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An Examination of the Jefferson County Readiness Test as a Predictor of Readiness & Achievement

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AN EXAMINATION OF THE JEFFERSON COUNTY

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READINESS AND ACHIEVEMENT

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The Jefferson County Readiness Test, a locally developed readiness test, has been in use in the Jefferson County, Kentucky elementary schools for seventeen years. This test had not been standardized and few studies were available to support its use. The JCRT was studied to determine if the test was a valid predictor of readiness and achievement. Phase I of the study was designed to study the JCRT as a predictor of readiness. Beginning first year students in one elementary school were selected and JCRT scores, Metropolitan Readiness Test scores, and teachers' perceptions of readiness were collected for each child. Results of Phase I found the JCRT to be a concurrently valid and internally reliable predictor of readiness. Phase II of the study was designed to determine the value of the JCRT as a predictor of post first grade achievement. Data were collected for third year students in three Jefferson County elementary schools. Data included JCRT scores, Otis Lennon Mental Ability Test scores, Metropolitan Achievement Test scores, and demographic data. Multilinear regression analyses were computed to determine what factors best

predicted achievement. Intelligence was found to be the best predictor of both reading and mathematics achievement. The JCRT was not found to be a major predictor of post first grade achievement.

CHAPTER I

INTRODUCTION

The initial question to be answered when a child
enters school is "Is the child ready to begin formal instruc-
tion?" Teachers and other school personnel must find some
valid and reliable means of determining whether each child
is indeed ready to begin formal instruction.

One commonly used tool for predicting educational
readiness and more specifically reading readiness is the
readiness test. For approximately thirty years, schools
have been using readiness tests to determine a child's
preparation for learning. Barrett (1971) reported, in a
study conducted by Austin and Morrison, that more than eighty
percent of the schools in the nation which were contacted
used a reading readiness test.

There are numerous commercially developed readiness
tests that measure a variety of skills which may determine
readiness. However, no two tests measure exactly the same
factors. Further, a more basic problem is that it is not
known exactly which specific factors are prerequisites for
educational readiness. Some tests measure visual and audi-
tory perception; others measure the child's vocabulary or
numerical knowledge; and still other tests measure such

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skills as motor coordination or knowledge of the alphabet.
Currently, no test measures all the factors needed for the
child to be considered ready to begin formal instruction.

Theoretically, readiness tests when used as the sole
factor cannot determine a child's readiness. However, when
combined with teacher ratings and observations, they are
usually a more reliable determinant of readiness than when
used alone   (Livo, 1970). Teacher observation of behavior
has long been recognized as a means of predicting readiness.
The teacher is able to observe visually the child's social
and emotional readiness, something which cannot be adequately
assessed by a readiness test. Therefore, it appears that the
most empirically sound techniques available in the prediction
of readiness have evolved through both testing and observation.

Readiness tests not only help determine readiness, but
also may be useful in predicting later school achievement.
Educators agree that reading readiness is the foremost phase
of the beginning reading program (Barrett, 1971). Children
who are ready to begin formal instruction have a better chance
of later success than those who are not.

Most of the readiness tests which are used by schools
are standardized and accompanied by national norms. The tests
are administered to the child either at the end of kindergar-
ten or upon entry to the first grade. Typically these tests
have been field tested and have some degree of reliability
and validity in the prediction of readiness and achievement.

The Jefferson County, Kentucky Public Schools do not

use a standardized readiness test. Rather, the readiness test being used in the Jefferson County elementary schools is a locally developed test. The specific purpose of this study is to examine the Jefferson County Readiness Test with regard to its validity and reliability as a predictor of readiness.

Statement of Problem

The present study was made to determine if a locally developed readiness test, the Jefferson County Readiness Test, was a valuable tool for predicting readiness. This test has not been rigorously standardized; furthermore, little, if any, data have existed to show its validity or reliability in the prediction of readiness or achievement.

The specific problems investigated in this study were twofold. They were: (1) To determine the validity of the Jefferson County Readiness Test in predicting readiness and (2) To determine the predictive value of the Jefferson County Readiness Test and other selected variables on elementary school achievement.

Purpose of the Study

One of the purposes of this study was to determine the validity of the Jefferson County Readiness Test. This test is an instrument developed by the Jefferson County school system and has been used as a measure of readiness. However, this test has not been standardized and few studies have been conducted to determine its ability to measure readiness.

The Jefferson County Readiness Test is purported to

be similar to the Metropolitan Readiness Test but is con-
sidered shorter and easier to administer. A comparison of
the two testing instruments was made in an effort to determine
the validity of the local test. In addition to this comparison
the study was designed to determine if first year teachers'
perceptions correlated with the scores on the two test instru-
ments. Phase I of the study was conducted with beginning
first year students in one Jefferson County elementary school.

The purpose of the second phase of the study was
to determine whether the Jefferson County Readiness Test could
be used as a post first grade predictor of elementary school
achievement. The study also attempted to determine the relation-
ship of other selected variables to post first grade achievement.
These predictor variables included Jefferson County Readiness
Test scores, Otis Lennon Mental Ability Test scores, sex, age,
school, parent occupation, broken home, and readiness room
enrollment. The individual and combined effects of these
variables on achievement as measured by the Metropolitan Achieve-
ment Test were studied.

Definition of Terms

In the forthcoming sections of this study, the
following terms have been used. The definitions of these
terms have been listed as they apply to this study.

Achievement -- Achievement is the child's accumulated
academic skills. Thus, achievement tests purport to measure
the total academic skills learned by the child. Achievement

in this study was measured by the Metropolitan Achievement Test.

Collection of Data Form (Phase I) -- The form used to compile all data needed for Phase I of the study.

Data Summary Sheet (DSS) -- Form used to collect data on third year students in Phase II of the study.

First Year -- Jefferson County uses the word year to replace grade. The first year comprises four levels.

Jefferson County Readiness Test (JCRT) -- The Jefferson County, Kentucky school system developed readiness test which was administered to first year students. The test consisted of four subtests: matching, numbers, copying and sentence meaning.

Levels 1-4 -- The four levels of first year in Jefferson County, Kentucky Schools. Level one is the readiness level. A child begins formal reading in level two. A child must finish all four levels to be promoted to second year.

Mental Ability -- Mental ability as used in this study referred to scholastic aptitude. Tests of mental ability measure abilities which are important for success in academic settings where emphasis is placed upon the abstract ideas expressed in verbal, numerical, figural, or symbolic form. Mental ability in this study was measured by the Otis Lennon Mental Ability Test.

Mental Age Concept -- The concept of a child reaching a certain mental age or level of mental development before he is ready to begin formal education.

<u>Metropolitan Achievement Test - The Elementary</u>
<u>Battery</u> -- The achievement test administered to third year
students. This test was the criterion variable for Phase II
of the study. The total reading and total mathematics scores
were the scores used in this study. The Metropolitan Achieve-
ment Tests were published by Harcourt Brace Jovanovich, Inc.

<u>Metropolitan Readiness Test - Form A</u> -- A standard-
ized readiness test to which the JCRT was compared. The MRT
consisted of six subtests: word meaning, listening, matching,
alphabet, numbers, and copying. Metropolitan Readiness Tests
were published by Harcourt Brace Jovanovich, Inc.

<u>Otis Lennon Mental Ability Test - Form J</u> -- Mental
ability test administered to second year students. The score
on this test was used as one of the predictor variables for
achievement. The Otis Lennon Mental Ability Test was published
by Harcourt Brace Jovanovich, Inc.

<u>Perceptions of Readiness</u> (POR)-- Checklist used by
classroom teachers to ascertain readiness in Phase I of the
study. The checklist included ten items.

<u>Phase I</u> -- The section of the study which correlated
the Jefferson County Readiness Test with the Metropolitan
Readiness Test and teachers' perceptions of readiness. Phase
I was designed to determine whether the JCRT was a predictor
of readiness.

<u>Phase II</u> -- The section of the study designed to
determine what factors predicted achievement and more specif-
ically if the JCRT was a predictor of achievement.

Reading Readiness -- Readiness to begin formal reading instruction.

Readiness -- Readiness for formal educational instruction as pertained to first year students.

Teacher Perceptions -- Observations made by participating teachers to determine a child's readiness to begin formal instruction.

Visual Discrimination -- The ability of a child to see likenesses and differences in shapes, letters, and words.

Limitations of the Study

Limitations of this study included lack of control, data collection using variables which were measured two and three years prior to the actual study, sample sizes, the ability to generalize the results, and the threat of a lack of internal consistency produced by the possible effects of mandated change within the school system.

A lack of control within the study existed to the degree that data were collected from previously administered instruments. All of the test scores in Phase II of the study reflected results which were computed on instruments administered by classroom teachers who were unaware of the study. Therefore, there existed the possibility that all directions were not correctly given by the teachers or fully understood by the students. Also, time limits on the mental ability test and achievement test may not have been adhered to properly.

Furthermore, because Phase II was an ex post facto design, inherent limitations were present. That is, previously collected data were utilized to predict current levels of achievement.

The sample size was small in both phases of the study. Phase I sampled all of the beginning first year students in one Jefferson County elementary school. This sample included approximately 80 children and three teachers. This limitation existed because the design of the study required additional data, making it necessary to complete additional testing and teacher ratings. Because of the need for this information and the lack of available help to complete this information, only the school most easily accessible to the researcher was used for the sample in Phase I.

Phase II of the study was sampling third year students in three schools. This sample included approximately 175 children from the three schools. There are 102 elementary schools in Jefferson County but only twenty-nine schools had all the necessary test data for third year students. Although the sample was small, an attempt was made to select schools in varied socio-economic areas and with varied academic achievement levels. One of the schools selected was in a high socio-economic area, one in a middle, and one in a low socio-economic area.

Jefferson County Readiness Tests are given only to beginning first year students in Jefferson County. As a result, it was not possible to generalize the results of the

study beyond the students in the Jefferson County system.

Considerable change has taken place in the Jefferson
County School system since April, 1975. During the spring
of 1975, the Louisville and Jefferson County school systems
were merged. In addition, a county-wide desegregation order
was mandated by the courts. Although first year students
were not involved in the busing plan, a considerable number
of parents did not enroll their children in school on open-
ing day. There was a decrease of estimated enrollment plus
the added factor of late enrollment of some students two
to three weeks after school started. The decrease of enroll-
ment caused the one school in Phase I to lose one first year
teacher. Attendance was low on some days because of a planned
protest or boycott. All of these factors may have had some
influence upon the results of Phase I of the study.

CHAPTER II

REVIEW OF LITERATURE

The review of literature for this study has included the history and concept of readiness; factors which predict readiness and achievement, including readiness, intelligence, socio-economic variables, and teacher ratings; normative data on the Metropolitan Readiness Test; and the Jefferson County Readiness Test.

The History and Concept of Readiness

Concern in this study has focused on readiness to learn by formal instruction. Research pertaining to the concept of readiness has generally referred to reading readiness. Therefore, the history and concepts reported in this review have been necessarily concerned with reading readiness.

The concept of readiness came into being when educators started questioning whether a child should begin reading when he starts school. Studies of the 1920's and 1930's generally focused upon this issue. The results of these early studies showed a large number of children were failing first grade, most often because of poor reading achievement (Holmes, 1927).

Early research also focused upon developmental stages, neural development and readiness. Research by Myrtle McGraw studied the effect of practice on the development of motor

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skills during infancy. Twin boys were used in the study.
One twin was given practice in motor skills, while the other
twin was not. Results led McGraw to conclude that practice
does not hasten the developmental processes (McGraw, 1935).
McGraw surmized from this study that neural ripening did not
appear to be effected by practice.

The results of motor development studies were also
used to describe and even to explain the development of in-
tellectual skills. Resulting from this theory was the idea,
accepted by the progressive education movement, that time is
the remedy for a lack of readiness to learn (Durkin, 1971).

Durkin (1971) explained the concept of readiness
accepted during the early 20th century.

> Since the ability to read was associated with a
> particular stage of development, a "logical" con-
> clusion was to interpret a child's problems with
> beginning reading as a sign that he had not yet
> reached that stage and was "unready" for reading.
> And so was born the concept reading readiness. If
> progress from one successive stage to another is
> thought to depend upon factors described, at various
> times,as spontaneous maturation, intrinsic growth,
> neural ripening, and unfolding behavior, then it
> is also "logical" to conclude that the solution
> for beginning reading problems is to delay instruc-
> tion on the assumption that the passing of time will
> automatically result in "readiness" and; therefore,
> in successful reading. And so was born the idea
> of having reading readiness programs at the start
> of first grade. (p. 23)

Another idea which won the attention of educators
of the 1920's and 1930's was the mental age concept of readi-
ness. At that time, there was an enthusiasm for objective
measurement which resulted in many group intelligence tests
(Thorndike, R.L. and Hagen, E., 1961). The use of intelligence

tests was concerned with when reading instruction should
begin. Researchers in the 1920's seemed to move toward
proposals of a certain mental age level for beginning
reading instruction (Arthur, 1925).

The Morphett and Washburne study of 1931 proposed
a mental age of 6.5 as a prerequisite for success in beginning
reading (Morphett, M.V. and Washburne, C., 1931). Their find-
ings implied the need to postpone formal reading and their
concept received quick support from educators.

Durkin (1971) in her book, Teaching Them to Read,
sums up the four ideas concerning readiness that evolved in
the 1920's and 1930's.

1. Readiness for reading occurs at a given stage
   in the development of a child, and this stage
   occurs with the passing of time.
2. Readiness for reading requires a mental age
   level of 6.5 years.
3. Tests can measure a child's readiness to learn
   to read.
4. Readiness programs help prepare a child for read-
   ing, either by allowing more time to pass or by
   teaching him skills that will help him learn to
   read. (pp. 27-28)

Prominent educators continued to support the theories
of human development which described readiness in terms of
levels of maturation. Thus, the unfolding behavior doctrine
was espoused for many years by such leaders as W.H. Kilpatrick
(Kilpatrick, 1965).

One of the few who did not agree was Gates. Gates
(Gates, Bond and Russell, 1939) stressed that readiness did
not depend on mental age but on the nature of the reading
program. In one report, Gates concluded that "the optimum

time of beginning reading is not entirely dependent upon
the nature of the child himself, but it is in a large measure
determined by the nature of the reading program" (Gates and
Bond, 1936, p. 684).

The rapid change in educational theory and technology
of the 1960's had a concomitant effect on the concept of
readiness. Durkin (1971) summed up the present day concept
of readiness.

> Currently the literature still shows some remnants
> of the maturational concept of readiness, but as a
> whole, articles and books are now dominated by the
> opposite conception highlighting the contribution
> of environmental factors. In terms of the nature-
> nurture debate, today the spotlight is on nurture,
> and so, quite typically, nature is under-emphasized.
> One result is that educators and psychologists stress
> the benefits to be derived from earlier instruction
> generally ignoring the possibility that there might
> be some children for whom later teaching - even
> later that the age of six - would be more productive
> in the long run. (p. 37)

To this point, the historical development of the
concept of readiness has been studied, but a definition of
readiness has not been given. Three definitions of readiness
follow.

Durkin (1971) states "current knowledge indicates
that a child's readiness to leam to read - or, more generally,
his capacity for learning - is the product both of maturation
(nature) and of environmental factors (nurture)" (p. 38).

Miles A. Tinker (1952) defines readiness in the
following terms:

> A child is ready to read when he has attained a cer-
> tain stage of mental maturity, and possesses a back-
> ground of experience and the personal and social ad-
> justment which makes it possible for him to progress
> at a normal rate in learning to read when exposed to

good classroom teaching. (p. 24)

Albert J. Harris (1974) states:

> Reading readiness may be defined as a state of gener-
> al maturity which, when reached, allows a child to
> read without excess difficulty. It is a composite
> of many interconnected traits. A child may be more
> advanced in some aspects of reading readiness than in
> others. The major characteristics which are impor-
> tant in reading readiness are age, sex, general intelli-
> gence, visual and auditory perception, physical health
> and maturity, freedom from directional confusion,
> background of experience, comprehension and use of oral
> English, emotional and social adjustment, and interest
> in reading. (p. 21)

While no single universally accepted definition of
readiness has existed, common agreement does exist among edu-
cators that reading readiness is the foremost phase of the
beginning reading program in the elementary school. "Many
people feel that a child's success in learning to read de-
pends to a great extent upon whether the child was ready
when he began formal reading activities" (Barrett, 1971, p. 35).
Reading readiness has been and continues to be an important
part of the reading program, and therefore, determining the
readiness of each child is a principle element of the intro-
ductory reading program.

Factors which Predict Readiness and Achievement

Loisanne P. Bilka (1971) conducted a study to deter-
mine the predictive value of readiness tests. Five readiness
measures were administered at the beginning of first grade,
and the Stanford Achievement Test was administered at the
end of grades one, two and three. The following findings
were reported. Significant relationships existed between the

predictor variables (readiness measures) and the criterion
variables of reading achievement. Correlation between pre-
diction and achievement did not drop significantly from grade
to grade; and sex, mental age and instructional method did
influence the prediction accuracy.

Bilka also found, in her study of the predictive value
of readiness instruments, the Metropolitan Readiness Test and
the Murphy Durrell Readiness Test to be the best predictors
of achievement. The factor loadings indicated for the MRT
were +.97 at grade one, +.92 at grade 2, and +.97 at grade 3.
Three of the Metropolitan subtests (Word Meaning, Numbers,
Alphabet) exhibited high factor loadings for all three grades.
The Word Meaning subtest and the Alphabet subtest appear to
be the strongest predictors. The three remaining subtests
did not greatly contribute to prediction of achievement.

Bilka also reported that the tests of significance
showed correlations did not drop significantly from grade to
grade. "Therefore, the ability to predict third grade
reading achievement was almost as accurate as prediction in
first grade" (Bilka, 1971, p. 8). Factors of sex, mental
age, and method did seem to influence the ability to
predict reading achievement. The Metropolitan seemed to be
a more accurate predictor for girls than boys, for high
mental age children in comparison to low mental age children,
and for children taught through the Basal approach in com-
parison to children taught through the Integrated Experience
approach.

Norma J. Livo (1970) conducted a study the purpose of which was to determine what scores from the <u>Wechsler Pre-school and Primary Scale of Intelligence</u> (WPPSI), the <u>Sartain Reading Readiness Test</u> (SRRT), and the <u>Oral Language Sample</u> would be the most successful in predicting mid-year first grade achievement. The researcher reported the SRRT provided the highest simple correlation with total reading scores, producing an R=+.60. The SRRT also had a correlation of +.60 with the WPPSI Full Scale Intelligence Quotient.

Livo concluded the following:

> With the existing state of knowledge concerning reading readiness for beginning readers, it is suggested that a good reading readiness test, such as the Sartain Reading Readiness Test coupled with wise teacher judgment, good classroom atmosphere, and individualized teaching for special needs of the pupils would combine to produce an efficient and effective set of factors in the assessment of readiness for beginning reading and prediction of success in beginning reading. (p. 129)

Bliesmer (1951) found that correlations between reading readiness scores and measures of early reading success normally fall between +.50 and +.60.

Bremer (1959) reported a correlation of +.40 between Metropolitan Readiness Test scores at beginning of first grade and the Gray-Votaw-Rogers General Achievement Test scores obtained at the beginning of second grade. He concluded reading readiness tests could not be used to predict reading achievement with any degree of accuracy.

Jack Bagford (1968) conducted a study to determine whether readiness tests were predictors of later school achievement. He offered the following conclusions:

1. Reading readiness test scores are significantly related to later success in reading. Students who score well on reading readiness tests in kindergarten and first grade tend to score well on reading achievement tests in grades four, five and six.
2. Reading readiness test scores are as related to later success in reading as they are with early success. The data suggest that the relationships between readiness test scores and measures of early success in reading do not decrease significantly as children progress through school. (p. 328)

Karlin (1957) found readiness test scores show only a small relationship to reading achievement. From data based research, Karlin concluded that it is not possible to predict from the reading readiness test score how well the child will do on a reading achievement test.

Samuel Weintraub (1967) concluded that readiness and intelligence tests have most commonly served as predictors of learning success. According to Weintraub, readiness tests tend to correlate between +.40 and +.60 with later measures of reading achievement, while intelligence tests revealed even lower correlations. Furthermore, the predictive value appeared to be most useful in identifying those children at each tail of the normal curve, that is, those who will probably succeed and those who will probably fail (p. 551).

Weintraub further reported that some of the subtests were better predictors of later achievement than others. Kingston (1962) and McCall (1965) reported the numbers subtest of readiness tests has been found to correlate better with reading achievement than any of the other subtests. Barrett (1965) reported that various measures of visual discrimination have for some time been identified as at least

as good a predictor of reading achievement as readiness tests.

Morrison (1972) stated that commercially prepared
readiness tests alone do not as yet yield data which could
be used as the basis for prediction of future reading achieve-
ment.

Pikulski (1973) conducted a study to determine if
reading readiness was a predictor of sixth grade reading
achievement. Findings showed a high correlation between
reading readiness tests and reading achievement scores six
years later. Pikulski also stated that readiness measures
tend to predict both first and sixth grade reading achieve-
ment better for children instructed with an integrated lan-
guage arts approach than for children given basal instruction.

Panther (1967) conducted a study to investigate the
validity of various tests for predicting reading readiness
of first grade students. Tests used were the Lorge-Thorndike
Intelligence Tests, Level 1, Form 2; the Peabody Picture
Vocabulary Test, Form B; the Rutgers Drawing Test, Form A;
the Goodenough-Harris Drawing Test; and the Lee-Clark Reading
Readiness Test. All tests except the Lee-Clark were adminis-
tered in the last month of kindergarten. The Lee-Clark
Readiness Test was given the first month of first grade.
The Metropolitan Achievement Test, Primary I Battery was
used as the criterion variable. Three of the tests yielded
correlation coefficients at the .01 level of significance.
These three tests were the Lee-Clark Readiness Test,+.66;
Lorge-Thorndike Intelligence Test-Raw Scores, +.49, I.Q., +.47;

and Peabody Picture Vocabulary Test - Raw Score, +.47; I.Q.,
+.53. The Goodenough-Harris Drawing Test, +.34, showed a
correlation coefficient at the .05 level of significance
(p. 46). Panther concluded the Lee-Clark was among the most
valid predictors of reading achievement.

Shea (1968) developed the Visual Discrimination Word
Test to be used to determine readiness. The Visual Discrimi-
nation Word Test was compared with the Lorge-Thorndike Intel-
ligence Test - Level 1, Form A, and the reading readiness
portion of the Metropolitan Reading Readiness Test, Form R.
Shea found that the Lorge-Thorndike and the Visual Discrimination
Test measure different aspects of reading readiness in re-
lationship to the criterion variable, a word recognition
test; while the MRT and the Lorge-Thorndike measure much the
same thing. Shea concluded that both visual discrimination
and intelligence were factors in determining a child's readi-
ness to read. However, neither of these factors was the sole
factor that should be used when assessing reading readiness.

Hammill and Wiederholt (1971) conducted a study to
determine the appropriateness of the Metropolitan Tests for
culturally deprived, urban children. The following findings
and conclusions were reported:

> The items were found to be much too difficult, for
> only 35% of the MRT and 21% of the MAT items possessed
> acceptable levels of both difficulty and validity.
>
> One may conclude from these data that when attempting
> to measure the achievement of urban children, tests
> other than the Metropolitan should be considered.
> Particular attention needs to be paid to item diffi-
> culty; for when the test is too difficult, the chil-
> dren tend to become frustrated, uncooperative and

defeatist in their attitude. While such behavior may not affect the reliability of most subtests, it is a factor to consider when selecting measures for school testing programs or research projects. (p. 50)

Goodman and Wiederholt (1973) reported that the MRT was not an adequate predictor of first year achievement when used with inner city Negro kindergarten students.

Rude (1973) completed an analysis of five reading readiness tests to determine what skills were measured. The skills measured by subtests on each of the readiness tests were compared to the Venezky and Jeffrey-Samuels pre-reading skills list. The subtests of each test were categorized to determine whether they measured grapheme perception, left-to-right visual scan, understanding of grapheme-phoneme relationships, and phoneme blending.

Rude reported the following findings:

Only eight of the twenty-nine battery subjects can be classified unequivocally as measuring the four specified pre-reading skills. Nine other subtests measure the four skills in a less straightforward manner and were therefore classified as subordinate measures - that is, they could be construed as measuring the skill but only in limited manner.

Most striking is the fact that twelve of the twenty-nine total subtests measured abilities other than the four identified prereading skills considered necessary for competent reading. Interesting too is the fact that grapheme perception is the most frequently assessed skill, followed by left-to-right visual scan, grapheme-phoneme relationships and phoneme blending. Evidently, the latter two skills are not deemed important, are difficult to assess, or have been overlooked by reading and measurement specialists. (p. 577)

Robinson and Hanson (1968) tested the reliability of measures of reading achievement. The authors were concerned with the measurement of achievement at different socio-economic

levels. These researchers concluded that there were some highly reliable standardized instruments which measure selected factors related to reading success or failure. The Metropolitan Readiness Test was found to be reliable with all groups tested; reliability coefficients ranged from +.85 to +.95 for the Metropolitan Readiness Tests.

Lowell (1971) conducted a study to determine the effectiveness of various factors in predicting first year achievement at the pre-primer level and at the end of first grade. Factors studied were visual discrimination, auditory discrimination, visual memory, knowledge of alphabet letter names, concepts, word learning ability and mental ability. Lowell found knowledge of alphabet letter names the only one of these factors with correlations high enough to predict first year achievement. The correlation for knowledge of alphabet names was +.65 at the pre-primer level and +.63 at the end of first grade. He concluded this factor to be the only one of those studied valuable enough to be included on a readiness test.

A report by Mitchell (1962) studied the predictive value of the MRT to the Metropolitan Achievement Test. The study showed the MRTs to be good predictors of first grade learning. Correlations of Total Readiness score as a predictor with achievement on each of the four subtests of the Metropolitan Achievement Tests as the criteria range from +.51 to +.63. No significant differences were found

between boys and girls or between white and Negro pupils. Mitchell (1967), in a later study, reported the correlations were not significantly different for Negro and white pupils.

Forr and Anastasiow (1969) reported the MRT to be a good predictor. The test was found to be best for a middle class suburban population and relatively good for middle class non-suburban populations. The researchers cautioned that test scores should be interpreted with great care with lower socio-economic, rural, and southern areas.

Olson and Rosen (1971) reported the MRT to provide limited contributions to the prediction of reading achievement.

Proger, McGowan, Bayuk, and Mann (1971) conducted a study to determine the relative predictive and construct validities of the Otis Lennon, Lorge-Thorndike, and Metropolitan Readiness Tests. They also obtained Teacher Ratings in selected subject areas. The criterion variable was the Stanford Achievement Test. Proger et al. reported the Otis Lennon to be a more valid predictor of SAT scores than the Lorge-Thorndike when used at the second grade level. At the fourth grade level, the Otis Lennon was a slightly more valid predictor than the Lorge-Thorndike, although the differences were not as marked as in second year.

In relationship to Teacher Ratings, the following results were reported:

> The best single predictor of TR: Reading Comprehension was the MRT in second grade ($R_2=.59$) and the OL-MAT in fourth grade ($R_4=.71$). For TR: Arithmetic Computation, the best single predictor in second grade was the OL-MAT ($R_2=.56$) and in the

fourth grade was the L-T IT Nonverbal test (R_4=.53). Finally, the L-T IT Verbal test was the best single predictor for the fourth grade TR: Arithmetic Concepts (R_4=.61) and for fourth grade TR: Arithmetic Applications (R_4=.62). (p. 537)

Research studies have indicated teacher judgment to be an important factor in determining readiness and achievement. A study of Zaruba (1968) reported results comparing readiness measures and teacher evaluation to first year achievement. Findings indicated that of the three measures used, letter recognition, drawing a man, and subjective appraisal, the letter recognition measure had the greatest value for predicting first grade reading success as measured by teacher evaluation. Zaruba also reported a high relationship between teacher evaluation and scores on the Stanford Achievement Test. The relationship was especially high for the children whom the teacher had rated above or below average. The researcher concluded that teacher appraisal based on multiple data is a valuable tool in evaluating readiness and achievement.

Tyler (1956) stated that since IQ tests were originally constructed for predicting academic performance and since this continues to be the major use of IQ tests, we would expect them to correlate positively with school grades. Tyler found the correlation to be about +.50.

According to Travers (1949), the shorter the time period between IQ testing and the giving of grades the greater the prediciton. IQ measured in the first grade has been found to correlate only +.21 with college grades.

The results of a study by Hatcher and Felker (1974) indicated that intelligence and divergent thinking variables were highly related with reading and that intelligence and flexibility were generally predictive of reading achievement.

Jackson (1972), in a study of personality factors affecting achievement, found only the intelligence personality factor to be significant at the .05 level.

Byrne (1966) reported that the controversy of heredity and environment has been taken over by a concern of how all factors work to form one's IQ. He reported the following concerning IQ:

> Considerable evidence also exists that the higher the occupational level of fathers, the higher the IQ of their offspring. Positive relationships are also found between IQ and socio-economic class of parents, upward social mobility of parents, value of home rentals in the child's neighborhood, and per capita income in the city in which he lives. When children are isolated from normal environmental stimulation in infancy and childhood a negative influence on IQ occurs. Environmental enrichment has the opposite effect; a positive influence on IQ has been found with respect to well-educated parents, and attendance of nursery school, high quality elementary schools, and college. (p. 431-432)

In a study of pupil and family characteristics conducted by Callaway (1972) it was found that females were significantly higher than males in achievement at the fourth grade level. When IQ was a covariate the differences were less but still significant. At the seventh grade level, sex was significant only when IQ was a covariate; then females achieved significantly higher than males. The study also found that occupation of parents made no significant difference in reading achievement in either grade.

Jantz (1974) made the following conclusions in
regard to reading achievement: (1) females were significantly
higher than males, (2) whites were higher than non-whites,
(3) higher socio-economic levels scored better than lower levels,
and (4) upper IQ groupings were higher than lower IQ groupings
for performance levels in reading.

Metropolitan Readiness--Normative Data

The Manual of Directions for the Metropolitan Readi-
ness Test, Form A, is published by Harcourt Brace Jovanovich,
Inc. The following results were reported in the manual con-
cerning validity and reliability of the test (pp. 12-15).

When total scores of the MRT were compared with the
Murphy-Durrell Reading Readiness Analysis (Revised Edition)
total scores, the correlation was +.80. The correlations
between the subtests were not high except for the alphabet
test of the MRT compared with the letter naming subtest of
the Murphy-Durrell. This correlation was +.85.

When the MRT was compared with the Pintner-
Cunningham Primary Mental Ability Test, the correlation was
+.76. This is considered important as general mental maturity
must be an important component of readiness.

Predictive validity was examined using the Metro-
politan Achievement Test, Grade 1, and the Stanford Achieve-
ment Test, Grade 1. When correlations were made for the MRT
and the reading section of the MAT, the range was from +.60
to +.73. The comparison of the Metropolitan Readiness Test
with the Stanford Achievement Test yielded correlations of

+.55 for paragraph meaning and +.52 for word meaning.

The authors reported the alphabet subtest to be the most valid predictor of future success in reading and the numbers subtest the best predictor for mathematics. The numbers subtest was also a good predictor of reading success. Reliability of the total score on the MRT was reported to be above +.90.

The test was administered for standardization purposes in 1964. There were 12,231 pupils tested in twelve states. The authors reported the following:

> Despite the effort to control on socio-economic variables, the final standardization group may be slightly superior to the national average with respect to median income and average schooling of adults in the communities, but it is not believed that the effect of such selection, even if real, is of sufficient magnitude to impair the norms' usefulness. (p. 15)

Jefferson County Readiness Test

In 1960, the Jefferson County Readiness Test was developed. A committee of principals and elementary teachers, along with personnel of the testing department, developed the test. Previous to this time, the county had been using standardized readiness tests.

The JCRT, as developed in 1960, is the same test used in 1975, with the exception of the "Draw-A-Man" test. The original test allowed for the scoring of the "Draw-A-Man" test. The total score was 50 and the children who scored 35 or over were considered ready. The present test makes the "Draw-A-Man" subtest optional and it is not scored. The passing score is 27.

The Jefferson County Readiness Test is not a standard-
ized test. There are few studies available on this test.

Gene Schrader (1962) conducted a study to show the
correlation between the JCRT and the mental age of first grade
children. The correlation coefficient for the JCRT with the
mental age was +.49. This correlation was significant at the
.01 level.

Schrader's study also reported intercorrelations
between the sections of the test and the total test. The
correlation for matching was +.78, numbers +.82, copying +.83,
sentence meaning +.92, and "Draw-A-Man" +.72. Schrader did not
correlate the JCRT to achiévement to determine the predictive
value of the readiness test.

White, Stratton, and Miller (1970) reported on the
predictive validity of the JCRT. They obtained corre-
lations between the JCRT and the Stanford Achievement Test.
The children had JCRT scores and Stanford Achievement Test
scores for grades one and three.

The following findings were reported:

> The correlations between readiness and achievement
> scores for all children range from .20 with the
> arithmetic computation and Social Studies sub-
> tests of the Stanford Achievement Test in Grade 3,
> to a high of .38 with the spelling subtest in
> Grade 1. The correlations decreased in the third
> year. The predicitve validity for females is
> slightly higher in the first grade than the third
> grade. However, the reverse is true for males,
> where the predictive validity is slightly higher
> in the third grade than in the first grade. The
> range of these correlations is from .14 to .50.
> (p. 3)

Summary

The literature relevant to this study included the history and concept of readiness; factors which predict readiness and achievement including readiness, intelligence, socio-economic variables, and teacher ratings; normative data on the Metropolitan Readiness Test; and the Jefferson County Readiness Test.

The concept of readiness emerged because many children were not achieving in reading. Readiness was first believed to depend on neural development or the child's mental age. Educators have since moved to the position that readiness is influenced by many factors, such as mental ability, age, home environment, visual discrimination, mental maturity, motor coordination, and others. No single definition of readiness has been universally accepted by educators, but there does appear to be agreement that readiness is a necessary part of the beginning reading program.

The second portion of this chapter cited research on predictors of readiness and achievement. Factors studied were readiness, intelligence, visual discrimination, socio-economic status, teacher judgment, and sex. Specific standardized readiness tests were considered in relation to the prediction of readiness and achievement.

The last two sections of the chapter were concerned with specific test instruments. Normative data were presented for the Metropolitan Readiness Test. The Jefferson County Readiness Test was discussed and the available research was reviewed.

CHAPTER III

METHODS AND PROCEDURES

Chapter III has included within it the methods and procedures used to carry out this study. The population, selection of subjects, and instruments used in the study have also been described. Furthermore, the design for collecting data and implementing the study have been explained.

Definition of Population

The population of Phase I of the study consisted of first year students entering in the fall of 1975. These students were children who enrolled in September at one elementary school in Jefferson County.

The population of Phase II of the study consisted of third year students presently enrolled in three Jefferson County elementary schools. The study dealt with data compiled on all students as long as they had both a Jefferson County Readiness Test score and a Metropolitan Achievement Test score.

Selection of Subjects

As previously stated, all first year students in one elementary school were studied in Phase I. The selection of the location was not a random selection. The selected school was utilized because of accessibility and readily

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available cooperation between the researcher and the school's principal.

The subjects for Phase I of the study consisted of 76 beginning first year students from one Jefferson County, Kentucky elementary school. The sample included 42 boys and 34 girls. The mean age of the sample was 73.5 months or 6.1 years with a range of 68 months (5.8 years) to 80 months (6.8 years) and a standard deviation of 3.5 months.

Of the 76 children included in the sample 57 children were considered ready to begin first year formal instruction and 19 children were considered not ready. The criterion variable for readiness was the Jefferson County Readiness Test.

The students selected for Phase II included all third year students in three schools, provided the necessary data were available on each child. Children on whom all necessary data were not available were excluded from the study. The three schools were selected because they were three of the twenty-nine schools which administered the Metropolitan Achievement Tests to third year students. The schools also represented varied socio-economic areas. The school in the lower socio-economic area (A) had a population of 447 students. The school in the middle socio-economic area (B) was composed of 535 students and the school in the high socio-economic area (C) had a 430 student population.

The total number of students in this phase was 139. The sample included 39 students from school A, 68 students

from school B, and 32 students from school C. Of the 139 students, 66 were male and 73 were female. The students ranged in age from 101 months (8 years, 5 months) to 133 months (11 years, 1 month). The mean age was 109.46 months with a standard deviation of 6.02.

Of the 139 students, 25 lived in a one parent home or with a step-parent. The remaining 114 children lived with both parents.

Parent occupations were divided into six categories. The occupations ranged from professional to unskilled. The mode category was that of the unskilled worker. Thirty children had parents whose employment was categorized as unskilled. Even though the most frequently occurring occupation was classified as unskilled, there appeared to be a relevant balance of occupations as 23 were classified professional and 24 were classified as semi-professional.

Instrumentation

The instruments used in this study were the Jefferson County Readiness Test (JCRT), Metropolitan Readiness Test (MRT), Otis Lennon Mental Ability Test (O-L MA), Metropolitan Achievement Test (MAT), a checklist of teachers' perceptions of readiness (POR), a data summary sheet (DSS), and a collection of data form. The last two forms were used by the investigator to facilitate the compilation of student data. Each instrument is described in this section.

The Jefferson County Readiness Test is a test administered to all beginning first year students. The test consists of four parts: matching, numbers, copying, and sentence meaning. Each part consists of ten items with a total possible score of forty. The children are also asked to "draw a man" but this part is not graded. The passing score, the minimum score allowed for the child to be considered ready, is twenty-seven. The matching test is a test of visual discrimination. The child is asked to find another picture in the row exactly like the first picture. The numbers section requires the child to mark the picture which is largest, smallest or first, count the snowballs, or mark a specific number. The copying section of the test asks the child to copy simple objects in the space provided at the right of each picture. The sentence meaning section asks the child to mark the picture described by the teacher. The JCRT is administered to the children during the first week of school. The test is administered by the classroom teacher to the entire class. A copy of the JCRT and directions for administering the test have been included in Appendix A.

The Metropolitan Readiness Test (Form A) is a 102 item test designed to determine readiness for first grade instruction. The MRT consists of six subtests: word meaning, listening, matching, alphabet, numbers, and copying. Test seven, Draw-A-Man, is optional. The word meaning subtest asks the child to mark one picture that the teacher names. The child is given three choices. There are 16 items in

this section. The listening test, also consisting of 16 items, asks the child to mark one of three pictures. The picture the child chooses is to portray an event that is described by the examiner. This test is designed to test the child's ability to comprehend phrases and sentences instead of individual words. The matching test consists of 14 items which measure visual perception. The child is to match one of three pictures with a given picture. The alphabet test consists of 16 items and asks the child to choose one of four lower-case letters shown. The numbers test consists of 26 items and tests number knowledge. The teacher reads instruction for each item. The copying test is designed to measure both visual perception and motor control. The child is asked to copy fourteen different pictures. The raw score for the total test is converted to both a percentile rank and letter grade. If the user desires, the scores may also be described in terms of stanines.

The Otis Lennon Mental Ability Test is designed to provide an assessment of the general mental ability, or scholastic aptitude, of pupils in American schools. The Elementary 1 Level is recommended for children in the last half of the first grade through third grade. Test items sample the mental processes of classification, following directions, quantitative reasoning, comprehension of verbal concepts, and reasoning by analogy. The test consists of 80 items and requires no reading. Results of the test are

reported in raw scores, deviation IQs, percentile ranks and stanines.

The Metropolitan Achievement Tests are a series of tests designed to measure how much pupils have learned in content and skill areas of the school curriculum. The Elementary Battery contains seven sections. The sections are word knowledge, reading, language, spelling, mathematics computation, mathematics concepts, and mathematics problem solving. Scores are reported in raw scores, standard scores, grade equivalents, percentile ranks, and stanines.

The word knowledge and reading sections comprise the total reading section of the test. The total mathematics section is made up of the computation, concepts, and problem solving sections of the test. The total reading and total mathematics scores were the scores used in the present study as criterion variables.

The Perceptions of Readiness Checklist (POR) consisted of ten items. These items were generated from existing literature on readiness. The final list of items included on the POR was selected in consultation with an experienced Jefferson County readiness teacher.

The items on the POR were divided into three categories. The first category, classroom behavior, contained four items. The category on physical behaviors included three items. The third category, emotional behaviors, also included three items. Each of the items on the POR was briefly explained in order to give teachers specific suggestions for

determining readiness. A copy of the POR has been included in Appendix B.

A collection of data form was used to compile data for Phase I of the study and a copy has been included in Appendix C. This form requested the child's sex, date of birth, age, teacher, and name. The form also requested the readiness teacher's perceptions of readiness along with the classroom teacher's perceptions. All of the items on the POR were included as well as JCRT subtest scores and total scores and MRT subtest and total scores. In addition, there was a question concerning whether or not the child attended kindergarten.

The Data Summary Sheet (DSS) was used to obtain data for the second phase of the study. The DSS requested scores on the Jefferson County Readiness Test and each of its parts. Standard scores and raw scores were requested for Total Reading and Total Mathematics sections of the Metropolitan Achievement Test. Deviation IQ (DIQ) and raw scores were collected on the Otis Lennon Mental Ability Test. Demographic data collected included sex, age, date of birth, school and parent occupation. Parent occupations were categorized for the convenience of collecting and reporting. Two other questions were included on the DSS. In one question the teacher was to indicate whether the child had been enrolled in a readiness room. The second question asked whether the child was living in a broken home prior to entry in third year.

Implementation--Phase I

Phase I of the study was conducted in one school with 76 children and three teachers. Due to the mandated change in the Jefferson County, Kentucky Public Schools during the school year 1975-1976, several factors were different from previous times in the first year classes. School enrollment was sporadic and less than expected due to the mandated system-wide desegregation. Also, one teacher was transferred due to the decreased enrollment. Only three first year teachers remained in the Phase I school; therefore, the readiness teacher was assigned students from the beginning of school. The students were randomly assigned to the three classrooms. On the first day of school all children went to their assigned classrooms.

Implementation by Readiness Teacher

The readiness teacher rated the children with the POR checklist. The children were rated after their first one-half day's attendance. The readiness teacher then visited each of the other two classrooms for one-half day and rated each child in the room. Children enrolled in school after the first three days spent one-half day in the readiness teacher's classroom and were rated by the readiness teacher. New entrants in the readiness teacher's class were rated in the same manner as the students who were first enrolled in that room.

The readiness teacher rated the children assigned to

the classroom on two occasions. The children were rated after one-half day's attendance and then again at the end of the third day of school. The second rating was made not as a readiness teacher but as a regular classroom teacher.

All teachers turned the ratings into the researcher as soon as they were completed thus minimizing the opportunity for comparisons or contamination.

Implementation by Regular Teachers

The children were rated on the POR checklist by their classroom teacher after they had been in school for two and one-half days. New entrants were rated by the classroom teacher after the same period of time.

Testing

The Jefferson County Readiness Test was given by the teachers to part of the students on the ninth day of school. The students who had previously been rated by both a regular teacher and the readiness teacher were tested at this time. Other students were tested after they had been present in school for a minimum of three days. The three days of attendance gave both teachers an opportunity to rate the student. The testing of individuals or small groups of students continued for the next seven school days. The JCRT was administered to all children by the end of the seventeenth day of school.

Children were placed in the readiness room on the basis of the JCRT scores and teachers' judgment of the

child's readiness. The children were assigned to their new rooms before additional testing was started.

The Metropolitan Readiness Test was administered by the researcher with the help of the participating first year teachers. The testing extended over a period of a week. The administration of the MRT concluded the implementation of Phase I of the study.

Implementation--Phase II

Phase II of the study was primarily a collection of previously recorded data. Three schools were selected for this phase of the study. School A, located in a low socio-economic area, had 44 third year students on whom data were collected. School B, a school located in a middle socio-economic area, had approximately 85 third year students on whom data were collected. School C, located in a high socio-economic area, had approximately 44 third year students on whom data were collected. Of these 173, data were complete on 139 children. The sample included 39 students from school A, 68 students from school B, and 32 students from school C.

The counselors at the three selected schools received the DSS during the first week of May, 1975. A DSS was to be completed for each child in the third year. Oral instructions were given on the procedures for collecting the data and assistance was offered in collecting data. A deadline for the end of school, June 6, 1975, was set for completing the collection of data.

The data were collected on students who were enrolled in third year classes. The JCRT was administered when these children entered first year. The Otis Lennon Mental Ability Test (Form J) was administered in the beginning of their second year of school. The MAT Elementary Battery was administered in March of the third year. Each of these tests was administered by the classroom teacher. Additional demographic data were also requested on the DSS.

Analysis of Data

Data from Phases I and II were analyzed through the use of an IBM 370-165 computer. Standard statistical programs from the Statistical Package for the Social Sciences (SPSS) were utilized to compute the desired statistics. Descriptive statistics and Pearson product-moment correlation coefficients were obtained for data in both phases.

A multilinear regression technique was applied to data collected in Phase II to determine which variable or combination of variables best predicted achievement. Findings and discussion from the analyses are presented in Chapter IV.

CHAPTER IV

RESULTS

The findings of the study are presented in this chapter. The findings reported here were obtained through implementation of the research design presented in Chapter III. Chapter IV contains data for both phases of the study. Phase I was to determine if the Jefferson County Readiness Test was a predictor of readiness while Phase II was to determine the extent to which certain specific variables predicted third year achievement. Specifically, the study attempted to determine whether readiness as measured by the Jefferson County Readiness Test (JCRT) was a predictor of achievement.

Phase I Analysis

The JCRT was compared to teachers' perceptions of readiness and the Metropolitan Readiness Test. Jefferson County Readiness Test scores, Metropolitan Readiness Test scores, and perceptions of readiness as determined by two teachers were available for each child in the sample.

Pearson-product-moment correlations were computed to compare the two readiness tests with all other variables. The entire intercorrelation matrix appears in Appendix E. Submatrices appear in the body of Chapter IV.

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Comparison Data

The Jefferson County Readiness Test data were compared
to the Metropolitan Readiness Test and teachers' perceptions
of readiness.   In Table 1 the means and standard deviations
of the JCRT and its subtests are reported. The mean scores
for the Jefferson County Readiness Test ranged from a low of
6.97 for copying to a high of 9.16 for sentence meaning. The
total possible score for each subtest was ten.

The total possible score for the JCRT was 40.   The
mean score was 30.96 and the standard deviation was 6.53.
The scores ranged from a low of 12 to a high of 40.

Table 2 included the means and standard deviations
for the subtests of the Metropolitan Readiness Test.   The
mean scores for the MRT ranged from a low of 5.76 for
copying to a high of 11.92 for numbers.

The total possible score for the MRT was 102.   The
mean score was 51.90 with a standard deviation of 15.81.
The scores ranged from a low of 20 to a high of 80.

A major concern in the present study has been whether
or not the JCRT would predict readiness. Also of concern
has been which subtests would provide the best predictors of
readiness.

Table 1

Means and Standard Deviations of the

Jefferson County Readiness Test Subtests

Subtests	Mean	Standard Deviation
Matching	7.37	1.89
Numbers	7.47	2.06
Copying	6.97	3.08
Sentence Meaning	9.16	0.97
Total	30.96	6.53

Table 2

Means and Standard Deviations of the

Metropolitan Readiness Subtests

Subtests	Mean	Standard Deviation
Word Meaning	8.25	2.73
Listening	9.76	2.01
Matching	7.16	3.34
Alphabet	9.04	4.64
Numbers	11.92	4.15
Copying	5.76	3.03
Total	51.90	15.81

In Table 3 correlation data relevant to the JCRT and the MRT are presented. The correlations for the subtests of the JCRT with the total test ranged from a low of +.58 for sentence meaning to a high of +.88 for copying. The two remaining subtests correlated +.83 for matching and +.81 for numbers. All the correlations were found to be significant well beyond the .01 level. These data support the supposition that the JCRT possesses considerable internal validity.

The sentence meaning subtest had the lowest correlation coefficient and also possessed the highest mean. The correlation between the sentence meaning subtest and the total test was +.58. The mean was 9.16 out of a possible total score of 10.

The range of subtest correlation coefficients for the total MRT was from a low of +.55 for listening to a high of +.88 for numbers. Other correlations were +.73 for word meaning, +.81 for matching, +.87 for alphabet, and +.77 for copying. All correlations were significant well beyond the .01 level. Furthermore, these correlations approximated the reliability coefficients obtained and reported by the authors in the manual of the Metropolitan Readiness Test.

The relationship of the JCRT to the MRT was computed. A high correlation coefficient was obtained between the two instruments. The correlation was +.89. This correlation coefficient was significant well beyond the .01 level. Therefore, it appeared the JCRT measured the construct of readiness in a manner similar to the Metropolitan.

Table 3

Correlation of JCRT and Metropolitan Readiness Test

Name	#	6	7	8	9	10	11	12	13	14	15	16	17
JCRT Matching	6	1.0000											
JCRT Numbers	7	0.5843	1.0000										
JCRT Copying	8	0.6233	0.5463	1.0000									
JCRT Sentence Meaning	9	0.4276	0.4636	0.3510	1.0000								
JCRT Total	10	0.8322	0.8112	0.8792	0.5838	1.0000							
Metro. Word Meaning	11	0.5613	0.5759	0.5170	0.4549	0.6583	1.0000						
Metro. Listening	12	0.5142	0.3423	0.4254	0.4170	0.5187	0.3388	1.0000					
Metro. Matching	13	0.6467	0.5764	0.6463	0.4181	0.7374	0.4748	0.4845	1.0000				
Metro. Alphabet	14	0.6253	0.6282	0.6000	0.4625	0.7322	0.5799	0.3353	0.5884	1.0000			
Metro. Numbers	15	0.5961	0.7373	0.6572	0.3989	0.7749	0.5687	0.3700	0.6277	0.7698	1.0000		
Metro. Copying	16	0.6471	0.4986	0.7235	0.2543	0.7263	0.4785	0.3714	0.6164	0.5381	0.6112	1.0000	
Metro. Total	17	0.7626	0.7379	0.7668	0.5089	0.8925	0.7269	0.5546	0.8100	0.8654	0.8830	0.7697	1.0000

.292 = .01 Level of Significance with 74 df

The existing similar subtests within the two instruments were compared by correlation techniques. The correlations for the matching subtests were +.65, while the numbers subtests correlated +.74. The two similar copying subtests were found to correlate at the +.72 level. The sentence meaning subtest of the JCRT was not as similar to the MRT as the other JCRT subtests and correlated at a lower level.

Of the MRT subtests, the alphabet and word meaning subtests correlated best with the JCRT sentence meaning subtest. The correlations were +.46 for alphabet and +.45 for word meaning.

The listening subtest of the MRT most closely resembled the sentence meaning subtest of the JCRT in construction. However, the correlation was only +.42. As previously stated, the JCRT sentence meaning subtest was not as predictive of readiness as the other JCRT subtests. Likewise, the MRT listening subtest was the least predictive of the total MRT.

Additional Comparison Data

Table 4 includes correlation data for the JCRT and teachers' perceptions of readiness. It also includes correlation data for the JCRT and the variables of sex, age, and kindergarten attendance.

The JCRT score was correlated with two teachers' perceptions of readiness. The readiness teacher and a

Table 4

Correlation of the JCRT and Other Selected Variables

Variable	#	2	3	4	5	10	17	19	30	41
Sex	2	1.0000								
Age	3	0.1288	1.0000							
Readiness Teacher's Perceptions	4	-0.0667	-0.2960	1.0000						
Classroom Teacher's Perceptions	5	-0.1075	-0.3719	0.4878	1.0000					
JCRT Total	10	-0.0679	0.3212	-0.5224	-0.6089	1.0000				
Metropolitan Total	17	-0.1119	0.3310	-0.5090	-0.6572	0.8925	1.0000			
Kindergarten	19	-0.2743	-0.0087	-0.2076	-0.1354	0.2588	0.2210	1.0000		
Readiness Teacher's Checks	30	-0.0552	-0.3228	0.7426	0.4902	-0.5264	-0.5017	-0.1262	1.0000	
Classroom Teacher's Checks	41	-0.1505	-0.3387	0.4988	0.7547	-0.5449	-0.5583	-0.0474	0.4519	1.0000

.292 = .01 Level of Significance with 74 df

regular classroom teacher rated each child before the JCRT was administered. The correlation of the JCRT to the readiness teacher's perceptions of readiness was -.52. The correlation of the JCRT to the classroom teacher's perception of readiness was -.61. The manner in which teachers rated the children's readiness on a scale from one to two (1-Ready, 2-Not Ready) resulted in the negative correlations. Thus, the magnitude of the correlations obtained indicate both the readiness and classroom teachers' ability to accurately predict readiness. Due to the lack of variation in the measuring scale (ready, not ready) these correlations are probably somewhat deflated.

The teachers were also asked to complete a checklist for each child. The checklist was a list of behaviors which children who were not ready for formal instruction might have exhibited. The teachers were asked to check the behaviors which each child exhibited. The readiness teacher's perceptions of readiness and the checklist correlated +.74 and the classroom teacher's perceptions of readiness and the checklist correlated +.75. The Metropolitan correlated -.50 with the readiness teacher's checklist and -.56 with the classroom teacher's checklist. It would appear from these correlations that the behaviors on the checklist were useful in aiding the teachers to determine whether the child was ready to begin formal instruction.

Sex did not appear to be a significant factor in this study. The correlation of sex to the JCRT was only -.07.

The correlation of age to the JCRT was +.32. Although this correlation was significant at the .01 level, it was not nearly as highly correlated as other factors. Still, it would appear that the older the child when entering school, the better his chances for success in the classroom.

Kindergarten attendance was included as a variable because most kindergarten classes teach skills which are similar to the readiness activities measured by the JCRT. The correlation of kindergarten attendance to the JCRT was +.26. Even though this correlation was significant at the .05 level, it was low and not of the magnitude of other correlations.

Summary of Phase I

In summary, the following findings are being reported:

The Jefferson County Readiness Test was found to possess high internal validity. All subtests, with the exception of the sentence meaning subtest, correlated above +.80 with the total test. The sentence meaning subtest correlated +.58 with the total test.

When the total JCRT and the MRT were compared, the correlation coefficient was +.89. Comparisons of similar subtests of the two instruments yielded correlations of +.65 and above.

The JCRT correlated moderately with teachers' perceptions of readiness. The correlations were -.52 for the readiness teacher and -.61 for the classroom teacher. The amount

of time the teacher spent with the child appeared to improve her perceptions of readiness.

Age was also found to be a significant factor in predicting readiness. The correlation of age and the JCRT was moderate (+.32). Conversely, sex was not considered a factor in determining readiness.

Lastly, kindergarten attendance when compared to the JCRT was significant at the .05 level. However, the magnitude of this correlation was low when compared to other correlations.

Phase II Analysis

Phase II of this study was designed to determine what factors predicted third year achievement in reading and mathematics. The Metropolitan Achievement Test total reading and total mathematics scores were the criterion variables for Phase II. Predictor variables were sex, age, school, parent occupation, broken home, placement in a readiness room in first year, the Jefferson County Readiness Test and its subtests, and the Otis Lennon Mental Ability Test. The reading and mathematics scores of the Metropolitan Achievement Test were included in some analyses as predictor variables. Of particular concern was whether the JCRT or any of its subtests were predictors of reading or mathematics achievement in third year.

A multilinear regression technique was utilized in Phase II. The purpose of the multilinear regression was to determine which variable or combination of variables best

predicted achievement.   Separate multilinear regression
analyses were applied for reading and mathmatics.   Through
these techniques it was determined which of the variables
were most predictive of mathematics and reading achievement.

Comparison Data

In Table 5 the means and standard deviations of
selected variables for Phase II are presented.   The mean of
the Jefferson County Readiness Test (JCRT) for Phase II was
34.70 with a standard deviation of 6.67.   The scores were
somewhat higher than those in Phase I of the study.   The
mean for Phase I was 30.96 with a standard deviation of 6.53.
The total scores for Phase II ranged within one standard
deviation of the scores of Phase I.   The subjects in Phase I
of the study were all from a low socio-economic school while
the subjects in Phase II were from varied socio-economic back-
grounds.   Interestingly, the mean score of school A in Phase II,
a low socio-economic school, was 32.62 which compares favorably
to the mean of Phase I.

The mean reported for the Otis Lennon Deviation IQ
was 106.28 with a standard deviation of 13.50.   This mean was
somewhat higher than the mean as reported in the manual.   The
Otis Lennon manual reported a mean of 100 and a standard
deviation of 16.   It appeared from these data that the subjects
as a group were somewhat higher in intelligence, as measured by
the Otis Lennon, than average children of their age.

Table 5

Means and Standard Deviations of

Selected Variables in Phase II

Variable	Variable No.	Mean	Standard Deviation
JCRT Matching	7	8.3237	2.2689
JCRT Numbers	8	8.6187	1.8313
JCRT Copying	9	8.4820	2.4238
JCRT Sentence Meaning	10	9.2734	1.3926
JCRT Total	11	34.6978	6.6656
Otis Lennon DIQ	12	106.2878	13.5011
Otis Lennon RS	13	39.6978	10.0410
Metro. Ach. Reading SS	14	67.8705	9.9344
Metro. Ach. Reading RS	15	63.2734	14.6435
Metro. Ach. Math SS	16	77.2374	8.1602
Metro. Ach. Math RS	17	75.9856	15.1681

The mean score for the Metropolitan Achievement Test total reading raw score (RRS) was 63.27 with a standard deviation of 14.64. When converted via the MAT Manual, this equaled a grade equivalent of 4.1. The expected grade equivalent for a child given this test in March of the 3rd year was 3.6. The group of subjects in the sample averaged the same score that a child in the first month of fourth grade would have been expected to score.

The mean score for the Metropolitan Achievement Test total mathematics test raw score (MRS) was 75.98 with a standard deviation of 15.16. When this score was converted via the manual, a grade equivalent of 4.3 was obtained.

The subjects as a group in Phase II would be considered above average in both intelligence and achievement when compared to national norms for the standardized tests administered. The data revealed that both the obtained mean Otis Lennon IQ and mean Metropolitan Achievement Test scores were above the level reported in the respective test manuals. Sampling procedures may account for this variation of observed results from those expected.

While no significance tests were computed, those children who failed the JCRT in first year appeared to be lower in deviation IQ and achievement than the entire sample as indicated in Table 6.

Table 6

Means of Tests Given - Grouped by JCRT Scores

JCRT	O.L. DIQ	Metro. Reading SS	Metro Math SS
10 Failed	90.00	59.70	68.30
129 Passed	107.55	68.50	77.93

From Table 6 it is evident that the mean IQ score of Group 1 (those who failed the JCRT) was 17 points lower than Group 2. The mean scores on both sections of the achievement test

were lower by nine or ten points for Group 1. These data appeared to support the opinion that those children who did not pass the JCRT would have more difficulty in school than those children who passed the test.

Correlation Data

Table 7 presents data for variables measured in Phase II. In addition to determining which variables predicted achievement, Phase II examined the interrelationship of a variety of related variables.

The validity of the JCRT was a major concern in this study. The correlations of the JCRT subtests ranged from a low of +.75 to a high of +.87. The sentence meaning subtest, as in Phase I, had the lowest correlation to the total JCRT. The matching subtest correlated highest with the total score. The copying subtest correlated +.86 with the total and the numbers subtest correlated +.85. All correlations were high and significant beyond the .01 level.

The variable of age when correlated to the variable of enrollment in a readiness room yielded a correlation of -.35. The correlation was significant at the .01 level. This correlation would appear to indicate that the younger the child the more likely he is to be placed in a readiness room in the first year. The correlation of age to the JCRT total was -.44. This correlation indicated that the younger the child the more apt he was to do poorly on the JCRT.

The variable of parent occupation when correlated to

Table 7

Intercorrelation Matrix for Phase II

Variable		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17
Sex	1	1.0000																
Age	2	-0.22254	1.0000															
School	3	-0.01951	0.20290	1.0000														
Parent Occupation	4	-0.01133	0.07827	-0.16151	1.0000													
Readiness Room	5	0.24219	-0.35543	0.12981	-0.04862	1.0000												
Broken Home	6	0.04237	0.09845	0.01218	-0.32608	0.06347	1.0000											
JORT Matching	7	-0.02315	-0.36396	-0.14714	-0.22033	0.23670	-0.03237	1.0000										
JORT Numbers	8	0.09344	-0.33709	0.03551	-0.29041	0.51079	0.03560	0.66474	1.0000									
JORT Copying	9	0.21384	-0.47443	-0.11394	-0.17922	0.31840	-0.03063	0.63025	0.63118	1.0000								
JORT Sentence Meaning	10	0.02121	-0.22182	-0.03311	-0.14784	0.28246	-0.08323	0.56120	0.56402	0.53820	1.0000							
JORT Total	11	0.10208	-0.43536	-0.08835	-0.24864	0.39369	-0.03239	0.66945	0.84533	0.86308	0.75061	1.0000						
Otis Lennon DIQ	12	-0.06965	-0.34729	-0.10703	-0.30361	0.18569	0.00445	0.52020	0.44398	0.43020	0.23783	0.51615	1.0000					
Otis Lennon RS	13	-0.06344	-0.00368	0.01079	-0.28607	0.14759	0.04203	0.41877	0.42127	0.27877	0.16816	0.39500	0.92032	1.0000				
Metro. Ach. Reading SS	14	0.18259	-0.24035	-0.07256	-0.27632	0.27283	0.06957	0.39053	0.31034	0.34208	0.10419	0.33372	0.61273	0.55352	1.0000			
Metro. Ach. Reading RS	15	0.21332	-0.27727	-0.03611	-0.26802	0.33124	0.09736	0.30549	0.33645	0.36907	0.11322	0.35490	0.59356	0.52213	0.96186	1.0000		
Metro Ach. Math SS	16	0.11104	-0.17668	-0.05308	-0.14384	0.26972	0.07558	0.32880	0.38385	0.42027	0.20341	0.41433	0.58650	0.58016	0.69171	0.68435	1.0000	
Metro Ach. Math RS	17	0.12778	-0.16951	-0.04745	-0.15883	0.28058	0.09251	0.32292	0.39112	0.43042	0.21014	0.41594	0.57020	0.57061	0.68304	0.68048	0.99380	1.0000

reading achievement was -.27. This correlation was significant. Conversely, the correlation of parent occupation to mathematics achievement was not significant with the correlational value being -.16.

When correlated with intelligence, the JCRT yielded a correlation coefficient of +.52. When individual JCRT subtests were correlated to the Otis Lennon DIQ the following correlation coefficients were yielded: matching +.52; numbers +.48; copying +.43; and sentence meaning +.24. All correlations for the JCRT to DIQ were significant with the exception of the sentence meaning subtest. As previously stated, the sentence meaning subtest of the JCRT appeared to be the least discriminating of the JCRT subtests. That is, children appeared to perform well on this subtest even though they could not perform other readiness tasks.

When correlated to MAT reading raw score (RRS) and math raw score (MRS), the JCRT yielded correlation coefficients of +.35 for reading and +.42 for mathematics. Both correlations were significant at the .01 level.

The Otis Lennon DIQ correlated to reading achievement raw score +.59. DIQ and mathematics achievement raw score correlated +.57. Both correlations were significant well above the .01 level of significance. Intelligence yielded the highest simple correlation to reading achievement when mathematics was not considered a predictor variable, and also for math achievement when reading was not considered a

predictor variable. Intelligence appeared to be the best
single means of predicting achievement.

Regression Data - Reading Achievement

Table 8 contains the multiple regression analysis
for reading achievement raw scores. The complete table is
included in Appendix F. The best predictor of reading
achievement was the mathematics achievement raw score. Mathe-
matics achievement accounted for 46% of the variance. Otis
Lennon DIQ accounted for an additional 6% of the variance.
Sex then contributed 2% and whether or not the child had
been in a readiness room contributed 1%. No other variable
contributed as much as 1% and all remaining variables added
less than 3% change in variance.

Table 8
Phase II Multiple Regression on Metropolitan
Achievement Test Reading Raw Scores

Variable	Multiple R	R Square	RSO Change	Simple R
Metro. Ach. Math RS	0.68448	0.46851	0.46851	0.68448
Otis Lennon DIQ	0.72774	0.52961	0.06110	0.59356
Sex	0.74360	0.55294	0.02330	0.21332
Readiness Room	0.75109	0.56414	0.01120	0.33124

When mathematics achievement was excluded as a pre-
dictor of reading achievement, slightly different results were
obtained. These results are reported in Table 9.

The Otis Lennon DIQ accounted for 35% of the variance. Whether or not a child had been enrolled in a readiness room for first grade contributed an additional 5% of the variance. Sex then contributed an additional 3% of the variance. No other variable contributed as much as 1% and all remaining variables added only 3% change in variance.

Table 9

Phase II Multiple Regression on Metropolitan Achievement Test Reading Raw Scores with Metropolitan Mathematics Excluded

Variable	Multiple R	R Square	RSO Change	Simple R
Otis Lennon DIQ	0.59356	0.35231	0.35231	0.59356
Readiness Room	0.63471	0.40286	0.05055	0.33124
Sex	0.65670	0.43125	0.02839	0.21332

Regression Data - Mathematics Achievement

Table 10 contains the multiple regression analysis for mathematics achievement raw scores. The complete table is included in Appendix F.

The best predictor of mathematics achievement was the MAT reading raw score (RRS). Reading achievement accounted for 46% of the variance in the analysis. Otis Lennon raw score accounted for an additional 6% of the variance. The Jefferson County Readiness Test copying sub-test accounted for an additional 2% of the variance and the Otis Lennon DIQ accounted for 1%. No other variable

accounted for as much as 1% of the variance and all additional variables accounted for less than 3% of the variance.

Table 10

Phase II Multiple Regression on Metropolitan
Achievement Test Mathematics Raw Scores

Variable	Multiple R	R Square	RSO Change	Simple R
Metro. Reading R.S.	0.68448	0.46851	0.46851	0.68448
Otis Lennon R.S.	0.72854	0.53078	0.06226	0.57020
JCRT Copying	0.74472	0.55461	0.02383	0.42042
Otis Lennon DIQ	0.75303	0.56705	0.01244	0.57061

When reading achievement was excluded as a predictor of mathematics achievement different results were obtained. These results are reported in Table 11. Complete results are found in Appendix F.

When reading achievement was excluded as a predictor of mathematics achievement Otis Lennon DIQ was found to be the best predictor. The Otis Lennon DIQ accounted for 32% of the variance. The JCRT copying subtest then added an additional 3% of the variance. The Otis Lennon raw score added another 3% and whether or not a child was enrolled in a readiness room added 1% of the variance. No other variable added as much as 1% of the variance and all other variables contributed less than 3% of the change in variance.

Table 11

Phase II Multiple Regression on Metropolitan

Achievement Test Mathematics Raw Scores

with Metropolitan Reading excluded

Variable	Multiple R	R Square	RSO Change	Simple R
Otis Lennon DIQ	0.57061	0.32559	0.32559	0.57061
JCRT Copying	0.60262	0.36315	0.03756	0.42042
Otis Lennon RS	0.63194	0.39935	0.03620	0.57020
Readiness Room	0.64409	0.41485	0.01550	0.28058

Summary of Phase II

In summary, the following findings were reported for Phase II:

When compared to the national normative data, the group of subjects in the present study was found to be above average in both intelligence and achievement. Even though the entire sample was considered to be above average, those children who failed the Jefferson County Readiness Test were found to be lower in achievement and intelligence than those children who passed the JCRT.

The JCRT was found to have high internal validity. The inner subtest correlations ranged from a low of +.75 to a high of +.87.

The JCRT was found to correlate moderately with intelligence (+.52), reading achievement (+.35), and mathematics achievement (+.42). Intelligence was also found to

correlate moderately with both reading (+.59) and mathematics achievement (+.57).

Multiple regressions were computed for both reading and mathematics achievement. Significant predictors of reading achievement were mathematics achievement raw score, Otis Lennon DIQ, sex, and readiness room enrollment. When mathematics achievement was excluded as a predictor, significant predictors were Otis Lennon DIQ, readiness room enrollment and sex.

Significant predictors of mathematics achievement were reading achievement raw score, Otis Lennon raw score, JCRT copying subtest, and Otis Lennon DIQ. When reading achievement was excluded, significant predictors were Otis Lennon DIQ, JCRT copying subtest, Otis Lennon raw score and readiness room enrollment.

Discussion

The results of the present study have been reported in the preceding portions of this chapter. In this section a discussion of these results follows.

The Jefferson County Readiness Test was a major focus of concern in the study. The purpose of this study was twofold: 1) to determine the value of the JCRT as a predictor of readiness and 2) to determine if the JCRT could properly be considered a predictor of achievement.

While the JCRT subtests were found to generally possess high internal validity, one JCRT subtest, the sentence meaning subtest, was found to be a weak subtest.

This subtest appeared to possess too low a ceiling: that is, it was not effective in discriminating those children who were ready for first year instruction from those who were not ready. Furthermore, it would not significantly change the results of the total JCRT if the sentence meaning subtest were rejected or deleted in future revisions of the test.

The JCRT was correlated with the MRT. The MRT was chosen because the JCRT was purported to be similar to the MRT in construction. It was found in these results that a high positive correlation, +.89, existed between the two instruments. Since the Metropolitan Readiness Test is considered a valid and reliable measure of readiness, it follows that the Jefferson County Readiness Test is a valid and reliable measure of readiness.

The lowest subtest relationship was found between the JCRT sentence meaning subtest and the listening subtest of the MRT. The listening subtest also was found to possess the lowest degree of relationship to the total MRT readiness score. Thus, it appears that both of these subtests are measuring some characteristics substantially different from the other subtests in their respective instruments and that both provide less predictive information regarding an individual child's level of readiness. It is also possible that the low ceiling on the JCRT sentence meaning subtest contributed to the reduced correlation.

The correlation of the JCRT to the classroom teacher's

perceptions (-.61) was somewhat higher than the correlation of the JCRT to the readiness teacher's perceptions of readiness (-.52). A possible explanation for a higher correlation for the classroom teacher's perceptions could be the differentiation in time. The design of the study allowed the readiness teacher to observe each of the children for only one-half day. Conversely, the classroom teachers were with each child for two and one-half days before they were asked to complete the evaluation.

Also, the readiness teacher served as a regular classroom teacher: that is, she evaluated some children again after an additional two and one-half days attendance. This factor would tend to support the idea that additional time spent with the children would enable teachers to better determine readiness.

When age, sex, and kindergarten attendance were considered as predictors of readiness, the following results were obtained: as might be expected from the abundant research in the area of developmental psychology, the older the child the more apt he was to do well on the JCRT. Sex, although in other research has been found to be significant, was not found to be a determining factor in the present study. Also, kindergarten attendance was found to correlate +.26 with the JCRT. While this correlation was significant at the .05 level, it was still a very low correlation and from the point of view of the present study would

be subject to suspicion as a major factor in predicting
the learning readiness of first year children.

A second major purpose of this study was to determine
what factors were the best predictors of post first grade
achievement. When simple correlations were computed the
JCRT correlated moderately (+.35 and +.42) to both reading
and mathematics achievement. Intelligence correlated +.59
to reading achievement and +.57 to mathematics achievement.
These results are comparable to those found in earlier
correlational studies reported in Chapter II.

In an attempt to determine the effects of socio-
economic status, parent occupation was selected as a
predictor variable. Parent occupation was found to be a
low predictor of reading achievement (-.27) but was not a
significant predictor of mathematics achievement (-.16).
Thus, to the degree that socio-economic status is measured
by occupational classification, the present study indicated
a relationship between reading achievement and family status.

The additional factors of sex, age, school, and
broken home were not found to be significant predictors of
reading or mathematics achievement. Even though it appeared
that age was a predictor of readiness, by the time a child
entered third grade age was no longer a determining factor
of a child's academic achievement level.

When all variables were considered as predictors,
intelligence was found to be the most significant variable
for both reading and mathematics achievement. These results

also support similar findings established in previous studies of academic achievement.

Based upon multilinear regression, only one time was a JCRT subtest considered a significant predictor of achievement. The JCRT copying subtest was found to account for 3% of the variance when predicting mathematics achievement. More importantly, the total JCRT score was not found to be a significant predictor of either reading or mathematics achievement.

An interesting point was raised in considering the variable of readiness room enrollment. Enrollment in a readiness room was determined to be a significant predictor of later reading and mathematics achievement. Since readiness room enrollment has been predicated on a child's passing or failing the Jefferson County Readiness Test, it would be assumed that passing or failing the JCRT would be predictive of achievement. The preceding data, however, did not totally support this supposition.

The data reveal complex associations among achievement, intelligence, readiness room enrollment, sex, and JCRT subtests as these variables tended to account for the variance in achievement level of subjects. Thus, the present study further substantiates the notion of a complex interaction effect as has been reported in numerous research studies. Furthermore, intelligence appears to be the most reliable predictor of achievement even when other variables are introduced as factors.

CHAPTER V

SUMMARY, CONCLUSIONS, AND RECOMMENDATIONS

Chapter V contains three major sections. The first
section is a summary of the procedures of the present study
while the second section contains the conclusions of the
study. The third section contains the recommendations based
on the conclusions of the study.

Summary of the Study

The study was designed to examine factors which pre-
dict readiness and achievement. The major focus of concern
in the study was to examine the concurrent and predictive
validity of the Jefferson County Readiness Test.

The study was divided into two phases. Phase I was
designed to specifically determine the concurrent validity
of the Jefferson County Readiness Test. In an effort to deter-
mine the usefulness of the JCRT, it was compared to a stand-
ardized readiness test, the Metropolitan Readiness Test. Both
testing instruments were compared to teachers' perceptions
of readiness.

The students selected for Phase I were all first year
students in one Jefferson County, Kentucky elementary school.
The school was selected because of accessibility and the
cooperation of the school's principal. The sample included
76 students and three teachers.

All children were rated by both the readiness teacher and a regular classroom teacher. After the two ratings had been completed, the JCRT was administered to the students. Approximately one week later the Metropolitan Readiness Test was administered.

Results of this phase of the study revealed that the Jefferson County Readiness Test possessed high internal validity. Three of the four subtests of the JCRT demonstrated high correlations to the total test.

When the total JCRT and the MRT were compared, a correlation of +.89 was obtained. Similar subtests of the two instruments also yielded high correlations ranging between +.65 and +.74.

The JCRT correlated moderately (-.52 and -.61) to teachers' perceptions of readiness. It was found that the amount of time the teacher spent with the individual child was influential in determining her ability to predict readiness.

Age was found to be a predictor of readiness while sex was not shown as a significant predictor. Kindergarten attendance was found to be a low predictor (+.26) of readiness.

The purpose of Phase II of the study was to determine what selected variables were predictors of post first grade achievement. The predictor variables included Jefferson County Readiness Test scores, Otis Lennon Mental Ability Test scores, sex, age, school, parent occupation, broken home, and enrollment in a readiness room. The criterion

variables for Phase II were the Metropolitan Achievement
Test total reading and total mathematics scores.

This phase of the study was primarily the collection
of previously recorded data. Three schools were selected,
and all third year students in these schools were included
in the sample. Complete data were available for 139 students.
Data collected included the JCRT scores, Otis Lennon Mental
Ability Test scores, and Metropolitan Achievement Test scores
in addition to demographic data.

The subjects as a group were found to be above the
national mean in intelligence and achievement. While the
sample as a group was considered to be above average, those
children who failed the JCRT were found to be lower in both
intelligence and achievement than those who passed the JCRT.

Moderate correlations were found between the JCRT
and intelligence (+.52), reading achievement (+.35), and
mathematics achievement (+.42). Intelligence correlated
+.59 with reading achievement and +.57 with mathematics
achievement.

Multiple regression analyses were computed to
determine significant predictors of achievement. Significant
predictors of reading achievement were mathematics achieve-
ment, Otis Lennon DIQ, sex, and readiness room attendance.
When mathematics achievement was excluded as a predictor, the
remaining predictors were found in a slightly different order.

Significant predictors of mathematics achievement
were reading achievement, Otis Lennon raw score, JCRT copying

subtest, and Otis Lennon DIQ. When reading achievement was excluded as a predictor, the significant predictors were Otis Lennon DIQ, JCRT copying subtest, Otis Lennon raw score, and readiness room enrollment.

Conclusions for Phase I

Based on the results of this study the following conclusions are presented:

1. That the Jefferson County Readiness Test possessed high internal validity. Three of the four subtests of the JCRT correlated highly with the total test.

2. The sentence meaning subtest of the JCRT was the least predictive of the total test. This subtest was not as effective in discriminating those children who were ready from those who were not ready for formal instruction.

3. The Jefferson County Readiness Test was found to be an effective measure of readiness.

4. The amount of time a teacher spent with a child affected her ability to predict readiness. The longer the teacher spent with the child the greater the possibility she could effectively predict readiness.

5. The older the child the more apt he was to experience success on the JCRT.

6. Kindergarten attendance although significant
   was not a major factor in predicting readiness.

7. Sex was not found to be a significant predictor
   of readiness.

Conclusions for Phase II

Phase II of the study was concerned with factors
which predict post first grade reading and mathematics
achievement. Based on the results reported for Phase II
the following conclusions are reported:

1. Intelligence, as measured by the Otis Lennon
   Mental Ability Test, was found to be the best
   single predictor of reading and mathematics
   achievement.

2. The Jefferson County Readiness Test was found to
   possess high internal validity. One subtest,
   the sentence meaning subtest, did not correlate
   as highly with the total test as the other sub-
   tests.

3. The Jefferson County Readiness Test was found to
   correlate only moderately with reading and mathe-
   matics achievement.

4. Parent occupation was found to have a low corre-
   lation to reading achievement but was not found
   to be a predictor of mathematics achievement.

5. When all factors were considered in combination,
   significant predictors of reading achievement

were found to be mathematics achievement, intelligence, readiness room enrollment, and sex. Significant predictors of mathematics achievement were reading achievement, intelligence, the JCRT copying subtest and readiness room enrollment. Intelligence and readiness room enrollment were found to be significant predictors of both reading and mathematics achievement. The Jefferson County Readiness Test was not found to be a significant predictor of either third grade reading or mathematics achievement. Only one JCRT subtest was found to be a significant predictor of mathematics achievement.

Recommendations

Based upon the preceding conclusions of the present study, the following recommendations are made. These recommendations should provide researchers with productive avenues of study relevant to the Jefferson County Readiness Test.

The present study found the JCRT to be a valid measure of educational readiness. However, one subtest --the sentence meaning subtest-- was statistically inadequate. Therefore, it is recommended that this subtest be psychometrically strengthened or deleted in future revisions of the JCRT.

In the present study, the JCRT did not prove to be a valid predictor of post first grade achievement. Phase II

of the present study suffered a methodical weakness in that
it was an ex post facto design. Furthermore, the present
study did not specifically examine the predictive relation-
ship between readiness test scores and first grade achieve-
ment. Further study is needed to determine if the JCRT can
in fact be considered a predictor of first grade achievement.
In order to overcome methodical weaknesses, the study would
necessarily be of a longitudinal nature. Since the concep-
tion of this study, Stanford Achievement Test data are
available on all elementary children, including the children
in Phase I of this study. Thus, this longitudinal study
could be accomplished with relative ease.

A third recommendation relates to Phase II of the
present study. Phase II encompassed an analysis of readiness
and achievement in third grade students. It is recommended
that the subjects included in Phase II be followed and that
replication studies be completed at the end of the students'
fourth, fifth, and sixth years of school.

Another recommendation is related to the revised
edition of the Metropolitan Readiness Test. In 1974 a new
revision of the Metropolitan became available. However,
the present study was completed utilizing the 1965 edition
of the Metropolitan Readiness Test. Therefore, a replication
study of Phase I of the present study is needed to determine
the nature of existing relationships between the JCRT and
the 1974 edition of the Metropolitan Readiness Test.

The last recommendation is related to the

interrelationship of kindergarten attendance, readiness test scores and first grade achievement. The present study presented data which raised questions concerning the significance of kindergarten attendance. Future studies are needed which would examine the relationships of basic educational skills at the time of entry into kindergarten, readiness tests scores at the beginning of first year academic training and first grade achievement. Again, such studies would be longitudinal in nature.

APPENDIX A

JEFFERSON COUNTY READINESS TEST

&

DIRECTIONS FOR ADMINISTERING AND SCORING

JEFFERSON COUNTY SCHOOLS

READINESS TEST

Jefferson County Schools

READINESS TEST

For Beginners

Name_____

      Last   First

Teacher_____

School_____

Date of Test

Child's Birthdate

	Year	Month	Day
Date of Test	____	____	____
Child's Birthdate	____	____	____

Child's Age

       Years Months

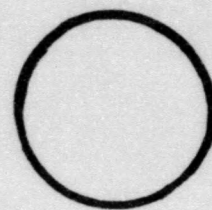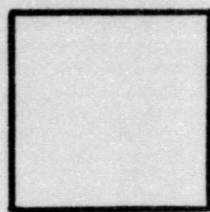| TEST	POSSIBLE SCORE	PUPIL'S SCORE
I. Matching	10	____
II. Numbers	10	____
III. Copying	10	____
IV. Sentence Meaning	10	____
Total	40	____

DRAW A MAN

Ready   ____

Not Ready   ____

Remarks   ____

_____

_____

_____

_____

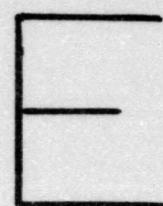Evaluation_____

TEST 1. MATCHING

SAMPLE

◯ | △ ▢ ◯ ▭

1. Z | T W E Z

2. S | S J C U
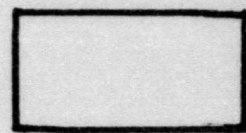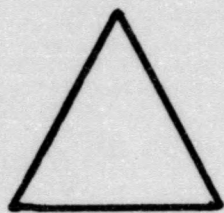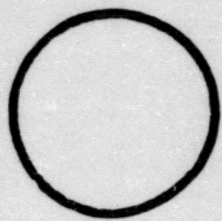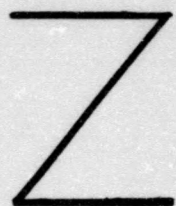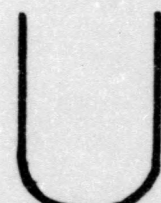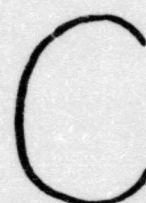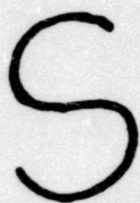
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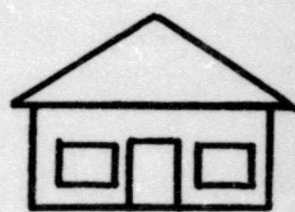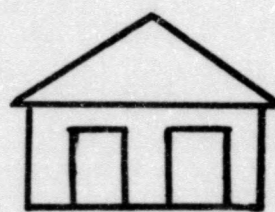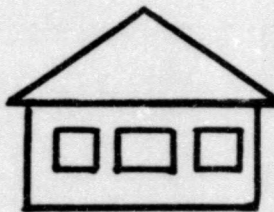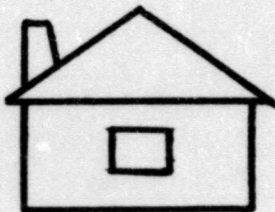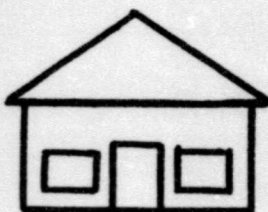
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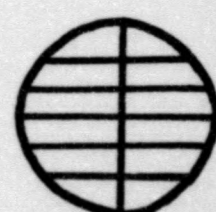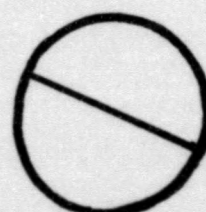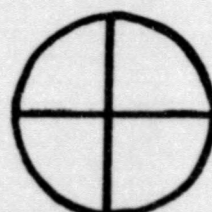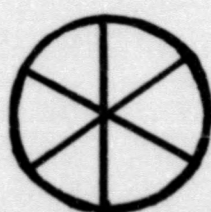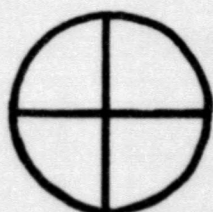
5. GO	ON	GA	OC	GO
6. W	V	M	N	W
7. AB	AB	BA	AC	BC
8.				
9. 386	638	836	386	368
10. 51	15	55	51	11
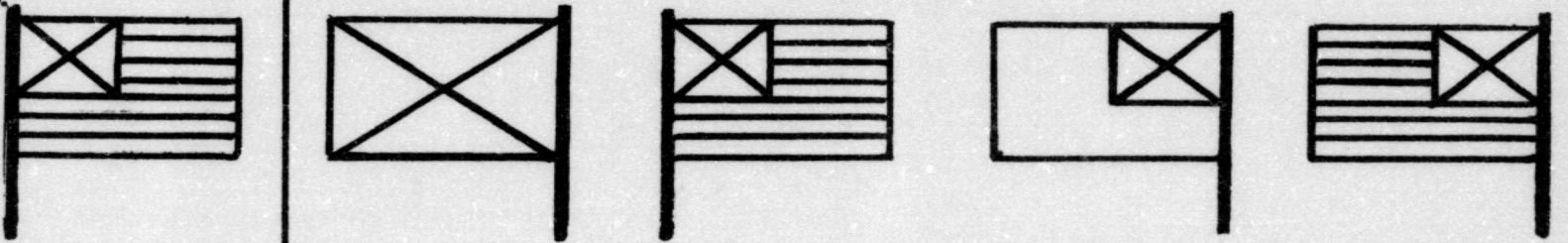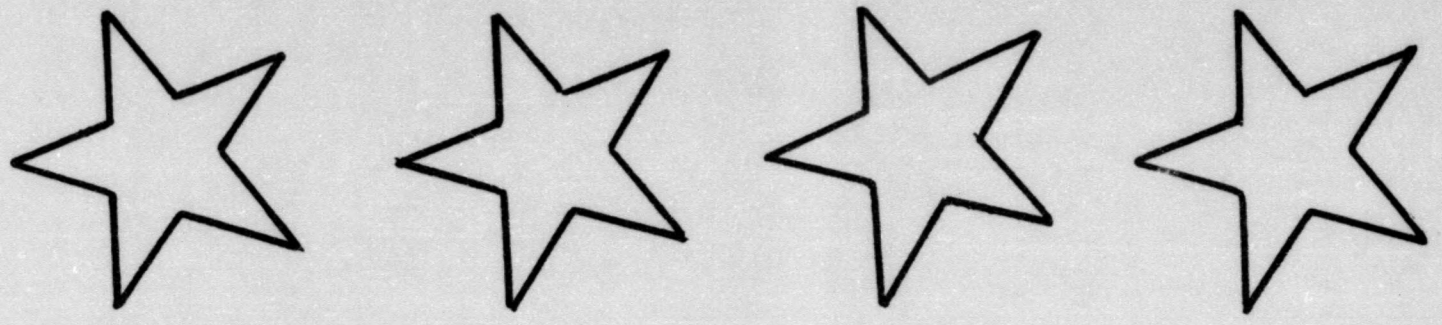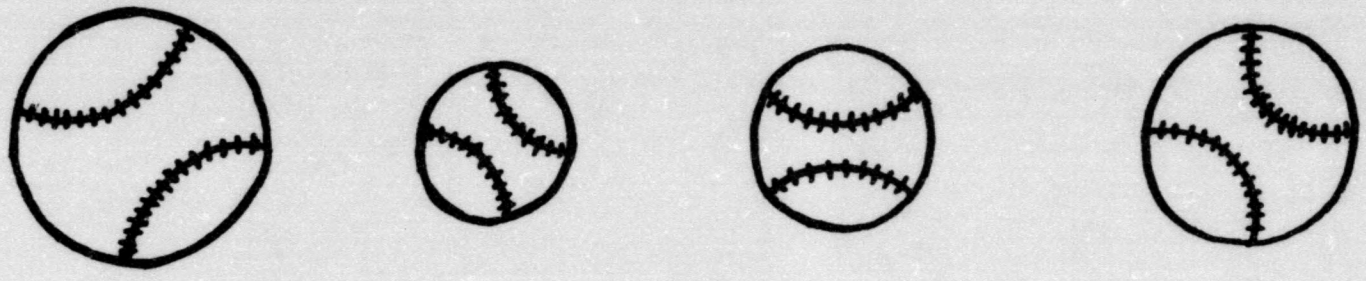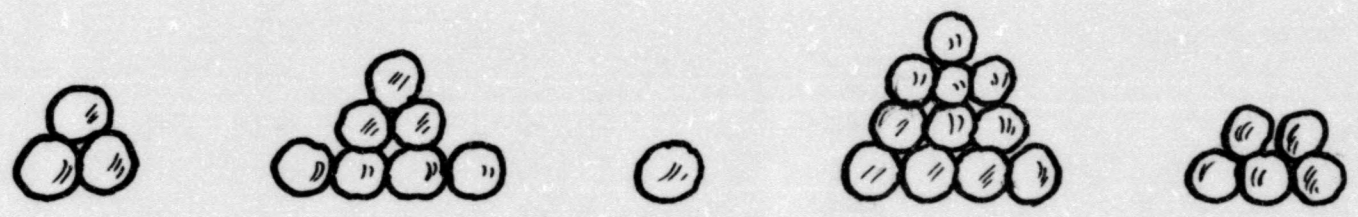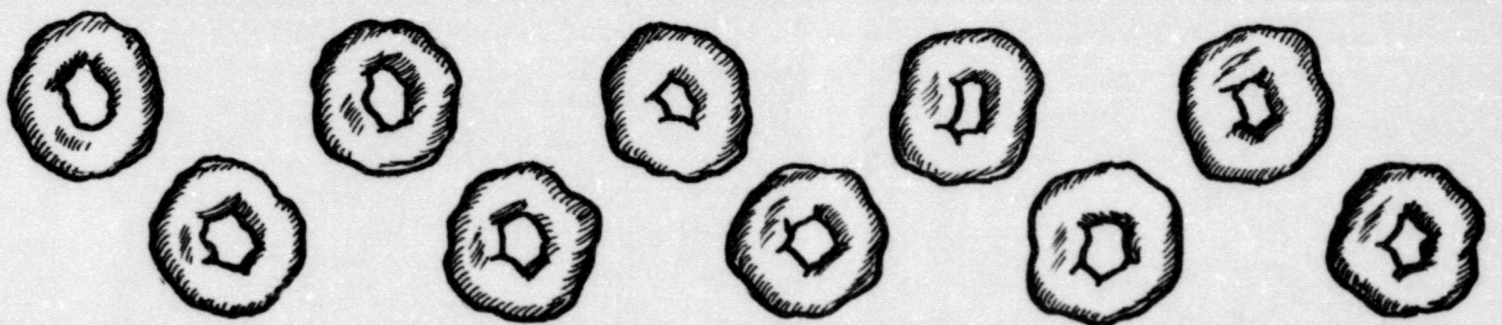
NO. RIGHT _____

1.

2.

3.

4.

5.

5 4 1 3 2

6.

7.

8.

9.

10.

12 25 71 52 17

NUMBER RIGHT _____

TEST III. COPYING

SAMPLE

1.	6. 9
2. S	7.
3. A	8. TV
4. W	9. DEH
5. △	10. 74

-5-   NUMBER RIGHT _____
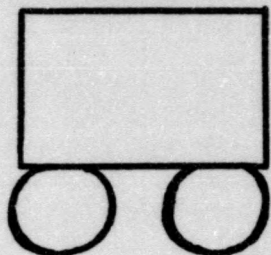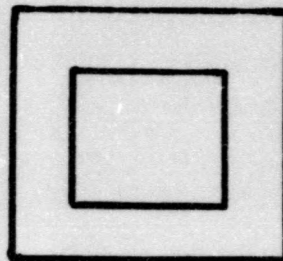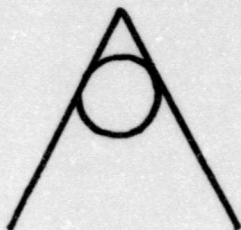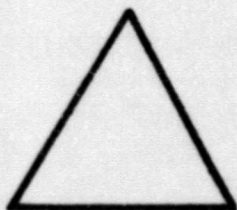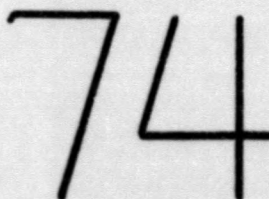
SAMPLE

1.

2.

3.

4.

5.

6.

7.

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9.

10

NUMBER RIGHT _____
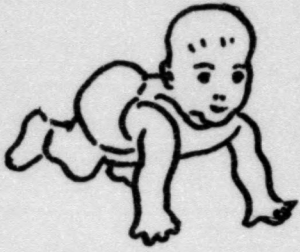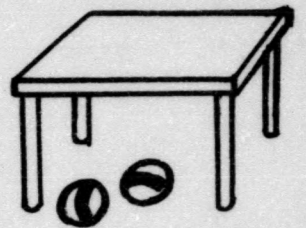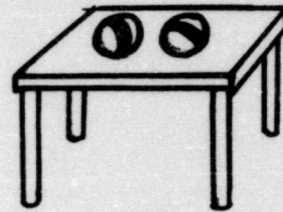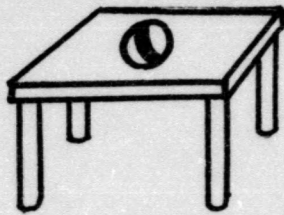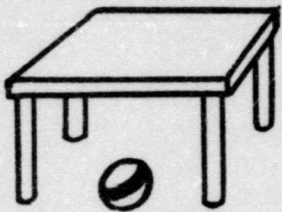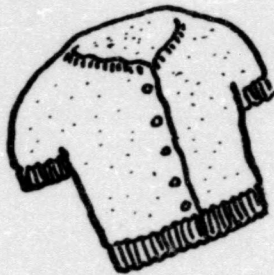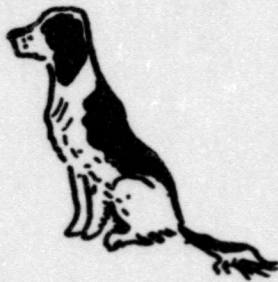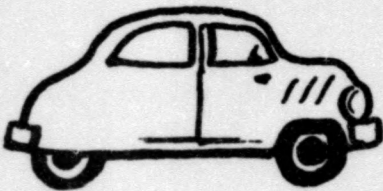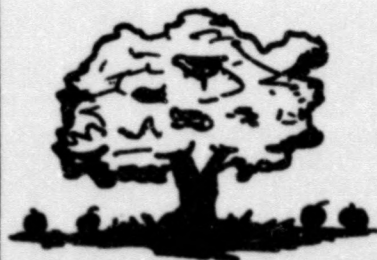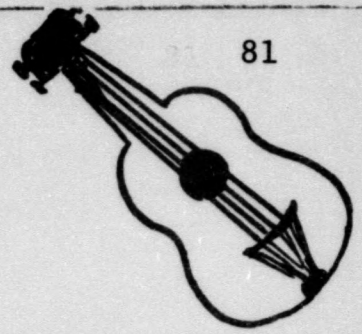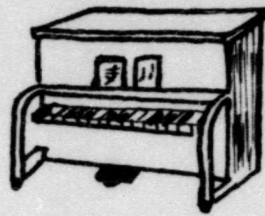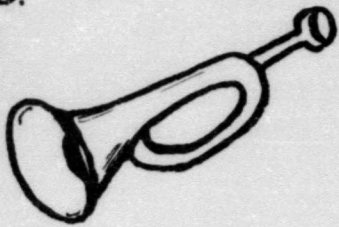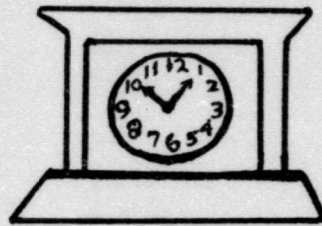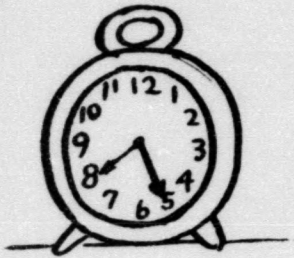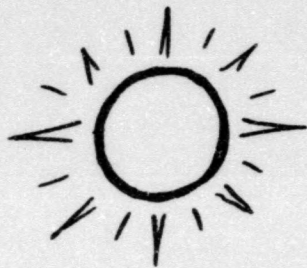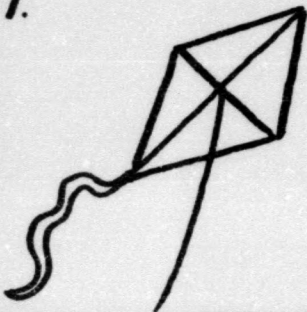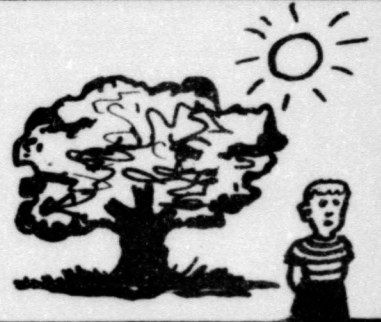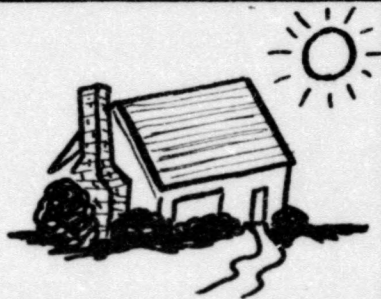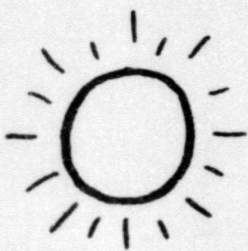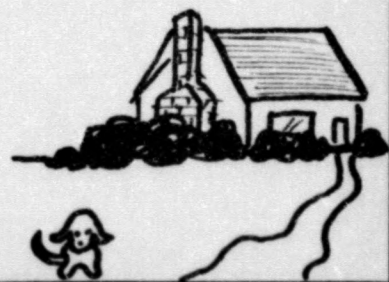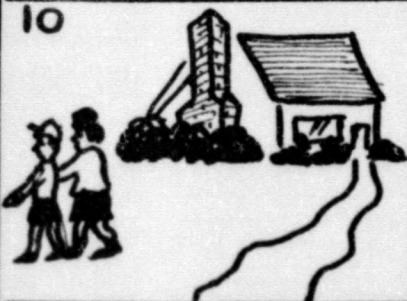
This readiness test was devised to measure the readiness of beginners for formal instruction and is to be given within the first two weeks of school. There are four (4) separate tests: Matching, Numbers, Copying and Sentence Meaning. The four tests consist of figures or pictures which are to be marked or copied according to instructions given orally by the examiner. The exercise, Drawing a Man, is to be given last.

The examiner should be thoroughly familiar with the test and the directions before administering. The entire group should be tested at one time. Show on the board how to make an X. There should be a break, or rest period, between the tests.

See that each child is comfortable and provided with a dark crayon, a marker, and a test booklet on which his name has been written. Arrange seating so that copying is discouraged. Have a test booklet handy to point specific items as needed. Use the sample items to see that every child understands the procedure; then no more individual assistance is to be given.

Directions for Test I - Matching: (Allow approximately 15 seconds for each item.)

Say: *Put your marker under the first row. Put your finger on the first picture. Move your finger along this row and find another picture just like the first picture. Put an X on it. (See that sample is done correctly.) Now move your marker down to the next row.*

Row 1. Say: *Put your finger on the first picture. Move your finger along this row and find another picture just like the first picture. Put an X on it.* Proceed in like manner for each of the remaining 9 items of this test, being sure that pupils turn to page 2 after row 4.

Directions for Test II - Numbers: (Allow approximately 15 seconds for each item.)

There is no sample given. For row 1, say: *Place your marker under the first row. Put an X on the glass with the most chocolate milk in it. Move your marker down.*
2.   Say: *Put an X on the middle duck. Move your marker down.*
3.   *Put an X on the first butterfly from the flower. Move your marker down.*
4.   *Put an X on the smallest box. Move your marker down.*
5.   *Put an X on the number 2. Turn to the next page.* (Be sure pupils have page 4.)
6.   *Place your marker under the first row. Put an X on the last star in the row. Move your marker down.*
7.   *Put an X on the largest ball. Move your marker down.*
8.   *Put an X on the pile of 7 snowballs. Move your marker down.*
9.   *Put an X on 6 of the doughnuts. Move your marker down.*
10. **Put an X on the number 25.**

Directions for Test III - Copying

No marker needed. Say: *Look at the picture at the top on this side of the page. Take your crayon and draw another picture just like it in the space beside it.* (Point to the space. See that sample is done correctly.) Say: Look at each picture and draw one just like it in the space beside it. (Pointing) *Now finish this page by yourself.* (Allow approximately 5 minutes for this test.)

Directions for Test IV - Sentence Meaning: (Allow approximately 15 seconds for each item.) Say: *Place your marker under the first row. Look at the pictures. Put an X on the man.* (See that sample is done correctly.) *Now move your marker down.*

1.   *Put an X on the table with 2 balls on it. Move your marker down.*
2.   *Put an X on something you could wear. Move your marker down.*
3.   *Put an X on the animal. Move your marker down.*
4.   *Put an X on the tree that has apples on it. Turn to the next page.* (Be sure pupils have page 7.)

5. *Place your marker under the first row. Put an X on the thing you blow. Move your marker down.*
6. *Put an X on the watch. Move your marker down.*   7. *Put an X on the thing that flies. Move your marker down.*
8. *Put an X on the little girl in the big chair. Move your marker down.*
9. *Put an X on the picture of the sun shining on the tree with the boy under it. Move your marker down.*
10. *Put an X on the picture of the house that has 2 children and a dog by it.*

Scoring the Tests

Each item on the four tests counts 1. Record number right at the end of the test in the space provided.

Count response correct if clearly marked even though X is not used.

No credit is given if two items are marked, even though one is the correct response.

DO NOT COUNT THE SAMPLES ON TESTS I, III, AND IV.

For Test III - Copying:

    Tracing over any design instead of copying is not correct.

    Reversing figures is incorrect.

    Item must be copied in the space provided.

For Test IV - Items 9 and 10 are correct if marked anywhere in the box.

Record total score for each test on the front in the space provided.

Interpretation of Results

Those pupils who make a total score of 27 or more on this test should probably be considered Ready for formal instruction. Those pupils receiving a total score of less than 27 are probably Not Ready.

On the cover page in the blanks below the scores, indicate with a check if, from the scores plus the teacher's judgment, the child seems to be Ready; if Not Ready, check. Under remarks, make pertinent comments concerning child's actions.

Exercise - Drawing a Man

Instruct children to draw a man in the space provided on the front of the test. Allow not more than 10 minutes for this and as soon as a child has completed his test, collect test.

This exercise, although not given a score, is an important part of the evaluation of a child's readiness. It indicates his awareness of himself, the human body, and details. The Science-Social Studies Unit 011 has much material which will aid in developing this awareness.

Exercise - Drawing a Man:

The picture of the man should be examined according to 5 categories:

IMMATURE

    Scribbling.

    Drawing cannot be recognized as a human figure.

BELOW AVERAGE

    Head, but some missing elements; i.e. trunk, arms or legs.

AVERAGE

    Can be recognized as a human being.

    All elements present.

ABOVE AVERAGE

    All elements present with proper prpportions.

SUPERIOR

    All elements present with proper proportions.

    Clothes.

    A profile with elements in line, i.e., if profile is used for head the rest of the body should be in a profile view also.

S91/6-8

5. *Place your marker under the first row. Put an X on the thing you blow. Move your marker down.*
6. *Put an X on the watch. Move your marker down.*
7. *Put an X on the thing that flies. Move your marker down.*
8. *Put an X on the little girl in the big chair. Move your marker down.*
9. *Put an X on the picture of the sun shining on the tree with the boy under it. Move your marker down.*
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    Drawing cannot be recognized as a human figure.

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    Head, but some missing elements; i.e. trunk, arms or legs.

AVERAGE

    Can be recognized as a human being.

    All elements present.

ABOVE AVERAGE

    All elements present with proper prpportions.

SUPERIOR

    All elements present with proper proportions.

    Clothes.

    A profile with elements in line, i.e., if profile is used for head the rest of the body should be in a profile view also.

APPENDIX B

PERCEPTIONS OF READINESS CHECKLIST

Perceptions of Readiness Checklist
(POR)

Some of the following behaviors may be exhibited by first
year children. Please check any of the behaviors you feel
the child exhibits.

Physical Behaviors

_____ Lacks motor coordination
This child has difficulty running, skipping, and
jumping. He may not be able to hold a pencil or
crayon.
_____ Has speech impediments
The child may have a lisp or some other speech
difficulty.
_____ Has immature speech patterns
The child may talk baby talk, or cannot speak in
complete sentences.

Emotional Behaviors

_____ Lacks self-control
This child may throw temper tantrums, he becomes
angry with himself and others.
_____ Shows over-aggressiveness
The child bothers other children, sometimes gets
into fights, and demands attention.
_____ Is destructive
This child may break pencils and crayons, tear up
papers, write on desks, etc.

Classroom Behaviors

_____ Tires of activity quickly
This child needs rapid change. He cannot concentrate
for long periods of time.
_____ Cannot work independently
This child may need constant supervision and encourage-
ment, He may lack self-confidence.
_____ Is inattentive
This child may daydream, look around the room, or
talk rather than listen.
_____ Does not follow directions
This child needs to have all instructions explained
several times and individually. Needs to be shown how.

Based on your observation of this child and your knowledge of
readiness, do you feel this child is ready to begin formal
instruction?
Ready_____   Not Ready_____

Comments:

Child's Name_____ Teacher's Name_____

APPENDIX C

COLLECTION OF DATA FORM

Collection of Data Sheet

Child's Name_____D.O.B._____

Sex_____   Age_____

Teacher's Name _____

Readiness Teacher   **Regular Teacher**

    Ready_____   Ready_____

  Not Ready_____   Not Ready_____

___Lacks Motor Coordination   ___Lacks Motor Coordination

___Has Speech Impediments   ___Has Speech Impediments

___Has Immature Speech Patterns   ___Has Immature Speech Patterns

___Lacks Self-Control   ___Lacks Self-Control

___Shows Over-aggressiveness   ___Shows Over-aggressiveness

___Is Destructive   ___Is Destructive

___Tires of Activity Quickly   ___Tires of Activity Quickly

___Cannot Work Independently   ___Cannot Work Independently

___Is Inattentive   ___Is Inattentive

___Does not follow directions   ___Does not follow directions

JCRT Test   **Metropolitan Readiness**

Matching_____   Word Meaning_____

Numbers_____   Listening_____

Copying_____   Matching_____

Sentence Meaning_____   Alphabet_____

Total_____   Numbers_____

                                     Copying_____

                                     Total_____

Did the child attend kindergarten?

                                     Percentile Rank_____

Yes_____ No_____   Letter Rating_____

APPENDIX D

DATA SUMMARY SHEET

Data Summary Sheet

Sex_____   Age_____   D.O.B._____

School_____

Was child assigned to the Readiness Room?_____

Broken home prior to entry in 3rd grade?_____

Parent Occupation

Father's Job Title_____   (Please circle)
                                          Professional
                                          Managerial
                                          Semiprofessional
                                          Skilled
                                          Semiskilled
                                          Unskilled

Test Scores

	JCRT	O.L. (2nd Year)		Metro. Achievement	
				Raw Score	Standard Score
Matching____		D.I.Q._____			
Numbers____		Raw Score_____	Total Reading____	____	
Copying____			Total Math ____	____	
Sentence Meaning____					
Total_____					

Name of child for compilation purposes only.

Please detach when all data have been completed.

------------------------------Detach------------------------------

Name_____

APPENDIX E

INTERCORRELATION MATRIX FOR PHASE I

Intercorrelation Matrix for Phase I

Variable List

Variable Name	Variable Number
Teacher	1
Sex	2
Age	3
Readiness Teacher's Perceptions	4
Classroom Teacher's Perceptions	5
JCRT Matching	6
JCRT Numbers	7
JCRT Copying	8
JCRT Sentence Meaning	9
JCRT Total	10
Metropolitan Word Meaning	11
Metropolitan Listening	12
Metropolitan Matching	13
Metropolitan Alphabet	14
Metropolitan Numbers	15
Metropolitan Copying	16
Metropolitan Total	17
Metropolitan Letter Grade	18
Kindergarten	19
Readiness - Lacks motor control	20

Variable Name	Variable Number
Readiness - Has speech impediments	21
Readiness - Has immature speech patterns	22
Readiness - Lacks self-control	23
Readiness - Shows over-aggressiveness	24
Readiness - Is destructive	25
Readiness - Tires of activity quickly	26
Readiness - Cannot work independently	27
Readiness - Is inattentive	28
Readiness - Does not follow directions	29
Readiness Teacher - Total checks	30
Classroom - Lacks motor coordination	31
Classroom - Has speech impediments	32
Classroom - Has immature speech patterns	33
Classroom - Lacks self-control	34
Classroom - Shows over-aggressiveness	35
Classroom - Is destructive	36
Classroom - Tires of activity quickly	37
Classroom - Cannot work independently	38
Classroom - Is inattentive	39
Classroom - Does not follow directions	40
Classroom Teacher - Total checks	41

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
1	1.0000															
2	-0.0640	1.0000														
3	-0.0362	0.1268	1.0000													
4	0.1354	-0.0667	-0.2960	1.0000												
5	0.1637	-0.1075	-0.3719	0.4676	1.0000											
6	0.0932	-0.1202	0.2957	-0.3464	-0.4429	1.0000										
7	-0.0233	-0.0918	0.1920	-0.4490	-0.5518	0.5843	1.0000									
8	0.0885	-0.0009	0.3271	-0.4430	-0.5250	0.6233	0.5463	1.0000								
9	-0.1325	-0.0102	0.1235	-0.4650	-0.3830	0.4276	0.4636	0.3510	1.0000							
10	0.0417	-0.0679	0.3212	-0.5224	-0.6089	0.8322	0.8112	0.8792	0.5838	1.0000						
11	0.0411	-0.1904	0.1505	-0.4986	-0.5022	0.5613	0.5759	0.5170	0.4549	0.6583	1.0000					
12	0.0318	-0.0920	0.2433	-0.2953	-0.4083	0.5142	0.3423	0.4254	0.4170	0.5187	0.3388	1.0000				
13	0.0720	0.0050	0.3070	-0.4560	-0.5525	0.6467	0.5764	0.6463	0.4181	0.7374	0.4748	0.4845	1.0000			
14	0.0104	-0.0537	0.2344	-0.3100	-0.5418	0.6253	0.6282	0.6000	0.4625	0.7322	0.5799	0.3353	0.5884	1.0000		
15	0.0348	-0.1112	0.3146	-0.4421	-0.5768	0.5961	0.7373	0.6572	0.3989	0.7749	0.5687	0.3700	0.6277	0.7698	1.0000	
16	-0.0264	-0.1227	0.3017	-0.4290	-0.4784	0.6471	0.4986	0.7235	0.2543	0.7263	0.4785	0.3714	0.6164	0.5381	0.6112	1.0000
17	0.0334	-0.1119	0.3310	-0.5090	-0.6572	0.7626	0.7379	0.7668	0.5089	0.8925	0.7269	0.5546	0.8100	0.8654	0.8830	0.7697
18	-0.0690	0.1080	-0.3475	0.5269	0.6193	-0.7284	-0.7197	-0.7368	-0.5464	-0.8680	-0.7013	-0.4696	-0.7526	-0.8335	-0.8470	-0.7246
19	-0.0843	-0.2743	-0.0087	-0.2076	-0.1354	0.2053	0.2872	0.1355	0.3172	0.2588	0.1565	0.2714	0.1972	0.1200	0.2169	0.1340
20	-0.1039	-0.1895	-0.1882	0.5142	0.3080	-0.1751	-0.2362	-0.3036	-0.1381	-0.2918	-0.2193	-0.0509	-0.2821	-0.1549	-0.3629	-0.2338
21	0.0	0.0363	-0.0391	0.3074	0.0836	-0.0673	-0.1002	-0.0952	-0.0117	-0.0970	-0.2215	0.0621	-0.1587	-0.0867	-0.1079	-0.0728
22	0.1396	-0.1039	0.0157	0.1649	0.1470	-0.3918	-0.1958	-0.2635	-0.2594	-0.3375	-0.0959	-0.1596	-0.2495	-0.1514	-0.1660	-0.2212
23	-0.0817	0.0894	-0.0688	0.0019	0.2581	-0.0398	-0.1128	0.0017	0.1074	-0.0300	-0.1434	-0.0774	-0.0709	-0.1044	-0.0781	-0.0944
24	-0.2850	0.0250	-0.1358	-0.0396	-0.0638	0.0165	0.0893	-0.0172	0.2067	0.0559	0.0	0.1164	0.0599	-0.0020	0.0188	-0.0402
25	99.0000	99.0000	99.0000	99.0000	99.0000	99.0000	99.0000	99.0000	99.0000	99.0000	99.0000	99.0000	99.0000	99.0000	99.0000	99.0000
26	-0.0763	-0.0384	-0.3409	0.6323	0.3584	-0.2400	-0.2937	-0.4189	-0.1869	-0.3910	-0.3291	-0.1101	-0.3020	-0.1965	-0.3423	-0.2936
27	-0.0550	0.1710	-0.0736	0.3581	0.3118	-0.4262	-0.3402	-0.4141	-0.2419	-0.4680	-0.3819	-0.3492	-0.3173	-0.2497	-0.3142	-0.3682
28	-0.1469	-0.0306	-0.2075	0.3072	0.1720	-0.1295	-0.1780	-0.2237	-0.2215	-0.2354	-0.1205	0.0228	-0.2385	-0.1501	-0.2471	-0.1263
29	0.0701	-0.1075	-0.2194	0.5411	0.3945	-0.1408	-0.4450	-0.3457	-0.3466	-0.3986	-0.2944	-0.1421	-0.2756	-0.2700	-0.4174	-0.3255
30	-0.1294	-0.0552	-0.3228	0.7426	0.4902	-0.3419	-0.4519	-0.4998	-0.2996	-0.5264	-0.4402	-0.1499	-0.4557	-0.3293	-0.5085	-0.4198
31	0.0410	-0.0180	-0.2739	0.5342	0.5351	-0.2922	-0.3584	-0.4179	-0.2902	-0.4418	-0.2567	-0.2833	-0.4120	-0.3209	-0.4441	-0.3124
32	0.1037	-0.1361	0.1195	0.0336	0.0836	-0.0445	0.1300	0.0450	0.0329	0.0550	0.0316	0.1479	0.0225	0.0250	0.1419	0.0698
33	0.1969	-0.0841	-0.2170	0.3501	0.3828	-0.2889	-0.4624	-0.2633	-0.1874	-0.3807	-0.1991	-0.2418	-0.2387	-0.2772	-0.3884	-0.2148
34	0.0817	-0.0465	-0.1457	0.1457	0.2581	-0.1478	-0.2448	-0.1751	-0.5258	-0.2800	-0.0935	-0.2802	-0.2340	-0.1631	-0.2255	-0.1184
35	-0.0492	-0.2479	-0.0317	0.0034	-0.0364	0.1233	0.0942	-0.0235	0.1094	0.0713	0.0113	0.2268	0.0440	0.0322	-0.0820	0.0424
36	99.0000	99.0000	99.0000	99.0000	99.0000	99.0000	99.0000	99.0000	99.0000	99.0000	99.0000	99.0000	99.0000	99.0000	99.0000	99.0000
37	0.4208	0.0071	-0.1623	0.4446	0.6157	-0.2200	-0.3618	-0.3082	-0.2758	-0.3664	-0.4124	-0.1427	-0.2982	-0.3791	-0.3481	-0.3619
38	0.2529	-0.1771	-0.2425	0.2176	0.4532	-0.2447	-0.3716	-0.2490	-0.3160	-0.3954	-0.3007	-0.1794	-0.2650	-0.3489	-0.3638	-0.3013
39	0.2167	-0.0569	-0.1065	0.2176	0.3937	-0.0696	0.0223	-0.1415	-0.3160	-0.1299	-0.0852	-0.0976	-0.1818	-0.1867	-0.1644	-0.1516
40	0.1979	-0.0254	-0.3937	0.3341	0.6916	-0.4862	-0.5228	-0.5021	-0.4596	-0.6090	-0.5113	-0.2779	-0.3697	-0.4210	-0.5416	-0.4477
41	0.3299	-0.1505	-0.3387	0.4986	0.7567	-0.3714	-0.4636	-0.4657	-0.4616	-0.5449	-0.4370	-0.2639	-0.4503	-0.4856	-0.5337	-0.3912

Intercorrelation Matrix for Phase I of the Study

13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34
1.0000																					
0.5884	1.0000																				
0.6277	0.7698	1.0000																			
0.6164	0.5381	0.6112	1.0000																		
0.8100	0.8654	0.8830	0.7697	1.0000																	
-0.7526	-0.8335	-0.8470	-0.7246	-0.9452	1.0000																
0.1972	0.1200	0.2169	0.1340	0.2210	-0.2530	1.0000															
-0.2821	-0.1549	-0.3629	-0.2338	-0.2893	0.3256	-0.1711	1.0000														
-0.1587	-0.0867	-0.1079	-0.0728	-0.1315	0.1150	-0.0199	0.1474	1.0000													
-0.2495	-0.1514	-0.1660	-0.2212	-0.2198	0.2421	-0.0832	0.1753	-0.0396	1.0000												
-0.0709	-0.1044	-0.0781	-0.0964	-0.1191	0.1320	-0.1461	0.1606	-0.0695	-0.0234	1.0000											
0.0599	-0.0020	0.0188	-0.0402	0.0241	0.0471	0.1424	-0.0270	0.1112	-0.0272	-0.0478	1.0000										
99.0000	99.0000	99.0000	99.0000	99.0000	99.0000	99.0000	99.0000	99.0000	99.0000	99.0000	99.0000	1.0000									
-0.3020	-0.1965	-0.3423	-0.2936	-0.3383	0.3382	-0.1079	0.4024	0.1245	0.2151	0.0533	-0.1265	99.0000	1.0000								
-0.3173	-0.2497	-0.3142	-0.3682	-0.4036	0.3226	0.0116	0.1864	-0.1092	0.3625	0.1691	-0.0751	99.0000	0.2658	1.0000							
-0.2385	-0.1501	-0.2471	-0.1263	-0.2013	0.2553	0.0134	0.2150	-0.0990	0.2000	0.0390	0.1361	99.0000	0.5651	0.1314	1.0000						
-0.2756	-0.2700	-0.4174	-0.3259	-0.3782	0.3948	-0.1524	0.4005	-0.0299	-0.0737	-0.1294	-0.0205	99.0000	0.2840	0.1980	0.2345	1.0000					
-0.4557	-0.3293	-0.5085	-0.4198	-0.5017	0.5243	-0.1262	0.6956	0.2371	0.2853	0.1802	0.1430	99.0000	0.7483	0.4476	0.4437	0.5739	1.0000				
-0.4120	-0.3209	-0.4441	-0.3124	-0.4378	0.4077	-0.0426	0.3519	0.0582	0.2430	0.0780	-0.1120	99.0000	0.3965	0.4355	0.1960	0.3703	0.5068	1.0000			
0.0225	0.0250	0.1419	0.0698	0.0870	-0.0709	0.0558	-0.0393	0.1112	-0.0396	-0.0695	0.1112	99.0000	-0.0812	-0.1092	-0.0990	-0.1244	-0.0245	-0.0524	1.0000		
-0.2187	-0.2772	-0.3884	-0.2148	-0.3399	0.3270	0.0237	0.2918	-0.1257	0.3151	0.1348	-0.0864	99.0000	0.1942	0.3057	0.0705	0.1048	0.2982	0.4561	-0.1257	1.0000	
-0.2140	-0.1631	-0.2258	-0.1186	-0.2310	0.2053	-0.1461	0.0135	-0.0695	-0.0234	-0.0411	-0.0478	99.0000	-0.1088	0.1691	0.0390	0.0686	0.0428	0.2523	-0.0695	-0.0743	1.0000
0.0440	0.0322	-0.0820	0.0428	0.0362	0.0622	0.1475	0.1131	0.0070	-0.0423	-0.0743	0.2784	99.0000	-0.0013	-0.1167	0.1464	0.0354	0.0774	-0.1742	0.0070	-0.1343	-0.0743
99.0000	99.0000	99.0000	99.0000	99.0000	99.0000	99.0000	99.0000	99.0000	99.0000	99.0000	99.0000	99.0000	99.0000	99.0000	99.0000	99.0000	99.0000	99.0000	99.0000	99.0000	99.0000
-0.2984	-0.3791	-0.3461	-0.3619	-0.4241	0.4052	-0.0278	0.1526	0.1515	0.1391	0.1067	-0.1954	99.0000	0.3255	0.0134	-0.1391	0.2967	0.3083	0.4344	0.1515	0.3587	-0.0308
-0.2402	-0.3489	-0.3628	-0.3013	-0.3614	0.3137	-0.0611	0.1007	-0.0102	0.1932	0.0323	-0.0070	99.0000	0.1812	0.2230	-0.1380	0.3613	0.3017	0.3327	0.0871	0.4293	0.1852
-0.1818	-0.1847	-0.1844	-0.1126	-0.1977	0.2164	0.1500	0.1917	0.0871	0.1932	-0.1211	-0.0070	99.0000	0.0372	0.0163	0.1380	0.2115	0.2306	0.2556	0.0871	0.1509	0.1852
-0.1817	-0.2210	-0.3416	-0.4477	-0.3621	0.5305	-0.2130	0.1100	0.0867	0.1512	0.1253	-0.0579	99.0000	0.2444	0.2284	0.1860	0.2363	0.3153	0.4131	0.0867	0.3955	0.2654
-0.1803	-0.4856	-0.5533	-0.3912	-0.5583	0.5890	-0.4674	0.2870	0.1133	0.2587	0.0485	-0.0508	99.0000	0.2943	0.2818	0.2150	0.4167	0.4519	0.4386	0.2969	0.5545	0.2640

22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
1.0000																			
-0.0234	1.0000																		
-0.0272	-0.0478	1.0000																	
99.0000	99.0000	99.0000	1.0000																
0.2151	0.0533	-0.1265	99.0000	1.0000															
0.3625	0.1691	-0.0751	99.0000	0.2658	1.0000														
0.2000	0.0390	0.1361	99.0000	0.5651	0.1314	1.0000													
-0.0737	-0.1294	-0.0205	99.0000	0.2840	0.1980	0.2345	1.0000												
0.2853	0.1802	0.1430	99.0000	0.7483	0.4476	0.4437	0.5739	1.0000											
0.2430	0.0780	-0.1120	99.0000	0.3965	0.4355	0.1960	0.3703	0.5068	1.0000										
-0.0396	-0.0695	0.1112	99.0000	-0.0812	-0.1092	-0.0990	-0.1244	-0.0245	-0.0524	1.0000									
0.3151	0.1348	-0.0844	99.0000	0.1942	0.3057	0.0705	0.1048	0.2982	0.4561	-0.1257	1.0000								
-0.0234	-0.0411	-0.0478	99.0000	-0.1088	0.1891	0.0390	0.1686	0.0428	0.2523	-0.0695	-0.0743	1.0000							
-0.0423	-0.0743	0.2784	99.0000	-0.0013	-0.1167	0.1646	0.0154	0.0774	-0.1742	0.0070	-0.1343	-0.0743	1.0000						
99.0000	99.0000	99.0000	99.0000	99.0000	99.0000	99.0000	99.0000	99.0000	99.0000	99.0000	99.0000	99.0000	99.0000	1.0000					
0.1391	0.1087	-0.1956	99.0000	0.3255	0.0134	-.1391	0.2967	0.3083	0.4344	0.1515	0.3587	-0.0308	-0.1385	99.0000	1.0000				
0.1932	0.0523	-0.0070	99.0000	0.1912	0.2230	-.1380	0.3433	0.3017	0.3327	0.0871	0.4283	0.1858	-0.2190	99.0000	0.4160	1.0000			
0.1932	-0.1211	-0.0070	99.0000	0.0377	0.0163	0.1380	0.2115	0.2804	0.2556	0.0871	0.1509	0.1858	0.1509	99.0000	0.3552	0.2536	1.0000		
0.0512	0.1293	-0.0579	99.0000	0.2646	0.2284	0.1890	0.2343	0.3193	0.4111	0.0067	0.3955	0.2654	-0.1111	99.0000	0.1317	0.4727	0.2869	1.0000	
0.2587	0.0495	-0.0508	99.0000	0.2543	0.2418	0.2156	0.4167	0.4519	0.0386	0.2049	0.5545	0.2648	0.0433	99.0000	0.7345	0.6703	0.6051	0.7436	1.0000

APPENDIX F

MULTIPLE REGRESSION

ANALYSES FOR PHASE II

Phase II Multiple Regression on Metropolitan Achievement Test Reading Raw Scores

Variable	Multiple R	R Square	RSQ Change	Simple R
Metro. Ach. Math RS	0.68448	0.46851	0.46851	0.68448
Otis Lennon DIQ	0.72774	0.52961	0.06110	0.59356
Sex	0.74360	0.55294	0.02330	0.21332
Readiness Room	0.75109	0.56414	0.01120	0.33124
Parent Occupation	0.75748	0.57377	0.00963	-0.26802
JCRT Sentence Meaning	0.76502	0.58525	0.01148	0.11322
Otis Lennon RS	0.77219	0.59628	0.01103	0.52213
Age	0.78037	0.60897	0.01270	-0.27727
JCRT Numbers	0.78188	0.61133	0.00236	0.33845
JCRT Matching	0.78271	0.61263	0.00130	0.30549
School	0.78301	0.61311	0.00048	-0.03611
Broken Home	0.78310	0.61324	0.00013	0.09736
Metro. Ach. Math SS	0.78314	0.61331	0.00007	0.68435
JCRT Copying	0.78317	0.61336	0.00005	0.36907

Phase II Multiple Regression on Metropolitan Achievement Test Reading Raw Scores

with Metropolitan Mathematics excluded

Variable	Multiple R	R Square	RSO Change	Simple R
Otis Lennon DIQ	0.59356	0.35231	0.35231	0.59356
Readiness Room	0.63471	0.40286	0.05055	0.33124
Sex	0.65670	0.43125	0.02839	0.21332
Parent Occupation	0.66300	0.43957	0.00832	-0.26802
JCRT Sentence Meaning	0.66898	0.44754	0.00797	0.11322
JCRT Copying	0.67428	0.45466	0.00712	0.36907
JCRT Numbers	0.67790	0.45954	0.00488	0.33845
Age	0.67946	0.46166	0.00212	-0.27727
Otis Lennon RS	0.68475	0.46888	0.00721	0.52213
Broken Home	0.68532	0.46966	0.00078	0.09736

Phase II Multiple Regression on Metropolitan Achievement Test Mathematics Raw Scores

Variable	Multiple R	R Square	RSQ Change	Simple R
Metro. Ach. Reading RS	0.68448	0.46851	0.46851	0.68448
Otis Lennon RS	0.72854	0.53078	0.06226	0.57020
JCRT Copying	0.74472	0.55461	0.02383	0.42042
Otis Lennon DIQ	0.75303	0.56705	0.01244	0.57061
Parent Occupation	0.75710	0.57320	0.00615	-0.15883
Age	0.76047	0.57832	0.00512	-0.16951
Broken Home	0.76284	0.58192	0.00360	0.09251
Metro. Ach. Reading SS	0.76577	0.58640	0.00448	0.68304
JCRT Sentence Meaning	0.76678	0.58795	0.00155	0.21014
JCRT Matching	0.76871	0.59092	0.00297	0.32292
School	0.76944	0.59203	0.00011	-0.04745
JCRT Total	0.77002	0.59293	0.00090	0.41594
JCRT Numbers	0.77346	0.59824	0.00531	0.39112
Readiness Room	0.77432	0.59957	0.00132	0.28058
Sex	0.77438	0.59966	0.00010	0.12778

Phase II Multiple Regression on Metropolitan Achievement Test Mathematics Raw Scores

with Metropolitan Reading excluded

Variable	Multiple R	R Square	RSQ Change	Simple R
Otis Lennon DIQ	0.57061	0.32559	0.32559	0.57061
JCRT Copying	0.60262	0.36315	0.03756	0.42042
Otis Lennon RS	0.63194	0.39935	0.03620	0.57020
Readiness Room	0.64409	0.41485	0.01550	0.28058
Sex	0.65031	0.42290	0.00805	0.12778
JCRT Matching	0.65419	0.42796	0.00506	0.32292
Broken Home	0.65745	0.43225	0.00429	0.09251
Parent Occupation	0.65960	0.43507	0.00282	-0.15883
School	0.66081	0.43667	0.00160	-0.04745
Age	0.66195	0.43818	0.00151	-0.16951
JCRT Total Score	0.66200	0.43824	0.00006	0.41594
JCRT Numbers	0.66206	0.43833	0.00009	0.39112
JCRT Sentence Meaning	0.66521	0.44251	0.00418	0.21014

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