

**THE INTERRELATIONSHIPS OF KINDERGARTEN
ATTENDANCE AND NON-KINDERGARTEN ATTENDANCE
WITH SCORES ON READING READINESS
TESTS AND AGE**

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To the Graduate Council:

I am submitting herewith a Thesis written by Eloise Bilderback Ladd entitled "The Interrelationships of Kindergarten Attendance and Non-Kindergarten Attendance with Scores on Reading Readiness Tests and Age." I recommend that it be accepted in partial fulfillment of the requirements for the degree of Master of Arts in Education, with a major in Curriculum and Instruction.



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THE INTERRELATIONSHIPS OF
KINDERGARTEN ATTENDANCE AND NON-KINDERGARTEN ATTENDANCE
WITH SCORES ON READING READINESS TESTS AND AGE

An Abstract
Presented to
the Graduate Council of
Austin Peay State University

In Partial Fulfillment
of the Requirements for the Degree
Master of Arts
in Education

by
Eloise Bilderback Ladd

May, 1970

THE INTERRELATIONSHIPS OF
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WITH SCORES ON READING READINESS TESTS AND AGE

Purpose of the Study

The purpose of this study was to investigate the relationship of the reading readiness scores made by children, older and younger, who had attended kindergarten for one year and the readiness test scores of children, older and younger, who had not attended kindergarten for one year.

The Procedure

The children attending first grade in the Dependent School System at Fort Campbell, Kentucky, comprised the sample studied. Each child's cumulative folder and his readiness tests scores were examined to secure the child's name, rank of the father, age in months of the child at the time tested and his Metropolitan Readiness Tests scores. Once this data was collected and ranked, the analysis of variance was used to test the significance of the difference between the mean of the readiness test scores of the four groups. The Marchant Cogito 240 SR electronic calculator was used to compute the data following the formula given in Statistical Analysis in Psychology and Education.

The Findings

Three null hypotheses were tested for significance. The findings for each hypothesis are given below.

The first null hypothesis was rejected because this study indicated that children who had attended kindergarten did score higher on the readiness tests than did children who had not attended kindergarten. This difference was significant at the .01 level.

The second null hypothesis was rejected because the findings from this study indicated that older children did perform significantly better on the readiness tests at the .05 level of significance than did the younger children.

The third null hypothesis was accepted because the findings from this study indicated that the interaction of kindergarten upon the age of the child did not contribute significantly to their reading readiness for first grade.

Recommendations

The findings of this study suggests that the following recommendations may be considered:

1. Kindergarten should be implemented into the public school program.
2. Curriculum guidelines with scope and sequence charts need to be established for kindergarten.

3. There is a need for more emphasis on the development of language skills and abilities during the kindergarten year.

4. Attention should be given to the needs of younger children in preparation for first grade.

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Finally, the author wishes to dedicate this study to her husband and children in expressing her gratitude for their patience and understanding throughout this study.

TABLE OF CONTENTS

CHAPTER	PAGE
I. NATURE OF THE PROBLEM.	1
Statement of the Problem.	2
Definition of Terms.	5
Kindergarten.	6
Readiness.	6
Metropolitan Readiness Tests.	8
Limitations of the Study.	8
Basic Assumptions.	9
The Importance of the Study.	10
Summary.	11
II. THE REVIEW OF LITERATURE.	13
Contributions of Learning Theories.	13
The Meaning of Language	18
Language Arts in the Kindergarten.	20
Teaching Reading in the Kindergarten.	24
Age and Readiness.	29
Readiness Tests.	33
New Directions in the Kindergarten.	38
Summary.	44

III. PRESENTATION AND INTERPRETATION OF DATA . .	46
Procedure for Securing Data	46
Collection of Data	47
Method Used in Processing Data	48
Conclusions	51
Summary	54
IV. SUMMARY AND RECOMMENDATIONS	56
Summary	56
The Purpose of the Study	56
The Review of the Literature	57
Presentation and Interpretation of Data	58
Recommendations	60
BIBLIOGRAPHY	62
APPENDIX	67

LIST OF TABLES

TABLE	PAGE
I. Means and Number (N) for the Four Cells Analyzed . . .	51
II. Statistical Analysis of Variance Among Factors: Older Children, Younger Children, Did Attend Kindergarten, and Did Not Attend Kindergarten	53

CHAPTER I

NATURE OF THE PROBLEM

In September, 1969, U. S. Commissioner of Education, James E. Allen released the following figures about the literacy of the American public.

1. More than 3,000,000 adults in this country are illiterate.
2. About one-half the population of big city schools cannot read at their proper grade level.
3. About one-half of all unemployed young people in the United States are illiterate or have severe reading problems.
4. About one-fourth of all United States students have trouble reading.
5. Every citizen of the United States should have the "right to read."¹

The United States Department of Education has initiated a new campaign to combat illiteracy offering to provide state boards of education with research reports, technical know how and professional reading experts.²

¹Lloyd, John, "U.S. Education's Moon: Target-the Right to Read," Junior Scholastic, LVII (October, 1969), p. 3.

²Allen, James E., "The Right to Read-Target for the 70's," An Address at the Convention of the National Association of State Boards of Education, Los Angeles, September 23, 1969, pp. 3-7.

The purpose of the public elementary school is to provide a foundation in the basic disciplines of learning; one of which is reading. It has been succinctly said that one attends school the first three years to learn to read and thereafter one attends school to read to learn.³

Assuming the figures from the United States Office of Education are accurate and that the purpose of education in the primary grades of elementary school is to provide a foundation in basic disciplines, reading in particular; the question presents itself how can the schools best prepare children to learn to read? For those youngsters who lack maturity, who have little or no readiness or background for cognitive learning, how does one help "bridge the gap" and develop mental, psycho-motor, sensory-motor and general abilities in preparation for learning reading skills?

STATEMENT OF THE PROBLEM

Kindergartens, both private and public, have existed in the United States since Mrs. Carl Schurz established the first kindergarten in Watertown, Wisconsin in 1856, and yet, attendance in public school kindergarten is not compulsory.⁴ Various recommendations have been

³Quoted from Mrs. Vernon Shasteen and many other experienced school teachers in the elementary school system.

⁴The World Book Encyclopedia, (Chicago: Field Enterprises Education Corporation, 1967), p. 250.

made by the United States Office of Education and various kindergarten programs have been funded by the states and the federal government. Numerous factors have contributed to the growth and development of kindergarten education. It has been said that this is "the decade of the child." The funding of Head Start sparked the concern of many educators as to the validity of such programing and whether it was consistent with the viewpoints of leading researchers. Research, especially that of Dr. Benjamin Bloom, has estimated that about 50 percent of mature intelligence is developed by age four.⁵

The concern of educators today is not whether we should have public school kindergartens, for educators and politicians are committed to the great need for kindergarten education; rather the question is what kind of kindergarten education should be given.⁶

Because there is evidence that children learn at an enormously fast rate during their early years many educators feel that intellectual development should be nurtured early. Inherent in this statement lies the argument between two opposing groups of educators.

One group feels that the kindergarten program should be unstructured; a time of informal play. This group would agree with a

⁵Bloom, Benjamin, Stability and Change in Human Characteristics, (New York: John Wiley and Sons, Inc., 1964), p. 88.

⁶Sherer, Lorraine, How Good is our Kindergarten?, Association for Childhood Education International, Bulletin No. LXV, pp. 5-9.

need for readiness but would see the child learning best when he is physically, mentally, emotionally and socially ready. Implicit in their position is the idea that nothing should be done to hurry this readiness.⁷

The other group sees the child needing guidelines to help him develop readiness. They view the kindergarten year as an opportunity to cut across the lines of structured learning and explore subject matter for understanding and concepts. This group has strong support from the psychologist, Jerome Bruner, who has said that any subject can be taught effectively in some intellectually honest form to any child at any stage of development.⁸

When the child begins formal reading instruction in first grade, four areas are considered: his physical age, his mental age, his readiness and his background which may or may not include a year in kindergarten.

Readiness and maturity are considered primary factors in the degree of success or failure in reading readiness. Readiness test scores are the means by which children are selected for participation in reading groups. Through the administration of readiness tests

⁷Hymes, James L., Jr., Before the Child Reads, (Evanston, Illinois: Row, Peterson and Company, 1958), pp. 6-10.

⁸Bruner, Jerome S., The Process of Education, (Cambridge: Harvard University Press, 1960), p. 12.

teachers can gain a tentative indication of the children's readiness for reading and group them accordingly.

One means of studying the effects of the language arts program in kindergarten would be to compare readiness test scores of children who have attended kindergarten and of children who have not attended kindergarten. Therefore, the author proposes the following null hypotheses:

Hypothesis 1: Attendance in a kindergarten program for one year does not contribute to the reading readiness of a child at the beginning of the first grade.

Hypothesis 2: The physical age of a child does not contribute to his reading readiness at the time he is tested for placement in first grade reading instruction.

Hypothesis 3: The interaction of kindergarten attendance upon the age of children (older children and younger children) does not contribute significantly to their reading readiness scores for first grade.

DEFINITION OF TERMS

The following definitions are given in order to clarify terminology as used elsewhere in this study.

Kindergarten

As used in this paper, the term "kindergarten" describes that unit of school which enrolls five year old children for one year prior to first grade. That year of training is designed to further developmental growth through experiences that are interesting and helpful.⁹

The kindergarten is the important beginning of a child's school experience.¹⁰ In this environment, professional guidance can be given that promotes health, stimulates many interests, and provides a year of learning.¹¹

A kindergarten is a child's little world . . . a school of general education where children learn their year's worth of all the forms of human knowledge, but they learn it in a way and through relationships and to the end that they are moved.¹²

Readiness

The authors of the Metropolitan Readiness Tests define readiness

⁹Leeper, Sarah, Good Schools for Young Children, (New York: Macmillan Company, 1968), p. 92.

¹⁰Heffernan, Helen, "Significance of Kindergarten Education," Association for Childhood Education International, 1965-66 Membership Service Bulletin 17-A, (1966), p. 49.

¹¹Rudolph, Marguerita, and Dorothy Cohen, Kindergarten: A Year of Learning, (New York: Appleton-Century-Crofts, 1964), p. 24.

¹²Hymes, James L. Jr., "The Goals of Kindergarten Education," Kindergarten Education, Department of Elementary-Kindergarten-Education, National Education Association, (1968), p. 13.

as "the attainment of a sufficient degree of maturity, proficiency or skill in a variety of abilities . . . that are subject to development through the provision of appropriate learning experience."¹³

"Readiness is now" means that the child has reached a state of development in which his brain power, his thinking power, his seeing power, his muscle and memory power are under his control to the extent that he is in the best position to learn.¹⁴

Readiness for anything is a state of being. Readiness to learn comes as a result of practice with one's environment, practice in interaction with people and in manipulation and examination of materials.¹⁵

Evaluation of readiness has been made on the basis of chronological age, intelligence or mental age, visual and projective tests. What is really needed to determine readiness for school entrance is a child's developmental level. At what age is the child behaving as

¹³Hildreth, Gertrude, Nellie Griffiths, Mary E. McGauvran, Manual of Directions, Metropolitan Readiness Tests, (New York: Harcourt, Brace and World, Inc., 1965), p. 11.

¹⁴Hymes, James L., Jr., Before the Child Reads, (Evanston, Illinois: Row, Peterson and Company, 1958), pp. 7-8.

¹⁵Carpenter, Ethelouise, "Readiness is Being," Early Childhood, 1965-66 Membership Service Bulletin 17-A, A. C. E. I., 1966, p. 57.

a total organism?¹⁶

This author agrees with all of the above definitions. In an effort to unify these writings, readiness is hereby defined as the ability of the whole child to take the experiences of the past and with his different "powers" (concepts, understandings, experiences) to transfer and/or utilize his knowledge as he encounters new and different learning experiences.

The Metropolitan Readiness Tests

The Metropolitan Readiness Tests are a group of six subtests prepared for administration at the end of the kindergarten year or at the beginning of the first grade. The tests seek to measure (a) word meaning, (b) listening, (c) matching, (d) alphabet, (e) numbers, and (f) copying.¹⁷

LIMITATIONS OF THE STUDY

Contact with the Fort Campbell kindergarten system was established by the author in 1964. Observation, research and evaluation began in the fall of 1968.

The scope of this study was limited to the relationship of a child's

¹⁶Ilg, Frances L. and Louise B. Ames, School Readiness, (New York: Macmillan Company, 1965), p. 17.

¹⁷Hildreth, op. cit., pp. 11-12.

age in months at the time he took the readiness test, his readiness test scores and his attendance or non-attendance in kindergarten. No other background information was utilized so that social and emotional readiness factors were not reflected in this study except as they are shown in readiness test scores.

The population studied was limited to children of dependent families at Fort Campbell, Kentucky, who were enrolled in the first grades of three of the elementary schools. The sample was limited to 259 children. Of that number, 46 did not attend kindergarten during the year prior to the first grade. The other 213 did attend kindergarten during the school year, 1968-69.

BASIC ASSUMPTIONS

The following are assumptions which underlie the study contained in this paper.

1. Readiness factors exist as sizeable segments in the total growth and development of a child and as such are measureable.
2. The Metropolitan Readiness Tests are a valid means of measuring a child's readiness for formal instruction in reading.
3. An effective year in a kindergarten program will provide greater readiness for the child's first grade experience than non-attendance in a kindergarten.

4. The physical age of a child has a direct relationship upon his readiness for formal reading instruction.

5. The children sampled at Fort Campbell comprise a normal sample of children from dependent families in the Armed Forces.

THE IMPORTANCE OF THE STUDY

Kindergarten is usually the beginning of a child's school experience. It adds one more year of school for each pupil who attends. The results of kindergarten experiences during the last decade have been noteworthy. Each year more kindergartens are established within the public school system. This is evidence of faith, de facto, in the learnings that come to a child during the kindergarten year.

The Elementary and Secondary Education Act of 1965 stated:

Any bill designed to upgrade and modernize American education which does not focus on preschool training is antiquated before it is even enacted. The most imaginative innovations of recent years in teaching techniques and equipment have been made at the pre-school level.¹⁸

Of great importance to a child in the early stages of learning to read is a strong background in language activities and skills. The language arts program of the kindergarten is as broad and lively as the creative teacher can make it. It may begin with the teacher's

¹⁸Fishback, Woodson W., "Early Childhood Education," Illinois Education, LVII (January 1969), p. 191.

enunciation and pronunciation of words and extend to the confidence which a child feels as he explores, inquires, tests and tries his ideas, formulates his concepts and begins his processes of thinking words and meaning.

A program must be flexible in order to meet current needs and to be effective. Neith Headley visualizes the kindergarten as a year of "foundation learning." The elementary school is like a house, but the kindergarten furnishes the essential foundation for its structure.¹⁹

Since reading is vital to a child's scholastic success in every area of learning, it is imperative that school programs provide the strongest foundation possible in the kindergarten. Experiences must be planned that will elicit a child's curiosity for books and create within him a yearning to want to learn to read.

SUMMARY

One of the greatest concerns of the primary elementary school program is the large number of children who are not ready for first grade and who do not adjust to the reading program presented in the primary grades. The kindergarten year presents many opportunities

¹⁹Headley, Neith, The Kindergarten: Its Place in the Program of Education, (New York: The Center for Applied Research, Inc., 1965), p. 72.

to create within the child developmental attitudes and skills necessary for healthy adjustment to formal instruction.

The Metropolitan Readiness Tests are widely used at the beginning of first grade to assist the teacher in assessing the degree of skill and readiness the pupil possesses. This test was administered in all of the Dependent Schools at Fort Campbell, Kentucky, where this study was made. This study was limited to the scores from this test, to the age in months of the child at the time the test was taken and to his attendance or non-attendance in kindergarten.

The review of the literature in Chapter II is concerned with the learning theories in the field of early childhood education which have been influential in shaping new trends in kindergarten programs. Chapter II examines the development of language and readiness. The presentation and interpretation of data and the conclusion are given in Chapter III. Chapter IV includes the recommendations and summary.

CHAPTER II

REVIEW OF THE LITERATURE

The growth of the kindergarten in the United States has been greatly influenced by many prominent people in the fields of psychology and education. Their studies and influence have produced an abundance of literature about (a) learning theories, (b) the meaning of language, (c) language arts in the kindergarten, (d) teaching reading in the kindergarten, (e) age and readiness, (f) readiness tests, and (g) new directions in the kindergarten. An examination of some of this literature is contained in Chapter II.

CONTRIBUTIONS OF LEARNING THEORIES

TO EARLY CHILDHOOD EDUCATION

Jean Piaget at the University of Geneva has contributed greatly to cognition of a child's understandings. In his works, he stands aside from traditional British-German-American schools. He deals with the child's conception of reality in evolutionary thought between the ages of three and eleven.¹

¹Chaplin, J. E., and T. S. Krawiec, Systems and Theories of Psychology, (New York: Holt, Rinehart and Winston, 1968), pp. 372-377.

beyond 7 - 8
mechanical causation
and logical deduction

3 through 8
egocentric,
characterized
by animism

up to 3
autism

Piaget's greatest contribution to the study of child understandings has been in the conception of causality. In this area he used the developmental form which involved several age periods.

7 - 11
operational
concepts

4 - 7
intuitive

2 - 4
pre-conceptual
thought

0 - 2
sensory-motor
stage

From birth to two, there was no concept development. It was a time of learning bodily reaction in environment. The pre-conceptual period (2-4) was where the child could not generalize meanings. He simply progressed from one experience to another. The intuitive period (4-7) found the child's reasoning on a limited basis. Much of his reasoning was erroneous because he was still dominated by perception. The operational stage (7-11) was the development of systems of

thought. From age twelve, it evolved to become adult thinking.²

Maria Montessori created a revolution in early childhood education. In 1907, her work began among the slum children of Rome and led to what is now called the Montessori method. Her method was based on the principle of freedom in a prepared environment. The child was free to pursue his own interests and solve his own problem or find his own answers. She said every useless aid given to the child arrested his development. Montessori believed the child's independent thinking aided his personality development and fostered a sense of competency. The child must learn to do his own work himself. The teacher was a non-interventionist who did not teach directly but directed the child's supply of mental energy into self-creative channels. Two aspects of the child's work were (1) an outer, motor activity, and (2) a profound invisible, creative process at the center . . . a tension directed toward the fulfillment of an outside aim. Montessori calls this the spontaneous activity of the child's intellect. Montessori was best known for her design for sensory training and the utilization of synthetic intellectual functionings.³

²Ibid.

³Standing, E. M., The Montessori Revolution in Education, (New York: Schocken Books, 1968), pp. 1-31.

Jerome S. Brunner wrote his book, The Process of Education in 1960. His thesis stated that any subject can be taught in some intellectually honest form to any child at any age. Brunner stated:

Surely all this argues for something akin to a spiral curriculum in which ideas are first presented in a form and language, honest though imprecise, which can be grasped by the child, ideas that can be revisited later with greater precision and power until, finally, the student has achieved the reward of mastery.⁴

He developed the idea further by saying that a first round of experience would be close to a child's life. Re-cycling would begin with particulars and move to abstractions. As a result of The Process of Education and his book, On Knowing, educators began to turn their attention to the early years of development.⁵

Dr. Benjamin Bloom has made some rather startling statements about the rapid rate of growth of the young child. He indicated that the early years are those of greatest growth. He wrote that an individual developed half of his intelligence by age four and half of his general school achievement by the end of grade three.⁶

⁴Bruner, Jerome S., The Process of Education, (Cambridge: Harvard University Press, 1960), pp. 12-13.

⁵Bruner, Jerome S., On Knowing, (Cambridge: Harvard University Press, 1962), p. 24.

⁶Bloom, Benjamin S., Stability and Change in Human Characteristics, (New York: John Wiley and Sons, 1964), pp. 88-89.

Dr. Bloom also states that the effect of environment upon intelligence may mean as much as twenty I. Q. points. This is most critical during pre-school years because the child goes fifty percent of the way in organizing his thinking patterns by the time he is four. Some thirty percent additional development has taken place by the time he is eight.⁷

Dr. Bloom's book, Stability and Change in Human Characteristics, became a landmark in the study of child development.

Frances Ilg and Louise Ames worked at the Gesell Institute of Child Development and out of their research contributed the book, School Readiness. In this volume they examined developmental thinking about (1) the child at a certain age or level of growth, (2) the child as a unique individual, and (3) the child living in a certain environment. This research focused on the developmental expressions of age. Their observations of behavioral patterning from one age to another was concerned with ages and stages, or stages and cycles of growth. From this observation of over-all growth patterns came the conclusion that like an electronic wave of measurement, life was stable and flowed easily at certain stages while at other stages of growth, it was highly unstable. This book is a source book by which the behavioral pattern of a child may be checked against the ages and stages mean of growth as shown by their measurements.⁸

⁷Ibid., pp. 88-89.

⁸Ilg, Frances and Louise Ames, School Readiness, (New York: Harper and Row, 1965), pp. 2-14.

THE MEANING OF LANGUAGE

Language is a base and below this language base is the bedrock of individual perception, emotion, volition and thought. Perceiving, feeling, willing and thinking are shaped through language and action. It is through language and action that mankind is educated. Through language the individual learns to relate, to climb from concrete to abstract concepts. From language through action he learns to reason, to understand and to realize.⁹

The young child learns his language from the language he hears- from imitation. This does not explain how an external stimulus gets converted into a neuromuscular sequence that produces the stimulus to talk. As the child listens to people talk, he learns language and through language he learns about the world he lives in.

Most generally, the child picks up - contained in the styles of thought of the people around him, in the substance and feeling tone of what people say, and in the way people react to what he says and does - a total cultural outlook that shapes his attitudes and capacities for perceiving, feeling, thinking and learning.¹⁰

⁹Loban, Walter, "What Language Reveals," Language and Meaning, ed. James B. Macdonald, Robert R. Leepers, (Washington, D. C.: Association for Supervision and Curriculum Development, 1966, p. 63.

¹⁰Church, Joseph, "Language in Childhood," 1965-66 Membership Service Bulletin 17-A, Association for Childhood Education International, (1966), pp. 43-48.

A good language environment includes an abundance of direct experiences that stimulates thinking and speaking. Experiences furnish the materials of thought from which children later draw to get meaning from spoken language and the printed page. As children learn to talk, they learn to think more precisely about things that are not present.

Oral language experiences will generally be of four types: (1) free spontaneous speaking (2) speaking directed to a point or a common topic under discussion (3) speaking someone else's idea, and (4) speaking for practice.¹¹

In a planned sequential program of learning language, one hears the spoken language first. This makes the pupil concentrate on the foundation of language - sound. The second step is speaking. The more one actively practices speaking and hearing the language, the better he becomes in speaking and understanding it. Learning to read the printed language follows. The purpose of language (oral and written) is to communicate ideas; to stimulate thinking and feeling. As the pupil hears, speaks and reads he becomes skillful in usage and knowledgeable of his culture. An understanding of language is a force of unity. As he puts the fourth step, writing, in practice, he utilizes the language he has learned in the action of written expression.¹²

¹¹Huey, J. Frances, Teaching Primary Children, (New York: Holt, Rinehart and Winston, Inc., 1965), p. 159.

¹²Stack, Edward M., The Language Laboratory and Modern Language Teaching, (New York: Oxford University Press, 1966), pp. 5-10.

Walcott points out that language develops as a counterpart to exploratory action, as a record of experiences and as comprehension of things discovered and the relationship of these things to other things.¹³

Without language we could not learn to read. The child brings to reading his background of knowledge and feelings and the process of thought which helps him interpret the meaning the author has tried to communicate. Understanding the meaning of written material is directly related to background experience and language development.

LANGUAGE ARTS IN THE KINDERGARTEN

Within the last decade, the opportunity for language development among kindergarten children has been planned more deliberately than ever before. Watching television in the home consumes approximately one-sixth of the waking hours of the average American child. Thus, children are entering kindergarten with more maturity in intellectual development than ever before. They appear to have about a one-year advantage in vocabulary.¹⁴

¹³Walcott, Fred G., "Language and Its Function in Life," Children and the Language Arts, ed. Virgil Herrick, Leland Jacobs, (New York: Prentice-Hall, 1955), p. 41.

¹⁴Dowley, Edith M., "Early Childhood Education," Encyclopedia of Educational Research, Fourth Edition, ed. Robert L. Ebel, (New York: Macmillan Company, 1969), p. 323.

Research has indicated that much of a child's total learning takes place during the early years of childhood. Dr. Benjamin Bloom states that as much development takes place in the first four years of life as in the next thirteen.¹⁵ The spoken vocabulary of an average six year old child will include some 24,000 words; however, there is a wide gulf between the least capable and the most capable six year old.¹⁶

Some children seem to possess native language ability while others may be handicapped in learning because of an indigenous language that is different from standard English or from a background that has left them void of such habits as auditory and visual perception. In many cases, physical handicaps exist. Dr. Loban suggests that for the child whose indigenous language is different from standard English, a teacher must accept whatever language he already has to help him think, explore, imagine and express himself. In the primary grades emphasis should be placed on listening experiences where standard English and dialectical differences are observable. All children need the opportunity to think, explore, imagine and express themselves orally. They need the opportunity to learn to listen and observe. While the child is young and flexible, the teacher needs to provide a model for the imitation of correct phoneme usage. The atmosphere

¹⁵Bloom, loc. cit.

¹⁶Leeper, op. cit., p. 9.

of the kindergarten readily lends itself to encourage creative and expressive thinking. The teacher who utilizes such cue expressions as "suppose that . . .," "what if . . .," or "why. . ." is stimulating a child to organize his thoughts, clarify his thinking and gain confidence in his self-expression.¹⁷

Children need experience in describing essential features of objects. New words are needed to verbalize and formulate constructive and imaginative play. Conceptual thinking must develop with this experience if means are to be retained and knowledge of understandings deepened. When a child begins to transfer thought into speech and uses language as a necessary means of oral self-expression, he is developing conceptual thinking. In the kindergarten atmosphere, impressions, feelings, facts and concepts are developed by the following means.

1. Conversation thrives on planned ideas, a variety of program content, as well as the normal conversation of creative play.
2. Perceiving and following instructions is greatly encouraged by the teacher's use of her voice. The kindergarten teacher realizes that learning to follow oral instructions will provide readiness skills to follow written instructions in workbooks and tests and in real-life developmental situations. Skills in listening and analyzing instructions

¹⁷Loban, op cit., pp. 68-73.

for clarity and logic to see whether they made good sense helps develop the habit of testing unknown words in reading skills later on.

3. Formulating questions or inquiries encourages a child to rephrase, re-think and re-evaluate. The teacher must help clarify what is the real question to which a child is seeking an answer.

4. Seeking information through personal observation, experience, newspapers, periodicals and photographs develops a knowledge of oral language which leads directly to reading for meaning. Information requires clear identification of word and vocabulary study.

5. Expressing feelings and ideas involves using new vocabulary and phraseology. Value comes from the process of translating fresh or vivid feelings into words and learning to express feelings precisely.

6. Sharing information stimulates the desire and ability to communicate orally. Any sharing session should be focused and guided.

7. Listening activities are wisely chosen and regulated in order that good listening habits may be developed. If children are required to listen to everything, non-listening habits of inattention may be cultivated. The teacher must be alert to group attention and pace the listening activities to ones that are brief, infrequent, and urgent.

8. Group discussion encourages practicing skills of listening, thinking and communicating. Flexibility of the teacher coupled with the children's social control and group involvement are important to successful group discussions.

9. Vocabulary development comes from the strong desire to be able to understand many means of mass media such as television, pictures and books. Music, art, stories, poetry, films, filmstrips, finger-plays, creative dramatics and dramatic play all contribute to an enlarged and usable vocabulary which is fun to learn. It provides new words with which to talk, new confidence with peers and with adults and encourages a new awareness of things to look for.¹⁸

TEACHING READING IN KINDERGARTEN

With the launching of the Russian Sputnik, Americans began a self-examination of the lethargy they felt existed in public school education.¹⁹ More emphasis needed to be put on the performance of excellence in education. Greater depth of subject matter should be examined, explored and mastered. Early childhood education should be more formalized; more structured. There was pressure for new emphasis on achievement.²⁰ It was felt that formal reading and writing instruction should be the core of the kindergarten program.

Almost every book or study and many of the periodicals had something to say about the great unresolved question: Should we teach

¹⁸Robison, Helen F., Bernard Spodek, New Directions in the Kindergarten, (New York: Teachers College Press, 1965), pp. 168-189.

¹⁹Leeper, loc. cit.

²⁰Bruner, Jerome, The Process of Education, (Cambridge: Harvard University Press, 1960, pp. 1-16.

reading in kindergarten? The question is still being pondered by the hierarchy of educators who determine curriculum examined by those who write kindergarten literature and evaluated by the American public in general.

Several experimental programs in reading instruction in kindergarten are pertinent to the study.

In 1964, Anastasiow used half the kindergartens in Palo Alto, California, as an experimental group and the other half as a control group to compare the progress of children who had been given reading instruction in kindergarten with those who had not received reading instruction in kindergarten. At the end of the second grade, the group given reading instruction in kindergarten failed to show superiority over the control group. The experiment showed the reverse effect. Children that followed the child-development-oriented curriculum appeared to make higher scores in reading achievement two years later.²¹

In January, 1963, the schools in Glenview, Illinois, began a five year study of the effectiveness of a formalized program of teaching pre-reading skills in kindergarten. Six hundred and fifty pupils and eleven teachers were included. Six schools grouped by geographic area; one school grouped by chronological age. Ten sections of kindergarten

²¹Dowley, op. cit., pp. 325-326.

used workbooks (Getting Ready to Read); twelve other sections used all the materials except the workbooks. The results showed a significant difference in pre-reading skills for the group using the workbooks a year later. Further conclusions from this formal program of teaching pre-reading skills in kindergarten were: (1) kindergarten pupils developed pre-reading skills using context and letter-sound association to unlock printed words, (2) these skills were developed more adequately with a workbook, (3) skills were retained over summer vacation, and (4) children with formal kindergarten training were better readers at the end of first grade than children who had not had such training.²²

The most significant experiment in teaching reading in kindergarten was conducted in Denver, Colorado, where 4,000 children were involved to ascertain whether beginning reading could be effectively taught in kindergarten. These children were followed through the fifth grade. Random assignment of the children was made. In the experimental group, 20 minutes a day was given to special reading instruction. This instruction included seven types of learning activities.

1. Spoken context required the child to supply the blank word from contextual meaning.

²²Hillerich, Robert L., "Pre-Reading Skills in Kindergarten: A Second Report," Elementary School Journal, LVI (March 1965), pp. 312-317.

2. Initial consonant sounds required the child to name words that began with the same sound as words spoken by the teacher.
3. Forms of letters elicited the child's response to recognized upper and lower case letters by matching and naming them in games.
4. Context and initial consonant sounds encouraged the child to use sentence context to supply the missing word that began with a specific initial consonant.
5. Sound and forms of letters required grouping pictures of objects according to letter names.
6. Context and initial letters required using context and viewed letter to supply the missing word in sentence or paragraph.
7. Context and displayed word involved the teacher reading sentence or paragraph at the same time displaying the omitted word on a card.

Findings from the Denver experiment included the following results.

1. Beginning reading could be taught effectively to large numbers of kindergarten children.
2. A significant finding was that gains made in the experimental group could be maintained only by adjusted teaching procedure in subsequent grades.
3. The experimental group showed the greatest initial and long range gains in comprehension and reading vocabulary.

4. At the end of third grade, the experimental group read with greater speed than any of the other groups.

5. No evidence was found that kindergarten instruction in beginning reading affected visual acuity, created problems of school adjustment or caused dislike for reading.²³

From these findings, large city public schools should consider that most average youngsters can benefit from beginning reading instruction in kindergarten. This speaks directly to the question of Chapter I involving the findings of the U. S. Office of Education. Research has been reported that children are better readers when they come from backgrounds where intellectual stimulation and exposure to ideas are available. This type of gradual exposure to different thought patterns in kindergarten should present greater maturity and readiness for first grade.²⁴

Dr. Kenneth Wann, in commenting on the Denver Experiment, believed this kind of program merits careful consideration. He pointed out that the Denver Experiment was a carefully designed program using an approach that was appropriate for five year olds

²³Brezenski, Joseph E., Harrison and Paul McKee, "Should Johnny Read in Kindergarten?" National Education Journal, LVI (March 1967), pp. 23-25.

²⁴Hildreth, Gertrude, Readiness for School Beginners, New York: World Book Company, 1950), p. 26.

and left out the workbooks, pre-primers and tools of the primary grades. He pointed out four strengths in this program. Teachers were told to: (1) go at a rational pace; limit instruction to twenty minutes a day (2) be prepared to stop temporarily; to retrench if necessary, (3) excuse any child from the experiment who was unable to handle the material, and (4) avoid pushing the child to get through the program by a given date.

Dr. Wann approved of the Denver program as being properly adjusted and considered as only one part of a sound kindergarten program. He recommended programs that help the child conceptualize and clarify meanings in the world of people and things.²⁵

AGE AND READINESS

Chronological age is the chief criterion for school entrance. Children must be six years of age by December 31 to be eligible for first grade at Fort Campbell, Kentucky. It is the capacity to think, to reason, to observe and be curious and to follow instructions that contributes to understandings and learning during the first grade. Differences in maturity are significant in these early years for a child may advance in maturation as he develops in perception and

²⁵Wann, Kenneth D., "A Comment on the Denver Experiment," National Education Association Journal, LVI (March 1967), pp. 25-26.

attention and in ability to use language. He needs to learn to follow directions. In these months of active growing, perceptual maturity must be sharpened to discriminate between sounds in language and graphic symbols. There is a high correlation between a child's mental maturity and his maturation in language.²⁶

A lack of linguistic readiness is the chief cause of failure in all phases of school learning. Language is symbolic. To be able to use language well implies one can think in terms of symbols in problem solving. If a child has developed self-control and self-reliance, he is in a position to participate in group work, to listen to the teacher and be a good participant in group discussions. He will be self-confident and happy at school adjusting to class routines. The mature beginner has a background of experience with information, concepts, travel and books. Readiness is the teacher's first consideration in working with beginners.²⁷

Anderson and Hughes compared the average growth ages of boys and girls having the same I. Q. in the first grade who learned to read early and late. They concluded that boys and girls who begin reading late tend to be physically less mature than boys and girls who begin

²⁶Hildreth, Gertrude, Readiness for School Beginners, (New York: World Book Company, 1950), pp. 12-17.

²⁷Ibid.

reading early.²⁸

Eames made a study of eighty pupils in the first six grades correlating birth weight with other factors. He found that a positive correlation was nearly five times as great among the reading failures with birth weights being less than five pounds as among the reading failures with birth weights over five pounds.²⁹

In her conclusion, Bigelow first stated that a child chronologically below six years and four months of age had practically no chance of success. Later, she concluded that a child chronologically below six years of age with a mental age between six years and six years and seven months, inclusive, had some chance of success if he was physically, emotionally and socially mature.³⁰

Other studies report that chronological age had not been found to be a realistic index to readiness. The studies of Morphett and Washburnes hold that a mental age of six and a half is the optimum for beginning reading instruction. In their study, children between 6.5 and 7.0 years profited most from beginning reading instruction.

²⁸Anderson, Irving H. and Byron Hughes, "The Relation Between Learning to Read and Growth as a Whole," School of Education Bulletin, The University of Michigan, XXVI, (February 1955), pp. 65-68.

²⁹Durkin, Dolores, "Children Who Read Before Grade One," The Reading Teacher, XIV (January 1961), pp. 163-166.

³⁰Bigelow, Elizabeth, "School Progress of Under-Age Children," Elementary School Journal, XXXV (November 1934), pp. 186-192.

Two other factors mentioned in the degree of mental maturity required were the way in which beginning reading was taught and the child's interest in learning to read.³¹ Shumsky call this factor a positive attitude toward reading.³²

A number of language activities and skills are important in developing reading readiness. Morrison listed the following:

1. The child's ability to tell a story in sequence and detail.
2. The clarity of the child's enunciation and pronunciation.
3. The child's vocabulary; how he uses words for fun.
4. His ability to solve problems.
5. His type of sentence structure; talking in complete sentences.
6. His span of attention.
7. His ability to follow directions.³³

A basic factor undergirding reading readiness is the need for concepts that are clarified in the mind of the child. Wann speaks of "extensions of concepts." Concepts might be called abstractions or awarenesses abstracted from experience. Awareness grows from experience with things and events. Experience itself seems to count as the greatest single factor in conceptual learning, far outweighing mental age or vocabulary strength. To build operational concepts

³¹Leeper, op. cit.,

³²Shumsky, Abraham, Creative Teaching in the Elementary School, (New York: Appleton-Century-Crofts, 1965), p. 88.

³³Morrison, Ida E., Kindergarten-Primary Education, (New York: The Ronald Press Company, 1961), p. 78.

which he can use in many ways and situations, the child needs the experience of abstracting his experiences and forming concepts. Concepts are what the child has internalized, revised and qualified for himself; concepts are the child's organization of facts. In order to be effective in helping the child clarify concepts, the teacher must think with the children. She must be able to see a problem through the child's eyes. The child's efforts to reason; his search for cause and effect relationships needs to be guided.³⁴

Mental age is recognized as the major factor which contributes to reading readiness.³⁵ Closely allied to his mental age is the experiential background which the child brings to the printed language. Clarification of concepts reflect interpretation of his background. That evaluation is made through observation to his reactions and careful listening to his talk.

READINESS TEST

Hildreth stated: Learning to read is actually a test of mental ability because it involves intelligent understanding. . . use of language, the capacity to associate meanings with word symbols. . .

³⁴Darrow, Helen Fisher, Research: Children's Concepts, Association for Childhood Education International, Washington, D. C. (no date given).

³⁵Hildreth, loc. cit.

to interpret meaning. . . think logically and remember word forms.³⁶

It is important to know how readiness tests were devised and how their validity became so widely accepted since intelligence and reading readiness are clearly related. A Belgian astronomer, Quetelet (1796-1874), used statistical methods and the theory of the probability curve to interpret biological and social data. Sir Francis Galton (1822-1911), developed the first intelligence test as a part of his studies of hereditary genius. He established a laboratory to test individual differences. In this process he devised a battery of tests to measure sensory-motor performance, immediate memory and other primary skills. He believed none of these factors were sufficiently related to accurately reflect intelligence. Mental tests seemed to attract psychologists whose main interest was in measuring individual differences. The psychological tradition remained allied to the general experimental area.

The work of James McKeen Cattell (1860-1944), epitomized American psychological testing. His work was centered around investigating individual differences and individual reaction time. He is credited with directing the American school of psychology toward practical, test-oriented methods of studying the mental processes.

In 1905 Alfred Binet and T. Simon set the mental testing movement into motion. They assessed the intellectual level of French

³⁶Hildreth, op. cit., p. 254.

school children in order to predict school performance. Three main concepts of the intellectual nature were considered: (1) a goal or direction to the mental processes, (2) the ability to show adaptable solutions, and (3) the capacity to show selectivity of judgment and self-criticism of choices. Their tests were constructed with items of common information, word definitions, reasoning items, and ingenuity tests. Binet and Simon assumed that intelligence grows or develops along with the child's chronological age. According to Binet's scale, a seven year old child who passes all items on the seven year level test is mentally seven years old whether he is seven, six or eight, chronologically. The concept of mental age as a grading scale was Binet and Simon's greatest contribution to testing. The formula $\frac{MA}{CA} \times 100 = I.Q.$ was developed by a German psychologist, Stern. Binet's tests and grading scale were followed by divided opinion. Some believed intelligence should be defined on the basis of expert opinion. By this definition a test should be constructed that would measure the processes identified. Others wanted to analyze existing tests to determine the factors being measured. This group would use a priori assumption that existing tests are generally valid.³⁷

³⁷Chaplin, J. P. and T. S. Krawiec, Systems and Theories of Psychology, (New York: Holt, Rinehart and Winston, 1968), pp. 515-520.

Intelligence tests, like reading readiness tests, consist of several subtests designed to indicate independent cognitive functions. The Wechsler Intelligence Scale for Children includes two scales. The Verbal Scale measures language fluency and the Performance Scale measures sensory-motor and perceptual ability.

Meyers and others constructed a test for children of ages two through six years designed to measure four types of cognitive reasoning abilities: (1) psycho-motor, (2) perceptual speed, (3) linguistic ability, and (4) figural reasoning. This test was designed to evaluate the unequal growth rate and development of cognitive ability.

The MacMillan Reading Readiness Test included the following:

1. The Rating Scale - a subjective evaluation of pupil readiness by the kindergarten teacher.
2. Visual Perception - matching single letters or words.
3. Auditory Perception - measures ability to hear similarities and differences in initial consonant sounds and rhyming endings. It includes a matching test based on pronunciation of key words by the teacher.
4. Vocabulary and Concepts - a picture vocabulary test.

Another readiness test that is often used is the Stanford Tests. Knowledge of the letters of the alphabet at the beginning of the first grade predicted reading achievement at the end of first grade as well

or better than vocabulary at the beginning of first grade even though the test stressed ability in comprehension.³⁸

Authors of the Metropolitan Readiness Tests list the following as the most important components for readiness for first grade:

1. Comprehension and use of oral language.
2. Visual perception and discrimination.
3. Auditory discrimination.
4. Richness of verbal concepts.
5. General mental ability; capacity to infer and to reason.
6. Sensory-motor abilities of the kind required in handwriting, writing of numerals and drawing.
7. Knowledge of numerical and quantitative relationships.
8. Adequate attentiveness; the ability to sit quietly, to listen and to follow directions.

From a study of these component skills for learning, the following six subtests are included in the Metropolitan Tests. What each seeks to measure and why it is given is included in the analysis.

1. Word Meaning is a measure of the child's store of verbal concepts. . . one of the best indices of general mental maturity.

³⁸Calfee, Robert C. and Richard L. Venezky, "Component Skills in Beginning Reading," Psycholinguistics and the Teaching of Reading, ed. Kenneth Goodman, James Fleming, International Reading Association, April 1968, pp. 97-102.

2. Listening strives to tap the child's ability to comprehend phrases and sentences. This requires the child to keep one or more ideas in mind for a short period of time.

3. Matching seeks to get at visual-perceptual skills akin to those involved in discriminating word forms in beginning reading. This test holds high correlation with beginning reading skills.

4. Alphabet requires the child to recognize letters of the alphabet when spoken by the examiner. This is one of the better predictors of success in early reading.

5. Numbers is an inventory of the child's number concepts. . . recognition of ability to produce number symbols. This test has repeatedly been shown to be the single most powerful predictive subtest for reading as well as mathematics.

6. Copying tests the child's visual perception and motor control in copying letter-like forms. These skills are similar to learning handwriting.³⁹

NEW DIRECTIONS IN THE KINDERGARTEN

The Bureau of Census projected a figure for 1970 indicating that there are 21,600,000 to 25,135,000 children five years of age and under in the United States. More than sixty percent of the women

³⁹Hildreth, Gertrude, Nellie Griffiths, Mary McGauvran, *Manual of Directions, Metropolitan Readiness Tests*, (New York: Harcourt, Brace and World, Inc., 1965), pp. 8-12.

employed are married, widowed or divorced. It is apparent that millions of little boys and girls (pre-schoolers) have mothers working outside the home. It is also apparent that their pre-school education will be dependent upon maids, baby-sitters, relatives and television or radios. For some, day-care and baby-sitting-centers may offer an arrangement for placement.⁴⁰

There are changes in children's early experiences and maturation today that should be mirrored by changes in the educational experiences they are offered.⁴¹

Robison reported that children's physical maturation was due to better pre-natal care and food. Increasing mobility and travel may mean kindergarten is no longer the child's first experience away from home. Television has had an impact on vocabulary and familiarity with current events, local and world-wide. It is indisputable that the child at five is largely determined by his cultural environment.⁴²

There are many new pressures and forces that come to bear upon the child in today's world. The pressure of our times and the strains our children live with are created in part by an adult world impatient with childhood and its genuine needs. There is the pressure for

⁴⁰Leeper, op. cit., p. 8.

⁴¹Robison, Helen F. and Bernard Spodek, New Directions in the Kindergarten, (New York: Teachers College Press, 1965), p. 2.

⁴²Ibid.

readiness so that later there is the pressure for grades from home and school. In the "explosion of knowledge," Johnny is pressured for performance in excellence. At a very early age, children are pressured to be socially acceptable. There are many kinds of pressures; parents, schools, society and children pressure themselves. Educators cannot protect children from pressures entirely. They should not for there is a place for pressure since no adult is immune to pressure. However, the educators must strive to assist children in solving small problems and maintaining a balance between pressures so that they may become stable, productive adults.⁴³

Robison and Spodek point out that too few children are being prepared to cope with an increasingly technical and complex society. New understandings of the impact of early experiences upon the emotional and intellectual life of a child has directed attention to the need to keep the kindergarten a place where children are happy, but points toward experiences in dealing with significant ideas about our physical and social world. Kindergarten needs to provide learning, not pre-learning, as a real foundation for later learnings. The real problem in kindergarten, today, is the content. Teachers have chosen content

⁴³Groves, Dorothy, "The Many-Pressured Pupil," Parent-Teacher Association Magazine, (February, 1969), pp. 27-29.

as they sensed interest. Intellectual growth was assumed to take place while the teacher's major concern was social and emotional growth. There is profound interest in restoring balance to the kindergarten curriculum. Educators are concerned with the way in which children deal with information and concepts. New program development should include intellectual content. The child needs to "encounter" in order to practice and develop maturing abilities. The child needs to advance from simple to complex thinking.⁴⁴

Wann's recent study in selecting educational content for young children stated:

The readiness and need for young children to organize and see relationships among their observations of the world around them points to concept development as a key element.⁴⁵

This in turn involves a change in our concept of the teacher role. He suggested three activities: (1) observing and listening to assess and analyze behavior, (2) supporting and extending by organizing information into a conceptual framework that provides information at a time when it is wanted or needed, and (3) selecting and planning. To rely on experiences that emerge from interest or accidental contact

⁴⁴Robison, op. cit., pp. 1-8.

⁴⁵Wann, Kenneth D., Miriam Dorn and Elizabeth Liddle, Fostering Intellectual Development in Young Children, (New York: Teachers College Press, 1962), pp. 118-130.

is to risk omission of many learnings which children are ready to acquire.

Good content should be identified and provoke fruitful thinking about our world. Robison and Spodek explored the "structure of disciplines" approach. This plan identified the key concepts in each major body of knowledge. The basic relationships within conceptual framework sought to make authoritative material more clear. Big ideas were selected from each body of knowledge but interpretation was left to the teacher. It was found that concept progress was directly determined by the educational opportunities offered in the program. They revisited ideas in different context over a period of time to take into account the acceptance of the growth ideal in young children. In summary, they felt teachers could find more purpose and direction in goals clearly stated as key concepts.⁴⁶

Many studies have been conducted to furnish evidence of the value of kindergarten programs. Significant among the many was the study made by Irene Fast. She studied chronological age, intelligence, and the home background of 134 children who had attended kindergarten and 46 children who had not attended kindergarten. The focus was on reading progress in the first grade. Reading scores for children with

⁴⁶Robison, op. cit., pp. 9-17.

kindergarten training were predicted to be higher and further that this advantage would be held during the year. Findings were that those children who had kindergarten experience excelled in reading readiness tests at the beginning of first grade, word recognition at the middle of the first year and paragraph reading at the end of the year.⁴⁷

Pratt examined 226 children in Erie County, Pennsylvania. Of this number 72 had attended kindergarten, 128 had had no previous school experience and 26 were repeating first grade. His findings were:

1. Pupils having previous kindergarten experience were found to have significant superiority over the non-kindergarten group on the reading readiness tests.
2. Kindergarten children were superior to non-kindergarten children in reading achievement at the end of first grade as measured by Gates Primary Reading Tests.
3. There is desirability of separate treatment of kindergarten and non-kindergarten children in readiness testing. Entirely different measures may be desirable.⁴⁸

⁴⁷Fast, Irene, "Kindergarten Training and Grade I Reading," Journal of Educational Psychology, XLVIII, (January 1957), pp. 53-57.

⁴⁸Pratt, Willis E., "A Study of the Differences in the Prediction of Reading Success of Kindergarten and Non-Kindergarten Children," Journal of Educational Research, XLII, (March 1949), pp. 424-426.

Hildreth stressed the importance of kindergarten attendance in her book stating that children who have kindergarten training ordinarily show better adjustment to class routines, greater language facility and earlier control of motor co-ordination than children who have not attended kindergarten. She states that the kindergarten-first grade period is treated in common to avoid any sharp break as the child progresses from one year to the next and that the readiness learned in kindergarten is carried on throughout the primary period.⁴⁹

SUMMARY

Many people have contributed greatly to the resurgence of interest in the growth and development of the young child. From his studies in Switzerland, Jean Piaget wrote The Origin of Intelligence in Children, Jerome S. Brunner wrote The Process of Education, Benjamin S. Bloom wrote Stability and Change in Human Characteristics, Ilg and Ames published School Readiness from their studies at Gesell Institute and Maria Montessori developed the Montessori method from her work with children and her creation of a prepared environment. These have become the landmarks by which curriculum writers and educators have sought direction for the kindergarten and primary education.

Whether to teach reading in the kindergarten is an unresolved

⁴⁹ Hildreth, op. cit., pp. 36-37.

issue in most current literature. Several experiments in teaching reading in kindergarten have been conducted. The Denver Experiment appears to be the most conclusive. It was particularly commended for its adaptation to the learning ability of the five year old.

The real concern of educators, today, is the content of kindergarten programs. The question resolves itself around restoring balance in the kindergarten to include more intellectual growth. It is felt that key concepts in each major discipline should be explored in the first ring of a spiral curriculum program.

Language development in the kindergarten program includes conversation, perceiving and following instructions, formulating questions or inquiries, seeking information, expressing feelings and ideas, sharing information, group discussion, listening and vocabulary development.

Chronological age determines when a child enters school. Mental age is the main factor determining adjustment to formal reading instruction in first grade. Children are grouped for beginning reading by use of a readiness test administered early in the first grade. There are several good readiness tests. Among the most widely used are the Metropolitan Readiness Tests.

CHAPTER III

PRESENTATION AND INTERPRETATION OF DATA

The Fort Campbell Dependent Schools were selected in which to conduct this study because they have an integrated kindergarten program within the Dependent School System where samples of children would be more easily obtained. The Dependent Schools at Fort Campbell, Kentucky, were accessible to the author.

Presented in this chapter is a discussion of the procedures used for collecting data, the method used in processing the data and the conclusions.

PROCEDURE FOR SECURING DATA

Permission was secured through correspondence from Dr. C. O. McKee, Director of the Fort Campbell Dependent School System, to collect data from the first grades of three elementary schools: Marshall, Lincoln and Jackson Schools. Dr. McKee's assurance that school staff cooperation would be given was fulfilled in each school with grace and cordiality.

As each principal was contacted, permission was secured to examine each child's cumulative folder and his Metropolitan Readiness Tests scores which had been administered by testing during September, 1969. Permission was given to visit each first grade teacher so that cumulative records and tests scores could be examined in her room or in some area close by. In some cases, card files in the principal's offices were used to complete the data forms.

COLLECTION OF DATA

The data collected came from the population of first grade children of families in the Armed Forces stationed at Fort Campbell, Kentucky.

The information was tabulated for each child by name, rank of the father, age in months of the child at the time tested and his Metropolitan Readiness Tests scores. Two full days were needed to collect this data.

The children were divided into four groups for statistical analysis:

1. Older children (75 months and older) who attended kindergarten.
2. Older children (75 months and older) who did not attend kindergarten.
3. Younger children (74 months and younger) who attended kindergarten.
4. Younger children (74 months and younger) who did not attend kindergarten.

The youngest child reported who attended kindergarten was sixty-eight months old. The oldest child reported who attended kindergarten was eighty-four months old.

The youngest child reported who did not attend kindergarten was sixty-eight months old. The oldest child reported who did not attend kindergarten was eighty-eight months old.

METHOD USED IN PROCESSING DATA

Once this data was collected and ranked according to age in months, the author was guided in making the analysis by Dr. Garland Blair, Chairman of the Austin Peay State University Psychology Department.

The analysis of variance was used in order to test the significance of the differences between the means. In order to obtain the F-Ratio, the error of variance or within cells mean square, were divided into the mean square or variance of each of the other sources.

A standard formula for the analysis of variance with the F-Ratio measurement was followed. The correction formula given in Statistical Analysis in Psychology and Education for computing analysis in variance where numbers (N's) are unequal but proportional was used.¹ The Marchant Cogito 240 SR electronic calculator was used to compute that data.

¹ Ferguson, George A., Statistical Analysis in Psychology and Education, (New York: McGraw-Hill, 1969), pp. 321-322.

The results of the statistical analysis of variance which tested the significance of the difference between the mean of the readiness scores of the four cells was interpreted in the following explanation.

For those children who did not attend kindergarten and who were seventy-five months or older, the mean of their readiness scores was 43.565. For those children who did not attend kindergarten and who were seventy-four months or younger, the mean of their readiness scores was 37.000. The difference between these two means of the groups was 6.565. The total mean of the readiness scores for those who did not attend kindergarten was 40.283. (See Table I.)

For those children who did attend kindergarten and who were seventy-five months or older, the mean of their readiness scores was 51.712. For those children who did attend kindergarten and who were seventy-four months or younger, the mean of their readiness scores was 46.637. The difference between these two means of the groups was 5.075. The total mean readiness scores for those who did attend kindergarten was 49.282. (See Table I.)

The difference between the total mean (49.282) of the readiness scores of those who attended kindergarten and the total mean (40.283) of the readiness scores of those who did not attend kindergarten is 8.999. (See Table I.)

For those children who did not attend kindergarten and who were seventy-five months or older, the mean of the readiness scores was

43.565. For those children who did attend kindergarten and who were seventy-five months or older, the mean of the readiness scores was 51.712. The difference between these two means of the groups was 8.147. The total mean of the readiness scores for the older children was 50.313. (See Table I.)

For those children who did not attend kindergarten and who were seventy-four months or younger, the mean of their readiness scores was 37.000. For those children who did attend kindergarten and who were seventy-four months or younger, the mean of their readiness scores was 46.637. The difference between the two means of these groups was 9.637. The total mean for the readiness scores of the younger children was 44.864. (See Table I.)

The total mean of the readiness scores of the older children was 50.313. The total mean of the readiness scores of the younger children was 44.864. The difference in the total mean of the readiness scores shows that the older children had a total mean of readiness scores of 5.449 above the younger children. (See Table I.)

The total number (N) in the sample was 259. The total mean of all the readiness scores was 47.683.

TABLE I
MEANS AND NUMBER (N) FOR THE FOUR CELLS
ANALYZED

Age	Did Not Attend Kindergarten	Attended Kindergarten	Total
74 months or older	N 23 Mean 43.565	N 111 Mean 51.712	N 134 Mean 50.313
74 months or younger	N 23 Mean 37.000	N 102 Mean 46.637	N 125 Mean 44.864
Total	N 46 Mean 40.283	N 213 Mean 49.282	N 259 Mean 47.683

CONCLUSIONS

From a study of the statistical analysis of variance among the different factors: older children and younger children, children who did attend kindergarten and children who did not attend kindergarten, the following conclusions were made.

The F-Ratio (10.681) in the Kindergarten source was significant at the .01 level. (See Table II.) There was a significant difference at the .01 level in the mean of the readiness test scores of children

who attended kindergarten from those who did not attend kindergarten. Therefore, the author rejects the first null hypothesis and found that children who had attended kindergarten did score higher on the readiness tests than did children who had not attended kindergarten.

The F-Ratio (6.624) in the Age source was significant at the .05 level. (See Table II.) There was a significant difference in the mean of the readiness scores of older children who had attended kindergarten above the younger children who had attended kindergarten at the .05 level. Therefore the author rejects the second null hypothesis. The data indicated that older children did perform significantly better on the readiness tests than did the younger children.

The F-Ratio (.077) in the Age and Kindergarten source was not significant. (See Table II.) In the interaction of age and kindergarten with scores on readiness test, the analysis failed to show any significant difference. The data indicated that kindergarten was equally helpful to older and younger children. Therefore, the third null hypothesis must be accepted as stated. The interaction of kindergarten upon the age of children did not contribute significantly to their reading readiness for first grade.

TABLE II

STATISTICAL ANALYSIS OF VARIANCE AMONG FACTORS:
 OLDER CHILDREN, YOUNGER CHILDREN,
 DID ATTEND KINDERGARTEN, AND DID NOT ATTEND KINDERGARTEN

Source	Sum of Squares	Degrees of Freedom	Mean Square	F-Ratio
Kindergarten	2, 979.282	1	2, 979.282	10.681**
Age	1, 847.797	1	1, 847.797	6.624*
Within cells (error)	71,130.762	255	278.944	
Age and Kindergarten (Interaction)	21.407	1	21.407	.077

**Significant at the .01 level of confidence

*Significant at the .05 level of confidence

Critical Values of F of Dr. Ferguson's book were examined for significance of the F-Ratio scores.²

²Ferguson, op. cit., pp. 408-411.

SUMMARY

Written permission was received from the Director of the Fort Campbell Dependent School System to collect data from the cumulative files of first grade pupils from three elementary schools. The data were collected and grouped into four groups:

1. Older children who attended kindergarten.
2. Older children who did not attend kindergarten.
3. Younger children who attended kindergarten.
4. Younger children who did not attend kindergarten.

The instrument used in this study was the Metropolitan Readiness Tests. This group of six subtests is widely used throughout the United States to evaluate readiness for first grade reading instruction.

The analysis of variance with an F-Ratio was used in order to test the differences between the means. The analysis was computed on a Marchant Cogito 240 SR electronic calculator.

The following conclusions were derived from this study:

1. Attendance in a kindergarten program for one year in the Fort Campbell School System contributed significantly to the reading readiness scores of the children tested at the .01 level.

2. The physical age of the child contributed to reading readiness scores at the .05 level which was significant.

3. The interaction of kindergarten with the age of children did not contribute significantly to the test scores on reading readiness for first grade.

CHAPTER IV

SUMMARY AND RECOMMENDATIONS

Chapter I examined the nature of the problem, gave the basic assumptions and stated the null hypotheses. Chapter II presented a review of the literature. Chapter III presented the method used in processing the data and the conclusions obtained from the analysis of the data. Chapter IV contains the conclusions of the study and the recommendations made.

SUMMARY

The purpose of this study was to investigate the relationship of the reading readiness scores made by children, older and younger, who did attend kindergarten for one year and the reading readiness test scores of children, older and younger, who did not attend kindergarten for one year.

The Purpose of the Study

The content of the kindergarten program is the concern of today's educators. One group sees the kindergarten at its best in an unstructured program where readiness develops naturally. The other group sees the kindergarten year as an opportunity to cut across structured

learning and explore subject matter for concepts and understandings. Physical age and mental development, language skills and experiential background influence reading readiness. The kindergarten provides opportunity to widen experiences and deepen intellectual growth.

This study was limited to the test scores of one instrument, the Metropolitan Readiness Tests, which was administered to children from families in the Armed Forces stationed at Fort Campbell, Kentucky.

Three null hypotheses were proposed: (1) attendance in a kindergarten program for one year did not contribute to the reading readiness of a child, (2) the physical age of a child did not contribute to reading readiness at the time placement in first grade reading instruction was made, and (3) the interaction of kindergarten attendance upon the age of children did not contribute to reading readiness.

The Review of the Literature

Many writers have emphasized the significance of the early years of a child's life in developing cognitive and other general intelligence abilities. Among them are Jean Piaget in his study of developing intelligence, Maria Montessori with her principle of freedom in a prepared environment, Jerome Brunner's idea that any subject can be taught in some intellectually honest form to any child at any age, Dr. Benjamin Bloom's emphasis on the young child's rapid rate of

growth and the importance of environment, and Frances Ilg and Louise Ames' book on readiness with its norms for ages and stages of development.

Without language we could not learn to read. Because language is oral, the kindergarten atmosphere stimulates a child's thoughts and self-expression. Experimental programs in teaching reading in kindergarten as a part of the language arts program have been effected. The Denver Program is the most significant because the instructional level was adjusted to the ability and interest of the five year old child.

The capacity to think, reason, observe and be curious are factors of mental maturity which determine adjustment to first grade instruction. Readiness tests seek to measure comprehension, auditory and visual perception and general mental abilities.

The increasing number of pre-school children left by working mothers and the increasing number of kindergartens calls for an evaluation of the content in kindergarten programs. New directions in the kindergarten emphasizes intellectual development and seeks to identify key concepts in each major body of knowledge.

Presentation and Interpretation of Data

Permission was secured through correspondence from Dr. C. O. McKee, Director of the Fort Campbell Dependent School System to collect data for this study. The instrument used was the Metropolitan Readiness Tests. When all data had been collected and grouped, the

analysis in variance with an F-Ratio was computed.

The F-Ratio (10.681) in the Kindergarten source was significant at the .01 level. Thus, it was found that the first null hypothesis was rejected. Children who had attended kindergarten did score higher on reading readiness tests than did children who had not attended kindergarten.

These findings correlated with those made by Irene Fast that kindergarten children do perform better than children who do not attend kindergarten. These findings are similar to those made by Willis Pratt in that pupils who have attended kindergarten scored significantly higher than the non-kindergarten group on the reading readiness tests. This high figure supported Gertrude Hildreth's belief that kindergarten experiences increased language facility and sensory-motor co-ordination. In further consideration of these findings, the social, emotional and aesthetic development that occurred in the kindergarten must not be overlooked as it assisted the child in performing well on the paper and pencil tests.

The F-Ratio (6.624) in the Age source was significant at the .05 level. Thus, the second null hypothesis was rejected. The evidence indicated older children did perform better on the readiness tests than did the younger children. This substantiated the findings of Anderson and Hughes regarding physical maturity. It correlated with the conclusions of Bigelow that a child had a better chance to perform if

he is six to six and a half years old. It correlated with Gertrude Hildreth's feeling that several months of physical growth at this age in life also provided time for the child to grow in perceptual maturity and sharpen his visual and auditory discrimination.

The F-Ratio (.077), in the Age and Kindergarten source was not significant. Therefore, the third null hypothesis was accepted as stated. The interaction of kindergarten attendance upon the age of children (older children and younger children) did not contribute significantly to reading readiness scores for first grade.

RECOMMENDATIONS

The findings of this study suggested the following recommendations:

1. That kindergarten be implemented into the public school program because kindergarten appeared to aid in producing higher readiness scores on primary reading readiness tests.
2. That curriculum guidelines be established for kindergarten with scope and sequence charts so that kindergarten teachers may be more consistent in clarifying concepts and in preparing children for first grade.
3. That the kindergarten teacher place more emphasis upon the development of language skills and abilities in an effort to prepare children for successful performance on paper and pencil tests.

4. That attention be given to the needs of younger children during the kindergarten year in an effort to prepare them more adequately for first grade.

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APPENDIX

DESCRIPTION OF THE INSTRUMENT

The Metropolitan Readiness Tests are a group of six subtests used to provide a tentative classification of pupils as the teacher attempts to assess the extent or degree of maturity or skill important for mastering first grade work. It is usually administered during the first month of school. This instrument was reviewed for content in comparison with other readiness tests as a part of the Review of Literature in Chapter II. It is pertinent to this study to examine the section, Scoring and Significance, in the Manual for teachers. ✓

The following table is given as printed in the Manual. It is from this grading and significance that placement of the child is made. In a graded first grade, three reading groups are usually assigned. Those in the category of superior and high normal would go into one group. The average would be grouped and those in low normal and low would be grouped together.

Score Range	Letter Rating	Readiness Status	Significance
Above 76	A	Superior	Apparently very well equipped for first grade work. Should be given opportunity for enriched work in line with abilities indicated.

Score Range	Letter Rating	Readiness Status	Significance
64-76	B	High Normal	Good prospects for success in first grade work provided other indications, such as health, emotional factors, etc., are consistent.
45-63	C	Average	Likely to succeed in first grade work. Careful study should be made of the specific strengths and weaknesses of pupils in this group and their instruction planned accordingly.
24-44	D	Low Normal	Likely to have difficulty in first grade work. Should be assigned to slow section and given more individualized help.
Below 24	E	Low	Chances of difficulty high under normal instruction conditions. Further readiness work, assignment to slow sections, or individualized work is essential.