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THE RELATIONSHIP BETWEEN THE AGE OF ADMISSION  
INTO A PUBLIC SCHOOL AND ACADEMIC AND SOCIAL ADJUSTMENT  
OF PUBLIC SCHOOL CHILD

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A Thesis  
Presented to  
the Faculty of the Graduate School  
Appalachian State Teachers College

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

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by  
Dicy Fertner Hallyburton  
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## CHAPTER I

# THE RELATIONSHIP BETWEEN THE AGE OF ADMISSION INTO A PUBLIC SCHOOL AND ACADEMIC AND SOCIAL ADJUSTMENT OF PUBLIC SCHOOL CHILD

### INTRODUCTION

Much has been said and written concerning the relationship between the age of a child when he is enrolled in the first grade and his adjustment to the school's academic and social standards. School authorities are not in full agreement as to the best age at which a child should begin his formal public school training. Some propose a relatively early chronological age for admittances, while others recommend an older age. Then there are those who believe that chronological age should not be the major consideration in determining the adaptability of a child to school life, but rather mental age, or a combination of mental age and other characteristics, should be the deciding factors.

In North Carolina, (with the exception of those children inflicted by mental, physical, and nervous incapacities) a child's enrollment and attendance in school is determined solely by his chronological age. According to the North Carolina School Law:

Children to be entitled to enrollment in the public schools for the school year of 1955-1956, and each year thereafter, must have passed the sixth anniversary of their birth before October first of the year in which they enroll, and must enroll during the first month of the school year.<sup>1</sup>

The law also has specific age requirements for compulsory attendance.

"Every parent, guardian, or other person in the State having charge or control of a child between the ages of seven and sixteen years shall cause such child to attend school continuously for a period equal to the time the public school to which the child is assigned and in which he is enrolled shall be in session."<sup>2</sup>

Many would question the assumption that these statutes on admissions and attendances are in the best interest of the children who attend the schools in the State of North Carolina. They would advocate a thorough study of existing and possible admission and attendance procedures in order to determine and establish laws of a more realistic and scientific nature. This study was conducted in the hope that the findings would provide some enlightenment on this problem.

#### THE PROBLEM

The purpose of this investigation was to determine the relationship between children's ages at entrance into

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<sup>1</sup>Public School Laws of North Carolina, Issued by Secretary of State, Raleigh, 1955, p. 86.

<sup>2</sup>Ibid: p. 89.

school and (1) academic grades, (2) standardized achievement test results, (3) evaluations of personal and social assets, and, (4) significant comments made by teachers.

Delimitations of the study. This study was limited to a consideration of a select group of students in grades nine through twelve who were enrolled in Drexel High School, Drexel, North Carolina, during the school year of 1957-1958. Included in the investigation was: (1) one group of students in which no one student had attained an age in excess of six years three months at the time of his enrollment in the first grade; and (2) another group in which no one student had attained an age of less than six years nine months at the time of his enrollment in the first grade.

In cases where a student repeated a grade, only information recorded during his first year at that level was used as part of the study.

#### DEFINITIONS OF TERMS

The young group. This term was used to designate the group of students who were not older than six years three months when they enrolled in the first grade.

The old group. Students classified in this group are pupils who had a minimum age of six years nine months when they entered the first grade.



Academic grades. This term was used to designate yearly ratings given to students by teachers on subjects in the school curriculum.

Standardized test results. This term refers to those ratings received by students on standardized tests administered as part of the evaluation of the instructional program.

Evaluation of personal and social assets. The term was employed to indicate ratings on nine personality traits which were given by teachers to the students during their first six years of school. These traits were cooperation, leadership, courtesy, maturity, dependability, personal appearance, industriousness, and initiative.

Significant comments by teachers. This term refers to comments of teachers on general behavior and characteristics of the students. The comments recorded in the students' permanent records were classified by the investigator as either favorable or unfavorable.

Mental age at entrance into school. This term refers to an adjusted mental age. Since students in the study were not administered intelligence tests when they entered the first grade, it was necessary to convert mental ages obtained in the fourth grades to mental ages at the time the students

were first enrolled in school. The converted mental age was obtained by multiplying a student's intelligence quotient at the fourth grade level by his chronological age at the time he enrolled in the first grade.

#### DESCRIPTION OF SAMPLING AND COLLECTION OF DATA

After the age limits for the "young" and "old" groups were established, the 301 students enrolled in Drexel High School in 1957-1958 were screened to discover those students who could be classified in either of the two age categories. It was found that twenty-seven students met the age requirements for the "young" group, while thirty-five fell within the age limitations for the "old" group.

Table I presents the chronological and mental age distributions for the two groups at the time they enrolled in school. It is shown that the younger students have an age range of five years and eleven months to six years and three months and the older students a range of six years and nine months to six years and eleven months. Thus, there was a difference of six months between the oldest student in the "young" group and the youngest student in the "old" group. In comparing chronological ages, the mean age of 73.04 months (6.09 years) for the younger group is less by 8.73 months than the mean age of 81.77 months (6.81 years) for the older group. As would be expected, the mean mental age

TABLE I

CHRONOLOGICAL AND MENTAL AGE\* DISTRIBUTIONS  
OF THE "YOUNG" AND "OLD" GROUPS AT ENTRANCE INTO FIRST GRADE

Chronological Age

Young Group			Old Group		
N	Age in months	Age in years	N	Age in months	Age in years
3	71	5 - 11	15	81	6 - 9
5	72	6 - 0	13	82	6 - 10
7	73	6 - 1	7	83	6 - 11
11	74	6 - 2	T=35		
1	75	6 - 3			
T=27					
Mean=73.04			Mean=81.77		

Difference of 8.73 months significant at .001 level.

Mental Age

Mental age in months	N in Young	N in Old
50 - 55	1	0
55 - 60	1	0
60 - 65	1	1
65 - 70	3	0
70 - 75	12	3
75 - 80	4	5
80 - 85	3	6
85 - 90	2	13
90 - 95	0	4
95 - 100	0	3
	T=27	T=35

Mean=73.94

Mean=84.66

Difference of 10.72 months significant at .001 level.

\*Mental age was adjusted.

of 84.66 months (7.06 years) for the "old" group is greater by 10.72 months than the mean mental age of 73.94 months (6.16 years) for the "younger" group. A statistical analysis indicated that the differences in the two groups for both chronological age and mental age was great enough to be significant at the .001 level of confidence.

Due to the fact that there was such a great variance in the ages, both mental and chronological, of the two groups under consideration, it was felt that the two samplings of students would be adequate for the purpose of testing the hypothesis that there is no relationship between the age at which children enter school and their social and academic adjustment.

#### COLLECTION OF DATA

After the students classified in the "younger" (N=27) and "older" (N=35) groups were identified, information concerning each child's behavior and achievement during the first six grades was collected and recorded for study. Ratings by teachers on reading, writing, spelling, and arithmetic were the only academic grades used in the study. In order to facilitate the statistical analysis of this information, it was necessary to convert the assigned letter grades to numerical equivalents. Therefore, "A" was assigned the value of 10; "A-" the value of 9; "B" the value of 8;

"B" the value of 7; "B-" the value of 6; "C" the value of 5; "C-" the value of 4; "D" the value of 3; "D-" the value of 2; and "D" the value of 1. During the period of time the information was collected, "A" was the highest and "D" was the lowest grade awarded.

In collecting achievement score results, only the median achievement score for the Coordinated Scale of Attainment Achievement in the first through the sixth grade was collected. These scores were readily found in the permanent record of each participating student.

During the time the students in this study were attending the first six grades in school, teachers evaluated them on nine social and personal assets. Ratings of superior (5), above average (4), average (3), below average (2), and low (1), were given on cooperation, leadership, courtesy, maturity, dependability, personal appearance, industriousness, self control, and initiative. For each of these characteristics, the average rating for the six years was calculated and these measures were employed in comparing the two groups.

The last information, significant comments by teachers, was obtained also from the students' permanent records, where teachers record had recorded information relative to the pupils' work and behavior in school. It was decided to classify in one group any student who had two or more unfavorable comments during the first six years of school, while all other students

were considered to have received favorable ratings and were, therefore, classified in a second group.

### STATISTICAL TREATMENT OF DATA

Several familiar statistical techniques were employed during this investigation when there was a need to summarize findings or make comparisons. The arithmetic mean, along with the standard deviation, was used primarily for summarization; the test for the significance of difference of means (t test) and the Chi-square tests were calculated to show relations. The formulas for calculating these measures follow:

$$\text{Mean} = \frac{\sum x}{N}$$

$$\text{Standard Deviation} = \sqrt{\frac{\sum x^2 - \frac{(\sum x)^2}{N}}{N}}$$

$$\text{S. E. of Difference of Mean} = \sqrt{\frac{SD_1^2}{N_1} + \frac{SD_2^2}{N_2}}$$

$$T = \frac{M_1 - M_2}{\text{S. E. Difference of Means}}$$

$$\text{Chi-square} = \chi^2 = \sum \left[ \frac{(f_o - f_e)^2}{f_e} \right]^2$$

## CHAPTER II

### REVIEW OF THE LITERATURE

Entrance age and scholastic achievement are problems of concern to educators. There are many studies in the field dealing with readiness and the child's achievements in the grades, but very little research has been recorded on the problem of relation between the entrance age and the child's achievement in the elementary school. Some of the most significant findings are summarized here.

Clarence Stone states that it has been established that the chronological age of six is the psychological time for a child to begin to read because the average child is mature enough and has arrived at the time when he desires to learn to read.<sup>1</sup>

A study of the various factors on reading, conducted in Milwaukee, Wisconsin, for three hundred children whose ages ranged from five and a half to over seven, showed that chronological age is one of the factors least associated with progress in reading.<sup>2</sup>

Gertrude Hildreth shows that a child who has an I. Q.

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<sup>1</sup>Clarence R. Stone, Progress In Primary Reading, Atlanta: Webster Publishing Company, 1950, pp. 247-260.

<sup>2</sup>Ibid., pp. 263.

of 100 on the Binet Test will become mentally six years and six months old when he is six years old chronologically<sup>3</sup> and, in discussing intellectual readiness as a factor in success in reading, Gerald A. Yoakam indicates that a mental age of six and one-half years is needed before children can be taught to read. He further reports that some teachers make no distinction between mental age and chronological age of six and one-half years.<sup>4</sup>

Lillian Gray and Dora Reece state that, even though most children enter school at the age of six, some are mentally immature and cannot be expected to begin reading because they are not equal to the task. Children's mental, physical, emotional, and social adjustments are the determinants here.<sup>5</sup>

Vera V. Miller reported on a number of studies made by the Research Department in schools in Evanston, Illinois. A questionnaire concerning the under-aged child was mailed to one hundred school systems. On a basis of about fifty replies, it was concluded that chronological age is not as important in the academic, social, and emotional adjustment of the child

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<sup>3</sup>Gertrude Hildreth, Readiness for School Beginners, Yonkers-On-Hudson, New York: World Book Company, 1950, pp. 41.

<sup>4</sup>Gerald A. Yoakam, Basal Reading Instruction, New York: McGraw-Hill Book Company, Inc., 1955, pp. 124.

<sup>5</sup>Lillian Gray and Dora Reece, Teaching Children To Read, New York: The Ronald Press Company, 1957, pp. 27-95.



as many people think. Children of the same chronological age differ widely in other developmental ways and, in the final analysis, each child must be considered individually.<sup>6</sup>

Margaret P. Ammons and John D. Goodland summarized a few samples of recent research on the problem of school entrance age, but did not intend to summarize the results of all significant research into the school entrance issue. They did not propose to recommend a desirable age for school entrance. They did, however, assume that bright children whose physical, social, and emotional development has kept pace with their intellectual development, and who are carefully screened, are good risks for entering school several months earlier than the usual minimum age. On the other hand, average children, if admitted at an earlier age than customary, tend to run into difficulties in the upper grades.<sup>7</sup>

Louis W. Kazienko studied seventy-seven children in reporting the relation between good beginner instruction and poor beginner instruction and later success in school. He found that the twenty-three who had good beginner instruction

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<sup>6</sup>Vera V. Miller, Academic Achievement and Social Adjustment of Children Young for Their Grade, Elementary School Journal, February, 1957, pp. 57-257.

<sup>7</sup>Margaret P. Ammons and John D. Goodland, When To Begin, Dimensions of the First Grade Entrance Problem: Childhood Education, 32:21, September, 1955.

in kindergarten and twenty-three who had poor beginner instruction in kindergarten excelled in achievement the thirty-one who were placed in the first grade who had not had any type of kindergarten instruction. The good and poor beginner instruction groups excelled the national norms in average achievement by five months.<sup>8</sup>

Inez B. King made a study in the elementary schools of Oak Ridge, Tennessee, to determine some of the possible effects that chronological age at the time of entrance in grade one has on achievement of pupils in their sixth year of school. Specifically, the problem was the comparison of the achievement of a group younger than six years of age at the time of entering the first grade with a group older than six years of age at the time of entering the first grade. The achievement records of fifty-four of the younger group were compared with the achievement records of fifty children of the older group. The comparison was based on (1) academic grades, (2) average daily attendance, (3) progress, and (4) social adjustment. The study indicated that a child's ability to meet the imposed restrictions and tensions of school are enhanced if the child's age at entrance into the school is

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<sup>8</sup>L. W. Kazienko, Beginning Grade Influences on School Progress, Educational Administration and Supervision, 40:217, April, 1954.

beyond six years. It was found also that members of the younger group are more likely to repeat a grade. There was definite indication of poor personal adjustment to school among the younger group.<sup>9</sup>

A number of attempts have been made to determine a minimum mental age necessary for a child to achieve success in beginning reading. In one of the most frequently quoted studies, Morphett and Washburn studied the reading achievement of first grade children in relation to their mental ages. In this study there was a sharp upward rise in achievement for the group from six years to six years five months mentally, and another sharp rise for the group from six years six months to six years eleven months mentally. This led the authors to propose that beginning reading instruction be postponed until the child reaches a mental age of six years six months.<sup>10</sup>

Gertrude Hildreth, believes that the varying chronological ages of first graders has been one of the contributing causes of the inability of teachers to provide adequately for their individual needs. It is extremely difficult to plan a program that will embrace the immature five-year-old as well as a mature six-year-old.<sup>11</sup>

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<sup>9</sup>Inez B. King, "Effect of Age of Entrance Into Grade I Upon Achievement In Elementary School", Elementary School Journal, 52:331, February, 1955.

<sup>10</sup>Mobely Morphett and Carleton Washburn, "When Should Children Begin To Read?", Elementary School Journal, 31:496-503, March, 1931.

<sup>11</sup>Op. Cit., Hildreth, pp. 27.

In discussing age requirements for admission to the first grade, Gertrude Hildreth mentions that there is considerable difference of opinion among school authorities over the question of the minimum age for entering the first grade.

The difficulties of setting a minimum entering age arise from two factors: (1) the eagerness of parents to get their children in the first grade as early as possible, and (2) the fact that candidates for the first grade class tend to range a year or more in age, since birth dates tend to be distributed evenly through the year.

Many parents object to delaying the admission of their children into school when the children's age is so near six and so near the deadline for admission. Parents of mature children who have attended nursery and kindergarten feel that their children will be wasting their time unless they advance to the first grade. They are eager to have the children under school supervision. In some cases, the more immature the children, the more the parents are concerned about their early admission to the first grade, hoping that by the early admission the child will mature more rapidly and be promoted.<sup>12</sup>

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<sup>12</sup>Ibid., pp. 28.

According to Hildreth, some studies show that typical children tend to fail unless they have attained an age of six and a half if the usual program is in effect. Ordinarily, it is foolish to rush children into the first grade.

In a number of states, some concessions are made for those children whose birthdays fall between October 1 and January 1 by modifying entrance age requirements. Setting the minimum entrance age will not insure uniformity in progress for all children, however, because differences in mental age and background will cause children to progress at different rates. Young children who are slow learners should not be in competition with older fast learning children.<sup>13</sup>

The Legislative Research Commission of the Commonwealth of Kentucky made a recent study on the entrance age of pupils into school. Children with an age range of five years four months to five years eleven months were compared with children with an age range of six years four months to six years seven months, in the subject areas of reading and arithmetic, and in social adjustment. It was discovered that the children in the "older group" excelled in all areas of the study. However, it was learned that members of the "younger group" had to repeat grades less frequently. This was considered to

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<sup>13</sup>Ibid., pp. 29.

be due to the fact that children in the "younger group" were from homes where the parents were quite concerned about education.<sup>14</sup>

Nathaniel R. Davidson, in seeking to understand the relationship of entrance age into first grade upon scholastic achievement in school, studied five hundred twenty-nine children in the sixth grades of Dade County Schools, Florida. One hundred eighty-three were a younger group (five years eleven months or younger) and three hundred forty-six were an older group (six years one month or older). The test results for the "younger group" were compared with the test results for the "older group" in arithmetic, spelling, reading, and English. He concluded that,

". . . in so far as the six elementary schools in Dade County, Florida, are concerned, there is no evidence to support the conclusion that the children of older chronological age at entrance to the first grade attained higher scholastic achievement in the first six years of school."<sup>15</sup>

Studies on the question of a minimum entrance age for first graders indicate that opinions differ greatly. The chronological age of six seemed to be acceptable as a starting point for the average child, provided that the child had

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<sup>14</sup>School Entrance Age: Research Staff, Legislative Research Commission, Kentucky, Research Publication No. 54, January, 1958.

<sup>15</sup>Nathaniel Ragland Davidson, "The Relationship of Entrance Age Into First Grade Upon Scholastic Achievement in Elementary School," Appalachian State Teachers College, August, 1958, pp. 4-53.

developed physically, mentally, and socially. The studies indicated that the determining factor in predicting success in school was not a specific chronological age. Chronological age should be used primarily as a guide in screening out those whose mental development justified beginning school earlier than the customary age six, or in postponing school entrance until mental development had reached the point where the child could best learn to read and profit from school. The studies seemed to indicate that each child needed to be considered as an individual with regard to the best time for beginning school, rather than using the chronological yardstick for all children.

## CHAPTER III

### PRESENTATION OF FINDINGS

The purpose of this study was to discover whether or not there was any significant difference in social and academic achievement of (1) those students who were not older than six years three months when they enrolled in the first grade; and (2) those students who had a minimum age of six years nine months when they entered the first grade.

Previous calculations showed that at time of enrollment in school the mean chronological age of the younger group was 6.09 years, and the mean chronological age for the "old" group was 6.81. In considering mental ages, the mean for the "young" group was 6.16 years while the mean for the old group was 7.06. When comparing the difference in means between the two groups on both age measurements, the difference proved to be significant at the .001 level.

These two groups, who varied significantly in both chronological and mental age, were compared for the first six years of school on the basis of academic grades, median achievement scores, evaluations of social and personal assets, and significant comments made by teachers.

In making these comparisons, a null hypothesis was projected which stated that there was no true difference



between these two groups on the factors under consideration. The null hypothesis was rejected in cases where the difference between the two groups was large enough to be significant at the .01 level of confidence.

Two statistical procedures were employed to test the null hypothesis. In comparing the two categories of students on quantitative measures such as academic grades, achievement scores, and evaluations of social and personal assets, the test of significance of difference of means was employed. The Chi-square test was used to compare the two groups of students on significant comments made by teachers, a factor classified in non-quantitative categories.

#### RELATIONSHIP BETWEEN AGE AND ACADEMIC GRADES

The significance of difference of means test was employed to determine whether or not there was any reliable difference in academic grades between the "old" and "young" groups of students. The comparison was made on grades for reading, writing, spelling, and arithmetic, for each of the first six grades in which the students were enrolled in school.

In order to facilitate the statistical analysis, the assigned grades by the teachers were converted to numerical equivalents ranging from "D" with a value of "one" to "A" with a value of "ten".

Results of the comparison of the two groups on teacher-assigned reading grades are shown in Table II. At the first grade level it is seen that there is a difference of .43 between the mean of 7.57 for the older group and the mean of 7.14 for the younger group. A statistical test to determine the significance of difference of the two means results in a critical ratio of .064 which is much less than the critical ratio of 2.67 which is required for significance at the .01 level. It was necessary, therefore, to accept the null hypothesis and state that there was no true difference in teacher-assigned reading grades between the younger and older students when they were in the first grade.

When the two groups were compared on reading grade, results similar to those observed in the first grade was discovered in the second, third, fourth, fifth, and sixth grades. As far as reading is concerned, it appears that entering school at an older age had no significant effect on achievement.

Table III presents the results of comparing the two groups on writing grades. At the first grade level the resulting critical ratio of .005 was not as great as the 2.67 required for significance at the .01 level. In making the comparison between the two means, a difference of only .04 was observed between the 7.60 for the older group and 6.56 for the younger group.

TABLE II

SIGNIFICANCE OF DIFFERENCE OF MEANS BETWEEN YOUNGER  
AND OLDER GROUPS ON ACADEMIC GRADE, READING,  
AT SIX GRADE LEVELS

Grade Level	Mean Younger N = 27	Mean Older N = 35	Difference in Means	t and Probability of Difference
First	7.14	7.57	- .43	$t = .064 < 2.67 = p = .01$
Second	7.22	7.45	- .23	$t = .042 < 2.67 = p = .01$
Third	7.81	7.69	.12	$t = .101 < 2.67 = p = .01$
Fourth	7.40	7.26	.14	$t = .017 < 2.67 = p = .01$
Fifth	7.07	7.71	- .64	$t = .187 < 2.67 = p = .01$
Sixth	7.44	7.60	- .16	$t = .111 < 2.67 = p = .01$

TABLE III

SIGNIFICANCE OF DIFFERENCE OF MEANS BETWEEN YOUNGER  
AND OLDER GROUPS ON ACADEMIC GRADE, WRITING,  
AT SIX GRADE LEVELS

Grade Level	Mean Younger N = 27	Mean Older N = 35	Difference in Means	t and Probability of Difference
First	6.56	7.60	- .04	$t = .005 < 2.67 = p = .01$
Second	7.11	7.57	- .46	$t = .089 < 2.67 = p = .01$
Third	7.70	7.97	- .27	$t = .118 < 2.67 = p = .01$
Fourth	7.63	7.60	.03	$t = .007 < 2.67 = p = .01$
Fifth	8.14	7.71	.43	$t = .065 < 2.67 = p = .01$
Sixth	7.62	7.40	.22	$t = .040 < 2.67 = p = .01$

At the remaining levels, the older group had larger means in the second and third grades while the younger group recorded larger means at the fourth, fifth, and sixth grades. At all grade levels, however, it must be stated that there is no true difference between the means for the two groups; thus, in considering these two groups, it can be concluded that time of entrance into school had little effect on writing grades assigned by teachers.

When the two groups of students were compared on spelling grades (Table IV), results similar to those in Tables II and III were discovered. The younger group surpassed the older group in grades in spelling in all grades except the first; but, again, the observed differences were not large enough to be significant.

A comparison of arithmetic grades (Table V) for the older and younger group was unlike the results obtained when the two groups were compared on reading, writing, and spelling. In this case, at no level were the differences in means great enough to be significant at the .01 level, although the older group surpassed the younger at all grade levels except at the first.

It seems reasonable to conclude that the entrance age of the children in this study had little significant effect on the academic grades they received from teachers.

TABLE IV

SIGNIFICANCE OF DIFFERENCE OF MEANS BETWEEN YOUNGER  
 AND OLDER GROUPS ON ACADEMIC GRADE, SPELLING,  
 AT SIX GRADE LEVELS

Grade Level	Mean Younger N = 27	Mean Older N = 35	Difference in Means	t and Probability of Difference
Second*	7.60	7.74	- .14	$t = .038 < 2.67 = p = .01$
Third	7.90	7.80	.10	$t = .033 < 2.67 = p = .01$
Fourth	8.77	8.60	.17	$t = .039 < 2.67 = p = .01$
Fifth	9.14	8.77	.37	$t = .089 < 2.67 = p = .01$
Sixth	8.77	8.71	.06	$t = .015 < 2.67 = p = .01$

\*Spelling grades were not recorded in first grade.

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TABLE V

SIGNIFICANCE OF DIFFERENCE OF MEANS BETWEEN YOUNGER  
AND OLDER GROUPS ON ACADEMIC GRADE, ARITHMETIC,  
AT SIX GRADE LEVELS

Grade Level	Mean Younger N = 27	Mean Older N = 35	Difference in Means	t and Probability of Difference
First	6.96	8.34	-1.38	$t = .257 < 2.67 = p = .01$
Second	7.18	7.60	.42	$t = .101 < 2.67 = p = .01$
Third	7.51	7.77	-.26	$t = .037 < 2.67 = p = .01$
Fourth	7.67	7.74	-.07	$t = .012 < 2.67 = p = .01$
Fifth	7.40	8.02	-.62	$t = .082 < 2.67 = p = .01$
Sixth	7.85	7.40	.45	$t = .056 < 2.67 = p = .01$

## RELATIONSHIP BETWEEN AGE AND ACHIEVEMENT TEST RESULTS

In addition to comparing the students on academic grades assigned by teachers, it was part of the plan to compare the two groups on more objective measures, results of a standard achievement test. In this analysis only the median grade level on the Coordinated Scale of Attainment was employed.

Table VI presents the results of the test for the significance of difference of means between the median grade level of the older and younger students in grades one through six. In grade one the difference of .23 between the mean of 2.36 for the older group and the mean of 2.13 for the younger group produced a critical ratio of only .061. This statistic is far less than the 2.67 required for significance at the .01 level of confidence. Similar results were found at the other grade levels.

## RELATIONSHIP BETWEEN AGE AND SOCIAL AND PERSONAL RATINGS

During the time the students in the two groups were attending school in the first six grades, they were being evaluated by their teachers on nine personal and social assets. Ratings of superior (5), above average (4), average (3), below average (2), and low (1), were assigned to cooperation, leadership, courtesy, maturity, dependability, personal



TABLE VI

SIGNIFICANCE OF DIFFERENCE OF MEANS BETWEEN YOUNGER  
AND OLDER GROUPS ON MEDIAN ACHIEVEMENT RATING  
AT SIX GRADE LEVELS

Grade Level	Mean Younger N = 27	Mean Older N = 35	Difference in Means	t and Probability of Difference
First	2.13	2.36	- .23	$t = .061 < 2.67 = p = .01$
Second	3.41	3.65	- .24	$t = .061 < 2.67 = p = .01$
Third	4.37	4.49	- .12	$t = .014 < 2.67 = p = .01$
Fourth	5.31	5.23	.08	$t = .039 < 2.67 = p = .01$
Fifth	5.60	6.04	- .44	$t = .039 < 2.67 = p = .01$
Sixth	5.89	6.53	- .64	$t = .045 < 2.67 = p = .01$

appearance, indistriousness, self control, and initiative. The average rating of each of these traits for six years was calculated for each group and an analysis of their differences was made. Table VII presents the results.

It is seen that there is very little difference between the younger group and the older group on the nine characteristics under consideration. In fact, the largest difference, only .11 in favor of the older group, was on dependability. However, the difference on this trait, as well as on the other eight characteristics, was not large enough to be significant at the .01 level of confidence.

#### RELATIONSHIP BETWEEN AGE AND SIGNIFICANT COMMENTS BY TEACHERS

The last part of this study was devoted to comparing the significant comments given by teachers to students in the younger group and students in the older group. Before the analysis, it was decided to classify in one group any student who had two or more unfavorable comments during the first six years of school, while all other students were considered to have received favorable ratings and were, therefore, classified in a second group.

The Chi-square test was employed to determine whether the younger and older groups of students varied significantly in the comments they received from teachers (Table VIII). Of the twenty-seven students in the younger group, fifteen

TABLE VII

SIGNIFICANCE OF DIFFERENCE OF MEANS BETWEEN YOUNGER  
AND OLDER GROUPS ON NINE SOCIAL AND PERSONAL RATINGS  
DURING FIRST SIX YEARS IN SCHOOL\*

Social and Personal Rating	Mean Younger N = 27	Mean Older N = 35	Difference of Means	Probability of Difference
Cooperation	3.21	3.18	- .03	$t = .056 < 2.67 = p = .01$
Leadership	3.00	3.05	.05	$t = .081 < 2.67 = p = .01$
Courtesy	2.98	3.02	- .04	$t = .041 < 2.67 = p = .01$
Maturity	3.05	3.05	.00	$t = .00 < 2.67 = p = .01$
Dependability	2.99	3.10	.11	$t = .121 < 2.67 = p = .01$
Personal Appearance	3.01	3.04	.03	$t = .023 < 2.67 = p = .01$
Industriousness	3.16	3.08	- .08	$t = .078 < 2.67 = p = .01$
Self Control	2.94	2.99	.05	$t = .072 < 2.67 = p = .01$
Initiative	2.98	3.02	.04	$t = .065 < 2.67 = p = .01$

\*Ratings equal average over six year period.

TABLE VIII  
 CHI-SQUARE ANALYSIS OF SIGNIFICANT COMMENTS  
 BY TEACHERS OF YOUNGER AND OLDER GROUPS

Comments	Younger N = 27	Older N = 35	Total (fo)
Favorable	fo = 15.0 fe = 16.5	fo = 23.0 fe = 21.5	38
Unfavorable	fo = 12.0 fe = 10.5	fo = 12.0 fe = 13.5	24
Total (fo)	27	35	62

$$\chi^2 = .623 < 6.64 = P = .01$$

\*fo = observed frequencies; fe = expected frequencies.

were classified in the first group and twelve in the second group. On the other hand, of the thirty-five pupils in the older group, twenty-three received favorable and twelve unfavorable ratings. When an analysis was made of this distribution, a Chi-square of only .623 was obtained. This is much less than the 6.64 needed for significance at the .01 level. It can be stated therefore, that there is no true difference in the comments that the older and younger groups received from teachers.

#### SUMMARY

The purpose of this portion of the study was to determine whether or not there was a significant difference in social and academic achievement of (1) those students who were not older than six years and three months when they enrolled in the first grade; and (2) those students who had a minimum age of six years and nine months when they entered the first grade.

A comparison between the two groups was made on the basis of academic grades (reading, spelling, arithmetic, and writing), using median achievement scores for each of the first six grades. A comparison for the two groups was made also on nine social and personal ratings and significant comments by teachers. The last two types of ratings were averaged for the six year period.

In no instance was there a significance difference between the younger and older group. It can be concluded from the findings in this study that age of entrance into school had very little relationship to academic and social success.



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## CHAPTER IV

### SUMMARY AND CONCLUSIONS

The purpose of this study was to determine the relationship between pupils' ages at entrance into school and (1) academic grades, (2) standardized achievement test results, (3) evaluations of personal and social assets, and (4) significant comments made by teachers.

Participating in the investigation was one group of students of which no one student had a maximum age over six years three months at the time of enrollment in the first grade; and another group of pupils in which no one pupil had a minimum age less than six years nine months at the time of enrollment in the first grade. The first group defined above was classified as the "young group" while the latter group was referred to as the "old group".

A statistical analysis found the "old" group to have a mean mental and a mean chronological age significantly greater than the "young" group. For example, the mean chronological age of the "old" group was 6.81 years and for the younger group a mean of 6.09 years was found; the mean mental age for the old group was 7.06 while the younger group average age was only 6.16 years. When the groups were compared on both measures of age, the differences in favor of

the old group were great enough to be significant at the .001 level of confidence.

The two categories of students (27 "young" and 35 "old") were compared at each grade level during their first six years in school on academic grades, achievement test results, evaluations of social and personal assets, and significant comments made by teachers.

Academic grades included reading, writing, spelling, and arithmetic; the only achievement ratings collected were median scores on a standard achievement test; ratings recorded on personal and social assets were cooperation, leadership, courtesy, maturity, dependability, personal appearance, industriousness, self control, and initiative; significant comments by teachers were classified as either favorable or unfavorable.

In comparing the two groups of students on these variables, the significance of difference of means test (t test) and the Chi-square test were employed. The former technique was used when factors were of a quantitative nature; the latter when variables were classified in non-quantitative distributions.

Although a significant difference in means was found between both the chronological and mental ages of the "older" and "younger" groups, there was no true differences between



the two categories of students at any of the first six grade levels in academic grades, achievement test ratings, social and personal ratings, and comments by teachers. Since mental age and achievement are generally observed to be significantly correlated, it is somewhat unusual to observe results such as those obtained in this analysis. Because of limitations imposed by the design of this investigation, an explanation of observed results is impossible.

#### CONCLUSIONS

After reviewing the results of this investigation, one definite conclusion seems warranted: In so far as the students participating in this study were concerned, there is no evidence to support the conclusion that children who have to wait a year to enter school profit by this delay. This proved to be true regardless of the fact that those students who were required to wait were older chronologically and mentally than those students whose birthdays allowed them to enroll in school approximately a year earlier.

#### RECOMMENDATIONS FOR FURTHER STUDY

This investigation was limited to a small number of students in a rural county in North Carolina. Similar studies with other rural children and urban pupils might prove most

interesting and profitable.

Also, in this study, comparisons between the two groups were made only during the first six years in school. Comparisons beyond this level might result in dissimilar findings.

An investigation of this nature should be made while considering sex, socio-economic, and intellectual differences. There was no evidence to indicate that efforts were made to adjust instruction to the needs or level of the individuals in the group. A study based on a situation in which such adjustment was made might provide additional clarification on this problem.

**BIBLIOGRAPHY**



ERASABLE BOND

COTTON CONTENT

A. BOOKS

- Adams, Faye, Lillian Gray, and Dora Reese. Teaching Children To Read. New York: The Ronald Press Company, 1949. 525 pp.
- Adams, Faye. Educating American Children. New York: The Ronald Press Company, 1947. 483 pp.
- Anderson, Irving H., and Walter F. Dearborn. The Psychology of Teaching Reading. New York: The Ronald Press Company, 1952, 382 pp.
- Berkson, I. B. Education Faces the Future. New York: Harper and Brothers. 323 pp.
- Carter, Homer, L. J. and Dorothy J. McGinnis. Learning To Read. New York: McGraw-Hill Book Company, Inc., 1953. 214 pp.
- Durrell, Donald D. Improving Reading Instruction. New York: World Book Company, 1956. 402 pp.
- Gates, Arthur I. The Improvement of Reading. New York: The MacMillan Company, 1947. 657 pp.
- Gray, Lillian, and Dora Reese. Teaching Children To Read. New York: The Ronald Press Company, 1957. 475 pp.
- Hildreth, Gertrude. Readiness for School Beginners. New York: World Book Company, 1950. 382 pp.
- Huggett, Albert J., and Cecil V. Millard. Growth and Learning in the Elementary School. Boston: Heath and Company, 1946. 401 pp.
- Hunnicuttt, C. W., and William J. Iverson. Research in the Three R's. New York: Harper Brothers, 1958. 435 pp.
- Kyte, George C. The Elementary School Teacher At Work. New York: The Dryden Press, 1958. 515 pp.
- McKim, Margaret G. Guiding Growth in Reading. New York: The MacMillan Company, 1955. 528 pp.
- Monroe, Marion. Growing into Reading. New York: Scott, Foresman and Company, 1951. 274 pp.
- Partington, H. M. Relation Between First Grade Entrance Age and Success in the First Grade, The National Elementary Principals: Sixteenth Yearbook, Washington, D. C.: National Education Association, July, 1937. 587 pp.

- Russell, David H. Children Learn To Read. New York: Ginn and Company, 1949. 403 pp.
- Soucier, W. A. Theory and Practice in the Elementary School. New York: The MacMillan Company, 1941. 468 pp.
- Stone, Clarence R. Progress in Primary Reading. Atlanta: Webster Publishing Company, 1950. 463 pp.
- Yoakam, Gerald A. Basal Reading Instruction. New York: McGraw-Hill Book Company, Inc., 1955. 357 pp.

#### B. PERIODICALS

- Ammons, Margaret P., and John D. Goodlad. "When To Begin Dimensions of the First Grade Entrance Age Problem," Childhood Education, 32:21, September, 1955.
- Baker, Emily V. "Skills -- Means to an End," Childhood Education, 33:209, January, 1957.
- Birch, J. W. "Early School Admission for Mentally Advanced Children," Exceptional Child, 21:84-7, December, 1954.
- Brunner, E. des. "Trends in Educational Attainment, 1940-1950," Teachers College Record, 55:91-6, January, 1954.
- Carlson, Wesley H. "Interage Grouping," Educational Leadership, 15:363, March, 1958.
- Carter, Lowell B. "The Effects of Early School Entrance on the Scholastic Achievement of Elementary School Children in the Austin Public Schools," The Journal of Educational Research, 50:91, October, 1956.
- Coffield, William H., and Paul Blommers. "Effects of Non-Promotion on Education Achievement in the Elementary School," The Journal of Educational Psychology, 4:235, April, 1956.
- Comisky, Kathleen. "Accent on Youth," The National Elementary Principal, 36:24, April, 1957.
- Cone, Herbert R. "Brookline Admits Them Early," Nations Schools, 55:46-47, March, 1955.

- Davidson, N. R. "The Relationship of Entrance Age Into First Grade Upon Scholastic Achievement in the Elementary School." Appalachian State Teachers College Library.
- Drews, Elizabeth M. "Parental Attitudes and Academic Achievement," Journal of Clinical Psychology, 13:328, October, 1957.
- Forester, J. J. "At What Age Should A Child Start School?," School Executive, 74:80-1, March, 1955.
- Gilliland, F., and E. S. Guthrie. "Points of View on School Entrance Age and Reading Readiness," Ohio School, September, 1953.
- Gowan, John C. "Dynamics of Underachievement of Gifted Students," Exceptional Child, 24:98, November, 1957.
- Hall, William F., and Ruth Demarest. "Effect on Achievement Scores of a Change in Promotional Policy," The Elementary School Journal, 58:204, January, 1958.
- Hamalainen, Arthur E. "Kindergarten -- Primary Entrance Age in Relation to Later School Adjustment," The Elementary School Journal, 52:406, March, 1952.
- Hanes, B. "Perceptual Learning and Age," Journal of Consulting Psychology, 17:222, June, 1953.
- Henry, Nelson B. "Reading in the Elementary School," The Forty-Eighth Yearbook of the National Society for the Study of Education, 1949.
- Hildreth, Gertrude. "Reading Programs in the Early Primary Period," The Forty-Eighth Yearbook of the National Society for the Study of Education, 59-60 pp., 1949.
- Hinkelman, Emmet Arthur. "Relationship of Reading Ability to Elementary School Achievement," Educational Administration and Supervision, 42:65, February, 1956.
- Hinrichs, Marie A. "The Underpar Child," The Journal of School Health, 27:82, March, 1957.
- King, Inez B. "Effects of Age of Entrance Into Grade I Upon Achievement in the Elementary School," Elementary School Journal, 53:336, February, 1955.
- Kazienko, L. W. "Beginning Grade Influence on School Progress," Educational Administration and Supervision, 40:219, April, 1954.

Looney, David L. "The Use of Mental Age Grade Placement in Evaluating Achievement in the Elementary School," School and Community, XLIV:24, April, 1958.

McCandless, Boyd R. "Should A Bright Child Start to School Before He's Five?," Education, 77:470, February, 1957.

Miller, Vera V. "Academic Achievement and Social Adjustment of Children Young for Their Grade Placement," Elementary School Journal, 57:257, February, 1957.

Noble, McS. "Basic Data on I. Q. and Achievement Tests," American School Board Journal, 33:36, September, 1957.

Opinion Poll -- "For Entering School -- A Nation Wide Sampling of Superintendents Opinions," Nations Schools, 56:6, August, 1955.

Thompson, Ethel. "The Ungraded Plan," National Education Association Journal, 47:16, January, 1958.

"Too Young For School?," Life, 35:89, September 7, 1953.

Vinacke, W. Edgar. "Intelligence Tests and Children's Abilities," Education, 77:421, March, 1957.

