travelled to the States
        Did not get any help with reading
        Was read to three times a week
        Was told stories every day

Case Study No. 32   PG16

Background information

        School entrance age - 68 months
        Readiness category - high normal
        Language spoken at home - monolingual (English)
        Number of children in the family - 3
        Position in the family - 2

Physical characteristics

        Visual perception - superior
        Auditory perception - superior
        Motor control - low normal
        Display of energy when playing - average

Intellectual characteristics

  Restrained in expression
  Did not show any interest in learning to read
  Seldom asked questions
  Did not venture to do things by herself
  Richness of verbal concept - superior
  Vocabulary - superior
  Number knowledge - superior

Social characteristics

  Enjoyed being with others
  Shared toys and games with friends
  Liked teachers
  Bashful

Emotional characteristics

  Did not like to go to school in the beginning
  Lacked self-confidence
  Congenial at home
  Worked to the end of any task

Experiential background

  Travelled to the States
  Was read to less often than once a week
  Was told stories once a week
  Watched television for five or fewer hours per week
  Had plenty of books at home but child did not
    show any interest in them
  Went on outings once a month
  Was not given any help with reading