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A Comparative Study of the Achievement of Underage and Overage Third Grade Boys and Girls.

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A COMPARATIVE STUDY OF THE ACHIEVEMENT OF UNDERAGE AND OVERAGE THIRD GRADE BOYS AND GIRLS

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CHAPTER I

THE PROBLEM AND RELATED MATERIALS

I. INTRODUCTION

Many educators are becoming concerned with the increasing emphasis, on the part of parents, to enter our nation's youngsters into public schools at an increasingly younger age. Their concern is focused on the apparent maturation gap that seems to exist between a six year old girl and a six year old boy. There seems to be significant data to support the theory that girls are ready for the learning processes at an earlier age than most boys.

There seems to be little uniformity with respect to a universal entrance age requirement. Our society, with pressures from the federal government, agitates for educational programs that will allow youngsters to enter the public school environment at an even younger age. Many states have set up specific age requirements that will control the entrance age of children. However, others, such as Washington, have no statewide established regulations. Therefore, schools may have pupils starting their formal education that have a wide variance in age, maturation and abilities.

II. STATEMENT OF THE PROBLEM

It is the intention of this study to gain some insight into the problem of starting boys and girls into school at an age when they may be too immature to cope with the pressures of the school environment.

The purpose of this study, then, is to locate, compare and analyze some of the differences that seem to exist between underage and overage students and between the two sexes. This study will consist of two separate but integral sections: the first being the survey of literature and the second being a comparison of the achievement of underage and overage pupils.

Many recent studies have been completed in the area of underage and overage achievers, both by psychologists and fellow educators. Both concur on many points concerning the differences that exist between primary-aged boys and girls. Baer, Green, and Hamalainen agree that girls are usually six months more mature than boys of the same age at the time of entrance into school and that this maturity will stay with the girls during most of their elementary years. They also noted that overage pupils had a decided advantage over their younger counterparts and these overage pupils will often achieve at a higher degree of accuracy.

III. LIMITATIONS OF THE STUDY

The scope of this study will be limited to the amount of printed material that is readily available in the library at Central Washington State College and the other private libraries of personal contacts. The bulk of the material for the comparative section of the study will come from pupils' files. This study will be limited by the geographic location of the school districts which so kindly consented to the use of their pupil records.

IV. DEFINITION OF TERMS

To avoid any confusion of intent of meaning the following terms are defined according to their use in this study.

Underage Pupils

Underage Pupils denotes those pupils whose birth-dates are after April 1.

Overage Pupils

Overage Pupils denotes those pupils whose birth-dates are prior to April 1.

CHAPTER II

REVIEW OF THE LITERATURE

The problem of admission of pupils into our public schools has not developed overnight. Much time and effort has gone into the study of when to enter youngsters into kindergarten or first grade. Educators have wrestled with this problem for many years as society has made its demands upon elementary schools. Carter wrote that parents were agitating for early school admission in 1956. Handy reported that many attempts were being made to formulate some workable criteria concerning school admission as early as 1931 (13:45).

For many years educators have generally accepted the findings of a number of research studies which have demonstrated differences between the sexes in various areas of academic achievement. These studies date back as early as 1931 when Handy expressed concern in this area. His studies indicated that girls seemed to excel in many areas of our curriculum. During the past few years, a number of recommendations have been made to public school educators concerning sexual differences. Some authorities have advocated that boys be kept in kindergarten if they lack maturation, while others feel they should start kindergarten at an older age (13:31).

I. DIVERSITIES IN ENTRANCE AGE

A controversial issue in recent years has been the flexibility in entrance age requirements within school systems and its relationship to individual differences among children. The issue has been stimulated by the increasing awareness concerning developmental differences among pupils, the rate at which they learn, and the degree of learning they can attain. Whereas current admission policies vary, admission by chronological age is the typical criterion. It is also known that many school districts are quite dissatisfied with their present admission policies, but are hesitant to change them due to citizens' tendencies to maintain the status quo.

In considering the diversities that exist within public schools, Ilg and Ames offered the following table to express the need for some uniformity (15:19).

TABLE I

DIVERSITIES IN ENTRANCE AGE REQUIREMENTS

Required Entrance Date	Age at Entrance	Number of States *
No date set	--	11
Local decision	--	6
Six by January 31	5^{7}	1
Six by December 31	5^{8}	11
Six by December 1	5^{9}	3
Six by November 1	5^{10}	4
Six by October 1	5^{11}	6
Six by September 15	6	9
	Total =	51

(* Including District of Columbia)

Median age for those states with a state-wide date....5^{10}

Mean age for those states with a state-wide date .....5^{9}

These differences are vital to our affluent society as youngsters seldom graduate from the schools that they enter as first graders.

II. AFFECT OF CHRONOLOGICAL AGE

When a child is put into a classroom at an early age, it might not be in the best interest of the child's achievement and adjustment. A child with a rapid rate of mental growth appears to be ready for school long before his chronological age measures up to local entrance standards, but is he really ready? Weiss found that children who were superior in intelligence, but young, performed at a lower level than children who were older, yet of only average intelligence. Weiss used the California Test of Mental Maturity; California Test of Personality, a sociometric test; and teacher rating scales. Weiss' data indicated that pupils placed in a regular kindergarten class, underage pupils of above average intelligence may be expected to achieve and adjust approximately at the level of the remainder of the class. While the underage children achieve and adjust better than the normal age children of below average intelligence, they may be expected to achieve below the level of children of comparable intelligence who enter kindergarten as the oldest group(24:53-54).

Teachers in the elementary school often assert that they could teach more efficiently if all children

were over six years of age when admitted to the first grade. Occasionally some other criterion is suggested as a cutting off point, generally an age other than the one being suggested here.

A fairly recent study carried out by Green is similar to Weiss' study. Children who entered the first grade being five years and eight months old were compared with an older group of children who entered first grade being six years and eight months old. At the end of the sixth grade, the younger group had ten pupils who had been retained, the older group had only one such pupil. It was claimed that average attendance was better with the older group although no statistics were offered in defense of this claim. Green concluded that additional months of chronological age at the beginning of grade one is an important factor in a child's ability to meet imposed restrictions and tensions that the school generally presents. The author also disclosed that girls seemingly had fewer difficulties than boys (9:45).

Carroll, whose study tends to substantiate the previous findings, states that interest in this area resulted from hearing elementary teachers frequently explain a child's low academic achievement with an observation such as, "He is so young and so immature." A few

recent investigations have suggested that mental age and intelligence can be over-emphasized as predictors of the child's early school success. Certain other factors, social, physical, and psychological appear to deter or facilitate the use the pupil can make of his learning opportunities (5:94).

A recent study reported by Carter compared the achievement of one hundred children who had entered the Austin Public Schools. Fifty of these children were underage and fifty were overage when they entered grade one. Matching was done on the basis of sex and intelligence. Carter found that the chronologically older child had an advantage over the younger one throughout elementary school, since eighty-seven percent of the underage pupils did not attain the achievement level of the normal age group. The sex factor appeared to be operative also, since the underage boys made more low scores and fewer high scores than the underage girls.

Carter's study formulated the following hypothesis: third graders who entered grade one prior to their sixth birthdates do not differ significantly in reading and arithmetic achievement from children of the same grade level who entered first grade after they were six years of age. Also, children who entered first grade before their sixth birthdate demonstrate as satisfactory adjustment to the school situation by the end of the third

grade as their older classmates (6:97).

Carter's findings tend to indicate that older pupils made consistently higher scores than their younger classmates. Grade placement scores for total reading showed that the overage group scored consistently above the 5.0-5.9 range, while the younger group had only two pupils that scored in this range. Although differences between the sex groups were not as significant, the data suggests that the boys tended to find reading more difficult than the girls. Nearly twice as many of the younger girls scored in the 4.0-4.9 range than did the younger boys. Of the lower scores on the tests, the majority were acquired by underage boys (6:97).

The conclusions of Carter's study were that the data obtained does not support the hypothesis formulated at the outset. Rather, it was suggested that even a few months of additional growth and development may constitute an advantage when the pupil embarks upon his education. This appears to be the only factor to explain the significantly better scholastic progress made by the overage pupils in this study. Although differences between sex groups are not as statistically significant, they are in the expected direction and support the accumulated evidence of a sex factor that is operative in early achievement (6:101).

A study carried out by King disclosed some significantly different but pertinent data. This study was carried on in the public schools of Oak Ridge, Tennessee, and utilized one hundred pupils. The mean intelligence quotient of the younger group was 102.04 and that of the older group was 100.08. King's study was carried on at a time after these students had been in the Oak Ridge system for six years. This study sought answers to four questions: (1) How does the achievement of pupils who enter grade one early in terms of chronological age compare with that of pupils who enter grade one later (pupils being approximately eight months of age older)?; (2) Do younger entrants tend to be retained more often than older entrants?; (3) Are boys more frequently retained than girls?; and (4) Are there more problem pupils among younger than older entrants? (17:331-336)

A record was made of the achievement scores earned by the pupils on the Stanford Achievement Test near the end of the sixth year in school. These scores represent the total overage achievement and are recorded in grade equivalent terms. The scores for the students in the older group ranged from grade placements of 5.4 to 11.3, while the scores for the pupils in the younger group ranged from grade placements of 3.8 to 9.6. It should be

remembered that the intelligence quotients of the younger group were somewhat higher; however, the mean achievement for the older group was slightly above grade seven while the mean for the younger group was slightly above grade six. The t-test at the five per cent level was significant. Only one pupil who had entered grade one older than six years of age was retained, while ten pupils who had entered younger than six years of age were retained. Of the eleven retentions, only three were girls. This finding indicated that chronological age at time of entrance to grade one is of more significance for boys than girls (17:331-336).

III. PERSONAL AND SOCIAL ADJUSTMENT AND ACHIEVEMENT

An analysis of King's study showed there was a marked difference between the records of the pupils in the two groups when considering personal and social adjustment. These differences were noticeable in the number having speech defects, nervous indications, and personal and social maladjustments. Seven pupils in the younger group attended a corrective speech class for one or more years as compared with two in the older group. Again, it is noticeable that seven of these nine are boys. Ten

children in the younger group were described by their teachers with such phrases as emotional problems, facial tics, bites nails, cries often, or unduly nervous; while similar remarks were made about only three of the older group. King stated that:

> . . . undersirable growth characteristics were much more evident in the younger group. Nineteen boys and sixteen girls in the younger group were known to teachers to have been maladjusted in some way. Three of these had been referred to the school psychologist for special help. In the older group there were only three boys and three girls whose records indicated poor personal and social adjustment. Phrases most often used in describing these children were; rejected, insecure, aggressive, timid, withdrawn, and immature. Of the pupils who had been referred to the school psychologist for special help, three were in the younger group while only one was in the older group (17:336).

A fairly conclusive survey was done by Baer concerning progress and adjustment made by underage and overage pupils. This study utilized a group of overage and underage pupils that were first checked at the kindergarten level. At grade eleven a comparison was made encompassing the following characteristics; intelligence, size, attitude toward school regulations, dependability, and emotional stability. It was found that very little variance in intelligence was noted; overage pupils were somewhat larger, overage girls ranked higher than overage boys and underage pupils in the following: favorable attitudes toward school regulations, dependability, and

emotional stability (2:19).

Baer concluded that, as a group, overage pupils made better school progress than did underage pupils. Overage pupils from kindergarten through grade ten made significantly higher marks in subjects; scored higher on achievement tests; were rated higher on personal trait inventories by their teachers; and were significantly more successful in maintaining regular progression from grade level to grade level. Also, the differences between boys and girls were greater than the differences between the overage and underage pupils for three of the personal trait ratings, thus indicating sex-associated factors at work in these ratings.

IV. SEX AND ACHIEVEMENT

Many subject areas have been utilized by various researchers striving to test the differences that exist within various age groups and sex groups. Perhaps the area that is most commonly tested in the many studies is that of reading. Gates used pupils who were much alike in intelligence, aptitude, and socioeconomic backgrounds. The results of this study indicated that the older the pupil, the better his chances of success. Also, Gates reported that girls' reading speeds and understandings of vocabulary were much more proficient than that of the

boys. This superiority seemed to follow the pupils from grade to grade as they were tested in later years (8:433).

A comparable study was carried on by Anderson with quite similar results. This study reported that a difference exists in favor of the girls as fifty-two per cent of the girls learned to read at an age when pupils are normally considered to be first graders as compared to thirty-three per cent of the boys. This difference was significant at the one per cent level of confidence. It was also noted that the average reading age for girls was 83.1 months as compared to 89.6 for the boys (1:451).

Several points of interest were noted in Anderson's study. Girls not only get off to an earlier start but tend to retain this advantage through the grades. They also excel on reading readiness tests and have fewer reading disabilities. Younger pupils were noticed to have more frustrations than their older classmates. Maturation seemed to be the most likely explanation for these differences (1:451).

In Hamalainen's study, elementary principals of Nassau County, New York, were asked to list some of the common problems they face in dealing with underage pupils. These principals submitted a list that not only

dealt with the underage pupil but the normal age and overage pupils as well. They reported eighty-two per cent of the underage pupils having problems in scholastic achievement, while only seventy-nine per cent of the overage pupils, and fifty-two per cent of the normal age pupils were having problems in the same area. In the area of social adjustment for the same grades, one through three, ninety-one per cent of the underage pupils, eighty-two per cent of the overage, and forty-five per cent of the normal age pupils had social adjustment problems. The disparity between the groups was even more evident in emotional adjustment, where ninety-four per cent of the underage, forty-five per cent of the overage and thirty-three per cent of the normal age pupils had measurable problems. The normal pupil was found to be the best adjusted of all pupils studied by Hamalainen (11: 406-411).

Hamalainen's study, as did many of the previous studies, formulates the belief that the underage pupil is at a disadvantage concerning achievement. Chronological age, mental age, and intelligence are all vital factors that must be taken into account before any definite criterion is established concerning a suitable entrance age into school.

Hall found that in both clinical populations and in case referrals for remedial education programs in the elementary schools there is a great amount of emotionally based learning inhibitions in boys, especially in the seven to twelve year age range. Checking through various referral lists and assessing the groups of children who comprise remedial reading classes, Hall found the ratio of boys to girls ran well over five to one. Hall's study tends to indicate that neurological dysfunction was one of the causes for boys' poor performance (10:16). Pauley offered another reason for this problem. He feels that in entirely too many instances the mother tries to infantalize her sons (21:8).

Gaskill and Fox made a careful assessment of pupils who had received psychological screenings for early admission. They concluded that delay would appear to be contraindicated for girls and that there might be a possibility of a cumulative unfavorable impact upon the academic progress of the boys who do not delay. However, Gaskill and Fox felt that the differences that existed between underage and overage pupils in the primary grades could still be noted in later years (7:336). A study by Kagan, however, suggested that differences noted in the performances of boys and girls in the primary grades often reverse themselves in high school.

This seems contrary, in part, to the numerous studies completed in this area. To support his statement, Kagan found that kindergarten pupils, whose chronological ages were 4.3, remained scholastically superior, participated in more extracurricular activities, achieved more honors, and sought college in greater numbers than did their older classmates (16:163).

Bigelow reported on the achievement of students based mainly on chronological age. The findings in this study indicated that entering pupils into our schools should be a somewhat selective process. The following criteria could be followed with few exceptions. If a pupil is chronologically between six and six-years four months of age, and has an intelligence quotient of one-hundred and ten or higher, he is practically certain to succeed in school. However, if a child is younger than six years chronologically and has an intelligence quotient of less than one-hundred and ten, his chance of success is lessened. It would be much better for such pupils not to attempt first grade at this time in life. The same may be said of pupils chronologically between the ages of six and six-years four months with an intelligence quotient of less than one-hundred (3:192).

V. ACHIEVEMENT AND THE SCHOOL DROPOUT

Schrieber indicated in the following statement concerning school dropouts:

> Student frustration is often caused by immaturity which may cause student withdrawal and great numbers of social problems. Is the child intellectually and psychologically ready for the school experience, for the specific curriculum, for the demand of comprehension, communication, motor control, and timing that the school experience offers is of vital importance. If not, the student may suffer a series of set-backs which may lead to retention and later dropping from school (20:10).

Pupils from the lower socioeconomic groups reflect Schrieber's thoughts concerning dropouts. Usually these pupils had little experience with textbooks, perceptual tasks demanded by the school, and with language in general. These students then, surely should be screened very carefully and care should be taken not to enter these pupils prior to their sixth birthdates (20:10).

From the present data, it cannot be said definitely that there is any direct relationship between age, the early school experience, and the school dropout; but there seems to exist a very strong relationship between the first school experiences of the pupil and academic success and failure. Also, the more invariant the school experience, the more important the early experience would be to the academic success of the pupil. It also

seems likely that pupils who have had a preschool or kindergarten program are more likely to cope with the school environment than are pupils who have not been given this experience (18:270).

Carey expressed the belief that many dropouts are pupils that may have not made the proper start in school or lost interest along the way. They may have been under-age students that were immature and lost interest (4:54).

Miller studied pupils that had been admitted young but had been further screened by a readiness test. Of the five pupils that were admitted young to kinder-garten, all were achieving at an average to superior level when compared with their average age and overaged peers.

Scholarship and deportment had been rated each year on report cards by their teachers. These ratings were good or excellent in all years with one exception. One pupil received a scholarship rating of fair in the first grade. As a whole, the five admitted by the test compared favorably with the overage group in scholarship and deportment as rated by their teachers.

Miller's study does not take in the whole spectrum of the educational process. There is the question of personal and social adjustment. To obtain this data, a

questionnaire was sent to the teachers who had contact with these underage pupils. Teachers were asked to make ratings on general health, physical size, nervousness, anxiety, special abilities, popularity ambition, conformity, and self-confidence. Careful analysis of the results indicated that these pupils, on the whole, were well adjusted socially and emotionally. In general, the data gave little foundation for the concern that youngsters that are underage are injured from the standpoint of mental health by early admission.

The conclusion of Miller's study seems to indicate the fact that chronological age is not as vital as proposed to the academic, social, and emotional adjustment of the pupil. The underage pupil may do very well in school as this data indicated. Pupils young for their grade have a good chance for success, not only academically but socially as well and their superiority becomes even clearer as they progress through the grades. The fact that pupils of the same chronological age differ widely and that in the final analysis, each pupil must be considered individually, was of prime importance (20:263).

Handy found that underage pupils achieved at the same degree of equivalency as those in Miller's study. Handy noted that the per cent of failure in the underage

group was markedly less than that of the overage group, the per cent of "C" grades was much less in this group, the per cent of "A" and "B" grades combined in the underage group was as great as that obtained by the average pupils. The underage group was found to make as good an academic record as the older pupils. There seems to be no marked correlation between the ages of the overage pupils and grades obtained. It was not true that the overage pupils obtained better scores, in fact, the trend seemed to be in favor of the younger pupils.

This study of Handy's was carried on into the high school level to test the superiority of the underage pupil. Underage pupils obtained better grades, as 52.9 per cent scored eighty or higher while only 27.6 per cent of the overage pupils were able to meet that standard. Also, the underage pupils were the more mature members of the class.

The factors causing failure among underage pupils are similar to those in all pupil groups. These factors consist of irregular attendance and the lack of maturity which causes loss of ability to apply himself (12:32).

The following recommendations were offered concerning the entrance of school pupils. The pupil should possess at least a five year and eight month chronological

age before he is allowed to enter or the mental age should be five years and ten months, and he should be physically fit to perform the school tasks. It was pointed out that chronological age cannot be used as a sole determiner, as it is found in too many cases that a pupil of five years of age does not necessarily possess a five year old level of behavior (14:321).

VI. SUMMARY OF CHAPTER

In summary, there seems to be a great amount of conflicting material presented concerning underage and overage pupils. The majority of the writers agree that underage pupils will encounter many difficulties as they pursue their education. Rather than one obvious cause for under-achievement, it appeared that many conditions reflect upon the failure or success of the pupil.

The information obtained from the review of literature indicates that underage pupils, especially boys, are frustrated more readily by the educational processess than overage pupils. The data suggests that a few months additional growth, both mentally and physically would be of enormous value to the primary aged pupil as he encounters the obstacles of obtaining an education.

CHAPTER III

PROCEDURES

The extensive gathering and compilation of the data for the study was done in two sections. The first section, which was encompassed in Chapter I and Chapter II, provided background information. The second section, which is presented in Chapter III and Chapter IV, provided the procedures and results of the comparative achievement study.

Because of the contradictory opinions concerning the achievement of underage and overage pupils, the decision was reached to make a comparative study of the two groups. The samples were selected from three school districts, Ellensburg, Kittitas, and West Valley of Yakima. These schools were selected because of their availability, location, and willingness of school psychologists to participate in the study. No other school districts were contacted.

It was decided to use two groups of pupils, each comprised of twenty-five boys and twenty-five girls. The one-hundred pupils were selected from the three districts in approximately the same proportion as each district's total school enrollment was to the total enrollment of

the three districts. This procedure meant that fifty pupils were selected from West Valley, forty from Ellensburg and ten from Kittitas. All the pupils in the third grade of the three schools were categorized as either underage or overage and then a random selection was made for the two groups.

All of the pupils in the three districts were administered the Stanford Achievement Test in the Spring of 1967.

Student accumulative records were utilized to obtain intelligence quotients, academic rankings, and retentions of the one-hundred pupils used in the study.

Information from the school psychologists was obtained concerning these youngsters that had been referred to them. Also, speech therapists and other school specialists were consulted concerning pupil referrals.

A simple t-test was made to test the significance of no difference between the two groups.

CHAPTER IV

THE COMPARATIVE STUDY

The comparative study is reported in the following tables. The data obtained from the various school records was used to show the relationship of intelligence, achievement, academic ranking, and referrals to special school services of the one-hundred samples. The information was compiled and a t-test was applied to test for significance in the difference of the means of the underage and overage pupils.

I. INTELLIGENCE QUOTIENT AS A DETERMINER

Table II was used to compare the intelligence quotient range of the fifty boys utilized by the study. The mean score of the twenty-five underage boys was 108.52. The mean score of the twenty-five overage boys was 104.88. A t-test of the null hypothesis was made obtaining a value of 1.44. The five per cent level of significance for forty degrees of freedom is 2.02, thus, the null hypothesis is retained.

When comparing the intelligence quotient range of the fifty girls as shown in Table III, the discrepancy was much less than that of the boys. The underage girls

obtained a mean score that was .92 greater than the older twenty-five girls. The t-test of the null hypothesis was made and a value of 1.34 obtained, thus, the null hypothesis was retained and no significant difference between the groups was noted.

Reported in Table IV, is the comparison of the fifty underage pupils and the fifty overage pupils. The mean score for the underage pupils was 109.60. The mean score for the fifty overage pupils was 107.32. A t-test of the null hypothesis was made obtaining a value of .26. The null hypothesis is retained at the five per cent level of significance.

TABLE II

INTELLIGENCE QUOTIENT RANKING
BOYS

UNDERAGE	OVERAGE
123	124
122	122
121	116
121	114
120	112
117	110
114	110
114	109
112	109
111	107
111	106
109	106
108	104
107	104
107	103
107	101
105	101
103	101
102	100
101	97
101	95
95	94
95	94
94	92
93	91

$B = 2,713$

$N = 25$

$\bar{B}u = 108.52$

$S^2 = 80.57$

$B = 2,622$

$N = 25$

$\bar{B}o = 104.88$

$S^2 = 73.55$

$t = 1.44$

TABLE III

INTELLIGENCE QUOTIENT RANKING
GIRLS

UNDERAGE	OVERAGE
126	128
124	125
123	123
120	118
119	117
119	116
117	116
117	114
116	113
114	111
113	111
111	110
111	108
107	108
107	107
107	107
106	106
105	106
105	104
103	104
101	103
101	101
100	100
99	95
96	93

$Gu = 2,767$ $G_o = 2,744$

$N = 25$ $N = 25$

$\overline{Gu} = 110.68$ $\overline{Go} = 109.76$

$S^2 = 51.15$ $S^2 = 72.10$

$t = 1.34$

TABLE IV

INTELLIGENCE QUOTIENT RANKING

UNDERAGE PUPILS		OVERAGE PUPILS	
Xu =	5,480	Xo =	5,366
N =	50	N =	50
$\overline{X}u$ =	109.60	$\overline{X}o$ =	107.32
s^2 =	76.52	s^2 =	78.78
	t = .26		

II. COMPARISON OF ACHIEVEMENT TEST SCORES

The one-hundred pupils were given the Stanford Achievement Test and the results are reported in tables V, VI, and VII. Contained in Table V, are the scores of the twenty-five underage boys compared to those of the twenty-five overage boys. The underage boys obtained a mean score that was .072 greater than the overage boys. A t-test of the null hypothesis was made and a value of .691 was obtained, thus, the null hypothesis is retained.

Reported in Table VI, are the scores obtained by the fifty girls utilized by the study. The underage girls obtained a mean score of 4.364. The overage girls obtained a mean score of 4.440. A t-test of the null hypothesis was made obtaining a value of .736. The null hypothesis is retained at the five per cent level of significance.

When the fifty underage pupils were compared to the fifty overage pupils as shown in Table VII, the fifty older pupils obtained a mean score that was .002 greater than the fifty underage pupils. A t-test of the null hypothesis obtained a value of .27, thus, the null hypothesis is retained.

TABLE V

ACHIEVEMENT RANKING
BOYS

UNDERAGE	OVERAGE
6.1	6.1
6.0	6.0
5.0	5.0
4.9	4.9
4.3	4.8
4.3	4.6
4.2	4.3
4.2	4.1
4.1	4.0
4.1	3.9
4.0	3.7
3.8	3.6
3.8	3.4
3.6	3.3
3.6	3.3
3.3	3.2
3.1	3.0
3.0	2.9
3.0	2.8
2.8	2.8
2.8	2.7
2.7	2.6
2.5	2.5
2.4	2.3
2.1	2.1

$Bu = 93.7$	$Bo = 91.9$
$N = 25$	$N = 25$
$\overline{Bu} = 3.748$	$\overline{Bo} = 3.676$
$S^2 = 1.024$	$S^2 = 1.122$

$t = .691$

TABLE VI

ACHIEVEMENT RANKING
GIRLS

UNDERAGE	OVERAGE
6.2	6.4
6.1	6.3
5.9	6.2
5.8	5.3
5.3	5.2
5.1	5.1
4.8	5.1
4.6	5.1
4.6	4.9
4.6	4.9
4.4	4.6
4.2	4.2
4.2	4.2
4.2	4.0
4.1	4.0
4.1	3.9
4.0	3.8
3.9	3.8
3.8	3.6
3.8	3.6
3.7	3.6
3.7	3.4
3.0	3.4
2.7	3.2
2.3	3.2

$Gu = 109.1$ $\quad$ $Go = 110.0$

$N = 25$ $\quad$ $N = 25$

$\bar{G}u = 4.364$ $\quad$ $\bar{G}o = 4.44$

$S^2 = .922$ $\quad$ $S^2 = .419$

$t = .736$

TABLE VII

ACHIEVEMENT RANKING

UNDERAGE PUPILS	OVERAGE PUPILS
$Xu = 202.8$	$Xo = 202.9$
$N = 50$	$N = 50$
$\bar{X}u = 4.056$	$\bar{X}o = 4.058$
$S^2 = 1.068$	$S^2 = .914$
$t = .027$	

III. COMPARISON OF ACADEMIC STANDING

To examine the progress of the one-hundred pupils academically, tables VIII, IX, and X were constructed. These tables were used to report the relationship of the grade point averages of the one-hundred pupils. Table VIII shows the comparison of the twenty-five underage boys and the twenty-five overage boys academically. The underage boys obtained a mean grade point of 2.412. The overage boys obtained a mean grade point of 2.456. A t-test of the null hypothesis was made and a value of .422 was obtained. The five per cent level of significance for forty degrees of freedom is 2.02; thus, the null hypothesis is retained.

Contained in Table IX is the academic ranking of the twenty-five underage girls and the twenty-five overage girls. The mean grade point for the underage girls was 2.992. The mean grade point for the overage girls was 2.952. A t-test of the null hypothesis was made and a value of .024 obtained. Thus, the null hypothesis is retained.

The comparison of the one-hundred pupils as shown in Table X, reported the overage pupils mean grade point was .052 greater than that of the underage pupils. A t-test of the null hypothesis obtained a value of .304; thus, the null hypothesis is retained.

TABLE VIII

ACADEMIC RANKING
BOYS

UNDERAGE	OVERAGE
3.7	3.7
3.6	3.6
3.3	3.3
3.2	3.3
3.1	3.1
3.0	3.1
2.8	3.1
2.8	3.0
2.7	2.9
2.7	2.6
2.6	2.6
2.5	2.5
2.4	2.4
2.1	2.4
2.1	2.2
2.1	2.1
2.1	2.1
2.0	2.0
1.9	1.9
1.9	1.8
1.8	1.8
1.7	1.7
1.5	1.6
1.4	1.3
1.3	1.3

$Bu = 60.3$

$N = 25$

$\overline{Bu} = 2.412$

$s^2 = .394$

$Bo = 61.4$

$N = 25$

$\overline{Bo} = 2.456$

$s^2 = .460$

$t = .422$

TABLE IX

ACADEMIC RANKING
GIRLS

UNDERAGE	OVERAGE
3.9	3.9
3.8	3.9
3.7	3.8
3.6	3.6
3.5	3.6
3.4	3.6
3.3	3.4
3.3	3.3
3.3	3.3
3.1	3.1
3.1	3.1
3.1	3.0
3.1	2.9
3.0	2.9
3.0	2.8
3.0	2.7
2.8	2.7
2.7	2.6
2.7	2.5
2.6	2.4
2.6	2.4
2.4	2.2
2.1	2.1
2.0	2.1
1.7	1.9

$Gu = 74.8$ $Go = 73.8$

$N = 25$ $N = 25$

$\overline{Gu} = 2.992$ $\overline{Go} = 2.952$

$S^2 = .280$ $S^2 = .304$

$t = .024$

TABLE X

ACADEMIC RANKING

UNDERAGE PUPILS	OVERAGE PUPILS
$Xu = 135.1$	$Xo = 135.2$
$N = 50$	$N = 50$
$\overline{Xu} = 2.652$	$\overline{Xo} = 2.704$
$s^2 = .189$	$s^2 = .447$
$t = .304$	

IV. INCIDENCE OF PUPIL REFERRAL

Table XI was utilized to report the incidence of pupil referral to various school special service personnel. When considering the number of pupils referred to school psychologists, as reported in Table XI, more underage pupils were referred. Similar results were noted when considering referrals to speech therapists and remedial programs. Also more underage pupils were retained than overage pupils. In all referral areas of Table XI, it was found that twenty-four underage pupils were referred as compared to twelve overage pupils. Nearly the same two to one ratio existed when comparing boys to girls, as approximately twice the number of boys were referred to the various school services.

TABLE XI

REFERRALS LISTED

	UNDERAGE PUPILS		OVERAGE PUPILS	
	Boys	Girls	Boys	Girls
Psychological. . . .	3	1	1	0
Speech Therapists	4	2	2	1
Remedial Reading	6	1	4	0
Retentions	6	1	4	0
TOTALS	19	5	11	1

CHAPTER V

SUMMARY AND CONCLUSIONS

I. SUMMARY

The review of literature indicated that many factors often influence the performance of pupils in their school environment. Much time and effort has been devoted by researchers in the field of education isolating the causes of poor pupil performance. A wide diversity of explanations have been offered by the experts in the field. The fact that a pupil is underage has been subject to various studies. Many of these studies have offered conclusive evidence that underage is a factor for poor achievement, whereas, other studies have reported that no significant differences were found.

To summarize the results of this comparative study, the reader could conclude that little significant difference existed. However, some underlying reasons may be rationalized. The underage pupils had higher intelligence quotients, although not significantly higher as tested by a t-test. Also, the size of the sample could have influenced the outcome of the study.

It was reported in Table XI that nearly twice the number of underage pupils were referred to school special service specialists. These underage pupils achieved as efficiently as the overage pupils. However, the stress of achievement may be a related factor to the high number of referrals found among the fifty underage pupils.

Also reported in Chapter IV, the comparative study, were the differences that existed between the sexes. The underage boys scored lower than the underage girls when comparing their intelligence quotients, achievement, and academic ranking. The ratio of referrals found when comparing the underage boys with that of the underage girls was approximately two to one, therefore, indicating the need for further consideration of differences of learning skills at this age.

This study found that a certain amount of diversity existed in the ages of which pupils may enter grade one. Many public school educators have indicated that this factor may be a related cause to under-achievement. Insufficient data has been found to substantiate this theory.

II. CONCLUSIONS

The findings of Chapter II could indicate to the reader that many differences existed when comparing

underage and overage pupils. However, the results of Chapter IV reported that the fifty underage pupils and the fifty overage pupils were quite comparable. There was no significant difference in intelligence or academic ranking, although slight differences could be found. The underage pupils scored higher in intelligence, whereas, the overage pupils were academically superior. When comparing achievement, it was found that the two groups were statistically comparable. The mean scores gave the older pupils a slight advantage. It should be once again stated that although minor differences were found, none were statistically significant.

This study indicated that pupils that were mature enough to cope with the learning environment would have fewer frustrations than those that were immature. Also, girls were slightly more mature than primary-aged boys.

Further research with larger numbers of pupils may furnish more conclusive evidence to support the hypothesis that underage pupils will not achieve as well as overage pupils.

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