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Integrated Versus Traditional Type of Daily Program for the Seventh and Eighth Grade Room

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INTEGRATED VERSUS TRADITIONAL TYPE OF DAILY PROGRAM FOR THE SEVENTH AND EIGHTH GRADE ROOM

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By

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CERTIFICATE OF APPROVAL

This thesis, offered by Lloyd A. Smith, as a partial fulfillment of the requirements for the Degree of Master of Science in Education in the University of North Dakota, is approved by the Committee under whom the work has been done.

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CHAPTER I

INTRODUCTION

For many years, now, we have found it convenient, in many of our graded and consolidated schools, to have the seventh and eighth grades housed in the same room with one teacher. Also, we have found that the teachers of these rooms have had daily programs that kept them constantly rushing through one class and into another. The length of class period has been very short and there have been numerous class periods during each day. This situation, of a great number of short class periods during each day, has, in itself, been one of the greatest weaknesses, or perhaps we should say, greatest handicaps to both pupils and teachers, in our one-room schools, yet it seems that we are bound to carry it with us into the larger schools. This is one of the very things it has hoped to break away from by "consolidating," and by having larger schools with more teachers. It has been the observation of the writer that seventh and eighth grade rooms, quite generally, have from twelve to eighteen classes daily with only ten to twenty-five minutes for each.

It would seem, then, that now would be a good time to investigate the so-called traditional type of daily program so commonly used in the seventh and eighth grade room in so many of our schools. It would seem that there should be some better or more practical type of daily program suited to the seventh and eighth grades when

placed in one room in charge of only one teacher. The students are not apt to get the most out of their various courses if they have a large number of classes each day and if these classes are only a few minutes in length. It would seem that they should get more out of their work if they had fewer classes per day and the length of class period increased to thirty-five or fifty minutes. Would the students of the seventh and eighth grade room do better work with eight forty minute classes or sixteen twenty minute classes per day? Surely, if there is any type of daily program which will better serve the needs of our seventh and eighth grade room, that program should be found out and its advantages made known.

The writer, for one year, had the opportunity of observing the work and progress of a seventh and eighth grade room in which the individual students or classes had four class periods and four study periods per day. This meant that the classes could be thirty-five to fifty minutes in length and the teacher taught eight classes per day. The teacher of this room had used this type of program the year before and the teacher and the students had liked it very much. It occured to the writer that here was an opportunity to find out, by a testing program, how the progress of the students of this room compared with the progress of similar rooms in

neighboring towns where the teacher had any where from twelve to sixteen classes per day.

Lee and Lee[1] are of the opinion that before any testing program is started, there must be a definite purpose which the testing is to serve, and that there is no justification for testing unless it results in immediate or ultimate improvement in the education of children. They have also pointed out that it is a part of the teaching process to test achievement and also that some of the main uses of standardized tests are to measure progress from time to time or over a given period and to compare the standing of the school with the test norms.

Superintendents and teachers, generally speaking, are interested in knowing the progress of their pupils and in the results or value of their teaching. In this study an attempt was made to find how the progress of seventh and eighth grade pupils in one school compared with the progress of seventh and eighth grade pupils in four other schools.

STATEMENT OF THE PROBLEM

The problem involved in this study is to show that subjects of the seventh and eighth grades may be fused or integrated to such an extent that each grade has only

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[1] J. Murray Lee, and Dorris May Lee, A Guide to Measurement in Secondary Schools, pp. 21-22 and p. 26.

four forty minute classes per day without any loss of progress for the year.

DELIMITATIONS

The purpose of this study is not an exhaustive survey or testing program, but rather, a program of testing that will show rather simply and clearly the progress and total accomplishment of the pupils included in the study. The study has been limited:

1. To seventh and eighth grade pupils only.
2. To schools having the seventh and eighth grades in one room.
3. To schools in which one teacher teaches all the subjects of the seventh and eighth grades.
4. To four control schools and one experimental school.

The study will attempt to answer the following questions:

1. Does the experimental type of program tend to retard or accelerate pupils in comparison with the traditional type of program?
2. Does the experimental type of program impose a greater burden on the teacher or student than the old traditional type?
3. Is the experimental type of program more efficient in use of time than the traditional type?

4. Does the experimental type of program fit into the plan of the new junior high school?

5. Does this type of program adapt itself easily to the present modern trend of text-book writers?

JUSTIFICATION

Since this type of program seems to be coming into more common use under somewhat different situations in some of the larger schools it seems that it should bear investigation as to its possibilities in our small school situations. It is the belief of the writer, that scarcely anything has been done in the way of adapting this type of program to our present small town school.

It is very possible that any conclusions drawn from this study will be applicable to situations similar to those found in this study and necessarily conclusive evidence that this type of program is adaptable to all schools under all conditions. It is hoped that this study will help anyone interested in better program building and greater success for seventh and eighth grade pupils in our smaller schools.

DEFINITIONS

Some of the terms used in this study have taken on meanings which are perhaps, peculiar to this study.

In order that there may be a better understanding of the problem and its treatment in this study some such terms are defined here.

1. "Fused Type" of daily program.- That daily program in which some of the subjects are fused into one course, thereby cutting down the number of subjects to be taken by the pupils in the seventh and eighth grades. Incidentally there are fewer classes to be taught during the day with the result that these classes may be given longer periods. In the "fused type" of daily program reading, writing, spelling and grammar were fused into the "English" course. History and geography made up the "social studies" course, and hygiene and agriculture made up the "social science" course. Arithmetic and civics were not fused or combined in any way.

2. Traditional type of daily program.- This type of daily program is one in which all the traditional subjects of the seventh and eighth grades are taught separately and independently of each other, each subject being taught for a short period each day or possibly alternated with another subject so that one might be taught three periods per week and another two periods per week.

3. Experimental school.- That school in which the fused type of daily program is used.

4. Control schools.- Those schools in which the traditional type of daily program is used.

TESTS

1. The achievement tests used were the Unit Scales of

Attainment,[2] forms A and B. Form B was given in November and form A was given in May.

2. The intelligence tests used were the Kuhlmann-Anderson[3] Tests. They were given in November.

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2. Educational Test Bureau, Minneapolis, Minnesota.

3 Ibid.

CHAPTER 2

THE INVESTIGATION

In making this study the writer made use of standardized tests that are rather widely used. The intelligence tests used were the Kuhlmann-Anderson Tests for Grades seven and eight. The achievement tests used in this study were the Unit Scales of Attainment, Form A and Form B, for seventh and eighth grades. These tests are published by the Educational Test Bureau, Minneapolis, Minnesota.

The intelligence tests and Form B of the achievement tests were given during the latter part of November, while the second set of achievement tests, Form A, was given early in May. The tests were given to the seventh and eighth grade pupils of the schools chosen to take part in this study. The five schools that took part were similar in that all had one teacher for the seventh and eighth grades. The four control schools were similar in that they all used the traditional type of daily program, while the experimental school used the fused type of daily program. The tests were administered, and in most cases scored by the teachers of the five rooms tested. Very complete and definite instructions were given to the teachers before the testing was begun.

Lee and Lee[1] in their book "A Guide To Measurement in Secondary Schools" uphold the idea of teachers giving intelligence and achievement tests. Their only question of this procedure is that of economy in the case of intelligence tests. With regard to achievement tests they feel it is a part of their teaching process.

> "The administration of group tests does not require the specialized training of Binet testing, and there is general agreement that teachers can be taught to administer group tests successfully. The only point of difference is whether such procedure is economical.
>
> "There is evidence presented by Keys, which shows teachers get practically the same results when they give group intelligence tests as do special examiners. This means that the issue as to who shall give the tests must be decided on some other basis than that of capability to test.
>
> "There is general agreement that the teacher should be the one to give the standardized achievement tests in most cases. Testing the outcomes of learning is part of the total teaching process and as such should be performed by the classroom teacher. It requires no great skill to give standardized tests. Anyone capable of teaching should be able to administer such tests." [2]

PROCEDURE

This study was an attempt to find, by a testing program, the relation between accomplishments of pupils

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[1] J. Murray Lee, and Dorris May Lee, A Guide To Measurement in Secondary Schools, pp. 44-45

Ibid, p. 45-46

of the seventh and eighth grade room in which the "fused type" of daily program was used and the pupils of seventh and eighth grade rooms in which the old "traditional type" of daily program was used. The seventh and eighth grade rooms of five schools took part in the study. To find what progress had been made or what was the actual accomplishment of these pupils, use was made of standardized achievement tests given at the same time to all the pupils taking part. Form B of these tests were given in November, three weeks after the opening of school in the fall; and form A was given in May, one month before school closed. By the use of such tests it can be found how the pupils so tested rate or compare in accomplishment or progress with the pupils of similar age or grade in the various schools of the country at large. The tests used for this purpose were the Unit Scales of Attainment, which are very highly standardized. The norms for these tests were derived by using the scores of 8500 children in fifteen states representing every section of the country. It was from these tests that educational ages were determined.

But the fact that the pupils of a particular school of the community have progressed to a certain point, or that they have attained a certain degree of accomplishment, while the pupils of another school have

not nearly reached so high a degree of attainment, is hardly sufficient evidence on which to base this study. In order to know a fair comparison it seems that it is necessary to know something of the intelligence or actual abilities of the pupils concerned. To measure the intelligence or ability there are many standard intelligence tests. The one used in this study was the Kuhlmann-Anderson Tests, which were given at the same time as the first achievement tests. From these intelligence or mental tests the mental ages and I.Q's., of the entire group were determined. Having obtained the chronological age, the mental age, the I.Q., and educational age of each child, steps were taken to determine the achievement or progress of the pupils during the five month period covered by the tests, and also their total accomplishments at the close of the testing program.

TABLE I

COMPARISON OF CLASSIFICATION,
NUMBER OF TEACHERS AND PUPILS
AND TEACHING LOAD

School	Classification	Total No.	Teachers in System	Number of Pupils in: Grade 7	Grade 8	Teaching Load
A	2nd. class	141	7	12	13	25
B	3rd. class	184	6	6	9	15
C	2nd. class	132	7	9	8	17
D	1st. class	223	8	9	12	21
E	2nd. class	266	8	14	18	32

Information regarding the teachers of the seventh and eighth grade rooms of the participating schools, shows that the teacher in school E was a woman and that the other four were men; that two teachers were in the age group twenty-one to twenty-six and three were in the age group twenty-seven to thirty; and that all had two years of training above high school in a Teacher's College, except that the teacher in school B and the teacher in school C indicated that they had done three and four years of work respectively. The teacher in school B was teaching his first term of school, while the rest were all in their fifth and seventh year of teaching, with four and five years of experience in teaching grades seventh to ninth. Data concerning the seventh and eighth

grade teachers are given in Table 2.

TABLE 2

AGE, SEX, TRAINING, AND EXPERIENCE OF TEACHERS

	A	B	C	D	E
Age Group	27-30	21-26	21-26	27-30	27-30
Male or Female	M	M	M	M	F
Years of Training Above H.S.	2	3	4	2	2
Years of Teaching Experience	7	1	5	5	5
Years of Experience Grades 7-9	5	1	5	4	5

SCHOOLS, GRADES, AND TEACHERS

The five schools taking part in the study were chosen from the Northwestern part of North Dakota in the counties of McHenry, Ward, Mountrail and Divide. These schools were chosen especially because they housed their seventh and eighth grades in one room and had only one teacher for all subjects. The schools will be designated by the letters: A, B, C, D, and E. The experimental school was assigned the letter A, while the four control schools were assigned the letters B, C, D, and E.

The five schools are of varying classification and size, as shown by Table I. One was a first class high school belonging to the North Central Association. Three

of the schools were second class high schools, while the other was a third class high school. The total enrollment ranged from one hundred thirty-two in school C, to two hundred sixty-six in school E, and the number of teachers ranged from six to eight. The number enrolled in the seventh and eighth grade rooms varied from fifteen in school B to thirty-two in school E, with a total of one hundred ten pupils in the five rooms included in this study.

Table I compares the five schools as to classification, total number enrolled, the number of teachers, the number of pupils in the seventh and eighth grades and the teaching load.

DAILY PROGRAMS

A study of the daily programs submitted by the teachers of the five seventh and eighth grade rooms concerned in this study reveals that there is considerable lack of uniformity in many ways. Two of these programs have been reproduced here for the sake of comparison. Table 3 shows the daily program for the seventh and eighth grade room of school A, while Table 4 shows the daily program for the seventh and eighth grade room in school C. School A is the experimental school in which the "fused type" of daily program is used, while school C is typical of the four control

schools in which the traditional type of daily program is used.

Perhaps the most striking difference noted on these two daily programs is the number of periods into which the school day has been divided. In counting up the periods we find that school A has nine and school C has eighteen, if we count periods designated "Opening Exercises" and "Study Period." We find, then, that the day is school C is divided into at least twice as many periods as in school A.

Another very striking difference found when examining these two daily programs is the number of minutes given to each period. In both cases "Opening Exercises" is given fifteen minutes, but from there on school A has from thirty-five to fifty minutes for each period, while school C has only ten to twenty-five minutes for each period. This means that in school C there is a change or shift of activity every ten to twenty-five minutes.

The names of the subjects taught in the two schools just mentioned seem to be quite different, too. It would seem from looking at these two daily programs that school A has left out many of the old traditional subjects listed on the daily program of school C, and substituted two or three new ones. Upon investigation it was found that these new subjects offered by the

TABLE 3

DAILY PROGRAM FOR THE SEVENTH AND EIGHTH GRADE ROOM

SCHOOL A

Class Begins	No. Minutes	Subject	Grade
9:00	15	Opening Exercises	
9:15	40	Arithmetic	7
9:55	50	Arithmetic	8
10:45	35	Social Studies	7
11:20	40	Social Studies	8
	NOON INTERMISSION		
1:15	40	English	7
1:55	50	English	8
2:45	35	Social Science	7
3:20	40	Citizenship	8

Grade Music - 20 minutes, Monday and Wednesday, (1:15-1:35)

Harmonica Band - Tuesday and Thursday, 30 minutes after school.

Boys' Basketball-Monday and Wednesday (4:00 - 5:00)

seventh and eighth grade teacher of school A were actually made up of two to four of the traditional subjects listed in Table 4. That is, some of the traditional subjects were fused or integrated into one subject, sometimes taking on a new or more inclusive title. It was found that "Social Studies" in school A was made up of history and geography, while "Social Science" was made up of hygiene and agriculture. In the case of "English" as found in school A it was found to be a combination of reading, writing, spelling and grammar. It will be seen then that all the subjects listed in Table 4 are in one way or another included in Table 3.

TABLE 4

DAILY PROGRAM FOR THE SEVENTH AND EIGHTH GRADE ROOM

SCHOOL C

Class Begins	No. Minutes	Subject	Grade
9:00	15	Opening Exercises	
9:15	15	Literature	7
9:30	20	History	8
9:50	25	Arithmetic	7
10:15	20	Arithmetic	8
10:35	5	Study Recess	7 & 8
10:45	15	Agriculture	7
11:00	20	Citizenship	8
11:20	15	History	7
11:35	20	Music	7 & 8
		NOON INTERMISSION	
1:00	20	Study Period	
1:20	20	Grammar	7
1:40	20	Grammar	8
2:00	15	Penmanship	7 & 8
2:15	20	Literature	8
2:35	5	Rest Period	
2:40	25	Geography	7
3:05	20	Study Help	
3:25	10	Spelling	7
3:35	10	Spelling	8
3:45	15	Hygiene	7
3:10	35	Physical Ed. Tues.& Thursday	7 & 8

Table 5 shows the total number of minutes devoted to each of the various subjects and activities in the several schools. First of all it is found that the total number of minutes of school during one week varies from 1700 minutes in school E to 1800 minutes per week in school D. Schools A, and B have 1725 minutes of school per week, while school C has 1775 minutes. Schools A and D do not give any time for recess, while schools B and E devote 150 minutes per week to recess. School C has 50 minutes of recess per week. In school A, it is found that the seventh grade is given less class time, but more study time than any other seventh grade. In school D was found the greatest number of minutes of class time and in school B was found the smallest number of minutes devoted to study. In the eighth grade, 900 minutes per week were given to class time in school A, while school C gave only 615 minutes per week to class time. In this same grade it was found that school C had the greatest amount of time given to study and school B had the smallest.

ESTABLISHING THE INTEGRATED TYPE OF DAILY PROGRAM

Since the integrated type of daily program is considerably different from the old traditional type, there may be some difficulties involved in establishing it in a school for the first time. In the past it has been difficult to get textbooks that would fit readily into this

TABLE 5

SHOWING THE TOTAL NUMBER OF MINUTES PER WEEK DEVOTED TO VARIOUS ACTIVITIES

SCHOOL---		A	B	C	D	E	A	B	C	D	E
History	Social Studies		125	75	125	75	200	125	100	125	125
Geography		175	125	125	125	125					
	TOTAL	175	250	200	250	200	200	125	100	125	125
Hygiene	Social Science		50	75	60	50					
Agriculture		175	50	75	90	50					
	TOTAL	175	100	150	150	100					
Writing	English		60	75	45	100		60	75	45	100
Spelling		160	50	40	100	50	250	50	40	100	50
Reading			150	75	125	100		150	100	125	125
Grammar			150	100	120	125		125	100	150	150
	TOTAL	160	410	290	390	375	250	385	315	420	425
Arithmetic		200	150	125	150	125	250	150	100	150	150
Citizenship							200	125	100	125	100
Total Minutes of Class Time		710	910	765	940	800	900	785	615	820	800
Total Minutes of Study		900	575	785	800	750	710	700	935	920	750
Total Minutes of Music, etc.		115	90	175	60	---	115	90	175	60	---
Total Minutes of Recess		---	150	50	---	150	---	150	50	---	150
		1725	1725	1775	1800	1700	1725	1725	1775	1800	1700

type of program, but at the present time some of our book companies are reporting that they have some books which tend to fuse or integrate some of the old traditional subjects. Some of these companies have science books adapted to use in these grades. In one of these science series at least, the seventh grade book includes hygiene along with other material, while in the eighth grade book there is some space devoted to agriculture. The series is built up in such a way that when the child enters the ninth grade he has a science background that helps him on to greater progress.

Harold Rugg has published a series of social science textbooks which has been adopted in many schools. This series has a book for each semester and covers the seventh and eighth grades. In these grades the book covers history, geography and civics. The Rugg social science series and the science series mentioned above should fit well into the fused type of daily program used in school A.

The seventh and eighth grade English courses are conducted somewhat on the order of the high school English, in that literature is taught one semester and composition the next. The responsibility for spelling does not rest wholly on the English course, but is given considerable stress in all courses. There is no change in the arithmetic program except that it is given a longer period.

When a school wishes to establish the fused type of daily program it would be considerably easier to do if new

books of the integrated type could be used. If however, as in the case of school A, these new type books cannot be bought, the work can be organized by the teacher by the use of the old texts and a number of reference books. This involves much careful planning on the part of the teacher in order that the material may be blended or worked in satisfactorily and at the same time cover the work prescribed by the course of study in the subjects which are being fused.

CHAPTER 3

INTELLIGENCE AND ACHIEVEMENT OF PUPILS IN THE FOUR CONTROL SCHOOLS AND EXPERIMENTAL SCHOOL

That there is a close relation between mental age and quality of school work is now never questioned. When pupils fail to make satisfactory progress in their school work, the first step toward determining the cause is usually to get a measure of the pupil's mental age. One must keep in mind that intelligence tests measure primarily the native ability of pupils, and native ability is the chief prerequisite for school success.

INTELLIGENCE OF THE PUPILS

Measurement by means of tests has been carried on for a long time. Testing or measurement is not something that has just recently or suddenly sprung up. Educators have used tests of one form or another for generations past and at the present time they are used more widely than ever in measuring intelligence and accomplishment. True, there have been a great many criticisms heaped upon tests and testing programs. Perhaps the most severe criticisms have come from the keenest students of scientific measurement. Two important objections to standard tests in the observations of McCall[1] were that tests were not available for measuring all the aims of education and that

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[1] William A. McCall, How to Measure in Education, p. 14

tests were sometimes misused. In the opinion of McCall the first objection would call for greater zeal in the extension of tests rather than their disuse. As for the second objection there might be need for greater guarding aginst their misuse, rather than against tests. The criticisms of tests have led the test-makers to improve their tests to such an extent that now we are assured that they may be used to great advantage in the classification and grading of school children. McCall[2] gives some interesting points relative to measurement as follows:

> "Measurement in education did not suddenly leap into existence. It has had a gradual evolution, or rather it has been on a plateau for centuries... Little progress was made beyond the conventional, formal examination until 1894. Rice conceived the idea of a comparative test to be used in measuring the results of instruction in many schools. Out of the comparative test grew norms, for the use of a comparative test upon many schools yields norms. It was the genius of Thorndike that made possible the next advance. Utilizing the Cattell-Fullerton equal-distance theorem, he devised a scale unit for the measurement of educational achievement. This marks the beginning of scientific educational measurement. Every school survey relies upon tests as one of its chief instruments for evaluating the efficiency of the schools being surveyed."

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2 William A. McCall, How to Measure in Education, pp. 14 - 16

TABLE 6

DISTRIBUTION OF I. Q. BY SCHOOL AND GRADE

	SCHOOL A		SCHOOL B		SCHOOL C		SCHOOL D		SCHOOL E	
	Grade	Grade	Grade	Grade	Grade	Grade	Grade	Grade	Grade	Grade
I. Q.	7	8	7	8	7	8	7	8	7	8
145-149	1									
140-144										
135-139										
130-134										
125-129			1					1	1	
120-124		1	1	2						
115-119			1		1	1	2			
110-114	1	1							2	3
105-109		2	2	1			2	2	4	
100-104	5	4		1	2	2	1	2	2	6
95- 99	2	1		1	1	1	2	4	1	
90- 94	1	2	1	1	3		1	1		4
85- 89		1		2	1	3			3	3
80- 84	1	1			1	1	1	1	1	1
75 - 79	1	1						1		1
70- 74				1						
TOTALS	12	13	6	9	9	8	9	12	14	18
No. Percentage	16.7	30.8	83.3	33.3	11.1	12.5	44.5	25.0	50.0	16.7
Above Normal	2	4	5	3	1	1	4	3	7	3
Normal I.Q.	7	4	0	2	3	3	3	6	3	6
No. Percentage	58.3	30.8	0.0	22.2	33.3	37.5	33.3	50.0	21.4	33.3
Below Normal	3	5	1	4	5	4	2	3	4	9
No. Percentage	25.	38.4	16.7	44.5	55.6	50.0	22.2	25.0	28.6	50.0

The number of pupils and their relative I.Q., was tabulated by grades for the experimental school and the four control schools. The results are shown in Table 6. The figures between the two parallel lines indicate the numbers of pupils of normal I.Q. The figures above the middle parallel lines indicate the numbers of pupils who are above normal I.Q., or native ability, while the figures below these two parallel lines indicate the number of pupils who are below normal I.Q., or mentality. Levine and Marks[3] show the various levels of mentality covered by the entire range of I.Q. In this table of the various levels of mentality an I.Q., of 95-104 is considered to be average or normal. I.Q's., below 95 are divided into five levels, namely, dull, borderline, morons, imbeciles, and idiots, while those above 104 are spoken of as bright, very bright, superior, very superior and precocious.

SUMMARY OF PUPIL INTELLIGENCE

Table 6 shows the distribution of I.Q., by school and grade; the number of pupils in each of the two grades studied; the number of percentage of pupils who are of normal I.Q.; the number and percentage of pupils who are above normal and below normal. From a study of this table it will be seen that of the twelve pupils in

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[3] Albert J. Levine and Louis Marks, Testing Intelligence and Achievement, p. 131

the seventh grade of school A, seven were of normal I.Q., two were above normal and three were below normal. The percentages were: normal - fifty-eight and three-tenths percent; above normal - sixteen and seven-tenths percent and below normal - twenty-five percent. Grade 8 of the same school showed four normal, four above normal and five below normal. Of a total of thirteen pupils enrolled in this grade, thirty and eight-tenths percent were of normal intelligence, thirty and eight-tenths percent were of high intelligence, and thirty-eight and four-tenths percent were of low intelligence.

In the seventh grade of school B, there were no pupils in the range of normal I.Q.; five were above and one was below normal. Of the six pupils in the class, eighty-three and three-tenths percent were above normal, while sixteen and seven-tenths percent were below normal. Of the nine pupils in Grade 8 of school B, two were normal, three were above and four were below normal. In percentages we find that twenty-two and two-tenths percent were normal, thirty-three and three-tenths percent were above normal and forty-four and five-tenths percent were below normal.

In school C, Grade 7 has an enrollment of nine pupils, three of whom are normal, one above normal and five of whom are below normal. Thirty-three and three-tenths percent of this class are of average ability,

eleven and one-tenth percent are above average ability, and fifty-five and six-tenths percent are below average ability. The situation in the eighth grade of this school is only slightly better. There are eight pupils in the class. Three of them are of normal mentality, one above and four below average. The table shows that in this class thirty-seven and five-tenths percent are normal, twelve and five-tenths percent are above normal, and fifty percent are below normal. The seventh and eighth grades combined, show the highest percentage of pupils below average I.Q. They also show the lowest percentage of pupils above average intelligence.

In the seventh grades of school D and E we find rather a high percentage of pupils above normal, while the eighth grades of these schools seem to have higher percentages of pupils of normal and below normal abilities.

Table 6 seems to show that generally there is rather a wide range of I.Q., or native ability between the pupils of any one grade, that the percentages of normal, above and below normal, vary a great deal between the two grades of the same school, and that there is considerable variation of I.Q. between pupils of the same grade of different schools. The highest I.Q., revealed in this study was 147, which falls within the range of superior rating. Three other pupils received this rating also, with scores of 125. Twenty pupils of

the entire number tested received scores that placed them in the bright class, while thirty-seven were classed as average and forty pupils received scores below average. Of these forty pupils, twelve were classed as borderline and one as moron, and twenty-seven as dull. One hundred ten pupils were included in this study.

In an effort to determine the rank of the various schools on the basis of I.Q., the percentage of pupils having I.Q's., of 100 or over was figured. Using this method for the seventh grade, it was found that school B ranked highest, school E second, school A third, school D fourth and school C fifth. Using the same method for the eighth grade it was found that school A ranked first, school E second, school B third, school D fourth and school C fifth.

TABLE 7

RANK OF SCHOOLS BASED ON I. Q.

SCHOOL	A	B	C	D	E
Grade 7.....	3	1	5	4	2
Grade 8.....	1	3	5	4	2
Grades 7 & 8...	2	2	5	4	2

Table 7 shows the ranking of the various schools by grades.

From this table it will be seen that Grade 7 of school B scores high, while Grade 8 of the same school scores third. In school A this order is reversed. In schools C, D, and E both grades rate two, four, and five, respectively.

Figure 1 shows graphically the ranges and medians of I.Q., by grades and schools. It also shows the number of pupils in each grade. The top of each bar represents the highest score of intelligence; the botton part indicates the lowest I.Q., and the solid line running out from 100 indicates the normal I.Q. The dotted or broken line connects the median I.Q., of the pupils in all the rooms of the same grade. Further examination of this figure reveals that the broken line corresponds exactly with the ratings given each room based on I.Q., averages. This figure shows rather distinctly the great variation of median I.Q., in the seventh grade. It also shows that the spread of median I.Q., in the eighth grade is very small.

From the above study concerning the I.Q!s., or native abilities of pupils of the seventh and eighth grades of the experimental school and the four control schools, it might be supposed or expected that the seventh grades of schools B and E should do a better grade of work than the other three schools. On the other hand, it might be expected that the seventh grades of

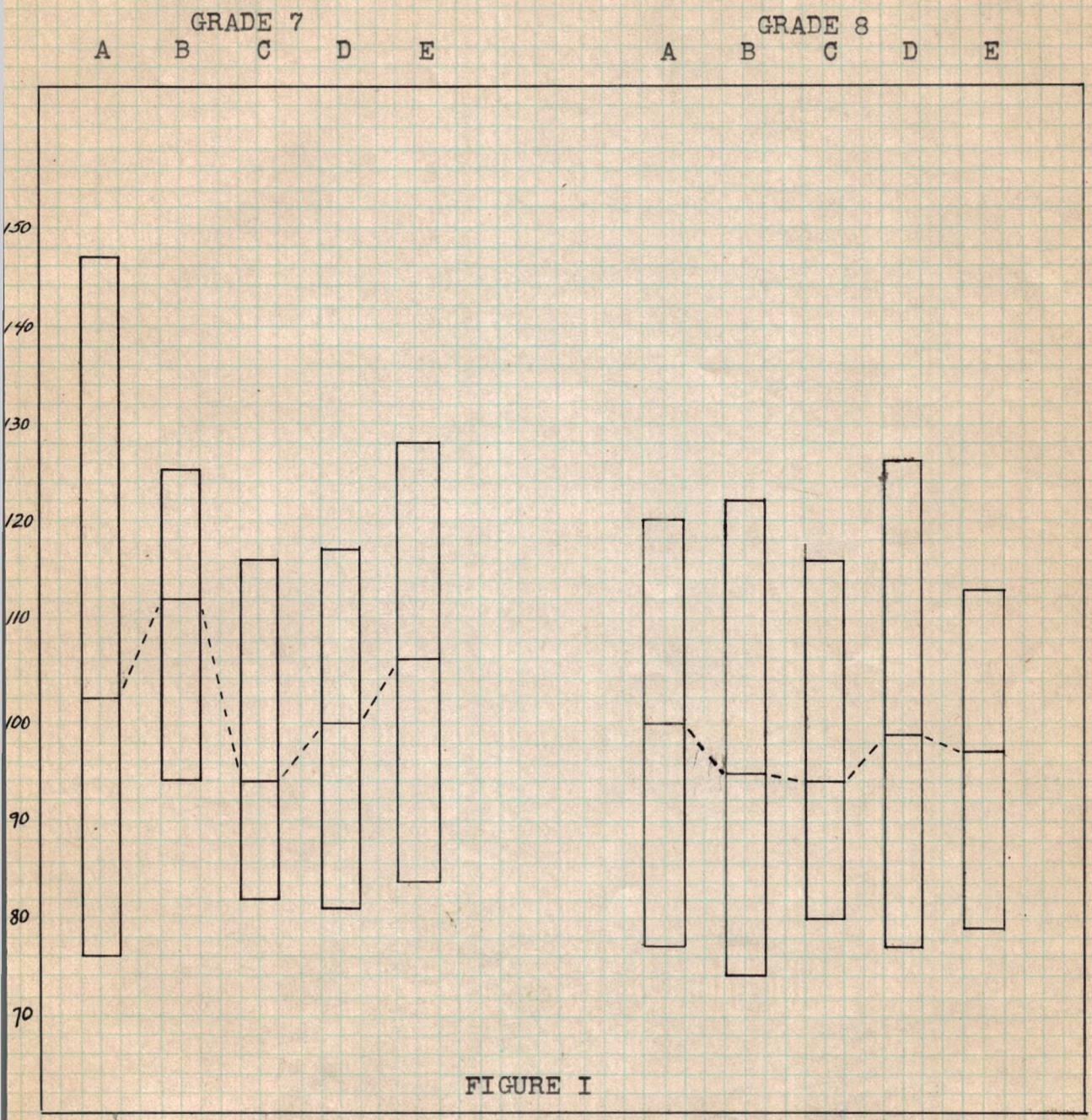

FIGURE I

RANGES AND MEDIANS OF I.Q.

schools C and D would accomplish the least, while the accomplishment of the seventh grade of school A should lie about midway or be the average of the five schools.

In the eighth grade the accomplishment should not be expected to vary so much as in the seventh, but school A should be a little higher with school E next. The next section of this chapter will be devoted to a study of educational age based on achievement tests.

EDUCATIONAL AGES OF THE PUPILS

Educational age is a measure of the levels of educational growth and the attainment of any pupil may be found by comparing his score with the standard score for his age, that is, a pupil's educational age is computed from a table of norms. Educational quotient may be thought of as an index or an expression of the relation between educational age and chronological age.

> "The educational quotient, or E.Q., of pupil A is found by dividing his educational age by his chronological age." [4]

For the purpose of bringing together pupils of equal educational status the educational age (E.Q.) is probably superior to the mental age. The educational age reveals directly what pupils are of equal status educationally. It is only indirectly that mental age

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[4] Albert J. Levine and Louis Marks, Testing Intelligence and Achievement, pp. 128-129

measures educational status. McCall[5] speaks of educational age as follows:

> "It has already been shown that there is a close relation between mental age and true educational status, but there are many forces operating to prevent this correlation from being perfect. A pupil's educational status is a resultant not only of his mental age, but also of his health, attendance, attitude toward school work, industry, etc. Educational age takes into account both mental age and all these other factors which condition the quality of school work. Mental age, as usually tested, reveals the effect of these other factors but to a less extent.
>
> "Franzen has demonstrated, in the case of pupils whose educational age is markedly below mental age, that by specially promoting them and by otherwise applying educational pressure the educational age could be made to approximate the mental age within one year. It would be interesting to learn whether this progress could not have been secured just as well, if not better, by keeping them at all times in the grade or grades closest to their educational age and applying the pressure there."

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5 William A. McCall, How to Measure in Education, pp. 39-40

TABLE 8

DISTRIBUTION OF E. A. FOR NOVEMBER

	GRADE 7					GRADE 8				
SCHOOL	A	B	C	D	E	A	B	C	D	E
17 - 0										
10										
8									1	1
6						1	1			
4						1				1
2										
16 - 0						1				
10	1				1	1	1			
8										
6										
4										
2	1									
15 - 0						2				1
10										
8										
6		2			2					
4		1								1
2							1			1
14 - 0	2				1	1		1	1	2
10							1		1	3
8			2							
6		1		3		2	1		1	2
4					1	1	2			1
2				1	1					
13 - 0	1					1			1	
10	1									2
8		1		1	1				1	
6					2	1	1	1		1
4								1		1
2				1	1			1	1	1
12 - 0	2		1	1					2	
10		1	1					1		
8					1			1		
6	1		1		2			1	1	
4									1	
2	1							1	1	
11 - 0	2		1			1				
10			1	1						
8				1						
6										
4										
2			1							

TABLE 8 (Continued)

DISTRIBUTION OF E. A. FOR NOVEMBER

	GRADE 7					GRADE 8				
SCHOOL	A	B	C	D	E	A	B	C	D	E
10 - 0										
10					1					
8										
6			1				1			
4										
2										
9 - 0										
TOTAL PUPILS IN CLASS	12	6	9	9	14	13	9	8	12	18

SUMMARY OF PUPIL EDUCATIONAL AGES

Table 8 shows the distribution of educational age by grades and schools for November. The numbers along the bottom of the table show the number of pupils in each grade. From the Unit Scales of Attainment Class Record Sheet, it was found that the normal age of pupils of the seventh grade is thirteen years. This age is for the time these tests were given which was six months before the close of school. A solid line was drawn across the table from age thirteen. In the case of the eighth grade it was found that the normal age for November was fourteen years, so a line was drawn across the table from age fourteen. These lines indicating the norms make it easier for one to see how the individuals of any particular class compare with the norm, or to make an estimate of the class as compared to the norm.

Figure 2 shows graphically the ranges and medians of the educational ages for the seventh and eighth grades of the five schools as found by the achievement tests given in November. In studying the seventh grade on Table 2, it can be seen, at a glance, that the median educational age of school B is considerably above norm, while the medians of the other four schools are below, school C being eighteen months below. The eighth grade of school A is just on the norm, while school E is two months below, and school B is six months below. School D is

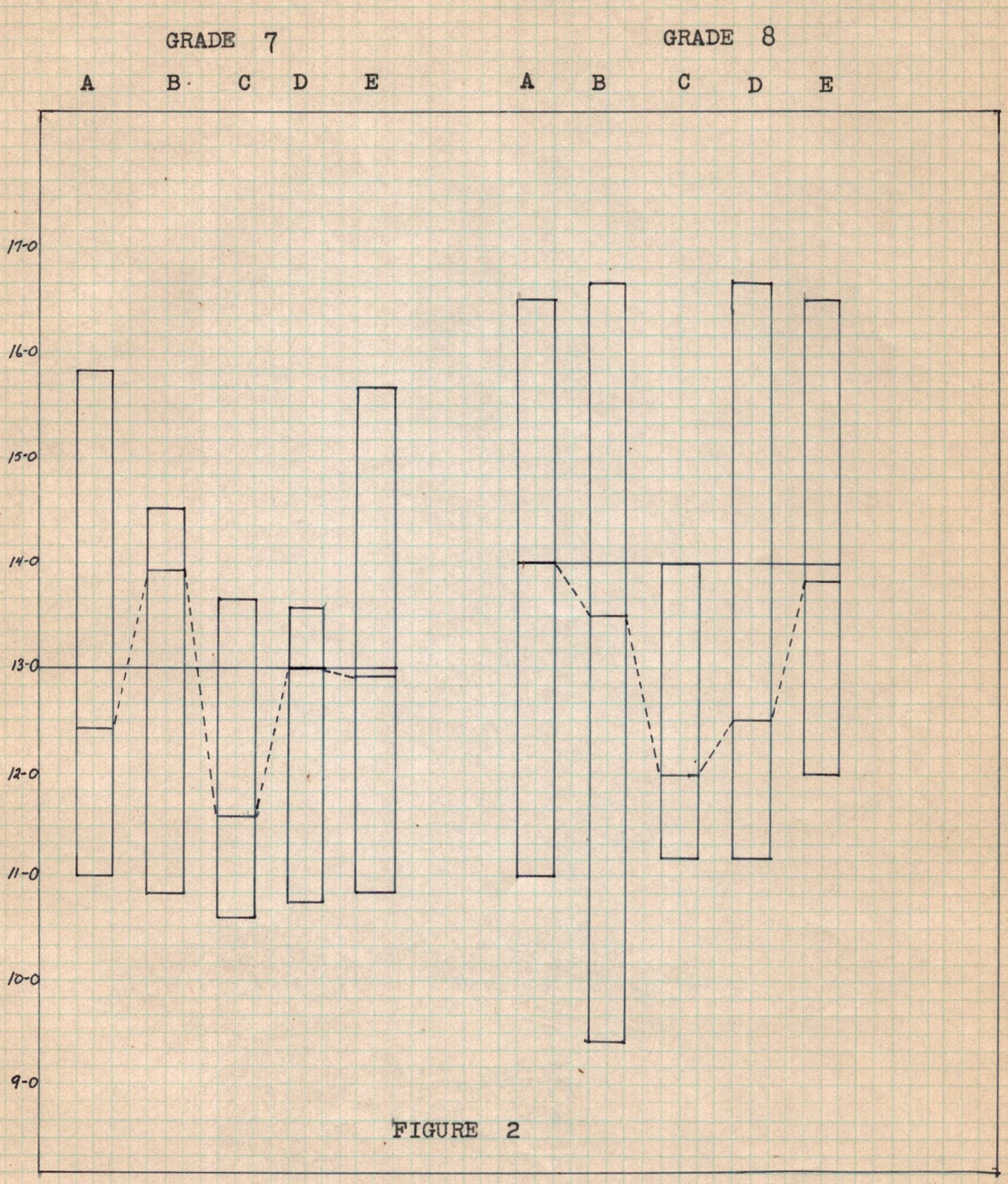

FIGURE 2

RANGES AND MEDIANS OF EDUCATIONAL AGES

FOR NOVEMBER

TABLE 9

DISTRIBUTION OF E. A. FOR MAY

SCHOOL	GRADE 7 A	B	C	D	E	GRADE 8 A	B	C	D	E
17 - 0										
10										
8	1				1	1	2		1	2
6						1				1
4										
2										
16 - 0					1					
10	1	1			1					
8						2	1			
6				2		1				1
4						1		1		
2			1						1	1
15 - 0					1		1			3
10	1			1	1					1
8					1					
6		1		1	1	3			2	1
4		1			1				1	1
2	1						1	2	2	2
14 - 0		1					1	1		1
10	2				1				1	2
8	1								1	
6			1		1	2	1			
4										
2										
13 - 0				1		1		1		1
10			1					1		
8				1	1			1		
6	2	1	2	1				1		
4					1		1		1	
2		1							2	
12 - 0	2		1							
10	1					1				
8			1							
6					2					
4				1						
2										
11 - 0										
10										
8				1						
6										
4										
2										
10 - 0							1			
10										
8										
6			1							
4										
2			1							
9 - 0										
TOTAL MINUTES	12	6	9	9	14	13	9	8	12	18

eighteen months below and school C is twenty-four months below normal educational age.

Table 9 shows the distribution of educational ages by grades and schools. The date of this table are based on the achievement tests given in May. The lines indicating the norms for the seventh and eighth grades are now thirteen years, five months, and fourteen years, five months respectively. That is, the norms are five months higher for the second test than they were for the first test, because five months of school had been covered between the two tests. The numbers along the bottom indicate the number of pupils in the grade.

Figure 3 shows the ranges and medians of educational age for May. The broken lines connect median educational ages of the various schools and show at a glance the relation between these medians and the norm which is indicated by the solid straight line across the graph. Figure 3 shows that again school C is low in both grades, but by comparison with Figure 2 it will be seen that Grade 7 made a gain of eleven months and Grade 8 made a gain of nineteen months.

Table 10 shows the gains made in educational age between November and May. It was made up by taking the median educational ages for November and May from Figures 2 and 3. The gains were found by finding the difference between the medians for May and November. It will be seen that Grade 7 made gains of four months in school B,

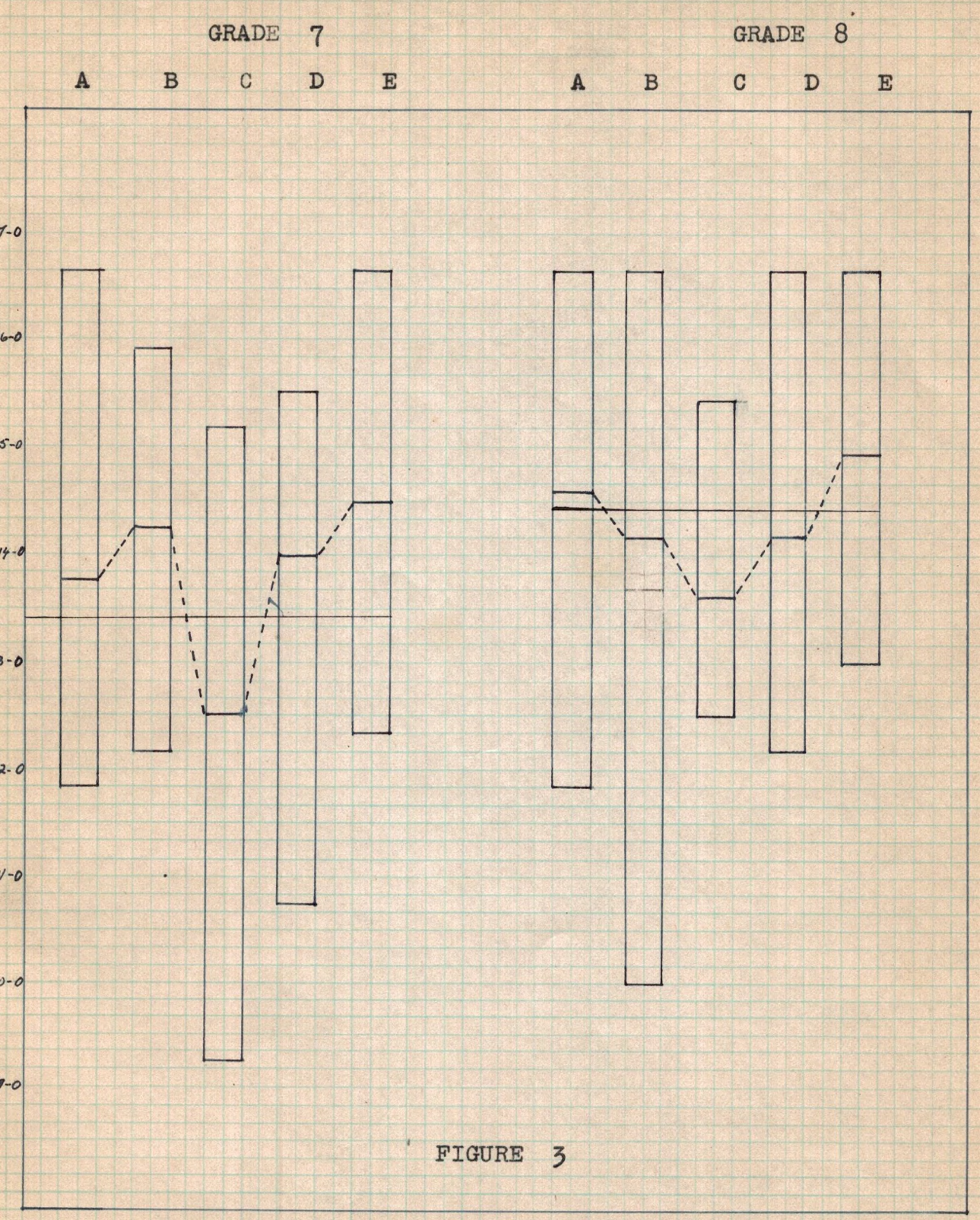

FIGURE 3

RANGES AND MEDIANS OF EDUCATIONAL AGES

FOR MAY

eleven months in school C, twelve months in school D, fourteen months in school A, and nineteen months in school E. The eighth grades showed gains of seven months in school A to eighteen months in school D. In November, schools C and D had the lowest educational ages, and after the May tests it was found that these two schools had made the greatest gains.

TABLE 10

GAINS MADE IN EDUCATIONAL AGE BETWEEN NOVEMBER AND MAY

	A	B	C	D	E
Grade 7					
Median E. A. in Nov.	12-5	13-11	11-7	13-0	12-11
Median E. A. in May	13-9	14-3	12-6	14-0	14-6
Gains	1-4	0-4	0-11	0-1	1-7
Grade 8					
Median E. A. in Nov.	14-0	13-6	12-0	12-6	13-10
Median E. A. in May	14-7	14-2	13-7	14-2	14-11
Gains	0-7	0-8	1-7	1-8	1-1

Taking the median educational ages for May, the schools were rated from one to five as follows: In Grade 7, school E was first, school B was second, school D was third, school A was fourth, and school C was fifth. In the eighth grade school E was first, school A was second, schools B and D tied for third and school C was last.

An examination of the educational ages of school A for November and May show that the seventh grade had next to the lowest educational age in November and May, but showed next to the greatest gain, even though their I.Q., was third highest. Since this grade ranked fourth in educational age in November and maintained that position again in May; ranked third in I.Q., and second in gain; it may be concluded that the "fused type" of daily program showed results which were highly satisfactory.

In November the eighth grade of school A ranked first and in May it ranked second, but showed the smallest gain. Though the gain was the smallest, it was, nevertheless, satisfactory since in the five months between tests there was a gain of seven months in educational age. It might be noted here that this class worked under the "fused type" of daily program all through the previous year, as well as during the year in which these tests were given. It may, therefore, be suggested that this type of daily program showed satisfactory results in the seventh grade the previous year.

A similar investigation of school B shows that the seventh grade in November had the highest educational age while in May they held second place. The gain was four months over a five month testing period and was the lowest gain made by any school. It might have been expected that this grade should have shown a greater gain since their

I.Q., ranged from six to eighteen points above all the other schools. It will be seen that the eighth grade in educational age held third place after both tests and showed a gain of eight months over the period covered.

In mentality, school C ranks lowest in both the seventh and the eighth grades. It was interesting to note the substantial gain made in both grades. The gain of one year and seven months in the eighth grade caused it to rank second. Since both grades ranked so very low on the November tests, the gain is possibly due to a greater effort on the part of the teacher to bring his class up to standard. Another possible explanation of this decided gain might be the fact that this teacher had four years of training as compared with two years of training for schools A, D, and E and three years of training for school B.

In school D it was found that the seventh grade ranked fourth in I.Q., while the eighth grade ranked second. Grade seven progressed from an educational age of thirteen years in November to an educational age of fourteen years in May. The eighth grade rose from an educational age of twelve years and six months to fourteen years and two months; a gain of twenty months, which was the greatest gain made by any school.

An interesting situation was noted in the eighth grades of schools C and D. In November these two schools

ranked lowest in educational age and after the test in May it was found they showed the most decided gain. Again, the gain may be due to greater effort on the part of the teachers to bring their classes up to standard.

In educational age we find that the seventh and eighth grades of school E are approximately average as compared with the other schools. In I.Q., the seventh grade ranks second and the eighth grade ranks third. In gains for the period covered,the seventh grade ranks first and the eighth grade third. It might be suggested then that the pupils in this school are making progress comparable to their abilities.

ACCOMPLISHMENT QUOTIENTS OF PUPILS

McCall[6] gives briefly his opinion of the Accomplishment Quotient in the following words:

> "The Accomplishment Quotient is the most exact present-day measure of the efficiency of study, instruction, and supervision; it is the only just basis for reporting to parents and for judging pupils; and it is the best index of what pupils need special attention and spurring, of what pupils need restraining perhaps, and of what pupils need to be "let alone."

Reading or educational age divided by mental age equals accomplishment quotient. Since accomplishment quotient is based on mental age or the native abilities of the pupil it would seem that it should be a fair index of a pupil's achievement. It may be used successfully in

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6 William A. McCall, How to Measure in Education, p. 86

measuring accomplishment in reading, composition, arithmetic or any subject which can be measured. All of these furnish data from which to determine the general progress for the year. Teachers and supervisors are often faced with the problem of whether a child is making satisfactory progress in general or in some particular subject. Parents often ask how their children are progressing in school, and teachers and supervisors should have some ready means of knowing just what is the situation. Too often the child is thought of as doing poor work when compared with other children, but when his native abilities are taken into account it may be that he is found to be doing all that he is capable of. It is a common occurrence to have pupils of low mental ability placed in a class of pupils of approximately the same chronological age and then expect the teacher to see that they keep up with the class. If the child cannot keep up the teacher fails to promote him and then his classmates and often his parents make the situation worse by teasing or punishment. Concerning progress McCall[7] says:

> "The pupil or class which has an Accomplishment Quotient of 100 has made satisfactory progress. Consistent with health and the need for developing other abilities, the teacher should aim to keep the Accomplishment Quotient for reading as much above 100 as possible. As a rule the teacher's first task will be to assist the young gifted children. Due to their being classified below their proper level and to neglect in general their Accomplishment Quotients

[7]William A. McCall, How to Measure in Education, p.87

are usually lower than that of any other pupils."

It may be safely said then that the Accomplisment Quotient holds much in store, by way of protection against injustice, for both pupil and teacher.

Table 11 shows the accomplishment quotients by school and grade as determined from the tests given in May. The median educational age for each grade was divided by the median mental age for that grade to derive the accomplishment quotients.

TABLE 11

ACCOMPLISHMENT QUOTIENTS FOR MAY

School	A	B	C	D	E
Grade 7	106	96	99	101	110
Grade 8	108	107	104	102	108

SUMMARY OF ACCOMPLISHMENT QUOTIENT

It will be recalled that according to McCall[8] an individual or group having made an accomplishment quotient of one hundred or over has made satisfactory progress. It is interesting to note that of the ten accomplishment quotients in Table 11 only two are below one hundred. These two are found in the seventh grade of school B and

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[8] William A. McCall, How to Measure in Education, p. 87

school C. Their accomplishment quotients are ninety-six and ninety-nine, respectively. For the seventh grade of the other schools, school E scored 110, school A,106, and school d, 101. In the eighth grade, schools A and E both scored 108; school B, 107, school C, 104 and school D, 102.

Since the seventh grade of school B made the lowest accomplishment it might be interesting to make some further observations regarding this particular grade. This grade has the highest I.Q., the median being 112, and also made the lowest gains in educational age. This might be due to the inexperience of the teacher, since he is teaching his first term of school.

School C, it will be recalled, ranked lowest in I.Q., but even so this school made very substantial gains in educational age, the eighth grade making the greatest gain of all. The seventh grade now shows an accomplishment quotient of ninety-nine and the eighth grade shows an accomplishment quotient of one hundred four. This gain is possibly due largely to the realization of the teacher that his class was very low in the fall and perhaps also to the superior education of the teacher, as compared with the education of the other teachers.

Schools A and E ranked the highest in accomplishment quotient. These two schools have the largest enrollments and the teachers are in their present positions for the

second year. It might be mentioned too, that the superintendent of school E had been in that school for a number of years, while the superintendents of the other schools were in their present positions for only the first or second year.

The accomplishment quotient is regarded by experts in the field of education as the most exact present-day measure of the efficiency of instruction. Dean Breitwieser[9] speaks of the accomplishment quotient as follows:

> "The ratio between the actual accomplishment of students and their potential ability has been called an accomplishment quotient (A.Q.); it is a very convenient and useful measure whenever it is desired to determine the proper accomplishment of pupils in relation to their capacity."

We have evidence in Table 11 that school A, which used the "fused type" of daily program, has done as well or better than any other school. This may lead one to believe that perhaps the "fused type" of program may give better results than the other types. But the teacher's experience may have been a factor in the progress the pupils made.

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[9] J. V. Breitwieser, Psychological Education, p. 185

CHAPTER 4

SUMMARY AND GENERAL CONCLUSIONS

The problem of this thesis is of interest to school superintendents and to the teachers of grades seven and eight, because it involves one of the very important problems of the school, namely the effect of the daily program on the progress of the pupils. One of the very important questions of today is whether the child will made greater progress in the elementary grades if taught many different subjects for a few minutes each day; or if the progress will be greater if these subjects were "fused" or integrated into a small number of courses, thereby making it possible to have longer class periods.

Everyone is fully aware of the old traditional type of daily program in which there was a large number of classes taught each day and the length of class period was only ten to fifteen minutes. It will be recalled too, that the teacher must continuously rush through one class and into another lest some group of pupils miss out on their class for the day. More recently, there has been a strong tendency to alternate certain subjects so that one might meet three days per week and another only two days a week. This made it possible to have fewer classes per day and at the same time increase the length of the class period. More recently still, we find that many of our larger schools are tending to "fuse" some of the more

closely related subjects into single courses. This tendency has made it possible in many cases, at least, to cut the number of classes in half and to make the class period long enough to really accomplish something. If this type of daily program is found to operate in the seventh and eighth grade room without any loss of progress it is well worth adopting. If it should be found that this type of daily program accelerates progress, it may well be accepted as a definite step forward.

SUMMARY OF DATA

The summary of the evidence submitted in this thesis will be in answer to the following questions restated from Chapter 1.

Does the "fused type" of daily program tend to retard or accelerate progress of pupils in comparison with the traditional type of daily program? Since students of measurement and experts in the field of education have such a high regard for the accomplishment quotient it would seem that this question might be best answered from Table 11, which shows the accomplishment quotients for May. From this table it will be seen that the experimental school and school E ranked highest. The experimental school showed progress very comparable to the progress made in the best of the four control schools and considerably more progress than was shown by any of the other three control schools. It is the

belief of the writer that the evidence is sufficient to say that the "fused type" of daily program does not retard progress.

Does the "fused type" of daily program impose a greater burden on the teacher or student than the old traditional type, It is the belief of the writer that there may be more work for the teacher using this type of program at the present time since material for the "fused" courses would have to be gathered up from a number of sources and made readily available for the pupils. There is a tendency however, for book writers to make books to meet the requirements of the "fused" courses. When such books are available the work for both teacher and pupil should be made easier. The writer has no evidence, however, to substantiate the above statements. The teacher of school A in this study did not seem to be overburdened with work and wished to continue the use of the "fused" program.

Is the "fused type" of daily program more efficient in the use of time than the traditional type? Table 7 shows the total number of minutes of actual class time per week devoted to seventh and eighth grades of the experimental school and the four control schools. From this table it will be seen that the seventh grades are given from seven hundred ten to nine hundred ten minutes of actual class time per week. In the seventh grade the experimental school has less class time than any other, while in the eighth

grade the experimental school has more class time than any other school. When the total class time for the two grades is taken it is found that school C has the least time with thirteen hundred eighty minutes per week. School A, which is the experimental achool, has the least total number of minutes per week devoted to class time of all the schools except school C, just mentioned. From the above facts it would seem that the "fused type" of daily program is fully as efficient in the use of time as the traditional type.

Does the "fused type" of daily program fit into the plan of the new junior high school, The tendency of the new junior high school is to have class periods of uniform length. Usually the class periods are of forty-five or sixty minutes duration. For many years educators have tried to get away from the very short class period and for a time this was accomplished by alternating subjects. There is a great deal of alternating of subjects even at the present time, but the tendency is toward "fusing" the more closely related subjects into larger and more comprehensive courses. Besides "fusing" the old traditional courses, there has been a great deal of new material added and some of the old material discontinued. It would seem then, that the "fused type" of daily program as carried on in school A is quite similar to the plan of the new junior high school and should fit into this plan very satisfactorily.

Does this type of program lend itself easily to the present modern trend of textbook writers? At the present time textbook writers are tending to write books which combine into one broad course the material that has generally been covered by two or three texts. This tendency on the part of the textbook writers might indicate that in a very short time there will be textbooks available that are in line with the "fused" courses as found in this study.

Since this study shows that the "fused type" of daily program does not retard the pupils or indicate any less of accomplishment as compared with the other school; since it is a recognized fact that the modern junior high schools of today have adopted the plan of longer class periods and fewer classes per day; since textbook writers are tending to combine the subject matter of two or three texts into one broad or unified subject; and since there is a cry within the school for more time and that the class periods are too short, it would seem fitting to offer the "fused type" of daily program as a partial solution to the problem.

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