

A COMPARATIVE STUDY OF EDUCATIONAL TRENDS  
AND PUPIL PROGRESS IN THE TISHOMINGO  
JUNIOR HIGH SCHOOL

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JUNIOR HIGH SCHOOL

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Bachelor of Science

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1933

Submitted to the School of Education  
Oklahoma Agricultural and Mechanical College  
In Partial Fulfillment of the Requirements  
For the Degree of  
MASTER OF SCIENCE  
1937

APPROVED:

  
Major Adviser

  
Dean of School of Education

  
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## ACKNOWLEDGMENTS

The writer wishes to express his appreciation to Mr. J. D. Dunlap, Superintendent of Schools, the Board of Education, and the Faculty of the Tishomingo Public Schools for their loyal cooperation in making this study possible. He also wishes to express his appreciation to the members of the Faculty of the School of Education for their suggestions and friendly constructive criticisms.

Finally, the writer wishes to express his deep appreciation to Professor Benjamin C. Dyess, Assistant Professor of Education, Oklahoma Agricultural and Mechanical College, Stillwater, Oklahoma, for his inspiration, helpful advice and constructive criticisms of this study.

J. W. B.

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## CHAPTER I

### INTRODUCTION

In 1935 the Oklahoma State Legislature enacted House Bill 212 which provided an opportunity for Oklahoma school districts to increase appropriations for maintenance, instructional supplies and library; to increase the number of faculty members; to provide a broadened curriculum; and to increase teachers' salaries. The act also encouraged teachers to increase their professional training by providing a salary schedule which allowed extra financial increments for experience and professional training. The act also provided a full nine month term.

The administration of the Tishomingo Public Schools was interested in determining the effect and value of such a program of increased opportunities on the pupil progress in Tishomingo and therefore, on the schools of Tishomingo. This study is an outgrowth of that interest.

To conduct such a study it was necessary to have some recognized criteria of measurement of pupil progress. After several conferences with others interested in the educational progress of Oklahoma and reading in the field of educational surveys, the writer decided to use the standardized test.

A study of available standardized tests was made and after due consideration the Stanford Achievement Test, Advanced Examination Forms X, Z, and W was selected to use in the measurement of achievement. The Terman

Intelligence Test and the Otis Classification Test were selected to use in the establishment of intelligence quotients for the groups. A description of these tests is made in Chapter II.

The tests were given the groups September 17, 1935 to establish a basis of comparison and again May 12, 1936, and May 12, 1937, to determine the progress in the years 1935-1936 and 1936-1937.

The tests were given the pupils by the home-room teachers and the co-sponsors. All tests were scored by the faculty and checked for accuracy by office assistants. A description of the methods used in the administration of the tests is presented in Chapter II.

The results of the tests of three groups are used in this study. Group I includes those students who enrolled in the sixth grade in September, 1935, and who attended school in Tishomingo the entire two years. Group II is composed of students who were enrolled in the seventh grade in September, 1935, and who attended the two-year period. Group III includes those pupils who were enrolled in the eighth grade in September, 1935, and who completed the two years work in the school at Tishomingo.

Seventy-one pupils enrolled in Group I during the two years but only twenty-eight were in school the entire period. Forty-six enrolled in group II during the study; however, only nineteen of these did all of the two years' work at Tishomingo. Fifty-eight students were in Group III,

and of this number twenty-three completed two years' work at Tishomingo.

The use of the scores of all the pupils who enrolled in three groups would have introduced factors which could not be controlled. Other schools, either out of state or in state schools, probably would have had different curricula, different costs, and different type of school work. To have included all scores would have invalidated the results of the study.

The results of the tests are presented in tabular form and in each instance the proper heading is used. The intelligence score, and the results of each of the three achievement tests for each subject are presented in a separate table.

School costs, included in the study, professional training of the faculty, the number of the faculty members, and the length of term in days taught for each of the years studied, are presented in tabular form and each table is properly headed.

Comparisons are based on the central tendency and variability of the scores made by each group in the several tests and the composite scores of the tests.

The curriculum for each group is described in Chapter II.

Many interesting subjects grew out of the study. A case record of each student was made. This offered an excellent opportunity for diagnostic and remedial work.

## CHAPTER II

## DESCRIPTION AND ANALYSIS OF DATA

All modern school surveys, especially those which deal with pupil progress, use standardized tests as a measure. Their objective value as an instrument measuring achievement of pupils in any grade or group is generally accepted by those engaged in educational work. Therefore, the standardized tests listed in Chapter I were used by the writer of this study. These tests and the results of the tests of each group will be described.

The selection of any test for use in the various grades presents many problems to those whose duty it is to make such selections. The test chosen should have a high coefficient of reliability, that is, it should accurately and consistently measure the skills, knowledges, abilities, and qualities which it proposes to measure. If one is to compare the results of the tests of several subjects, the norms of the tests should be comparable. That is, the norms should have been arrived at by the same methods and weighed the same. If this is not the case, the scores made on various tests cannot be readily summed and used as a valid composite score. The test selected must, of course, be designed to measure those subjects, skills, and abilities to be studied. Methods of scoring and the manner of representing pupil achievement should be considered.

## THE NEW STANFORD ACHIEVEMENT TEST

The Stanford Achievement Test was first published in 1923. In 1929 a thorough revision of the test was completed. Five forms are available; therefore, it is possible, through use of this test, to have the same type of test with comparable norms for each of the testing periods. Forms V, W, X, Y, and Z are available. Forms X, Z, and W were used in this study.

The test consists of a battery of ten tests all of which have a high coefficient of reliability. Test I, which measures ability in paragraph meaning, has a coefficient of .85; Test II, word meaning, .87; reading average, .92; Test III, dictation, .90; Test IV, language usage, .80; Test V, literature, .70; Test VI, history and civics, .75; Test VII, geography, .87; Test VIII, physiology and hygiene, .75; Test IX, arithmetic reasoning, .77; Test X, arithmetic computation, .77. The reliability of the total score is .96.

These ten tests measure, to a degree, most of the subjects offered the students in the Junior High School. Music, penmanship, home economics, and agriculture are not measured specifically, although the physiology and hygiene test does touch upon some of the material taught in the home economics and agriculture classes.

The test provides a profile chart for every individual which gives a graphical representation of the standing of the pupil in each of the several tests, making it possible

to ascertain at a glance the standing of the pupil in any subject relative to his standing in other subjects and with the national norms. The educational age and grade norms are also given. The norms of the several tests have been equated and are the same for all the forms.

The tests are easy to administer and easy to score.

#### THE TERMAN INTELLIGENCE TEST

The Terman Intelligence Test was selected to be used to provide a basis of arriving at an appropriate measurement of the ability of each individual and of the group of grades 7 to 12.

The writer recognized the fact that the individual intelligence test, probably a revision or adaptation of the Benet-Simon Test, would be more accurate. However, in any case where the record of achievement as shown by the teacher's marks or by the achievement test used indicated a discrepancy in the results, a second form of the intelligence test was given.

The Terman Group Intelligence Test is usually recognized as one of the best group intelligence tests available. The test has a high correlation with other criteria of intelligence. The test is easy to administer and to score. It is designed for grades seven to twelve.

#### THE OTIS CLASSIFICATION TEST

The Otis Classification Test was used to measure the intelligence or ability of Group I. It is designed for grade six.

The test compares favorably with other similar tests and is recognized as one of the best classification tests for the intermediate grades.

The tests were administered by the home-room teachers and the co-sponsors of the groups. Prior to the opening of school in September, 1935, the faculty met for several periods to study the aims of the program, the types of tests available, methods used in administering tests, and study of the test selected. Therefore, all teachers were instructed in the same method for administering the test. All materials used in the program were furnished by the school and were provided all groups prior to the beginning of the test. No interruptions were permitted and as nearly as possible the same environment was obtained for all groups.

Achievement tests were given September 17, 1935, May 12, 1936, and May 12, 1937. Intelligence tests were given September 19, 1935.

The tests were graded by the faculty and checked for accuracy.

Each of the tables that follow presents the equated scores of a group for a particular subject. The intelligence quotient of each pupil is listed in the table for the convenience of the reader should he wish to compare the progress of an individual with his I. Q. At the end of the first semester of the year 1936-1937, the teacher of English and health habits in the Junior High



School became ill and could not finish the term. A substitute teacher was used the second semester. The regular teacher had a Master's degree, the substitute, a temporary certificate based on two years college work.

The pupils in Group I were enrolled in the sixth grade in 1935-1936, and in the seventh grade in 1936-1937. In 1935-1936 the curriculum for this group was as follows: English, reading, spelling, health habits, arithmetic, history, geography, music, and penmanship. Thirty-minute periods were allotted to geography, history, spelling and penmanship, music, health, and reading. Hour periods were allotted to English and arithmetic. All students were permitted to enroll in an extra-curricular activity if they chose to do so. The curriculum for Group I for the year 1936-1937 was the same as that for the year 1935-1936. The time allotment for the several subjects was: music, penmanship, and spelling, one hour; arithmetic, one hour; history and geography, one hour; English, one hour; reading and health habits, one hour. Students were allowed to enroll in one extra-curricular activity if they chose. If not, they were enrolled in study hall.

The pupils in Group I are of average intelligence since the range of 90-110 is considered as normal or average. The mean of the intelligence quotients of this group is 98. The range is 79 to 114 which is quite large considering the size of the group. Measured by the table of the nature of intelligence by Terman, one is bordering

on mental deficiency, three are classed as dull, twenty-one are classed as average or normal, and four are classed as superior. The standard deviation of the intelligence quotients is 8.75 which indicates that the group is more or less heterogeneous. Since there is only one group of each grade in school it is impossible to group the pupils in each grade homogeneously.

The standard deviation of the intelligence quotients and the standard deviation of the achievement tests are used as a comparable basis for determining whether or not the teaching has tended to make the group more or less homogeneous in a particular subject. Certainly the standard deviation of each test would indicate the degree of scattering from the norms and, therefore, if we compare the standard deviations of the three periods we can ascertain whether or not the direction is toward homogeneity.

A study of Table I will reveal that the mean score of Group I on the paragraph meaning test was 63.5 for the September, 1935, test. The mean score for the test given in May, 1936, was 84.30. The progress, therefore, in terms of these equated scores was 14.5 for the year 1935-1936, and 6.3 for the year 1936-1937.

A score of 63.5 represents a grade level of 5.1 and an educational age of ten years and eleven months.<sup>1</sup> A

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<sup>1</sup> See Educational Profile Chart: New Stanford Achievement Test, Advanced Examination in Appendix.

TABLE I  
 RAW SCORES FOR PARAGRAPH MEANING  
 STANFORD ACHIEVEMENT TEST  
 ADVANCED EXAMINATION FOR GROUP I

Pupil Index No.	I. Q.	Sept. 1935	May 1936	May 1937
3	114	85	98	99
6	111	98	95	103
7	111	74	99	95
8	110	80	98	101
9	109	80	95	94
10	109	70	81	82
11	108	73	90	103
14	105	77	88	95
17	104	63	82	81
19	103	74	84	94
21	102	64	87	97
24	100	46	80	75
26	99	81	82	90
27	98	64	82	87
28	98	66	72	77
31	96	69	80	84
33	96	59	73	87
37	95	50	70	74
39	95	58	72	75
40	94	46	60	77
47	92	44	65	80
49	92	57	65	81
50	92	56	67	78
53	91	43	70	69
54	90	63	87	85
59	88	66	68	77
61	86	48	54	58
68	83	58	68	73
69	79	31	54	73
Median	98.21	63.48	81.50	84.38
Mean	98	63.50	78.00	84.30
S. D.	8.75	14.59	12.23	11.00
P. E.	.77	1.29	1.12	.97
National Norms		74.00	81.00	89.00

score of 78.00 represents a grade level of 6.4 and an educational age of twelve years and three months. Thus the progress in 1935-1936, in terms of grades, was 1.3 grades, and in terms of educational age the progress was one year and four months.

In may, 1937, the mean score of the paragraph meaning test was 84.30. This represents a grade level of 7.2 and an educational age of twelve years and eleven months.<sup>2</sup> Thus, the progress for the year 1936-1937 was, in terms of grades, .8 grade and in terms of educational age seven months.

If we can assume that the progress of the group in paragraph meaning for any particular year previous to 1935 was the mean or average progress of all the years to 1935, the average rate of progress per year for the group would be 5.1 divided by the number of grades which the student should have scored, which for this group was six. This quotient was .8 grade per year. The rate of progress was therefore, as follows: 1930-1935, .8 grade per year; 1935-1936, 1.3 grade; 1936-1937, .8 grade.

The standard deviations of the paragraph meaning scores revealed that the group had tended to become more homogeneous. In September, 1935, the standard deviation was 14.59, while in 1936 it was 12.23, and in 1937, 11.00.

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<sup>2</sup>Ibid.

TABLE II  
 RAW SCORES FOR WORD MEANING  
 STANFORD ACHIEVEMENT TEST  
 ADVANCED EXAMINATION FOR GROUP I

Pupil Index No.	I. Q.	Sept. 1935	May 1936	May 1937
3	114	94	100	104
6	111	79	94	100
7	111	78	90	100
8	110	79	94	98
9	109	81	91	102
10	109	84	93	81
11	108	86	103	99
14	105	80	80	93
17	104	74	84	86
19	103	72	87	90
21	102	62	76	86
24	100	62	79	71
26	99	70	86	93
27	98	66	74	73
28	98	69	82	78
31	97	62	74	70
33	96	65	73	80
37	95	59	63	75
39	95	58	66	80
40	94	45	61	78
47	92	52	67	66
49	92	61	74	73
50	92	56	57	66
53	91	40	61	53
54	90	59	70	73
59	88	58	64	73
61	86	35	59	62
68	83	52	72	59
69	79	46	52	56
Median	98.21	65.00	76.48	79.44
Mean	98.00	65.00	76.40	83.40
S. D.	8.75	14.11	13.49	14.73
P. E.	.77	1.24	1.20	1.30
National Norms		74.00	81.00	89.00

The results of Table II show that the mean score of Group I in word meaning in September, 1935, was 65.00. This score represents a grade level of 5.2 and an educational age of eleven years and one month.<sup>3</sup> The mean score of the group in May, 1936, was 76.40, which if interpolated by the table of norms is equal to a grade level of 6.2 and an educational age of twelve years.<sup>4</sup> In May, 1937, the mean score was 83.40. This score represents a grade level of 7.1 and an educational age of twelve years and ten months.<sup>5</sup>

Therefore, the progress of Group I in word meaning as expressed in grades is: for the period 1935-1936, from 5.2 to 6.2, an improvement of 1.0 grade. The progress as expressed in educational age is eleven months for the period of September, 1935 to May, 1936, and an increase of ten months for the period May, 1936 to May, 1937.

Since the grade level of Group I in word meaning was 5.2 in September, 1935, we say that the progress for all years that the students attended school was 5.2 grades. Had the group been normal or average they should have scored 6.0 grades. Therefore, the total loss for the years attended was .8 grade. The average loss, then, would be .133 grade per year. The average progress for the five-year

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<sup>3</sup>  
Op. cit.

<sup>4</sup>  
Op. cit.

<sup>5</sup>  
Op. cit.

period would be .866 grade per year. The additional progress would be .233 for 1935-1936 and .133 for the year 1936-1937.

The standard deviations of the scores of the three tests on word meaning and the standard deviations of the intelligence quotients show that the scattering of the group is greater for the subject field than for the intelligence quotients of the group. Therefore, the teaching had tended to make the group heterogeneous rather than homogeneous.

Table III shows the scores of Group I for dictation (spelling) for the two-year period. The mean score for Group I in spelling was 61.00 for the September, 1935, test. This score, if interpolated by the table of norms, is equal to a grade level of 4.8 and an educational age of ten years and ten months.<sup>6</sup>

The results of the May, 1936, test show that the mean score at that time was 70.00, which represents a grade level of 5.6 and an educational age of eleven years and six months.<sup>7</sup> The results of the test given May, 1937, revealed a mean score of 84.00. This score, if interpolated by the table of norms is equal to a 7.2 grade level and educational age of twelve years and ten months.<sup>8</sup>

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<sup>6</sup>

Op. cit.

<sup>7</sup>

Op. cit.

<sup>8</sup>

Op. cit.

TABLE III  
 RAW SCORES FOR SPELLING  
 STANFORD ACHIEVEMENT TEST  
 ADVANCED EXAMINATION FOR GROUP I

Pupil Index No.	I. Q.	Sept. 1935	May 1936	May 1937
3	114	72	75	95
6	111	81	89	98
7	111	79	86	99
8	110	71	83	95
9	109	70	83	93
10	109	73	81	99
11	108	76	82	94
14	105	68	73	86
17	104	65	72	89
19	103	68	80	92
21	102	58	69	90
24	100	63	70	86
26	99	69	81	93
27	98	66	76	79
28	98	61	66	80
31	97	60	68	80
33	96	65	73	83
37	95	50	58	67
39	95	48	67	81
40	94	55	59	75
47	92	46	58	72
49	92	20	70	82
50	92	53	59	76
53	91	62	58	67
54	90	70	74	84
59	88	46	60	76
61	86	53	59	67
68	83	60	67	80
69	79	51	37	72
Median	98.21	53.18	71.87	85.50
Mean	98.00	61.00	70.00	84.00
S. D.	8.75	12.21	10.95	9.95
P. E.	.77	1.08	.95	.87
National Norms		74.00	81.00	89.00



The mean progress of the group in spelling is .8 grade for the period of September, 1935 to May, 1936, and 1.6 grades for the period of May, 1936 to May, 1937. The average grade progress of the group in spelling for the years prior to 1935 would be the same as the level in 1935, which was 4.8 divided by the normal grade level, which was six. This average progress is .8 grade. The increase in the yearly progress of the group in spelling, then, is none for the year 1935-1936, and .8 grade for the year 1936-1937.

The standard deviations of the scores of the spelling tests indicate that there has been a constant progress toward homogeneity. However, the teaching prior to 1935 had tended to scatter the group from the normal in spelling, since the standard deviation for September, 1935 is 12.21 and the standard deviation for the intelligence quotients is only 8.75.

The achievement of Group I, as shown by the results of the test in Table IV, in language usage was almost normal for the years 1930-1935. The mean score for the group for the September, 1935 test was 71.40, which, if interpolated by the table of norms, is equal to 5.7 grades, and was only .3 grade less than normal.<sup>9</sup> The progress during the year 1935-1936 was .7 grade, and for the year 1936-1937, 1.7 grades. The group standing in language

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9

Op. cit.

TABLE IV  
 RAW SCORES FOR LANGUAGE USAGE  
 STANFORD ACHIEVEMENT TEST  
 ADVANCED EXAMINATION FOR GROUP I

Pupil Index No.	I. Q.	Sept. 1935	May 1936	May 1937
3	114	102	101	105
6	111	98	97	107
7	111	83	105	106
8	110	91	97	107
9	109	90	93	108
10	109	78	74	100
11	108	103	107	108
14	105	81	67	100
17	104	58	81	98
19	103	84	87	98
21	102	66	81	100
24	100	60	63	85
26	99	81	97	93
27	98	66	92	93
28	98	70	75	94
31	97	85	89	88
33	96	85	75	78
37	95	48	63	76
39	95	46	65	76
40	94	52	78	82
47	92	20	43	82
49	92	66	78	64
50	92	80	67	91
53	91	64	67	87
54	90	81	74	96
59	88	58	78	78
61	86	54	54	56
68	83	60	70	84
69	79	62	56	61
Median	98.21	70.25	76.85	92.14
Mean	98.00	71.40	78.43	89.7
S. D.	8.75	18.06	17.69	14.07
P. E.	.77	1.65	1.56	1.24
National Norms		74.00	81.00	89.00

usage is as follows: September, 1935, the mean score, 71.40, which represents a grade level of 5.7 and an educational age of eleven years and seven months;<sup>10</sup> May, 1936, the mean score, 78.43, which, if interpolated by the table of norms, is equal to 6.4 grades and an educational age of twelve years and three months;<sup>11</sup> May, 1937, the mean score 89.7, which represents the grade level of 8.1 and educational age of thirteen years and eleven months.<sup>12</sup>

The average grade progress in language usage for the period 1930-1935 was .96 grade per year. The progress of the group in 1935-1936 was .26 grade below the average for the previous years, and the progress for the year 1936-1937 was .74 greater than that of the years 1930-1935.

The group is far more heterogeneous in language usage than in intelligence, as indicated by the standard deviation of each. The standard deviation of the test in language usage in 1935 was 18.06, in May, 1936, 17.69, and in May, 1937, 14.07. Progress toward a more homogeneous group in the subject, however, has been made during the years 1935-1937, since the standard deviation of the tests have decreased from 18.06 to 14.07

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10

Op. cit.

11

Op. cit.

12

Op. cit.

TABLE V  
 RAW SCORES FOR LITERATURE  
 STANFORD ACHIEVEMENT TEST  
 ADVANCED EXAMINATION FOR GROUP I

Pupil Index No.	I. Q.	Sept. 1935	May 1936	May 1937
3	114	96	98	102
6	111	75	84	86
7	111	69	96	95
8	110	81	68	85
9	109	67	89	96
10	109	67	60	67
11	108	83	91	97
14	105	20	36	63
17	104	76	20	45
19	103	73	91	86
21	102	20	76	57
24	100	62	20	45
26	99	69	79	77
27	98	78	72	98
28	98	67	60	63
31	97	62	54	60
33	96	53	74	57
37	95	73	20	42
39	95	71	46	54
40	94	20	60	85
47	92	44	54	48
49	92	37	46	70
50	92	53	76	45
53	91	44	42	54
54	90	20	50	65
59	88	69	60	48
61	86	53	62	67
68	83	56	60	60
69	79	37	50	38
<b>Median</b>	<b>98.21</b>	<b>63.12</b>	<b>65.00</b>	<b>65.00</b>
<b>Mean</b>	<b>98.00</b>	<b>58.40</b>	<b>62.00</b>	<b>67.40</b>
<b>S. D.</b>	<b>8.75</b>	<b>20.07</b>	<b>21.56</b>	<b>18.57</b>
<b>P. E.</b>	<b>.77</b>	<b>1.79</b>	<b>1.90</b>	<b>1.64</b>
<b>National Norms</b>		<b>74.00</b>	<b>81.00</b>	<b>89.00</b>

The mean score of the group in literature as indicated by the results of the September, 1935 test shown in Table V was 58.40, which when interpolated by the table of norms is equal to a mean grade level of 4.6 and an educational age of ten years and six months.<sup>13</sup> The results of the May, 1936 test show the mean score was 62.00, which represents a grade level of 4.9, and the educational age of ten years and eleven months.<sup>14</sup> At the close of the period 1936-1937 the group's mean score was 67.40, which corresponds to a grade level of 5.4 and an educational age of eleven years and three months.<sup>15</sup>

The average grade progress for the years 1930-1935 was .766; for the year 1935-1936, .3 grade; for the year 1936-1937, .6 grade. The average progress of the years 1930-1935, then, was .4666 grade greater than the progress in 1935-1936 and .1666 grade better than the progress in 1936-1937.

The standard deviations of the three tests and of the intelligence quotients reveal that the scores of the group are far too scattered. The group became even more scattered in 1935-1936 than it was in September, 1935, but became less scattered in 1937 than it was in September, 1935.

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<sup>13</sup>

Op. cit.

<sup>14</sup>

Op. cit.

<sup>15</sup>

Op. cit.

TABLE VI  
 RAW SCORES FOR HISTORY AND CIVICS  
 STANFORD ACHIEVEMENT TEST  
 ADVANCED EXAMINATION FOR GROUP I

Pupil Index No.	I. Q.	Sept. 1935	May 1936	May 1937
3	114	85	101	111
6	111	50	91	92
7	111	68	90	99
8	110	68	87	90
9	109	62	85	100
10	109	74	80	81
11	108	62	97	98
14	105	64	90	91
17	104	39	81	89
19	103	50	87	96
21	102	20	80	90
24	100	20	54	78
26	99	47	63	87
27	98	60	60	78
28	98	62	74	79
31	97	20	60	73
33	96	20	84	64
37	95	54	81	84
39	95	20	67	77
40	94	20	75	88
47	92	47	62	72
49	92	20	71	72
50	92	20	81	83
53	91	20	75	66
54	90	62	71	73
59	88	20	75	78
61	86	62	71	68
68	83	20	67	81
69	79	50	46	72
<b>Median</b>	<b>98.21</b>	<b>51.25</b>	<b>79.28</b>	<b>82.14</b>
<b>Mean</b>	<b>98.00</b>	<b>44.00</b>	<b>65.00</b>	<b>83.00</b>
<b>S. D.</b>	<b>8.75</b>	<b>21.45</b>	<b>12.00</b>	<b>11.31</b>
<b>P. E.</b>	<b>.77</b>	<b>1.89</b>	<b>1.06</b>	<b>.99</b>
<b>National Norms</b>		<b>74.00</b>	<b>81.00</b>	<b>89.00</b>

The results of the test as revealed in Table VI in September, 1935 showed that group I was far below normal in history and civics. The mean score at that time was 44.00 corresponding to a mean grade level of 3.7 and an educational age of nine years and three months.<sup>16</sup> From the results of the May, 1936 test the group showed a mean score of 76.00, which represents a grade level of 6.2 and an educational age of twelve years.<sup>17</sup> The May, 1937 test showed a mean score of 83.00, which if interpolated by the table of norms is equal to a grade level of 7.1 and an educational age of twelve years and ten months.<sup>18</sup>

The average grade progress in history and civics of the group for the years 1930-1935 was .616. The progress for the year 1935-1936 was 1.9 grades greater than the preceding period 1930-1935.

Although the standard deviation of the September, 1935 test scores indicate a wide scattering of scores, the standard deviation of the scores of the test given in May, 1936 and May, 1937 indicate a trend toward homogeneity. Unusual progress has been made in this direction as a study of the standard deviations will reveal.

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16

Op. cit.

17

Op. cit.

18

Op. cit.

TABLE VII  
 RAW SCORES FOR GEOGRAPHY  
 STANFORD ACHIEVEMENT TEST  
 ADVANCED EXAMINATION FOR GROUP I

Pupil Index No.	I. Q.	Sept. 1935	May 1936	May 1937
3	114	85	116	114
6	111	71	89	88
7	111	83	89	105
8	110	70	79	76
9	109	75	91	86
10	109	69	85	81
11	108	95	102	109
14	105	67	80	85
17	104	68	98	88
19	103	57	90	77
21	102	70	78	78
24	100	57	68	61
26	99	65	76	83
27	98	64	74	74
28	98	62	78	70
31	97	68	70	66
33	96	56	69	75
37	95	60	67	73
39	95	53	72	60
40	94	53	75	83
47	92	48	61	59
49	92	62	74	74
50	92	60	76	82
53	91	49	20	65
54	90	68	68	72
59	88	38	64	74
61	86	65	59	60
68	83	38	61	57
69	79	22	52	62
Median	98.21	63.75	75.00	76.50
Mean	98.00	60.60	75.00	77.00
S. D.	8.75	14.46	17.44	14.21
P. E.	.77	1.27	1.52	1.25
National Norms		74.00	81.00	89.00



At the beginning of the year 1935-1936 the mean score for Group I in geography was 60.60, which when interpolated by the table of norms represents the grade level of 4.8 and an educational age of ten years and nine months.<sup>19</sup> The results of the test given in May, 1936 show that the mean score was 75.00, which corresponds to a grade level of 6.1 grade and an educational age of eleven years and eleven months.<sup>20</sup> The results of the May, 1937 test show a mean score of 77.00, which represents a grade level of 6.3 and an educational age of twelve years and two months for the group.<sup>21</sup>

The average yearly progress of the group for the years 1930-1935 was .8 grade, for 1935-1936, 1.3 grades and for 1936-1937, .3 grade.

The standard deviations of the results of the September, 1935 test of the intelligence scores indicate that the group is scattered to a greater degree in the subject field at that time than in intelligence. Since the standard deviation of the 1936 test is greater than that of the September test the group became more scattered in 1935-1936. However, the standard deviation of the May, 1937 test is smaller than that of the May, 1936 test scores and about equal to that of the September, 1935 scores. The scattering of the scores of the group remained about the same during the two-year period.

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<sup>19</sup>Op. cit.

<sup>20</sup>Op. cit.

<sup>21</sup>Op. cit.

TABLE VIII  
 RAW SCORES FOR PHYSIOLOGY AND HYGIENE  
 STANFORD ACHIEVEMENT TEST  
 ADVANCED EXAMINATION FOR GROUP I

Pupil Index No.	I. Q.	Sept. 1935	May 1936	May 1937
3	114	80	102	106
6	111	86	110	122
7	111	76	96	106
8	110	79	102	104
9	109	81	90	111
10	109	90	101	95
11	108	69	102	109
14	105	75	93	101
17	104	72	96	106
19	103	78	88	104
21	102	75	95	98
24	100	61	80	82
26	99	73	96	82
27	98	63	76	84
28	98	46	88	98
31	97	63	78	82
33	96	73	86	87
37	95	58	85	88
39	95	73	73	90
40	94	51	76	89
47	92	65	72	69
49	92	63	90	79
50	92	55	76	83
53	91	44	76	76
54	90	55	87	84
59	88	65	77	95
61	86	61	76	76
68	83	55	82	88
69	79	53	77	76
Median	98.21	66.20	86.48	89.50
Mean	98.00	66.80	87.00	95.50
S. D.	8.75	11.79	10.15	13.23
P. E.	.77	1.04	.89	1.16
National Norms		74.00	81.00	89.00

In Table VIII the results of the physiology and hygiene test for group I are presented.

In September 1935 the group had a mean score of 66.80 corresponding to a grade level of 5.3 grade and an educational age of eleven years and two months.<sup>22</sup> In May 1936 the mean score for the group was 87.00, which if interpolated by the table of norms is equal to a grade level of 7.6 grade and an educational age of thirteen years and five months.<sup>23</sup> In May 1937 the group had a mean score of 95.50, which represents a grade level of 9.0 grade and an educational age of fifteen years.<sup>24</sup> The mean progress of the group for the year 1930-1935 was .88 grades per year; for 1935-1936, 2.3 grades; and for 1936-1937, 1.4 grades. Splendid progress has been made by the group during this two-year period 1935-1937. A progress of 1.0 grade would have been normal progress for one year yet the group scored an average yearly progress of 1.85 grades.

The standard deviations of the subject test scores and of the intelligence scores reveal that the group is less homogeneous in the subject than in intelligence. However, a study of the standard deviations of the scores of the physiology and hygiene tests and with other subject will indicate that the group is more homogeneous in this subject than in many others.

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<sup>22</sup>Op. cit.

<sup>23</sup>Op. cit.

<sup>24</sup>Op. cit.

TABLE IX  
 RAW SCORES FOR ARITHMETIC REASONING  
 STANFORD ACHIEVEMENT TEST  
 ADVANCED EXAMINATION FOR GROUP I

Pupil Index No.	I. Q.	Sept. 1935	May 1936	May 1937
3	114	75	88	98
6	111	78	100	94
7	111	65	84	102
8	110	72	84	91
9	109	75	82	104
10	109	65	84	98
11	108	68	82	104
14	105	75	84	107
17	104	72	69	94
19	103	78	84	102
21	102	72	86	98
24	100	53	49	78
26	99	62	63	75
27	98	58	76	81
28	98	68	66	83
31	97	83	88	87
33	96	42	72	81
37	95	58	59	78
39	95	62	72	85
40	94	37	69	83
47	92	65	79	83
49	92	53	62	85
50	92	53	69	87
53	91	53	59	75
54	90	81	69	91
59	88	68	79	102
61	86	68	82	81
68	83	62	62	81
69	79	37	86	61
Median	98.21	66.50	77.00	88.65
Mean	98.00	64.00	75.40	92.00
S. D.	8.75	12.00	11.36	11.36
P. E.	.77	1.06	1.00	1.00
National Norms		74.00	81.00	89.00

Splendid progress was made in arithmetic reasoning during the two-year period 1935-1937. From the results of the test given in September 1935, as shown in Table IX, the mean score of the group was 64.00, which if interpolated by the table of norms is equal to a grade level of 5.1 grade.<sup>25</sup> This was .9 grade below average or normal. The results of the May 1936 test show a mean score of 75.40, which represents a grade level of 6.1.<sup>26</sup> This was an increase of 1.0 grade over the grade level in 1935. In May 1937 the group had a mean score of 92.00. This, if interpolated by the table of norms, corresponds to a grade level of 8.4 grade, which was an increase of 2.3 grades during 1936-1937.<sup>27</sup>

The mean educational age of the group in September 1935 was eleven years; in May 1936 it was eleven years and eleven months and in May 1937 the mean educational age was fourteen years and four months.

The average or yearly progress for the period 1930-1935 was .85 grade while the progress made in 1935-1936 was 1.0 grade and in 1936-1937 the group made 2.3 grades.

The standard deviations of the scores of the three tests indicate a general trend toward greater homogeneity.

<sup>25</sup>

Op. cit.

<sup>26</sup>

Op. cit.

<sup>27</sup>

Op. cit.

TABLE X

RAW SCORES FOR ARITHMETIC COMPUTATION  
STANFORD ACHIEVEMENT TEST  
ADVANCED EXAMINATION FOR GROUP I

Pupil Index No.	I. Q.	Sept. 1935	May 1936	May 1937
3	114	88	94	114
6	111	83	112	114
7	111	67	111	115
8	110	68	82	109
9	109	69	76	112
10	109	65	109	103
11	108	90	103	114
14	105	77	103	114
17	104	67	86	106
19	103	74	92	113
21	102	15	88	96
24	100	59	71	77
26	99	74	73	109
27	98	43	90	106
28	98	72	96	106
31	97	69	74	101
33	96	58	71	81
37	95	64	54	75
39	95	72	94	101
40	94	43	74	88
47	92	68	88	92
49	92	62	68	87
50	92	65	66	79
53	91	56	68	90
54	90	68	90	96
59	88	51	76	94
61	86	58	80	94
68	83	64	68	81
69	79	65	76	94
Median	98.21	65.00	83.00	100.62
Mean	98.00	63.60	84.00	98.70
S. D.	8.75	14.21	14.49	12.41
P. E.	.77	1.25	1.28	1.09
National Norms		74.00	81.00	89.00

The results of the arithmetic computation tests are presented in Table X.

The mean score of the group in September 1935, as shown in Table X, was 63.60, which represents a grade level of 5.2 grades and an educational age of eleven years and one month.<sup>28</sup> In May 1936 the group scored a mean score of 84.00, which if interpolated by the table of norms is equal to a grade level of 7.2 grade and an educational age of twelve years and eleven months.<sup>29</sup> In the test given May 1937 the group made a mean score of 98.70, which represents a grade level of 9.5 grade and an educational age of fifteen years and six months.<sup>30</sup>

Unusual progress was made by the group during the two years 1935-1937. The average yearly progress for the period 1930-1935 was .85 grade, while the progress for 1935-1936 was 2.1 grades, and for 1936-1937 the group progressed 2.3 grades.

The standard deviations of the scores of the three subject tests and of the intelligence scores indicate that the scores of the subject tests of the group are scattered to a greater degree than the intelligence scores. However, there has been a tendency toward less scattering in the subject scores during the period 1936-1937.

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28  
Op. cit.  
29  
Op. cit.  
30  
Op. cit.

TABLE XI  
 RAW SCORES OF THE COMPOSITE SCORE  
 OF THE STANFORD ACHIEVEMENT TEST  
 ADVANCED EXAMINATION FOR THAT GROUP  
 WHICH ATTENDED THE SEVENTH GRADE  
 FOR THE TWO YEAR PERIOD

Pupil Index No.	I. Q.	Sept. 1935	May 1936	May 1937
3	114	86	97	105
6	111	80	96	100
7	111	74	95	102
8	110	76	87	96
9	109	75	88	101
10	109	74	83	89
11	108	81	97	104
14	105	68	79	94
17	104	65	75	88
19	103	71	87	95
21	102	52	82	89
24	100	54	62	76
26	99	69	80	88
27	98	63	78	85
28	98	64	76	83
31	97	64	74	79
33	96	58	75	77
37	95	57	62	74
39	95	48	65	78
40	94	42	68	83
47	92	43	64	72
49	92	50	70	79
50	92	55	69	77
53	91	48	60	71
54	90	63	74	85
59	88	47	70	80
61	86	56	66	69
68	83	64	68	74
69	79	45	59	67
Median	98.21	56.5	75.625	83.64
Mean	98.	62.0	76.0	85.93
S. D.	8.75	10.29	11.26	10.98
P. E.	.77	.91	1.11	.98
National Norms		74	81	89



The composite scores of the group are the averages of the ten tests. From the composite scores of Group I, as shown in Table XI, the mean of the September scores is the norm of the 4.9 grade. Thus the group was retarded 1.1 grade, since they should have scored sixth grade. The group therefore, lost an average of .19 grades per year or progressed at the rate of .81 grades per year.

During the year 1935-1936 the group progressed from the 4.9 grade to 6.2 grade, which is an increase of 1.3 grade and is .3 grade greater than normal progress. The group therefore made 62.5 per cent greater progress during 1935-1936 than for the average yearly progress for the period 1930-1935.

During the year 1936-1937 the group progressed from 6.2 grade to 7.5 grade, which was an increase of 1.3 grade and was also an increase of 62.5 per cent more progress during 1936-1937 than the average yearly progress made during 1930-1935.

From the results of the May 1937 test, as shown in Table XI, the group retarded only .5 grade, while in 1935 the group was retarded 1.1 grade.

The standard deviations of the scores of the three tests and of the intelligence scores indicate that, although the scattering from the norm is greater for the composite scores of the subjects than for the intelligence scores, the trend of the years 1935-1937 indicates a constant degree of scattering from the norms.

Group II was composed of 19 students who enrolled in the seventh grade 1935-1936 and in the eighth grade in the year 1936-1937. These students were in school for the entire two-year period.

The mean intelligence quotient of this group is 98 with a range of 72 to 124, which is quite large for the size of the group. Using the Terman table on the nature of intelligence, three border on mental deficiency, three are classed as superior mentally.

The standard deviation of the intelligence scores is 16.37, which indicates the scattering of the scores from the norm of the group.

We shall use the norm of the scores of each subject and the norm for the composite score to compare the progress or decline of the group in each of the subjects tested and also the composite score.

The standard deviation of the intelligence scores and of the achievement scores shall be used as a measurement of the trend of the teaching in the various subjects toward homogeneity or toward heterogeneity.

The curriculum for the eighth grade included: home economics for the girls; arithmetic; history and civics; English; music, spelling, and penmanship. Hour periods were used.

The home-room teacher of the group became ill at the middle of the year and a substitute teacher completed the year. The home-room teacher had a M. A. degree while the

substitute had only two years college training. English was the only subject which the home-room teacher taught the group.

TABLE XII

RAW SCORES FOR PARAGRAPH MEANING  
STANFORD ACHIEVEMENT TEST  
ADVANCED EXAMINATION FOR GROUP II

Pupil Index No.	I. Q.	Sept. 1935	May 1936	May 1937
2	124	89	104	105
3	120	74	84	100
4	120	75	87	101
6	117	78	97	102
7	115	80	91	100
10	110	88	101	98
12	108	89	104	103
13	108	78	98	101
19	99	80	97	94
21	93	73	80	88
22	92	78	87	103
24	90	58	80	75
25	90	66	68	82
27	89	72	82	85
29	85	48	70	81
30	82	66	77	97
32	79	35	38	59
35	76	56	89	88
37	72	54	54	78
Median	91	73.57	85.83	95.00
Mean	98	70.30	84.00	91.60
S. D.	16.37	14.18	15.59	11.96
P. E.	1.80	1.55	1.70	1.30
National Norms		82.00	89.00	95.00

Table XII presents the results of Group II on the paragraph meaning test. The mean score for September 1935 was 70.73; for May 1936, 84; for May 1937, 91.6. These series represent a grade level of 5.7 for September 1935; 7.2 for May 1936; and 8.4 for May 1937.<sup>31</sup>

Since the group scored equal to the norm for the 5.7 grade level September 1935, we may arrive at the average rate of progress for the period 1930-1935 by dividing this number by the grade level the group should score, which in this case is seven. The average yearly rate of progress is .81 grade.

We can now compare the rate of progress for the three periods. The rate of progress for the period 1930-1935 was 1.81 grade, for 1935-1936, 1.5 grades and for 1936-1937, 1.2 grades. Hence the progress for 1935-1936 was .7 grade greater than the progress for 1930-1935, and the progress for 1936-1937 was .4 grade more than that of 1930-1935.

The mean educational age for the group is as follows: for September 1935, eleven years and six months, for May 1936, twelve years and eleven months and for May 1937, fourteen years and four months.

The standard deviations of the three subject tests scores and of the intelligence test scores reveal that the group is more homogeneous in paragraph meaning than in intelligence and that for the period 1935-1937 the trend is toward greater homogeneity.

TABLE XIII  
 RAW SCORES FOR WORD MEANING  
 STANFORD ACHIEVEMENT TEST  
 ADVANCED EXAMINATION FOR GROUP II

Pupil Index No.	I. Q.	Sept. 1935	May 1936	May 1937
2	124	78	98	103
3	120	83	86	93
4	120	76	83	94
6	117	85	91	101
7	115	86	82	90
10	110	78	92	106
12	108	100	100	98
13	108	86	86	100
19	99	77	80	96
21	93	73	76	86
22	92	74	82	96
24	90	65	73	73
25	90	66	70	76
27	89	65	80	80
29	85	48	72	75
30	82	70	87	86
32	79	39	47	59
35	76	66	74	80
37	72	56	67	71
Median	91	72.50	83.12	90.83
Mean	98	72.16	80.31	87.53
S. D.	16.37	13.93	11.83	11.66
P. E.	1.80	1.52	1.29	1.27
National Norms		82.00	89.00	95.00

The results of Group II on the word meaning tests are presented in Table XIII.

The mean score of the group for September 1935 was 72.16. In May 1936 the mean was 80.31, and May 1937 it was 87.53.

These scores represent a grade level of 5.8, 6.7, and 7.8 for September 1935, May 1936, and May 1937 respectively.

The average or yearly progress in word meaning for the period 1930-1935 was .828 grade. The progress of the group for 1935-1936 was .9 grade and for 1936-1937 1.1 grade.

The mean educational age of the group in word meaning in September 1935 was eleven years and 8 months, in May 1935, twelve years and six months, and in May 1937, thirteen years and seven months.<sup>33</sup>

The standard deviations of the three subject tests scores and of the intelligence scores indicate greater homogeneity in the subject field than in the intelligence scores, and the trend is toward greater homogeneity.

A study of the results of the spelling scores, as indicated in Table XIV, will show that the progress in the subject was not as great as one would expect.

From the results of the test given in September 1935, the group scored a mean score of 73.53. This score is equal to a grade level of 6.0 grade and an educational age of eleven years and ten months.<sup>34</sup> The average yearly progress for the period 1930-1935 was .857 grade.

The mean score of the group on the May 1936 test was 80.40. This score represents a grade level of 6.7 and an educational age of twelve years and six months.<sup>35</sup> The progress for the year 1935-1936 in terms of grades was .7 grade.

<sup>33</sup>

Op. cit.

<sup>34</sup>

Op. cit.

<sup>35</sup>

Op. cit.

TABLE XIV  
 RAW SCORES FOR SPELLING  
 STANFORD ACHIEVEMENT TEST  
 ADVANCED EXAMINATION FOR GROUP II

Pupil Index No.	I. Q.	Sept. 1935	May 1936	May 1937
2	124	81	91	94
3	120	69	72	78
4	120	78	88	89
6	117	82	89	92
7	115	95	100	110
10	110	73	95	94
12	108	83	80	86
13	108	78	83	81
19	99	78	91	86
21	93	70	73	80
22	92	82	88	90
24	90	61	73	76
25	90	73	83	76
27	89	68	74	74
29	85	64	72	66
30	82	69	75	86
32	79	62	65	69
35	76	70	77	81
37	72	63	62	65
Median	91	73.57	80.53	83.57
Mean	98	73.53	80.40	83.00
S. D.	16.37	8.60	10.10	10.72
P. E.	1.80	.94	1.10	1.17
National Norms		82.00	89.00	95.00

In May 1937 the mean score of the group was 83.00 or the 7.1 grade and an educational age of twelve years and ten months.<sup>36</sup>

The progress for the year 1935-1936 was not satisfactory and that for 1936-1937 was wholly unsatisfactory.

The standard deviations of the three subject tests and of the intelligence scores show that the group was more

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<sup>36</sup>

Op. cit.

homogeneous in spelling than in the intelligence scores. However, the trend for the period 1935-1937 seems to be toward greater heterogeneity.

The results of the language usage test for Group II show that the mean score of the September test was 71.63, for the May 1936, 76.63 and for May 1937, 97.21.

These scores represent a grade level of 5.8 grade, 6.3 grade and 9.2 grade for the periods September 1935, May 1936, and May 1937, respectively.<sup>37</sup>

The average yearly progress of the group for the period 1930-1935 was .827 grade, the progress for the year 1935-1936 was .5 grade, and for 1936-1937, 2.9 grades.

The group made about the same progress in language usage as in other subjects during the period 1930-1935. The progress for this period was not normal. The progress made during 1935-1936 was only .5 grade, which was certainly unsatisfactory. However, the progress of the group in 1936-1937 was splendid, since the group made nearly three years progress in one year.

The mean educational age of the group for the three tests were as follows: for September 1935, eleven years and eleven months; for May 1936, twelve years and two months and for May 1937, fifteen years and two months.<sup>38</sup>

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37

Op. cit.

38

Op. cit.



TABLE XV  
 RAW SCORES FOR LANGUAGE USAGE  
 STANFORD ACHIEVEMENT TEST  
 ADVANCED EXAMINATION FOR GROUP II

Pupil Index No.	I. Q.	Sept. 1935	May 1936	May 1937
2	124	89	91	121
3	120	70	86	93
4	120	68	70	87
6	117	83	89	106
7	115	88	95	106
10	108	92	97	115
12	108	92	97	115
13	108	78	94	93
19	99	66	89	99
21	93	74	91	89
22	92	83	93	93
24	90	78	67	95
25	90	58	89	107
27	89	58	60	103
29	85	31	78	75
30	82	85	78	101
32	79	64	20	86
35	76	50	86	89
37	72	56	52	78
Median	91	73.72	85.00	87.00
Mean	98	71.63	76.63	97.21
S. D.	16.37	16.00	18.87	12.25
P. E.	1.80	1.74	2.06	1.34
National Norms		82.00	89.00	95.00

The standard deviations of the three test scores and of the intelligence scores indicate that the scattering of all of the scores from the norm is about the same for all tests. However, there seems to be a trend toward greater homogeneity in the subject in May 1937.

The results of the test on literature, as shown in Table XVI, indicate that Group II is very low in the subject. The mean score of the September 1935 test was 61.00, for the May 1936, 70.42 and for May 1937, 82.63.

TABLE XVI  
 RAW SCORES FOR LITERATURE  
 STANFORD ACHIEVEMENT TEST  
 ADVANCED EXAMINATION FOR GROUP II

Pupil Index No.	I. Q.	Sept. 1935	May 1936	May 1937
2	124	78	100	75
3	120	79	92	85
4	120	78	85	94
6	117	87	90	87
7	115	86	84	83
10	110	89	99	102
12	108	85	93	94
13	108	84	88	103
19	99	50	81	77
21	93	53	50	77
22	92	64	74	65
24	90	56	76	92
25	90	20	20	65
27	89	44	50	79
29	85	56	62	65
30	82	37	70	83
32	79	20	50	77
35	76	44	54	72
37	72	50	20	85
<b>Median</b>	91	59.00	78.33	81.00
<b>Mean</b>	98	61.00	70.42	82.63
<b>S. D.</b>	16.37	22.00	24.21	11.23
<b>P. E.</b>	1.80	2.40	2.65	1.22
<b>National Norms</b>		82.00	89.00	95.00

These scores represent a grade level of 4.8 grade, 5.7 grade, and 7.1 grade for the periods September 1935, May 1936, and May 1937, respectively.<sup>39</sup>

Although the group was 2.2 grades behind normal progress, the progress for the years 1935-1937 was better than normal.

The mean educational age of the group in September 1935 was ten years and nine months, in May 1936 it was

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<sup>39</sup>

Op. cit.

TABLE XVII

RAW SCORES FOR HISTORY AND CIVICS  
STANFORD ACHIEVEMENT TEST  
ADVANCED EXAMINATION FOR GROUP II

Pupil Index No.	I. Q.	Sept. 1935	May 1936	May 1937
2	124	68	82	104
3	120	70	93	102
4	120	85	95	119
6	117	85	98	120
7	115	84	89	112
10	110	92	109	109
12	108	72	84	107
13	108	85	91	107
19	99	74	90	91
21	93	20	74	101
22	92	20	62	88
24	90	68	85	103
25	90	39	80	81
27	89	57	78	98
29	85	54	74	94
30	82	68	75	96
32	79	35	79	73
35	76	60	78	81
37	72	54	73	80
<b>Median</b>	91	66.25	83.00	100.71
<b>Mean</b>	98	62.63	83.63	97.90
<b>S. D.</b>	16.37	12.57	10.63	12.96
<b>P. E.</b>	1.80	1.37	1.16	1.41
<b>National Norms</b>		82.00	89.00	95.00

eleven years and six months, and for May 1937, twelve years and ten months.<sup>40</sup>

The standard deviations of the three literature scores and of the intelligence scores indicate that there was greater scattering from the norm in the subject field than in the intelligence scores. The greatest progress was made during the period of the least scattering of scores.

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<sup>40</sup>

Op. cit.

From the results of the tests on history and civics of Group II, as shown in Table XVII, the mean score of the group for September 1935 was 62.63 or, in terms of grade level, grade 4.9. The group therefore was 2.1 grades below normal in September 1935. The mean score for May 1936 was 83.63, which represents a grade level of 7.6 grade, and for May 1937 a mean score of 97.90 was scored, which corresponds to a grade level of 9.3 grade. The progress for the three periods was as follows: for the period 1930-1935, .7 grade per year; for 1935-1936, 2.7 grade; and for 1936-1937, 2.1 grades.

Thus, it is evident that splendid progress was made during the years 1935-1937. In both years the progress was greater than twice the expected results.

The mean educational ages for the three test periods are: for September 1935, ten years and ten months; for May 1936, twelve years and eleven months; and for May 1937, fifteen years and four months.

The standard deviations of the three subject tests and of the intelligence scores indicate a greater homogeneity in the subject field than in intelligence.

TABLE XVIII  
 RAW SCORES FOR GEOGRAPHY  
 STANFORD ACHIEVEMENT TEST  
 ADVANCED EXAMINATION FOR GROUP II

Pupil Index No.	I. Q.	Sept. 1935	May 1936	May 1937
2	124	74	94	88
3	120	75	89	100
4	120	90	115	111
6	117	103	118	111
7	115	91	106	103
10	110	101	114	111
12	108	86	94	103
13	108	86	94	103
19	99	67	89	97
21	93	69	74	76
22	92	71	84	76
24	90	60	78	73
25	90	61	77	59
27	89	82	84	85
29	85	57	85	94
30	82	63	89	61
32	79	58	36	62
35	76	71	70	72
37	72	78	91	59
Median	91	75.00	87.50	87.50
Mean	98	75.84	89.42	86.84
S. D.	16.37	13.78	16.76	16.12
P. E.	1.80	1.50	1.83	1.76
National Norms		82.00	89.00	95.00

Table XVIII shows the results of the tests in geography given Group II. During the period 1930-1936 the group was in the third to the seventh grades, and therefore studied geography as an independent subject. During 1936-1937 the group did not study geography, except as it related to other subjects.

The results of the geography test for Group II show that the mean score of the September test was 75.84, for

the May 1936 test, 89.42, and for May 1937, 86.84.

These scores represent a grade level of 6.2 grade, 7.9 grade and 7.6 grade for the periods September 1935, May 1936, and May 1937, respectively.

The progress during 1930-1935 was .9 grade per year. During 1935-1936 the group made excellent progress. In terms of grades this progress was 1.7 grades, or 170 per cent of the expected or normal achievement for one year. During 1936-1937 the group failed to achieve any progress and lost a part of their achievement of the prior year. Certainly the achievement of this group was not satisfactory in geography during 1936-1937.

The standard deviations of the subject test scores and of the intelligence scores indicate that the group was more homogeneous in the subject than in intelligence, however the scores of the group tended to scatter more 1935-1937 than for the previous period 1930-1935.

The mean educational ages of the group were: for September 1935, twelve years; for May 1936, thirteen years and nine months; and for May 1937, thirteen years and five months.

Group II studied physiology and hygiene during the years 1930-1935, as provided in the state course of study, however no provision is made for the study in the eighth year. The girls in the group were given a domestic art class which most certainly deals with health problems.

TABLE XIX

RAW SCORES FOR PHYSIOLOGY AND HYGIENE  
STANFORD ACHIEVEMENT TEST  
ADVANCED EXAMINATION FOR GROUP II

Pupil Index No.	I. Q.	Sept. 1935	May 1936	May 1937
2	124	83	91	98
3	120	91	92	101
4	120	87	94	101
6	117	83	90	90
7	115	81	90	100
10	110	79	102	100
12	108	92	104	109
13	108	85	101	101
19	99	85	95	105
21	93	65	86	95
22	92	78	83	83
24	90	58	65	91
25	90	69	87	86
27	89	81	82	102
29	85	71	67	90
30	82	74	90	88
32	79	53	48	71
35	76	69	88	96
37	72	53	73	90
Median	91	78.72	90.71	97.85
Mean	98	75.63	85.68	94.58
S. D.	16.37	11.70	13.60	8.19
P. E.	1.60	1.27	1.48	.89
National Norms		82.00	89.00	95.00

Some of the boys enrolled in a junior science club, which probably devoted a part of its time to health education, however this was not required.

The results of the physiology and hygiene test for Group II show that the mean score of the September test was 75.63, for May 1936, 85.68, and for May 1937, 94.58.

These scores represent a grade level of 6.2 grade, 7.5 grade, and 9.0 grade for the periods September 1935,

May 1936, and May 1937, respectively. These grade levels are the grade norms for the mean scores of the three test as shown in Table XIX.

Splendid progress was made by the group in physiology and hygiene during the period 1935-1937. For the period 1930-1935 the average grade progress was .9 grade while in 1935-1936 the progress was 1.3 grade and during 1936-1937 it was 1.5 grade.

The mean educational age of the group at the time that the three tests were given were: for September 1935, twelve years; for May 1936, thirteen years and three months; and for May 1937, fifteen years.

The standard deviations of the three tests in the subject and for the intelligence scores showed that the group was more homogeneous in physiology and hygiene than in intelligence. The scattering of the scores from the norms increase during 1936 and was less for May 1937.

Group II showed splendid progress during the years 1935-1937 in arithmetic reasoning. In September 1935 the mean score was 78.43. The mean score in May 1936 was 83.88 and in May 1937, 97.68.

These scores represent a grade level of 5.1 grade, 6.1 grade, and 8.4 grade for the periods September 1935, May 1936, and May 1937, respectively.

The yearly progress of the group for the years 1930-1935 was .727 grades. During 1935-1936 the group made 1.0 grade progress and for the 1936-1937 period, 2.3 grades.



TABLE XX

RAW SCORES FOR ARITHMETIC REASONING  
STANFORD ACHIEVEMENT TEST  
ADVANCED EXAMINATION FOR TEST II

Pupil Index No.	I. Q.	Sept. 1935	May 1936	May 1937
2	124	81	82	94
3	120	81	86	105
4	120	87	97	107
6	117	83	97	110
7	115	83	103	107
10	110	93	100	107
12	108	81	97	111
13	108	78	88	102
19	99	81	84	113
21	93	90	84	107
22	92	72	76	91
24	90	75	72	91
25	90	75	76	81
27	89	83	82	87
29	85	68	69	94
30	82	62	62	87
32	79	68	72	87
35	76	81	79	94
37	72	68	84	81
Median	91	81.55	83.57	99.00
Mean	98	78.43	83.88	97.68
S. D.	16.37	7.55	11.05	10.29
P. E.	1.80	.83	1.20	1.12
National Norms		82.00	89.00	95.00

The progress for the period 1930-1936 normal and for the year 1936-1937, 230 per cent normal. Although the group was 1.9 grades retarded in 1935, by May 1937 the group was only .5 grade below the national norms.

The mean educational age of the group in September 1935 was eleven years; in May 1936, eleven years and eleven months, and in May 1937, fourteen years and four months.

TABLE XXI  
 RAW SCORES FOR ARITHMETIC COMPUTATION  
 STANFORD ACHIEVEMENT TEST  
 ADVANCED EXAMINATION FOR GROUP II

Pupil Index No.	I. Q.	Sept. 1935	May 1936	May 1937
2	124	83	96	114
3	120	88	94	112
4	120	92	109	114
6	117	94	88	114
7	115	94	113	113
10	110	90	98	112
12	108	68	82	103
13	108	90	98	96
19	99	85	111	112
21	93	77	106	112
22	92	74	90	101
24	90	71	90	109
25	90	83	106	109
27	89	85	113	111
29	85	72	90	98
30	82	75	80	92
32	79	72	88	90
35	76	69	88	114
37	72	64	66	67
<b>Median</b>	<b>91</b>	<b>76.00</b>	<b>95.00</b>	<b>102.00</b>
<b>Mean</b>	<b>98</b>	<b>80.32</b>	<b>95.00</b>	<b>105.00</b>
<b>S. D.</b>	<b>16.37</b>	<b>9.38</b>	<b>12.17</b>	<b>11.79</b>
<b>P. E.</b>	<b>1.80</b>	<b>1.01</b>	<b>1.33</b>	<b>1.29</b>
<b>National Norms</b>		<b>82.00</b>	<b>89.00</b>	<b>95.00</b>

The standard deviations of the arithmetic test scores and of the intelligence scores reveal that the group was more homogeneous in arithmetic reasoning than in intelligence during all periods. However, the trend for the years 1935-1937 was toward greater scattering of the scores from the norms in the subject, than for the period 1930-1935.

A study of the several tables will show greater progress in arithmetic computation than in any other subject.

The mean score of the group was 80.32 in September 1935. In May 1936 the mean score was 95.00 and in May 1937 the mean score was 105.00.

These scores when interpolated by the table of norms represent a mean grade level of 5.1 grade in September 1935, 7.2 grade in May 1936, and in May 1937, 9.5 grade.<sup>41</sup>

The progress in arithmetic computation achievement in terms of grades and yearly progress was as follows: for the period 1930-1935, .727 grade, for 1935-1936, 2.1 grades and for 1936-1937, 2.3 grades. In terms of per cent, the progress of the group was 72.70 per cent normal in 1930-1935; 210 per cent normal in 1935-1936, and 230 per cent for 1936-1937.

In September 1935 the group was retarded 1.9 grades and by May 1937 the group was accelerated .5 grades.

The mean educational age for September 1935 was eleven years, for May 1936, twelve years and eleven months, and for May 1937, fifteen years and six months.

The standard deviations of the subject scores and of the intelligence scores indicate a greater degree of homogeneity in the subject than in the intelligence scores.

Group II has made excellent progress in general achievement during the two years 1935-1937.

The mean score of the September test is the norm for grade 5.8. The May mean score is the norm for 7.1 grade

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Op. cit.

TABLE XXII

COMPOSITE SCORE OF THE STANFORD ACHIEVEMENT TEST  
ADVANCED EXAMINATION FOR GROUP II

Pupil Index No.	I. Q.	Sept. 1935	May 1936	May 1937
2	124	80	93	100
3	120	78	87	97
4	120	82	92	103
6	117	86	95	103
7	115	87	95	102
10	110	87	100	105
12	108	85	94	102
13	108	82	94	99
19	99	74	91	97
21	93	66	79	90
22	92	69	82	89
24	90	65	76	87
25	90	61	76	86
27	89	69	79	90
29	85	57	74	83
30	82	67	78	87
32	79	51	54	73
35	76	63	78	86
37	72	59	64	74
Median	91	68.00	80.50	90.00
Mean	98	71.73	83.21	92.27
S. D.	16.37	10.95	11.62	9.43
P. E.	1.80	1.19	1.26	1.03
National Norms		82.00	89.00	95.00

and the grade level as determined by the mean is 8.4 grade for May 1937.

The group was retarded 1.2 grades in September 1935. In May 1936 the retardation was only .9 grade, and in May 1937 the group was retarded only .5 grade.

The group progressed at an average yearly rate for the period 1930-1935 of .827 grade, and for the period 1935-1937 1.3 grades. In terms of per cent the achievement of the

group was 82.70 per cent normal in 1930-1935 and 130 per cent for the period 1935-1937.

The mean educational age of the group in September 1935 was eleven years and eight months. In May 1936 the group scored twelve years and ten months, and in May 1937 the mean educational age was fourteen years and four months.

A study of the standard deviations of the three tests in subjects and of the intelligence scores indicate that the group became more homogeneous in the composite subject achievement than in intelligence.

Group III was composed of twenty-three students who were enrolled in the eighth grade in 1935-1936 and in the ninth grade in 1936-1937. These twenty-three were in attendance all of the two-year period.

The mean intelligence score was 95.7. According to Terman's table of the nature of intelligence, the mean intelligence score was classified as average or normal. According to Terman's table, two of the pupils were classified as definitely feeble minded, five were classified as bordering on mental deficiency, twelve were classified as being mentally normal, three were classed superior, and one was classified as mentally superior.

The standard deviation of the group indicates a rather wide scattering from the mean intelligence score. Although very little progress could be expected of those whose intelligence quotient was less than 90, some of these people

showed remarkable progress relative to their ability. Others made little progress, and one made no progress.

Group III studied the regular curriculum for the eighth grade in the year 1935-1936. The subjects studied were: arithmetic, history and civics, English, reading, music, penmanship, and spelling. A sixty minute period was given to music, penmanship, and spelling. A sixty minute period was given to English and reading. Hour periods were used for all other subjects. The boys were given agriculture and the girls were enrolled in study hall, dramatics, or Junior band at the hour that the boys had agriculture.

In the ninth grade all of Group III was enrolled in Algebra I and English I. The boys were enrolled in Science I and the girls were enrolled in Home Economics I. The students of this group could elect Oklahoma history and civics or music I for the fourth subject.

For extra curricular activity Group III could enroll in one of the following: Junior or Senior band, girls' glee club, Junior dramatics, or science club.

The mean score of Group III in paragraph meaning for September 1935 was 81.52, for May 1936, 85.70 and for May 1937, 95.21.

The mean grade level of Group III in paragraph meaning for September 1935 was seventh grade. This represents a yearly progress of .875 grade for the years 1930-1935. According to the test in May 1936 the mean grade level of

TABLE XXIII

RAW SCORES FOR PARAGRAPH MEANING  
STANFORD ACHIEVEMENT TEST  
ADVANCED EXAMINATION FOR GROUP III

Pupil Index No.	I. Q.	Sept. 1935	May 1936	May 1937
3	120	93	94	95
4	113	103	121	118
6	113	93	107	113
7	113	93	102	107
10	107	95	98	101
11	106	78	82	85
12	104	98	95	106
14	103	98	111	106
17	101	100	108	120
19	100	92	46	105
24	99	75	94	103
25	98	98	97	107
26	96	100	87	105
29	94	67	73	85
32	92	87	74	104
33	92	63	81	78
37	88	73	81	101
38	87	70	77	85
39	86	59	67	77
45	80	64	77	82
46	80	40	57	47
54	64	67	70	66
55	63	69	72	94
Median	98.50	81.50	86.25	101.50
Mean	95.70	81.52	85.70	95.21
S. D.	14.53	14.49	18.25	19.67
P. E.	1.45	1.44	1.81	1.96
National Norms		89.00	95.00	101.50

the group for that time was 7.5. This showed a progress of .5 grade for the year 1935-1936. The mean grade level of the group in May 1937 was 8.9. This was a progress of 1.4 grades over the May 1936 test.

The group progress was very good for 1936-1937, although the progress for 1935-1936 was not so good.

The educational age for the group was as follows: September 1935, twelve years and eight months; May 1936, thirteen years and three months; May 1937, fourteen years and ten months.

The standard deviation of the May 1937 and May 1937 scores of the paragraph meaning test indicate a scattering from the norm to a greater degree than that of the intelligence scores. The standard deviation of the September 1935 scores is about the same as that of the intelligence scores. The trend was toward greater scattering for the years 1935-1937.

Table XXIV shows the results of Group III for the tests on word meaning, September 1935, May 1936, May 1937. The mean of Group III on the word meaning test in September 1935 was 79.43 which represents a grade level of 6.6 grades. The mean score for May 1936 was 86.43, representing a grade of 7.5. The mean score of 88.48 for the test scores of May 1937 represents a grade level of 7.8.

The yearly progress of the group in word meaning in terms of grades, then, is as follows: for the period 1930-1935, .825 grade; for 1935-1936, .9 grade; for the year 1936-1937, .3 grade. The progress for these periods was not up to standard, and the progress for the year 1936-1937 was definitely unsatisfactory.

The mean educational ages for the three periods were as follows: September 1935-1936, twelve years and four



TABLE XXIV  
 RAW SCORES FOR WORD MEANING  
 STANFORD ACHIEVEMENT TEST  
 ADVANCED EXAMINATION FOR GROUP III

Pupil Index No.	I. Q.	Sept. 1935	May 1936	May 1937
3	120	86	93	92
4	115	105	110	114
6	113	100	100	104
7	113	90	98	104
10	107	92	101	102
11	106	79	84	84
12	104	86	97	94
14	103	95	101	100
17	101	99	107	101
19	100	79	93	87
24	99	83	91	92
25	98	80	95	97
26	96	83	84	89
29	94	69	68	83
32	92	93	95	97
33	92	69	68	72
37	88	78	84	91
38	87	73	79	93
39	86	54	62	55
45	80	62	67	77
46	80	42	73	59
54	64	62	63	63
55	63	68	75	86
Median	98.50	81.00	90.71	92.14
Mean	95.70	79.43	86.43	88.48
S. D.	14.53	15.56	15.33	15.56
P. E.	1.45	1.55	1.52	1.55
National Norms		89.00	95.00	101.50

months; May 1936, thirteen years and three months; May 1937, thirteen years and seven months.

From a study of the standard deviations of the three tests on word meaning and the standard deviation of the intelligence scores, the group was scattered a little more from the norm in the subject than in intelligence.

TABLE XXV  
 RAW SCORES FOR SPELLING  
 STANFORD ACHIEVEMENT TEST  
 ADVANCED EXAMINATION FOR GROUP III

Pupil Index No.	I. Q.	Sept. 1935	May 1936	May 1937
3	120	90	95	82
4	115	82	88	78
6	113	97	106	96
7	113	98	103	87
10	107	77	86	80
11	106	86	87	84
12	104	83	90	83
14	103	97	105	91
17	101	86	95	82
19	100	88	94	82
24	99	85	98	89
25	98	83	90	88
26	96	82	87	77
29	94	75	81	71
32	92	81	90	85
33	92	76	80	74
37	88	78	81	77
38	87	84	98	83
39	86	71	74	64
45	80	74	75	66
46	80	71	72	66
54	64	76	79	74
55	63	81	85	80
<b>Median</b>	<b>98.50</b>	<b>83.18</b>	<b>89.37</b>	<b>82.08</b>
<b>Mean</b>	<b>95.70</b>	<b>82.27</b>	<b>88.04</b>	<b>79.96</b>
<b>S. D.</b>	<b>14.53</b>	<b>7.07</b>	<b>9.33</b>	<b>9.32</b>
<b>P. E.</b>	<b>1.45</b>	<b>.69</b>	<b>.93</b>	<b>.83</b>
<b>National Norms</b>		<b>89.00</b>	<b>95.00</b>	<b>101.50</b>

The students of Group III did not study spelling as an independent subject during the year 1936-1937. Spelling was included in the curriculum during the years 1930-1936.

From Table XXV, the mean score of the group in September 1935 was 82.27 which represents a grade level of 7.0.

The mean score for the test given May 1936 was 88.04, which represents a grade level of 7.8. The mean score for the May 1937 test was 79.96, representing a grade level of 6.7. In light of these results the group yearly progress in spelling in terms of grades for the period 1930-1935 was .777 for 1935-1936, .8 grade; for 1936-1937, a loss of 1.1 grades.

In general the average progress for the years 1930-1935, while not satisfactory, was only .23 grade below normal or average. Although spelling as an independent subject was not studied in the ninth year there should have been normal or average progress, since the study of English, in particular, and all subjects, in general, should have added to the knowledge of the group in spelling. Certainly, we can say that the teaching of English, in particular, and of the other subjects, in general, has not been effective in teaching spelling.

The mean educational age of Group III in spelling in September 1935 was twelve years and eight months; in May 1936, thirteen years and seven months; in May 1937, twelve years and six months.

The standard deviations of the three spelling test scores and of the intelligence quotients indicated a smaller scattering from the mean for the group than that of the intelligence scores. However, the trend for the years 1935-1937 was toward greater scattering from the mean than that of the scores in September, 1935.

TABLE XXVI  
 RAW SCORES FOR LANGUAGE USAGE  
 STANFORD ACHIEVEMENT TEST  
 ADVANCED EXAMINATION FOR GROUP III

Pupil Index No.	I. Q.	Sept. 1935	May 1936	May 1937
3	120	98	99	106
4	115	88	94	106
6	113	106	114	104
7	113	83	91	101
10	107	82	91	103
11	106	70	89	91
12	104	94	105	87
14	103	102	99	109
17	101	104	118	106
19	100	97	96	75
24	99	90	99	103
25	98	105	99	109
26	96	78	81	100
29	94	74	85	94
32	92	83	87	93
33	92	91	84	94
37	88	66	85	97
38	87	81	81	93
39	86	70	80	20
45	80	54	48	81
46	80	44	50	80
54	64	83	70	92
55	63	58	86	85
Median	98.50	85.83	89.44	99.38
Mean	95.70	82.21	88.48	92.52
S. D.	14.53	16.16	15.20	9.27
P. E.	1.45	1.61	1.51	.92
National Norms		89.00	95.00	101.50

The results of the language usage tests as presented in Table XXVI showed that the mean score of the group in September 1935 was 82.21, which represents a level of seventh grade. Therefore, the group was one grade below normal in language usage in 1935. The average progress for the years 1930-1935, then, was .875 grade per year. The

mean of Group III for the May 1936 scores was 88.48, which represents a grade level of 7.8 grade. Thus, the progress for 1935-1936 was slightly less than that of the previous years. For the May 1937 test the mean of the group was 92.52, which represents a grade level of 8.5. This was a progress of .7 grade for the year 1936-1937.

The improvement of the group in language usage, as compared with that of the year 1930-1935 was not increased but rather it was made a little smaller. The progress for all of the years was certainly not satisfactory.

The mean educational age of the group for September 1935 was twelve years and eight months; for May 1936, thirteen years and seven months; for May 1937, fourteen years and six months.

The standard deviations for the three scores of the language usage tests and for the intelligence scores showed that in 1930-1936 the group was scattered from the norm to a greater degree than the scattering of the intelligence scores. However, a decided trend toward homogeneity was shown by the standard deviation of the May 1937 test scores.

Group III, as has been shown of Groups I and II was very low in literature. The score for Group III in September 1935 was 64.46; in May 1936, 78.04; in May 1937, 80.07.

These scores represent a mean grade level of 5.1 grade for September 1935; 6.4 grade in May 1936; 6.7 grade for May 1937.

TABLE XXVII  
 RAW SCORES FOR LITERATURE  
 STANFORD ACHIEVEMENT TEST  
 ADVANCED EXAMINATION FOR GROUP III

Pupil Index No.	I. Q.	Sept. 1935	May 1936	May 1937
3	120	93	78	96
4	115	100	104	104
6	113	56	90	96
7	113	75	87	92
10	107	62	70	83
11	106	44	76	75
12	104	56	87	70
14	103	85	93	93
17	101	91	90	93
19	100	64	76	38
24	99	50	74	81
25	98	75	84	89
26	96	56	88	91
29	94	34	70	87
32	92	75	74	65
33	92	79	54	91
37	88	75	85	67
38	87	78	81	70
39	86	56	76	65
45	80	50	68	60
46	80	20	20	83
54	64	56	68	67
55	63	56	76	88
<b>Median</b>	98.50	62.50	83.33	84.17
<b>Mean</b>	95.70	64.46	78.04	80.07
<b>S. D.</b>	14.53	18.79	15.68	20.17
<b>P. E.</b>	1.45	1.87	1.56	2.00
<b>National Norms</b>		89.00	95.00	101.50

It was very evident that the teaching of literature was not effective for any year. The results showed a progress of .635 grade for the years 1930-1935; a progress of 1.3 grades for 1935-1936; a progress of .3 grade for 1936-1937.

The mean educational age for the group on the September 1935 test was eleven years. In May 1936 the mean educational age on the literature test was twelve years and three months, and May 1937 the mean educational age of the group was twelve years and six months.

A study of the standard deviations of the three subject tests and of the educational scores reveals that the group was scattered from the mean much more in the subject field than in the intelligence scores. The group tended to scatter more each year except the year 1935-1936, in which it becomes slightly less scattered.

All of the students in Group III were not enrolled in history and civics, and the test was not particularly designed to check progress in Oklahoma history, which was the subject in which part of this group was enrolled. It does check progress in civics, however. All of this group were taught history in the year 1935-1936.

The results of the history and civics tests as presented in Table XXVIII show that the group was retarded 1.3 grades in September 1935. The mean score was 70.48, which represents a grade level of 5.7. The average yearly progress for the period 1930-1935 was .71 grade per year. The mean for the scores obtained from the May 1936 test was 86.30, which represents a grade level of 7.5. The group progressed 1.8 grades during the year 1935-1936. The mean scores for the May 1937 test was 82.56, which indicates a

TABLE XXVIII  
 RAW SCORES FOR HISTORY AND CIVICS  
 STANFORD ACHIEVEMENT TEST  
 ADVANCED EXAMINATION FOR GROUP III

Pupil Index No.	I. Q.	Sept. 1935	May 1936	May 1937
3	120	89	93	91
4	115	104	110	109
6	113	92	110	95
7	113	86	93	88
10	107	72	96	93
11	106	60	95	84
12	104	83	94	101
14	103	82	95	92
17	101	81	90	88
19	100	68	69	88
24	99	68	85	84
25	98	80	88	91
26	96	47	96	84
29	94	78	87	86
32	92	88	84	96
33	92	57	73	84
37	88	77	87	75
38	87	60	81	83
39	86	62	20	32
45	80	47	60	73
46	80	39	54	60
54	64	66	36	60
55	63	35	67	60
<b>Median</b>	<b>98.50</b>	<b>71.67</b>	<b>87.50</b>	<b>86.11</b>
<b>Mean</b>	<b>95.70</b>	<b>70.48</b>	<b>86.30</b>	<b>82.56</b>
<b>S. D.</b>	<b>14.53</b>	<b>18.04</b>	<b>21.93</b>	<b>15.10</b>
<b>P. E.</b>	<b>1.45</b>	<b>1.80</b>	<b>2.18</b>	<b>1.51</b>
<b>National Norms</b>		<b>89.00</b>	<b>95.00</b>	<b>101.50</b>

a grade level of 7.1. Thus, the group showed a loss of .4 grade from the standing of the group in 1936.

Since the test does not test Oklahoma history and since the entire group was not enrolled in history and civics it is difficult to determine whether or not the teaching was effective. For the group, however, the school



failed to provide the situation for efficient teaching of the subject.

The mean educational age of the group in September 1935 was eleven years and six months, for May 1936, thirteen years and three months, and for May 1937, twelve years and ten months.

It is interesting to note that a study of the standard deviations of the three tests scores and of the intelligence scores showed that in the subject scores the group became scattered from the norm greater during the period that the greatest achievement was made, and that the least scattering from the norm was during the period that the group made no progress.

The results obtained from the geography test are presented in Table XXIX. The mean score of Group III in September was 75.82. This is the norm which represents a grade level of 6.2. The average yearly progress of the group for the period 1930-1935 was .78 grade per year. The mean for the test given May 1936 was 85.86, which is the norm of grade 7.5. The group, therefore, progressed 1.3 grades during the year 1935-1936. The results of the May 1937 test show that the norm was 84, which represents a grade level of 7.2. The group was unable to retain its position gained in 1935-1936.

Although geography was not studied in the ninth grade, the various subjects studied should provoke interest to acquire a knowledge of geography.

TABLE XXIX  
 RAW SCORES FOR GEOGRAPHY  
 STANFORD ACHIEVEMENT TEST  
 ADVANCED EXAMINATION FOR GROUP III

Pupil Index No.	I. Q.	Sept. 1935	May 1936	May 1937
3	120	86	89	96
4	115	100	122	101
6	113	100	116	111
7	113	86	92	98
10	107	95	11	103
11	106	61	77	76
12	104	84	90	101
14	103	107	116	113
17	101	95	100	93
19	100	68	83	67
24	99	69	25	69
25	98	70	90	97
26	96	71	73	77
29	94	76	101	91
32	92	77	80	82
33	92	80	91	86
37	88	79	80	65
38	87	64	89	83
39	86	51	54	59
45	80	54	59	65
46	80	50	45	70
54	64	59	59	62
55	63	62	64	68
<b>Median</b>	98.50	75.00	87.00	88.33
<b>Mean</b>	95.70	75.82	85.86	84.00
<b>S. D.</b>	14.53	21.82	25.84	17.72
<b>P. E.</b>	1.45	2.17	2.56	1.77
<b>National Norms</b>		89.00	95.00	101.50

The mean educational ages for the three periods were as follows: September 1935, twelve years; May 1936, thirteen years and three months; May 1937, twelve years and ten months.

The standard deviations of the scores of the three tests on geography and of the intelligence scores indicate

TABLE XXX  
 RAW SCORES FOR PHYSIOLOGY AND HYGIENE  
 STANFORD ACHIEVEMENT TEST  
 ADVANCED EXAMINATION FOR GROUP III

Pupil Index No.	I. Q.	Sept. 1935	May 1936	May 1937
3	120	81	88	100
4	115	83	108	109
6	113	97	108	113
7	113	78	77	90
10	107	83	110	109
11	106	77	83	92
12	104	97	75	88
14	103	90	105	98
17	101	95	107	104
19	100	63	97	90
24	99	74	73	82
25	98	78	82	88
26	96	67	75	84
29	94	81	90	84
32	92	84	79	91
33	92	78	86	97
37	88	73	71	75
38	87	80	81	90
39	86	69	67	79
45	80	57	80	71
46	80	53	42	56
54	64	65	70	69
55	63	75	80	94
Median	98.50	77.86	83.57	91.88
Mean	95.70	77.31	83.70	89.26
S. D.	14.53	11.87	15.39	13.78
P. E.	1.45	1.18	1.52	1.36
National Norms		89.00	95.00	101.50

a wide scattering from the norm in the subject field. It is significant, however, that greatest progress was during the year 1935-1936, which year also showed greatest scattering from the norm. The results of the scores of the physiology and hygiene tests are presented in Table XXX. Physiology and hygiene were not taught Group III as a separate

study during the year 1935-1936, but they were correlated with other courses. For the year 1936-1937 all the girls were enrolled in home economics and all of the boys were enrolled in general science. These courses were not limited to the study of health but some time was spent in its study.

As shown in Table XXX the mean score of Group III in the September test was 77.31, which represents a grade level of 6.3. Thus, the group had not progressed a grade each year, but made .8 grade a year. The mean score of the May 1936 test was 83.70, which represents a grade level of 7.2. The mean score for May 1937 was 89.26 and the grade level, 7.9.

The progress of Group III for 1935-1936 was .9 grade, and for 1936-1937, .7 grade. The group was 1.7 grades below normal in May 1937. This shows progress at the rate of about .8 grade per year each year in school.

The mean educational age of the group in physiology and hygiene in September was twelve years and two months; for May 1936, twelve years and eleven months; for May 1937, thirteen years and nine months.

The standard deviations of the tests in physiology and hygiene and the standard deviation of the intelligence scores indicate that the group was scattered from the norm less in the subject field than in intelligence. This was true of the September 1935 and the May 1937 scores, but there was a wider scattering in May 1936.

TABLE XXXI

RAW SCORES FOR ARITHMETIC REASONING  
STANFORD ACHIEVEMENT TEST  
ADVANCED EXAMINATION FOR GROUP III

Pupil Index No.	I. Q.	Sept. 1935	May 1936	May 1937
3	120	93	109	107
4	115	105	103	91
6	113	105	108	108
7	113	83	103	102
10	107	90	91	91
11	106	85	84	98
12	104	88	95	107
14	103	88	109	105
17	101	108	106	111
19	100	88	88	89
24	99	78	84	85
25	98	100	88	108
26	96	93	88	89
29	94	90	97	98
32	92	90	88	102
33	92	100	100	107
37	88	83	86	94
38	87	75	86	89
39	86	62	79	78
45	80	58	76	78
46	80	72	84	94
54	64	75	74	75
55	63	85	86	85
Median	98.50	87.86	85.50	95.83
Mean	95.70	86.91	88.04	95.26
S. D.	14.53	13.27	10.77	11.40
P. E.	1.45	1.32	1.07	1.14
National Norms		89.00	95.00	101.50

From the results of the tests given in arithmetic reasoning for Group III as presented in Table XXXI the mean score for September 1935 was 86.91. This represents a grade level of 7.6 and an educational age of thirteen years and five months. The mean score of the May 1936 test was 88, which is the norm for the grade level of 7.8

and represents an educational age of thirteen years and seven months. The norm for the group on arithmetic reasoning for May 1937 was 95.26, which represents a grade level of 8.9 and an educational age of fourteen years and ten months.

The average yearly progress of the group in terms of grades for the period 1930-1935 would be the total average divided by the number of years in school. In arithmetic reasoning this average would be .95 grade per year. The mean progress of the group in arithmetic reasoning for 1935-1936 was .2 grades, and for 1936-1937, 1.1 grades.

The progress for 1930-1935 was nearly normal lacking only .05 grade. The progress in 1935-1936 was not as high as was expected, however, as will be shown in Table XXXII, the group made unusual progress in arithmetic computation. The progress for the year 1936-1937 was satisfactory since the group progressed .1 grade more than required.

A study of the standard deviations of the three subject tests and of the intelligence scores will show that the scores were scattered less in the subject field than in intelligence scores. The general trend of the group, as shown by Table XXXI in arithmetic reasoning was toward a greater degree of homogeneity.

TABLE XXXII  
 RAW SCORES FOR ARITHMETIC COMPUTATION  
 STANFORD ACHIEVEMENT TEST  
 ADVANCED EXAMINATION FOR GROUP III

Pupil Index No.	I. Q.	Sept. 1935	May 1936	May 1937
3	120	100	109	114
4	115	103	100	101
6	113	88	114	115
7	113	100	112	115
10	107	96	112	109
11	106	90	96	90
12	104	92	111	114
14	103	79	114	115
17	101	111	114	113
19	100	96	92	90
24	99	75	103	74
25	98	92	109	113
26	96	74	111	113
29	94	98	114	116
32	92	94	94	109
33	92	83	96	101
37	88	98	109	106
38	87	90	100	111
39	86	69	80	86
45	80	62	78	90
46	80	85	80	98
54	64	64	60	65
55	63	90	86	92
Median	98.50	92.50	104.17	107.00
Mean	95.70	88.22	98.91	102.76
S. D.	14.53	13.53	14.20	13.71
P. E.	1.45	1.34	1.41	1.37
National Norms		89.00	95.00	101.50

Group III, as shown in the results of the tests in arithmetic computation in Table XXXII, was nearly normal for its grade in September 1935. The mean score of the group was 88.22, which represents a grade level of 7.4. Since the group should have scored 8.0 grade, they were .6 grade below normal.

The mean score of the arithmetic computation test for May 1936 was 89.91, which is the norm for the grade 9.5. The group, therefore, progressed 2.1 grades during the year 1935-1936. The mean score of the group for the test in May 1937 was 102.76, which represents a grade level of 10.2.. The group progressed .7 grade during 1936-1937. It is interesting to note that greater progress was made in arithmetic reasoning, as shown by Table XXXI, in 1936-1937 than in 1935-1936 and a greater progress in arithmetic computation was made in 1935-1936 than in 1936-1937. There is some evidence that computation was stressed more in 1935-1936 when the group studied arithmetic, than in 1936-1937 when the group studied algebra. And vice versa, that greater stress was given reasoning in algebra than in arithmetic. However, this is another subject and whether the subject field had any effect on the outcome of the tests was not investigated.

The mean educational ages of Group III for the three tests in arithmetic computation were: September 1935, thirteen years and one month; May 1936, fifteen years and six months; May 1937, fifteen years and eleven months.

The standard deviations of the scores of the three tests in arithmetic computation and of the intelligence scores indicate a trend of greater homogeneity in arithmetic computation than in intelligence.



TABLE XXXIII  
COMPOSITE SCORE FOR STANFORD ACHIEVEMENT TEST  
ADVANCED EXAMINATION FOR GROUP III

Pupil Index No.	I. Q.	Sept. 1935	May 1936	May 1937
3	120	91	95	98
4	115	97	106	103
6	113	90	107	106
7	113	87	96	98
10	107	84	97	97
11	106	73	85	90
12	104	86	94	95
14	103	92	105	102
17	101	97	104	101
19	100	83	84	81
24	99	74	82	86
25	98	86	92	99
26	96	75	87	91
29	94	74	87	90
32	92	87	86	92
33	92	77	81	88
37	88	78	85	85
38	87	77	85	88
39	86	62	76	62
45	80	58	69	74
46	80	51	58	71
54	64	67	65	69
55	63	68	78	83
Median	98.50	79.28	87.22	91.88
Mean	95.70	78.87	86.72	88.91
S. D.	14.53	12.08	13.08	11.49
P. E.	1.45	1.20	1.30	1.14
National Norms		89.00	95.00	101.50

A study of the intelligence quotients of the pupils in Group III, as shown in Table XXXIII, will reveal that pupils 37, 38, 39, 45, 46, 54, and 55, if classified according to the scale by Terman on the nature of Intelligence, were mentally dull. These people cannot be expected to make normal progress, if normal progress is defined as the normal progress for an average individual or group. A

study of the achievement test scores will reveal that these people made little or no progress during the two year period. Thus, the average rate of progress for those people who are average or above average is lowered when the entire group is considered. This is some explanation as to the seemingly low rate of progress of some of the pupils in Group III.

From the achievement tests a composite of all these scores for any period is used as a composite score or average educational measurement. This is possible since, as described earlier in this chapter in a description of the Stanford test, the norms for the several tests are equated and mean the same for all subjects and all forms of the test.

Thus, as may be seen by an analysis of Table XXXIII, the mean of Group III in September 1935 was 79. This represents a grade level of 6.6 grade for all subjects. The group, therefore, was retarded 1.4 grades since it should have scored 8.0 grade had it been normal. The mean score in May 1936 was 86.72, which represents a grade level of 7.6 grade and is a retardation of 1.3 grades, or a progress of 1.0 grades during the period from September 1935 to May 1936.

During the period 1936-1937 little progress was made. The mean composite score was 89 which is the norm for the 7.9 grade. The progress, then, in terms of

grades was only .3 grade and the group was 2.0 grades below normal for the nation.

If the subjects which were not offered as independent subjects during 1936-1937 are not used in the computation of the composite score, and only those subjects which the group studied are used, the group progress will be materially higher.

It is possible that the study indicates that the curriculum in the ninth year does not function, that it does not offer sufficient opportunity for study of such important subjects as geography, history, civics and spelling. However, this is a special problem and the writer does not attempt to solve it.

The group, as shown by the standard deviations of the subject scores and of the intelligence quotients in Table XXXIII, was slightly more homogeneous in the various subjects than in intelligence, and that the general trend for the period 1935-1937 was toward greater homogeneity.

The mean educational age of the group was as follows: for September 1935, twelve years and four months; for May 1936, thirteen years and five months; and for May 1937, thirteen years and nine months.

The number of teachers, as shown in Table XXXIV, was increased from thirteen teachers in 1930 to twenty-one in 1935. The average number of teachers during the period of 1930-1935 was 15.6 teachers. The average professional training of the group was 3.76 college years.

TABLE XXXIV

NUMBER OF TEACHERS WITH MASTER'S DEGREE  
OR BACHELOR'S DEGREE  
NUMBER OF TEACHERS WITH THREE YEARS OR TWO YEARS  
OF COLLEGE TRAINING

Year	Number of Teachers	Master's Degree	Bachelor's Degree	Three Years College Training	Two Years College Training
1930-1931	13	1	11	0	0
1931-1932	14	1	9	4	0
1932-1933	16	1	9	5	1
1933-1934	17	2	10	5	0
1934-1935	18	1	12	1	0
<hr/>					
AVERAGE					
1930-1935	15.6	1.2	10.2	3.8	.2
1935-1936	21	3	17	1	0
1936-1937	21	3	18	0	0
<hr/>					
AVERAGE					
1935-1937	21	3	17.5	.5	0

In 1935-1937 the number of teachers was increased to 21, as shown in Table XXXIV. The average professional training expressed in college years was 4.1.

The increase in the average number of faculty members during the period 1935-1937 over the average for the period 1930-1935 was 5.4 teachers. The average increase in the professional training of the faculty for the period 1935-1937 over the training of the faculty in 1930-1935 was .34 college year. Since the transcripts of those employed in

The system for the years 1930-1935 were not available the professional training of the individual teacher is shown in college years as it was listed on the Superintendent's annual report for those years.

If we can assume that the average number of hours of college work per year is thirty-two hours, the average increase in the professional training of the group in college hours was 11.0 college hours.

All new teachers elected to the faculty after 1935 were required to have at least a standard Bachelor of Arts or Science degree from a recognized institution, and those applicants who had Master's degrees were given preference. Any teacher in the system who had not completed the Bachelor degree was not released from contract but required to attend summer school until the degree was granted.

The average teacher-pupil ratio for the period 1930-1935, as shown in Table XXXV, was 33.11 pupils per teacher. During 1935-1937 the average teacher-pupil ratio was 27.69 pupils per teacher. This was a decrease in the teacher-pupil load of 6.4 pupils per teacher. Expressed in terms of per cent it was a decrease of 19 per cent.

It should be noted that the greatest increase in pupil progress occurred during the period in which the teacher-pupil ratio was smaller.

TABLE XXXV  
 TEACHER-PUPIL RATIO FOR THE YEARS  
 1930-1937

Year	Number of Teachers	Average Daily Attendance	Pupil- Teacher Load
1930-1931	13	402	30.93
1931-1932	14	470	33.57
1932-1933	16	527	34.93
1933-1934	17	592	34.82
1934-1935	18	592	32.89
AVERAGE			
1930-1935	15.6	516.6	33.11
1935-1936	21	550	26.19
1936-1937	21	613	29.19
AVERAGE			
1935-1937	21	581.5	27.69

TABLE XXXVI  
 MAINTENANCE COST  
 1930-1937

Year	Cost of Maintenance	Days in Session	Cost Per Day
1930-1931	1084.00	170	6.376
1931-1932	495.00	170	2.911
1932-1933	67.00	170	.335
1933-1934	344.00	160	2.150
1934-1935	908.00	160	5.675
AVERAGE			
1930-1935	579.60	166	3.09
1935-1936	950.00	180	5.223
1936-1937	410.00	180	2.278
AVERAGE			
1935-1937	675.00	180	3.75

The average cost of maintenance per day, as shown in Table XXXVI, was \$3.09 for the period 1930-1935, and \$3.75 for the period 1935-1937.

Although these figures are not weighed by an index of the value of the dollar during these periods, since an index for the cost of maintenance for schools was not available, the reader should keep in mind the fact that, generally speaking, supplies were higher during the years 1935-1937 than during the period 1930-1935.

TABLE XXXVII  
COST OF INSTRUCTIONAL SUPPLIES  
1930-1937

Year	Instructional Supplies Cost	Days in Session	Cost Per Day
1930-1931	270	170	1.588
1931-1932	88	170	.517
1932-1933	47	170	.276
1933-1934	230	160	1.437
1934-1935	393	160	2.45
AVERAGE			
1930-1935	205.60	166	1.245
1935-1936	410	180	2.277
1936-1937	200	180	1.111
AVERAGE			
1935-1937	305	180	1.694

We might say that there was little difference in the cost of maintenance during the two periods.

The expenditure for instructional supplies, as shown in Table XXXVII, was very much the same for the two periods. The average cost of instructional supplies per day during the period 1930-1935 was \$1.245 and during the years 1935-1937, \$1.694. Again one should keep in mind the value of the dollar during these two periods.



TABLE XXXVIII  
EXPENDITURES FOR LIBRARY  
1930-1937

Year	Library Cost	Average Daily Attendance	Per Capita Cost
1930-1931	491.61	402	1.215
1931-1932	53.00	470	.113
1932-1933	.00	528	.00
1933-1934	135.00	592	.228
1934-1935	198.00	592	.334
AVERAGE			
1930-1935	177.12	516.6	.343
1935-1936	142	550	.258
1936-1937	300	613	.489
AVERAGE			
1935-1937	221	581.5	.368

The per capita expenditure for library during the two periods was approximately the same. As shown in Table XXXVIII, the average per capita expenditure for the library during the years 1930-1935 was \$ .343 and during 1935-1937, \$ .368. The difference was so small that it was not significant.

The increase in the length of term was quite significant. The average number of days school was in session

during the years 1930-1935 was 166 days per year. In the years 1935-1937 school was in session 180 days a year. This is shown in Table XXXVII.

This increase of fourteen days in the length of term expressed in per cent was eight and one-half per cent.

## CHAPTER III

## CONCLUSION

The conclusions presented in this study are not universal in their application. The survey does, however, disclose, in addition to the general conclusion, the effectiveness of the teaching in all fields and offers a basis for the development of a remedial program to raise the levels of each group in those subjects in which the group was not normal or standard.

From the data presented in Chapter II the progress of the groups may be discussed as follows:

## A. Group I

1. In reading ability, which would include paragraph meaning and word meaning, Group I made greater progress in 1935-1937 than during the prior years, 1930-1935. The rate of increase in progress was 26 per cent.
2. In spelling, Group I showed an average progress of 1.2 grades for the years 1935-1937, while the average progress for the years 1930-1935 was .8 grade. The per cent of increase in progress, then, was 50 per cent.
3. In language usage and literature the group was extremely low in 1935 and although splendid progress was made during the year 1935-1936 in language usage, the progress in literature was poor. The average progress in English, which is a composite

of language usage and literature, for the years 1930-1935 was .86 grade per year. The average for the years 1935-1937 was 1.6 grades per year. The increase in achievement, in terms of per cent was 86 per cent.

4. In history and civics Group I showed extremely poor achievement during the years 1930-1935. The group mean grade level for September 1935 was only 3.7. Splendid progress was shown by the group during the years 1935-1937 since the mean grade level of the group increased from 3.7 in September 1935 to 7.1 grade in May 1937. The increase of 3.4 grades for the two year period represents a progress of 1.7 grades per year. Although the group was 2.3 below normal or average in September 1935, it was only .9 grade retarded in May 1937. The rate of increase in progress was 176 per cent.

5. The progress of Group I in geography for any period was very unsatisfactory. In September 1935 the group scored 4.8 grades, a retardation of 1.2 grades. In 1937 the group scored 6.3, which means that it was 1.7 grades retarded. The yearly loss was some smaller in 1930-1935 than in the years 1935-1937. It was interesting to note that the progress of the group for 1930-1935 was .8 grade,

for 1935-1936, 1.3 grades, and for 1936-1937, .2 grade. It was evident that the most effective teaching was done in 1935-1936 and that the teaching of this subject during 1936-1937 was very ineffective. The per cent of progress made in geography was the same as that made in history and civics, which was 176 per cent.

6. Group I showed excellent progress in physiology and hygiene during the years 1935-1937. In September 1935 the group was .7 grade below normal, while in May 1937 the group tested 1.0 grade above normal. The average yearly progress for 1930-1935 was approximately .9 grade, while the average yearly progress for 1935-1937 was 1.85 grades, or almost twice normal progress. Such progress indicates splendid teaching, especially during the year 1935-1936 when the group progressed 2.4 grades. The rate of increase in progress was 110 per cent.

7. In arithmetic Group I made splendid progress during the years 1935-1937. Although the mean grade level of the group in September 1935 was .8 grade below normal, in May 1937 the group scored .95 grade above normal. The average progress of the group during 1930-1935 was .866 grades and 1.92 grades per year during 1935-1937, which was excellent considering the subject involved. Greater progress in both computation and reasoning was made during

1936-1937. The group showed 2.3 grades progress in reasoning during 1936-1937. The rate of increase in progress was 125 per cent.

8. From the composite scores we may gauge the progress of the group in all subjects. In September 1935 Group I was 1.1 grades below normal for the nation. According to the May 1936 scores the group decreased the retardation until they were only .8 grade below normal, and in May 1937 they were only .5 grade below normal. The progress for the years 1930-1935 was approximately .8 grade per year; for 1935-1936, 1.3 grades per year; for 1936-1937, 1.3 grades per year. The per cent of increase in achievement for the two year period 1935-1937, then was 62 per cent greater than that for 1930-1935.

B. Group II

1. In reading, which was measured by both the paragraph meaning and word meaning tests, the grade level in 1935 was 5.7 and in 1937, 8.4. The group was retarded 1.3 grades in 1935 and only .6 grade in 1937. The per cent of increase in achievement was 66 per cent.

2. In spelling the group showed little progress during the years 1935-1937. The progress for the two-year period was only 1.1 grades, the progress for 1935-1936 being .7 grade and for 1936-1937 .4

grade. In September 1935 the group was 1.0 grade below normal. In May 1937 the group was retarded 1.8 grade. The greater retardation was in the year 1936-1937. For the two-year period 1935-1937, the rate of progress made a decrease of 36 per cent.

3. In English, which was measured by language usage and literature, Group II, as did Group I, scored very low in September 1935, the average grade level being 5.3. In May 1936 the group scored 6.0, and in May 1937, 8.15 grade. The group was retarded 1.7 grades in 1935 and .75 grade in 1937. Thus, excellent progress was made during the two-year period. Greater progress was made in language usage than in literature. The deficiency in literature may be explained by the fact that the library for this group was very inadequate in 1935. Although many books were added, most of the addition was up-to-date reference books. The library needs historical novels and good fiction for this group level. The rate of increase in achievement for this group was 105 per cent.

4. In history and civics Group II, as did Groups I and III, scored very low in September 1935. The mean grade level for that time was 4.9. The

group was retarded 2.1 grades. By May 1937 the group was .3 grade above normal. Greatest progress was made during the year 1936-1937 when the group showed a mean progress of 2.7 grades. The average yearly progress for the period 1930-1935 was .7 grade and for 1935-1937, 2.2 grades. The progress of the group for the period 1935-1937 was very satisfactory since it was more than twice normal. The per cent of increase in achievement in history and civics for 1935-1937 as compared with 1930-1935 was 214 per cent.

5. Group II did not study geography during 1936-1937 but did study it during 1935-1936.

The average yearly progress during the 1930-1935 period was .9 grade, during 1935-1936, 1.7 grade and during 1936-1937, a loss of .3 grade.

The per cent of increase of progress for 1935-1937 as compared with the average progress during 1930-1935 was 11 per cent.

This lack of progress during 1936-1937 indicates that the curriculum provided little study of geography.

6. Although Group II was not taught physiology and hygiene as an independent subject, splendid progress was made by the group during the two-year period of 1935-1937. In 1935 the group was retarded 1.8 grades and in May 1937 the group was .1



grade above normal. The average yearly progress for 1930-1935 was approximately .8 grade as compared with an average progress of 1.4 grades for the years 1935-1937. This shows the rate of increase in achievement to be 55 per cent.

7. In September 1935 Group II scored 6.55 grade in Arithmetic, using the average of arithmetic reasoning and arithmetic computation scores as a basis of study. This grade level was 1.45 grades below normal for the nation. Excellent progress was made during the period 1935-1937 in arithmetic. The per cent of increase in yearly achievement of the 1935-1937 period as compared with the yearly average for 1930-1935 was 200 per cent.

8. Group II made better progress during the 1935-1937 period than during the period 1930-1935. The average yearly progress for the period 1930-1935 for all subjects was approximately .8 grade. For the period 1935-1937 the average progress was 1.3 grades per year. The increase in grade progress was 62 per cent greater for the latter period than for the former period.

C. Group III

1. The progress in the English may be measured by a composite score of paragraph and word meaning,

spelling, language usage and literature. In September 1935 the mean grade level for these subjects was 6.54 grade. In May 1936 the composite grade level was 7.4 grade, and in May 1937 the composite grade level was 7.62 grade. In terms of yearly progress the progress for the period 1930-1935 was approximately .8 grade; for 1935-1936, .86 grade; for 1936-1937, .26 grade. It is apparent that the teaching during 1936-1937 was ineffective, although the group showed progress in all subjects except spelling, in which subject an actual loss was shown. In paragraph meaning the group increased 1.4 grades, in word meaning, .3 grade, in language usage, .7 grade, and in literature, .3 grade. Remedial procedures should be adopted during the next year in English. The rate of progress in achievement decreased 26 per cent.

2. The progress in science may be partially gauged by studying the progress in physiology and hygiene. The group made fair progress for the two-year period.

3. Since the group did not study geography as an independent subject for the two years 1935-1937, the only learning would be whatever geography the group needed for other subjects. The progress for the two years certainly was not satisfactory, although they progressed 1.6 grades for the two-year

period. This progress was equal to the rate of progress made during the years 1930-1935 when the students did study geography as an independent subject.

4. The progress of the group in mathematics was more satisfactory than in any other subject. The group scored 7.5 grade in September 1935, which was a retardation of only .5 grade. By May 1937 the group score was 9.55 which meant that the group was retarded .35 grade. Greater progress was made during the year 1935-1936 when the group studied arithmetic than in 1936-1937 during which year algebra was studied.

5. In the year 1936-1937 Group III was enrolled in English, algebra I, home economics for the girls, science I for the boys, and music I, or Oklahoma history and civics as an elective. During 1930-1935 the group showed a yearly average progress of .8 grade. During 1935-1936 they progressed 1.3 grades, but during the year 1936-1937 the progress was only .3 grade. This small progress may be due to the fact that the group did not study the subjects as independent studies as in the years before. The necessary change in teachers during the year, had undoubtedly, a bearing on the progress of the group in English. Since all of

the group did not take history and civics, it was not expected that progress be made in that subject. Perhaps a general history and government course, if offered during the ninth year, would help correct the situation.

From the results of the tests Groups I and II have shown very fine progress during the period 1935-1937. The group progress was thirty-three per cent greater than the progress expected of a normal group measured by the national norms. The progress of these years was sixty-two and one-half per cent greater than the progress of these two groups during the period 1930-1935.

The progress of Group III for the year 1935-1936 was slightly greater than the progress expected of an average class as measured by the national norms and twenty-five per cent greater than the progress made during the years 1930-1935. The progress of group III during the year 1936-1937 was unsatisfactory. Since the group progress was satisfactory during 1935-1937 there is some evidence that perhaps the subjects studied by the group did not offer the correct opportunity for progress in the general subjects tested. The change in the English teacher in the mid-semester in 1936-1937 probably influenced the results in that field.

There is some possibility that the progress in all of the English courses and in the health course in the sixth and seventh grades would have been greater had it not been necessary to change teachers in mid-semester 1936-1937.

This study shows that the average cost per day for maintenance and instructional supplies were approximately the same for the two periods and therefore were constant factors in pupil progress for the two periods.

The per capita expenditure of library funds for the two periods was relatively the same and therefore was a constant factor for both periods.

The length of term during the two periods was variable. The average number of days school was in session during the period 1930-1935 was 166 days per year, and during the period 1935-1937, 180 days per year. Thus, the average length of term during 1935-1937 was 14 days longer, or eight and one-half per cent greater than the length of term during 1930-1935.

Professional training of the faculty increased during the period 1935-1937. The average number of college years was .34 greater for this period than for 1930-1935.

The average teacher-pupil load during 1930-1935 was 33.11 and during the period 1935-1937, it was 27.69. Thus, the teacher-pupil load was 6.4 pupils less during the years 1935-1937 than during the period 1930-1935. This decrease expressed in per cent was 19 per cent.

From the results of the study, it may be deducted that since such greater progress was made by Groups I and II during the years 1935-1937 than during the years 1930-1935, and since Group III made greater progress in

1935-1936 than during the period 1930-1935, and the average daily cost of maintenance and instructional supplies and the per capita cost of library was relatively constant, increase in teachers' qualifications, the decrease in the teacher-pupil ratio, and the increase in the length of term, either separately or as a group did affect the pupil progress.

The writer believes that the testing program has definite value other than its use as an instrument of measurement. Such a program is valuable as a basis for diagnostic and remedial procedures. Teachers and pupils alike found valuable assistance in finding faulty procedures and habits and in determining those processes or skills in which an individual was retarded. This, however, is another problem and its solution is not attempted in its finality in this study.

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APPENDIX  
TABLE XXXIX  
GROUP I

Norms and Grade Levels  
September 1935, May 1936, May 1937

Subject	1935		1936		1937	
	Norm	Grade Level	Norm	Grade Level	Norm	Grade Level
Paragraph Meaning	63.5	5.1	78.	6.4	84.3	7.1
Word Meaning	65.0	5.2	76.4	6.2	83.40	7.1
Spelling	61.	4.8	70.	5.6	84.	7.2
Language Usage	71.4	5.7	78.43	6.4	89.7	8.1
Literature	58.4	4.6	62.	4.9	67.4	5.4
History Civics	44	3.7	76.	6.2	83.	7.1
Geography	60.6	4.8	75	6.1	77.	6.3
Physiology Hygiene	66.7	5.3	87	7.6	95.5	9.0
Arithmetic Reasoning	64.	5.1	75.4	6.1	92.	8.4
Arithmetic Computation	63.6	5.1	84.	7.2	98.7	9.5
Composite	62.	4.9	76	6.2	85.93	7.5
Average Grade Progress Prior to 1935						.816
Average Grade Progress from 1935- to 1936						1.3
Average Grade Progress from 1936 to 1937						1.3



## APPENDIX

## TABLE XL

## GROUP II

Norms and Grade Levels  
September 1935, May 1936, May 1937

Subject	1935		1936		1937	
	Norm	Grade Level	Norm	Grade Level	Norm	Grade Level
Paragraph Meaning	70.	5.7	84	7.2	92	8.4
Word Meaning	72	5.8	80	6.7	88	7.8
Spelling	74	6.0	80	6.7	83	7.1
Language Usage	72	5.8	77	6.3	97	9.2
Literature	61	4.8	70	5.7	83	7.1
History Civics	62	4.9	87	7.6	98	9.3
Geography	76	6.2	89	7.9	87	7.6
Physiology Hygiene	76	6.2	86	7.5	96	9.0
Arithmetic Reasoning	78	6.4	84	7.2	98	9.3
Arithmetic Computation	80	6.7	95	8.9	105	10.5
Composite	72	5.8	83	7.1	93	8.4
Average Grade Progress Prior to 1935						.818
Average Grade Progress from 1936 to 1937						1.3

## APPENDIX

## TABLE XLI

## GROUP III

Norms and Grade Levels  
September 1935, May 1936, May 1937

Subject	1935		1936		1937	
	Norm	Grade Level	Norm	Grade Level	Norm	Grade Level
Paragraph Meaning	81.5	7.0	86	7.5	95	8.9
Word Meaning	79	6.6	86	7.5	88	7.8
Spelling	82	7.0	88	7.8	80	6.7
Language Usage	82	7.0	88	7.8	93	8.5
Literature	64	5.1	78	6.4	80	6.7
History Civics	70	5.7	86	7.5	84	7.2
Geography	75.8	6.1	86	7.5	84	7.2
Physiology Hygiene	77	6.3	84	7.2	89	7.9
Arithmetic Reasoning	87	7.6	88	7.8	95	8.9
Arithmetic Computation	88	7.4	99	9.5	102	10.2
Composite	79	6.6	87	7.6	89	7.9
Average Grade Progress Prior to 1935						.825
Average Grade Progress from 1935 to 1936						1.
Average Grade Progress from 1936 to 1937						1.3

## APPENDIX

TABLE XLII

EDUCATIONAL PROFILE CHART:  
 NEW STANFORD ACHIEVEMENT TEST  
 ADVANCED EXAMINATION

SCORE	EDUCATIONAL AGE	SCHOOL GRADE
120	19 - 2	Adult
9	18 - 11	Adult
8	8	Adult
7	5	Adult
6	18 - 2	Adult
115	17 - 11	Adult
4	8	Adult
3	6	Adult
2	4	Adult
1	2	Adult
110	17 - 0	Adult
9	16 - 10	Adult
8	8	Adult
7	6	Adult
6	5	Adult
105	3	Adult
4	2	Adult
3	16 - 0	Adult
2	15 - 11	10.0
1	9	9.8
100	8	.7
9	6	.5
8	4	.3
7	2	.2
6	15 - 0	9.0
95	14 - 10	8.9
4	8	.7
3	6	.5
2	4	.4
1	14 - 1	.2
90	13 - 11	8.1
9	9	7.9
8	7	.8
7	5	.6
6	3	.5
85	13 - 1	.4
4	12 - 11	.2
3	10	.1
2	8	7.0
81	12 - 7	6.8

## APPENDIX

TABLE XLII

 EDUCATIONAL PROFILE CHART:  
 NEW STANFORD ACHIEVEMENT TEST  
 ADVANCED EXAMINATION

TOTAL SCORE	EDUCATIONAL AGE	SCHOOL GRADE
80	6	.7
9	4	.6
8	3	.4
7	2	.3
6	12 - 0	.2
75	11 - 11	.1
4	10	6.0
3	9	5.9
2	8	.8
1	7	.7
70	6	.7
9	5	.6
8	4	.5
7	3	.4
6	2	.3
85	1	.2
4	11 - 0	.1
3	10 - 11	5.0
2	10	4.9
1	9	.8
60	8	.7
9	7	.6
8	6	.6
7	6	.5
6	5	.4
55	4	.4
4	3	.3
3	2	.3
2	1	.2
1	10 - 0	.1
50	9 - 11	.1
9	11	.0
8	10	4.0
7	9	3.9
6	8	.9
45	7	.8
4	6	.7
3	5	.6
2	4	.6
1	3	.5
40	9 - 3	3.4

## APPENDIX

TABLE XLII

EDUCATIONAL PROFILE CHART:  
 NEW STANFORD ACHIEVEMENT TEST  
 ADVANCED EXAMINATION

TOTAL SCORE	EDUCATIONAL AGE	SCHOOL GRADE
40	9 - 3	3.4
9	2	.4
8	1	.3
7	9 - 0	.3
6	8 - 11	.2
35	10	.2
4	9	.1
3	8	.1
2	7	.1
1	6	.0
30	5	3.0
9	4	2.9
8	3	.9
7	2	.8
6	1	.8
25	8 - 0	.8
4	7 - 11	.7
3	10	.7
2	8	.6
1	6	.6
20	7 - 5	2.6

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