A STUDY OF THE SCHOLASTIC SUCCESS OF RURAL NINTH GRADE PUPILS OF HURON COUNTY 1931-1937 INCLUSIVE

Thesis for the Degree of M. A.
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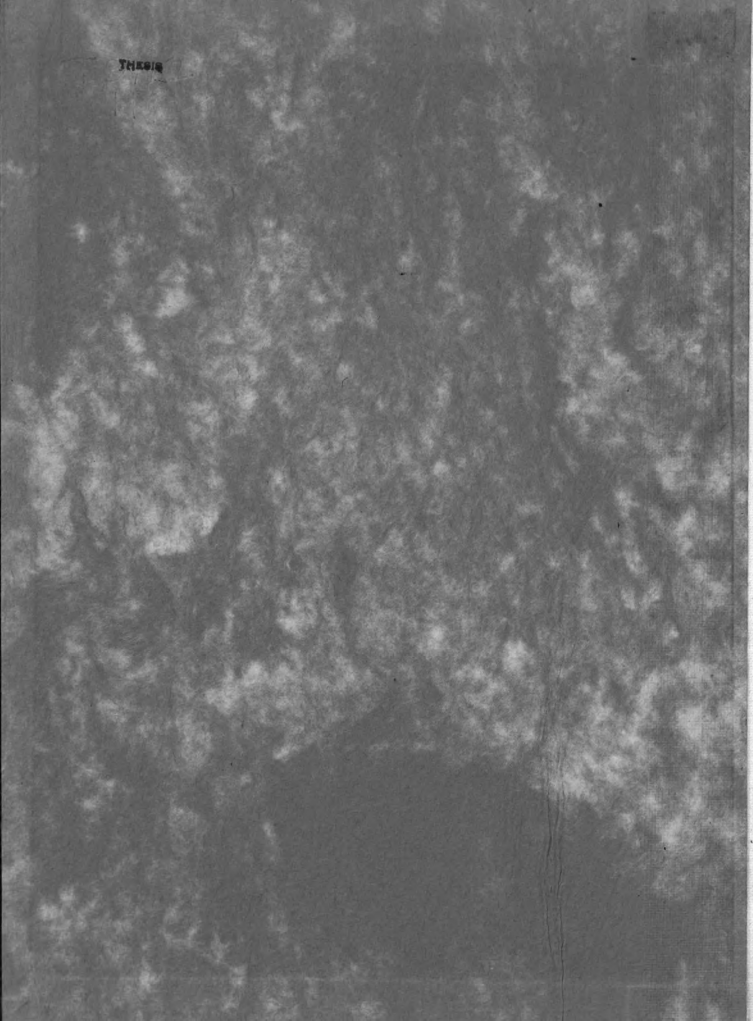

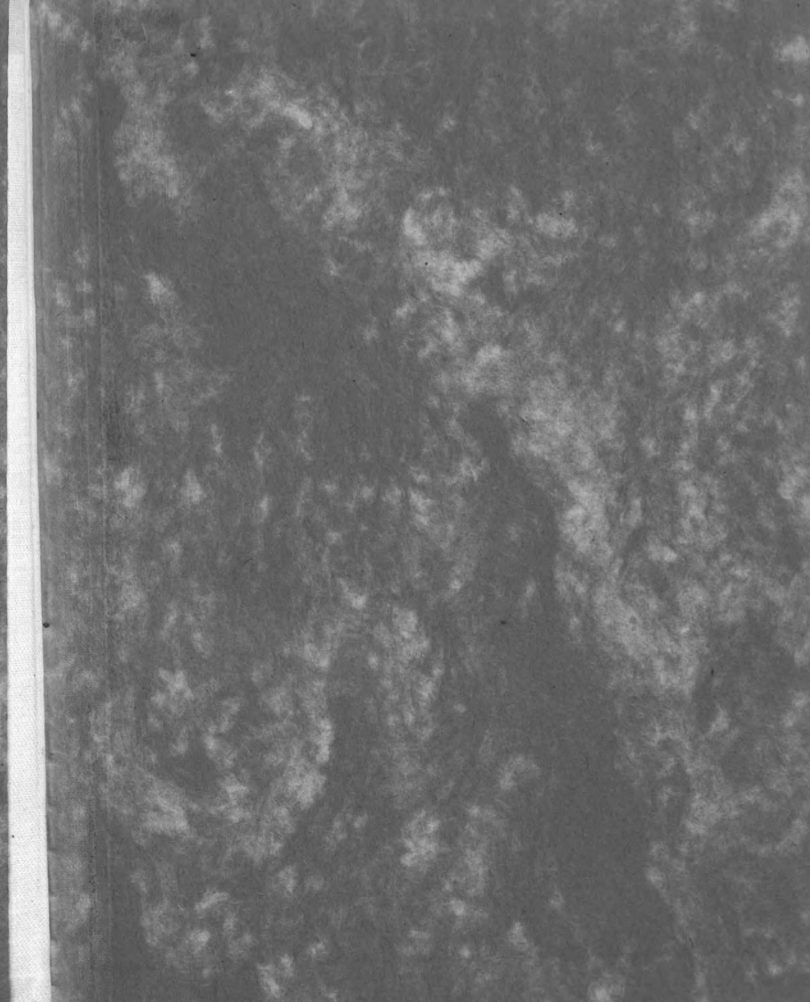

A STUDY
OF THE SCHOLASTIC SUCCESS
OF RURAL NINTH GRADE PUPILS OF HURON COUNTY
1931-1937 INCLUSIVE

by

EVERETT CHARLES HIGHLUND

A Thesis Submitted in Partial Fulfillment
of the
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CHAPTER I

INTRODUCTION

For many years Michigan followed the old constitutional practice of giving state-authorized examinations to the rural eighth grade pupils in each county. This examination was made up independently of the teacher. The examinations by subjects were compiled by the staff of the State Department of Public Instruction, and administered by the county commissioner of schools, the superintendent of schools in the county seat and others appointed by the county school commissioner.

The date of the examination was set by the county school commissioner. As the rural schools closed about the fifteenth day of May each year, the examinations usually fell upon Thursday and Friday of the first week of May.

On the appointed day the pupils of the eighth

grade from the primary school districts gathered at the county seat for their final examinations. The satisfactory passing of these examinations was considered evidence of sufficient achievement for the granting of an eighth grade diploma, signifying graduation from the rural eighth grade and eligibility for entrance into any public high school in Michigan.

These county examinations entailed an expense of approximately $20,000 (1) to the state in addition to the expense to each of the pupils, many of whom had travelled distances of thirty miles or more to attend the examinations.

In 1933 the Michigan State Legislature passed a bill abolishing the county eighth grade examinations. The teacher of the primary district, thereby, was given the sole responsibility of preparing and passing the pupils from the rural eighth grade to the ninth grade.

This study originated from a desire to answer

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(1) Figure ($20,000) was obtained orally from Dorr Stack, Director of the Division of School Board Counciling, State Department of Public Instruction.

the following questions arising from the abolishment of the county examinations:

1. Was the percentage of failures, among rural ninth grade pupils, greater or less since the abolishment of these examinations?

2. Had the mean point score increased or decreased since the abolishment of the examination?

3. Which sex recorded the highest percentage of failures?

4. Which sex recorded the highest percentage of drop-outs?

5. What was the average age of the pupil who left school?

Data were collected in an attempt to answer these questions from a purely statisical comparative basis.

The high schools included in this study were limited to those of Huron County which were accredited by the North Central Association of Secondary Schools and Colleges and those accredited by the University of Michigan. The schools belonging in this classification numbered twelve. For the pur-

pose of this study these schools were lettered A, B, C, D, E, F, G, H, I, J, K, and L and were so known and referred to throughout. (2)

The rural ninth grade entrants and their first semester marks were studied. Only the first semester marks were studied in an attempt to exclude the variability that longer attendance in high school and greater orientation might bring about.

The year 1934 was eliminated from this study for the following reasons:

1. It seemed best to allow a year for adjustment of both teachers and pupils to the new situation.

2. During 1934 the State Department of Public Instruction continued to send out true and false tests to be used as a teacher aid in the completion of the eighth grade work.

References for this study were limited. No studies were found which could be claimed as definitely related studies. In fact, no study was available for review which dealt only with rural pupils. However, several comparisons of rural

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(2) See appendix for the list of schools.

to urban pupils contained information of value.

In a study of rural and village trained children in the Madisonville High School, Madisonville, Kentucky, Henry found [3] the age range of rural pupils entering high school to be from 12 years to 18 years 11 months. He found the median age to be 15 years and 8 months.

Keister's study [4] of two Nebraska high school groups seemed to indicate that low chronological age of rural pupils on entrance to high school gave little evidence of the tendency of their school marks. The median age of the rural pupil entering these two Nebraska high schools was 14.3 years for the Neligh High School rural group and 14.4 years for the Norfolk High School rural group.

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(3) Henry, Charles Isabell. A Comparison of the Work of Rural and City Children in the Madisonville High School, Madisonville, Kentucky, pp. 38-41. Department of Secondary School Principals, National Education Association Bulletin, 1929.

(4) Keister, Baird Vinton. A Comparison of Resident and Non-Resident Pupils in Two Nebraska High Schools, pp. 41-44. Department of Secondary School Principals, National Education Association Bulletin, 1929.

Schimke, in his study [5] of five Michigan high schools, found that the non-resident pupils were, on an average, six months older than village pupils on entering high school. The average age of the non-resident pupil as found by Schimke was for School A, 14 years 5 months; School B, 14 years 4 months; School C, 14 years 9 months; School D, 14 years 3 months; and School E, 14 years 9 months.

The mean scholastic marks of the non-resident pupils, over a period of five consecutive years and for the five schools, were found to be 2.389 for all subjects. The pupils in this study rated best in Algebra, English and History. This non-resident group consisted of 253 pupils.

At Dowagiac Michigan, Tyndall [6] made a

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[5] Schimke, Edward A. A Comparative Study of the Scholastic Achievements of Resident and Non-Resident Graduates of Five Michigan High Schools for the Years 1927-31 Inclusive. Unpublished Master's Thesis, Ann Arbor: University of Michigan. pp.32-38.

[6] Tyndall, Ralph Ford. A Comparative Study of the Rural and Urban Pupil in the Ninth Grade of Dowagiac High School. Unpublished Master's Thesis, Ann Arbor: University of Michigan. pp. 33.

study of the ninth grade pupils entering in the fall of 1931 and found the forty two pupils to have a mean I.Q. of 94.25.

A study made by May [7] of pupils from the rural schools in the Township High School of Robinson, Illinois showed the median age of the rural pupil entering the ninth grade to be 14 years 8.9 months.

Hawkins found [8] that rural pupils showed a tendency to be slightly undertrained in reading comprehension, speed and language usage. The content subjects such as English seemed the most difficult and the pupils ranked low in the social sciences. In Algebra and ninth grade general science, however, they were significantly superior.

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(7) May, Eric Oscar. A Comparative Study of the Achievement of Pupils from Rural and Village Schools of Crawford County, Illinois, pp. 36-38. Department of Secondary School Principals, National Education Association Bulletin, 1929.

(8) Hawkins, Henry Gordon. A Comparison of Basic Accomplishments of Rural and Village Trained Pupils in Berrien Springs High School. Unpublished Master's Thesis, Ann Arbor: University of Michigan, 1936. pp.44.

At the University of Michigan High School, Mitchell made a study [9] of the comparative work of pupils who had completed five semesters of work and found that the mean of the rural pupil's marks, as given by teachers, was 2.375. He also found that the rural pupil group had a median I.Q. of 104.9 at the time of entrance to the high school.

" The average level of intelligence increases throughout the high school years. This can be caused only by the elimination of the duller students. The conclusion is that those who are unable to do high school work drop out."[10]

The data for this study were obtained from the following sources:

1. Office of the State Superintendent of Public Instruction.

2. Office of the Huron County School Commissioner.

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(9) Mitchell, James D. A Comparative Study of the Achievement of Rural and Urban Pupils in the University High School. Unpublished Master's Thesis, Ann Arbor: University of Michigan, 1932. pp. 41-42.

(10) Douglass A.A. Secondary Education. Boston: Houghton Mifflin Company, 1927. pp. 246.

3. Offices of the superintendents of the schools included in this study.

From the office of the State Superintendent of Public Instruction was obtained:

1. The date of the elimination of the county eighth grade examinations.

2. The approximate cost of producing, administering and correcting the examinations.

From the office of the county school commissioner were obtained:

1. The number of pupils graduating from the rural eighth grades in each year from 1931 through 1937.

2. The name of the school and the name of the non-resident pupils enrolled in the ninth grade from 1931 through 1937. These were obtained from the initial enrollment blanks.

3. The birthdates of the pupils were also recorded from the initial enrollment blanks.

From records in the offices of the superintendents of schools included in this study were obtained the major portion of the data. These data had been recorded on the permanent records, form CA - 9, on

file for each pupil having enrolled in that school. The following data were recorded for each pupil:[11] name of school, name of pupil, age, birthdate, mental test score, name of test, first semester marks, subjects failed and sex of pupil.

The material was classified and the two groups of pupils were studied as to number, sex, chronological age, I.Q. and percent of pupils entering high school from the field of rural eighth grade graduates each year. The material was then analyzed on a comparative basis for the three year period of 1931-33 inclusive with that of the three year period of 1935-37 inclusive. The group of pupils for the period 1931-33 inclusive will be referred to hereafter in this study as Group I. The group of pupils for the period 1935-37 inclusive will be referred to hereafter in this study as Group II.

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(11) See blank form in appendix.

CHAPTER II

ANALYSIS OF THE TWO GROUPS OF PUPILS

This study includes all the pupils of Huron County who graduated from the rural eighth grade and entered high school in the period indicated. For this reason, it seemed advisable to make a preliminary comparison of the two groups to determine how similar they were on everything except achievement as shown by marks, and to determine the significance of any difference. This comparison was based upon the number of pupils, sex of pupils, and age at the time of entering the ninth grade. The intelligence quotients were available for slightly more than one half the pupils in each group. Allowances were made statistically for this fact.

Number of Pupils

Table I, page 12 shows the number of rural pupils graduating from the eighth grade compared with the number of these graduates entering high schools. Over a period of six years the two groups, being fairly large in number, varied only by fifteen.

This shows that the number who were graduating yearly from the rural eighth grades of the county was practically constant.

TABLE I

A COMPARISON OF THE NUMBER
OF RURAL EIGHTH GRADE GRADUATES
AND THE NUMBER OF RURAL ENTRANTS
IN HURON COUNTY HIGH SCHOOLS FROM 1931-1937

GROUP I			GROUP II		
Year	Rural Graduates	High School Entrants	Year	Rural Graduates	High School Entrants
1931	380	199	1935	390	181
1932	419	198	1936	410	209
1933	392	201	1937	397	194
Total	1191	598		1176	584
Percent Who Enter H.S.		50.21			49.56
Difference In Percent		.55 of one percent			

The above table shows that, in the three year period from 1931-33, 598 rural pupils entered high school while in the years 1935-37 there were 584 rural pupils who entered high school. This was a

difference of fourteen. The percent of pupils entering high school from the two groups differs by only .55 of one percent. This difference is hardly sufficient to be considered significant.

Sex of Pupils

Table II, page 14 shows the number of boys and girls in Group I and Group II. There were 46.44 percent boys in the first group and 47.47 percent boys in the second group. This difference of 1.03 percent is so small that the effect on a slight difference of achievement as registered between boys and girls can scarcely be considered significant.

This table shows irregularity of numbers of the sexes with changes occurring in some cases from a greater number of girls to a greater number of boys. The total percentages of boys and girls in the county were not effected by changes in the individual schools.

TABLE II

COMPARISON OF SEX OF RURAL PUPILS

School	GROUP I		GROUP II	
	Boys	Girls	Boys	Girls
A	24	28	26	29
B	5	9	4	6
C	14	16	10	20
D	15	16	27	20
E	8	23	6	19
F	26	22	24	24
G	19	25	26	21
H	29	32	22	17
I	24	17	28	19
J	10	13	10	7
K	29	58	46	49
L	45	27	16	40
Totals	248	286	245	271
Percent	46.44	53.56	47.47	52.53

Age at Time of Entrance into Ninth Grade

Table III, page 16 shows the comparative ages of the pupils in Group I and Group II at the time of their entrance into the ninth grade of Huron County high schools. The mean age of the first group was 14 years 2.433 months with 68 percent of the pupils occurring within the range of years from 13 years 6 months to 15 years 4 months. The second group had a mean age of 14 years 3.4 months, 68 percent of the group ages occurring in the range from 13 years and 3 months to 15 years and 4 months.

The difference of the mean age of the first group and the second group was .967 of a month with a standard error of this difference as .785 months. The difference was not considered significant.

" In order to be practically certain that there is a real difference in merit between these two groups, the difference between the means should be

TABLE III

COMPARISON OF THE AGES OF GROUP I TO GROUP II
AT THE TIME OF ENTRANCE INTO HIGH SCHOOL

Age in Years and Months	GROUP I	GROUP II
18-6 18-11	1	0
18-0 18- 5	2	2
17-6 17-11	1	2
17-0 17- 5	1	7
16-6 16-11	14	8
16-0 16- 5	16	9
15-6 15-11	35	26
15-0 15- 5	54	60
14-6 14-11	78	85
14-0 14- 5	117	119
13-6 13-11	76	92
13-0 13- 5	65	67
12-6 12-11	49	32
12-0 12- 5	15	5
11-6 11-11	6	2
11-0 11- 5	2	0
10-6 10-11	2	0
Totals	534	516
Means	14 years 2.433 mo.	14 years 3.4 mo.
Standard Deviation	13.851	12.24
Standard Error	.58	.53
Difference of Means	.967	
E_D	.785	
Ratio of Difference of Means to Standard Error of the Difference of the Means	1.232 : 1	

at least three times as great as the standard error of this difference." (12)

The difference of the means is 1.232 times as large as the standard error of the difference and therefore not large enough to be significant.

Table IV, page 18 shows the distribution of intelligence quotients of rural pupils of Huron County. The intelligence quotients were available for slightly more than one half of each group or 58.05 percent of Group I and 52.13 percent of Group II.

The mean score of Group I was 101.6 compared to the mean score of 100.92 for Group II. The obtained difference of the means was .68. The significance of this difference was found by finding the ratio of the obtained difference of the means to the standard error of the difference of the means.

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(12) Teigs, Ernest W. Tests and Measurements for Teachers, Boston: Houghton Mifflin Company, 1931. pp. 234.

TABLE IV

DISTRIBUTION OF MENTAL TEST SCORES OF (13) RURAL PUPILS OF HURON COUNTY 1931-37

	GROUP I	GROUP II
Scores	f	f
120 - 124	5	13
115 - 119	17	11
110 - 114	35	36
105 - 109	46	27
100 - 104	99	61
95 - 99	49	48
90 - 94	10	21
85 - 89	24	29
80 - 84	25	23
Totals	310	269
Median	102.37	101.51
Mean	101.6	100.92
Standard Deviation	9.45	2.331
Standard Error	.536	.1421
Probable Error	.361	.0426
Combined Median of Both Groups		101.94
E_D of the Means		.553
Obtained Difference of the Means		.68
Ratio of Difference of Means to Standard Error of the Difference		1.229 : 1

(13) According to the Otis Self-Administering Test of Mental Ability.

The ratio of the obtained difference of the means to the standard error of the difference of the means was found to be 1.229 : 1 which was much less than the three to one ratio necessary for a significant difference of the means. This would seem to indicate that the probable learning rates of the two groups are about the same.

Summary of the Chapter

The number of rural pupils entering high schools of Huron County in Group I was very nearly the same as that for Group II. The number of boys in Group I varied little from that of Group II. There was no significant difference in the mean age of the two groups. The difference in the mean I.Q.'s of the two groups was too small to make a significant difference in the probable learning rates of Group I and Group II. Thus from the standpoint of number, age, sex and intelligence quotients, Group I and Group II were homogeneous.

CHAPTER III

COMPARATIVE ANALYSIS OF ACHIEVEMENTS OF GROUPS I AND II AS MEASURED BY TEACHER'S MARKS

Table V, page 21 shows the distribution of pupil's scholastic success by point scores. The point scores were computed by giving the marks numerical point value, thus: A= 4, B= 3, C= 2, D= 1, E= 0. The table also shows that Group I, composed of 534 rural pupils, had a mean point score of 8.953 while Group II, composed of 516 rural pupils had a mean point score of 8.709. There was a difference in the mean point scores of .244 in favor of Group I.

" An obtained difference in mean scores is significant when the odds are great that the true difference is greater than zero." (14) The formula will be found in the appendix.

The standard error of difference was equal, in this distribution problem, to .2021.

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(14) Garrett, Henry E. Statistics in Psychology and Education. New York: Longmans, Green and Company. Copyright 1926, (Second Edition, 1937) pp. 210.

TABLE V

DISTRIBUTION OF PUPIL'S SCHOLASTIC SUCCESS
BY POINT SCORES FOR GROUPS I AND II

	GROUP I	GROUP II
Scores	f	f
16	10	6
14 - 15	36	23
12 - 13	85	83
10 - 11	92	103
8 - 9	131	110
6 - 7	105	103
4 - 5	48	63
2 - 3	20	21
0 - 1	7	4
Totals	534 N	516 N
Means	8.953	8.709
Medians	9.328	9.218
Standard Deviation	3.326	3.223
Standard Error of Median	.1763	.2065
Standard Error of Mean	.1439	.1419
Probable Error	.0970	.0957
E_D of the Means		.2021
Obtained Difference of the Means		.244
Ratio of the Difference of the Means to Standard Error of Difference of Means		1.2073 : 1
E_D of the Medians		.2715
Obtained Difference of Medians		.110
Ratio of Difference of Medians to Standard Error of Difference of Medians		.4515 : 1

To be certain that there is a real difference in merit between Group I and Group II, the difference between the means would need to be at least three times as great as the standard error of this difference. (15)

In this case of distribution of point scores, the ratio of the obtained differences of the means to the standard error of the difference was 1.2073 : 1. As this ratio was less than three to one the difference of the means could not be considered significant.

The obtained difference between the medians was .110. The significance of this difference was determined by finding the ratio of the difference to the standard error of the difference. The ratio was .4515 : 1. The result shows the difference to be insignificant.

" It is customary to take the difference of the medians divided by the standard error of the difference of the medians with quotient three as

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(15) Teigs, Ernest W. Op. cit., p. 234.

indicative of significant difference (virtual certainty) since there is only about one chance in one thousand that a difference of plus three will arise when the true difference is zero." (16)

This table also showed the standard deviation of Group I to be 3.326 and that for Group II was found to be 3.223. For Group I, 68 percent of the point scores fell between the (mean + 3.326) and the (mean - 3.326) or between 12.279 and 5.627. In Group II, 68 percent of the point scores fell between (mean + 3.2234) and the (mean - 3.2234) or between the point scores of 11.9326 and 5.4858.

This table revealed a slight difference in mean point scores in favor of Group I but this difference was proven to be insignificant.

Table VI, page 25 shows the distribution by points made by pupils in Group I compared to the distribution by points made by pupils in Group II.

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(16) Garrett, Henry E. Op. cit., p. 213.

Group I had 2136 marks for a total of 4766 points. Group II, which is slightly smaller, had 2064 marks for a total of 4486 points. The mean scholastic mark for Group I was found to have a point value of 2.2312 compared to the mean mark for Group II with a point value of 2.173.

The combined mean mark of rural pupils of Huron County for the first semester in high school from 1931-1937 was found to have a point value of 2.2021. This value is slightly lower than the average of 2.389 which Schimke (17) found in his study of five Michigan high schools.

In Table VI, page 25, 56.75 percent of the points for Group I were made with marks A and B only compared with 54.78 percent of the total points of Group II which were made with the marks A and B. Column A, B and C for Group I had a total of 4377 points or 91.83 percent of the total points. Group II had a total of 4080 points or 91.34 percent of the total points in the A,B and C distribution.

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(17) Schimke, Edward A. Op. cit., p.32-38.

TABLE VI

DISTRIBUTION BY POINTS MADE BY PUPILS IN GROUP I COMPARED TO DISTRIBUTION BY POINTS IN GROUP II

Mark	Points	GROUP I No. Marks	GROUP I Total Points	GROUP I A & B Only	GROUP I A, B & C	GROUP II No. Marks	GROUP II Total Points	GROUP II A & B Only	GROUP II A, B & C
A	4	218	872	872	872	145	580	580	580
B	3	611	1833	1833	1833	626	1878	1878	1878
C	2	836	1672		1672	815	1630		1630
D	1	389	389			401	401		
E	0	82	0			77	0		
Totals		2136	4766	2705	4377	2064	4486	2458	4080
Percent of Total			100	56.75	91.83		100	54.78	91.34
Average No. of Points			2.2312	3.263	2.629		2.173	3.188	2.572

In summary Table VI shows a slight decrease in the percentage of A and B marks for Group II. Column A, B and C decreased .49 percent for Group II.

Table VII shows the distribution of marks in the twelve schools included in this study.

TABLE VII

DISTRIBUTION OF FIRST SEMESTER MARKS
IN TWELVE HURON COUNTY HIGH SCHOOLS

School	GROUP I						GROUP II					
	No. of Pupils	A	B	C	D	E	No. of Pupils	A	B	C	D	E
A	52	22	51	76	55	4	55	12	49	79	66	14
B	14	3	23	27	3	0	10	1	7	17	15	0
C	30	4	42	54	17	3	30	10	33	49	18	10
D	31	4	40	60	19	1	47	7	76	69	30	6
E	31	10	32	67	15	0	25	3	23	63	11	0
F	48	22	37	76	48	9	48	30	74	55	33	0
G	44	21	36	60	37	22	47	8	59	88	30	3
H	61	35	85	79	40	5	39	16	43	70	23	4
I	41	10	53	64	30	7	47	21	43	48	56	20
J	23	12	23	35	20	2	17	8	27	24	9	0
K	87	42	113	122	59	12	95	13	124	157	71	15
L	72	33	76	116	46	17	56	16	68	96	39	5
Totals	534	218	611	836	389	82	516	145	626	815	401	77

The distribution of marks varied with each school. It

was found that schools C and D were lowest in the number of A's. Each school had only four A's over a period of three years in Group I. Group II in schools C and D had ten A's and seven A's respectively. Schools G and H had a decrease in the number of A's in Group II.

Table VIII, page 28 shows the distribution of the percentages of each mark received by pupils in the schools included in this study. The percentage of A's varied from 3.22 percent in school D to 14.34 percent in school H of Group I. The greatest variation was found in school F of Group II. This school had 15.62 percent A's and 0.0 percent E's.

The medians of the distribution of percentages of Group I varied somewhat from the medians of Group II. The greatest difference was recorded between the medians of the A columns. The median of column A in Group I was 11.0 compared to the median of 6.3 for column A in Group II. The medians of Group I indicate a higher distribution of marks in the A and B columns than are found in the corresponding columns of A and B for Group II.

TABLE VIII

PERCENTAGE DISTRIBUTION OF
FIRST SEMESTER MARKS FOR GROUPS I AND II

School	GROUP I					GROUP II				
	A	B	C	D	E	A	B	C	D	E
A	10.6	24.5	36.6	26.4	1.9	5.4	22.3	35.9	30.0	6.4
B	5.4	41.1	48.2	5.3	0.0	2.5	17.5	42.5	37.5	0.0
C	3.3	35.0	45.0	14.2	2.5	8.3	27.5	40.9	15.0	8.3
D	3.2	32.3	48.4	15.3	0.8	3.7	40.4	36.7	16.0	3.2
E	8.1	25.8	54.0	12.1	0.0	3.0	23.0	63.0	11.0	0.0
F	11.4	19.3	39.6	25.0	4.7	15.6	38.5	28.7	17.2	0.0
G	11.9	20.5	34.1	21.0	12.5	4.2	31.4	46.9	15.9	1.6
H	14.3	38.8	32.4	16.4	2.1	10.2	27.6	44.9	14.7	2.6
I	6.1	32.3	39.0	18.3	4.3	11.2	22.9	25.5	29.8	10.6
J	13.0	25.0	38.0	21.8	2.2	11.8	39.7	35.3	13.2	0.0
K	12.1	32.1	35.2	17.1	3.5	3.4	32.7	41.3	18.7	3.9
L	11.4	26.4	40.3	16.0	5.9	7.1	30.4	42.9	17.4	2.2
Median	11.0	29.2	39.3	16.2	2.4	6.3	29.0	41.1	16.6	2.4

The medians compared show a difference as follows: A medians show a difference of 4.8, B medians show a difference of .2, C medians show a difference of 1.8, D medians show a difference of .4, and E medians show no difference.

Table IX indicates the distribution of the average point acores for girls compared to the average point acores of boys in Groups I and II.

TABLE IX

AVERAGE POINT SCORES OF BOYS
COMPARED TO GIRLS IN GROUPS I AND II

	GROUP I		GROUP II	
School	248 Boys	286 Girls	245 Boys	271 Girls
A	7.143	9.61	6.346	8.75
B	8.2	10.7	5.5	8.66
C	8.31	9.5	8.1	8.7
D	8.4	8.76	7.4	11.6
E	8.75	9.13	8.12	8.57
F	7.12	9.72	8.54	11.62
G	5.47	9.8	8.5	9.23
H	8.53	11.06	8.32	10.17
I	8.16	9.47	8.11	10.57
J	6.5	10.92	9.8	10.29
K	7.0	10.31	8.23	8.77
L	8.73	9.07	7.4	9.52
Median	8.18	9.66	8.115	8.42
Average	7.665	9.583	7.71	9.704
Combined Averages		Boys= 7.687		Girls= 9.643

The average point scores for the boys of Group I were 7.665 compared to 9.583 for the girls. For Group II the boys had a point score average of 7.71 compared to 9.704 for the girls. The combined averages indicated a superiority for the girls by 1.956 points.

Table X, page 31 is a comparative study of the failures in Groups I and II. Group I had 82 failures with the highest percentage of failures registered in Algebra. Group II had 77 failures with the greatest number and highest percentage registered in English.

Each group was weak in both Algebra and English. The smallest number of failures appeared in Home Economics in both cases, Group I having no failures while Group II had only two failures in this subject. The failures in Latin maintained a constant position being third high in both groups. Business Training dropped from fourth position in Group I to sixth position in Group II, while both Civics and Biology increased their failures from five in each group to seven and nine respectively.

TABLE X

COMPARATIVE STUDY OF THE FAILURES IN GROUPS I AND II

Subject	GROUP I		GROUP II	
	No. of Failures	Percent of Failures	No. of Failures	Percent of Failures
Latin	11	13.41	11	14.29
English	22	26.83	26	33.76
Algebra	31	37.80	17	22.08
Biology	5	6.10	9	11.70
Civics	5	6.10	7	9.09
Business Training	8	9.76	5	6.49
Home Economics	0	0.0	2	2.59
Totals	82	100.0	77	100.0

In summary, Table X shows that 78.04 percent of Group I failed in Latin, English and Algebra while 21.96 percent of the group failed in the remaining three subjects Biology, Civics and Business Training. In Group II, 70.13 percent of the failures were in Latin, English and Algebra, while the remaining 18.17 percent of the failures occurred in Biology, Civics, Business Training and Home Economics.

Table XI shows the comparison of failures by sexes, in Group I and Group II. The boys in Group I and Group II received more failing marks than the girls.

TABLE XI

COMPARISON OF FAILURES BY SEXES IN GROUP I AND GROUP II

	Boys	Girls
Failures in Group I	60	22
Failures in Group II	49	28
Totals	159	50
Percent Failing	68.56	31.44

The number of failing marks received by boys in Group I totaled 60 compared to 22 failing marks received by girls in the same group. In Group II, 49 failing marks were received by the boys compared to 28 failing marks for the girls of the same group.

Boys received 68.56 percent of the failing marks given by teachers during the period covered by the combined groups. Girls received 31.44 percent of the failing marks given by teachers during the same period.

Table XII shows the age of the pupils dropping out of Group I and Group II before the end of the first semester of high school work was completed. Sixty four pupils dropped out of school during the period covered by Group I. Thirty six or 56.25 percent were girls while 28 or 43.75 percent were boys. Sixty eight pupils dropped out of Group II. Fifty percent of these, or 34 pupils were girls.

TABLE XII

COMPARATIVE AGES OF DROP-OUTS
FROM GROUP I AND GROUP II

	GROUP I		GROUP II	
	Boys	Girls	Boys	Girls
Number of Drop-outs	28	36	34	34
Percent of Drop-outs	43.75	56.25	50.0	50.0
Mean Age of Drop-outs in Years and Months	14-11	14-3	14-11	14-7
Combined Mean Age of Boys and Girls	14yrs. 8mo.		14yrs. 9mo.	

The mean age of the boys during both periods maintained a constant level of 14 years 11 months. The mean age of the girls increased from 14 years 3 months to 14 years 7 months in Group II.

In summary, Table XII shows that Group II had the largest number of failures but the percentage of boys and girls failing was equal. Group I had a smaller number of failures than Group II but the percentage of girls who failed was larger. The combined mean age increased from 14 years 8 months in Group I to 14 years 9 months in Group II. This was an increase of one month.

Summary of the Chapter

The mean point score per pupil of Group I exceeded that of Group II by .244 of a point. This difference was proven statistically insignificant. The difference of the medians of Group I and Group II was .110. This was shown to be insufficient for reliability. The distribution of the points made by pupils showed a slight decrease in the percentage of A and B marks for Group II. The distribution of the marks by schools varied for each school with the distribution of Group I very near that of Group II. The variation ranged from 30 A's and 0 E's in school F of Group II to 12 A's and 14 E's in school A of Group II.

The average point scores of Group I and Group II showed little variation. The subjects failed and the percent of failures seemed to indicate no change in failing trends. Boys received over two-thirds of the failing marks given during the period covered by this study.

The highest percentage of drop-outs was recorded for girls. The combined mean age of the pupil leaving Group I was 14 years and 8 months compared to the combined mean age of 14 years 9 months for the pupil leaving Group II.

CHAPTER IV

SUMMARY OF DATA

Table XIII, page 37 shows the summary of the data compiled in this study of the rural pupils of twelve high schools in Huron County for the period 1931-1937 inclusive.

Group I contained 534 pupils compared to 516 pupils in Group II. The division of the sexes of the two groups was found to be 46.44 percent boys in Group I and 47.47 percent boys in Group II. The mean age of the pupils of Group I was 14 years 2.43 months while the mean age of Group II was found to be 14 years 3.4 months. The mean intelligence quotient of Group I was found to be 101.6 compared to the intelligence quotient of 100.92 for Group II.

The mean point score per pupil in Group I was 8.953 compared to 8.709 for Group II. The mean point score per mark for Group I was 2.2312 compared to 2.173 as the point score for Group II. The combined average point scores for the boys of both groups was found to be 7.687 compared to the

TABLE XIII

SUMMARY OF DATA COMPILED FROM
HURON COUNTY HIGH SCHOOLS 1931-1937

ITEMS COMPARED	GROUP I	GROUP II
Number in Study	534	516
Boys in Study	248	245
Girls in Study	286	271
Percent Boys in Each Group	46.44	47.47
Percent Girls in Each Group	53.56	52.53
Mean Age	14yrs. 2mo.	14yrs. 3mo.
Mean Intelligence Quotient	101.6	100.92
Median Intelligence Quotient	102.37	101.51
Median Point Score Per Pupil	9.328	9.218
Mean Point Score Per Pupil	8.953	8.709
Mean Point Score Per Mark	2.2312	2.173
Boys Average Point Score	7.665	7.71
Girls Average Point Score	9.583	9.643
Most Difficult Subject	Algebra	English
No. of Failures in All Subjects	82	77
Percentage of Failures	3.84	3.74
No. of Boy Drop-outs	28	34
No. of Girl Drop-outs	36	34
Percent of Boy Drop-outs	43.75	50.0
Percent of Girl Drop-outs	56.25	50.0
Combined Mean Age of Drop-outs	14yrs. 8mo.	14yrs. 9mo.

combined average point score for girls of 9.643.

The medians of the distribution of percentages showed Group I to have a median of 11.0 percent of A's and 29.2 percent of B's compared to a median of 6.3 percent of A's and 29.0 percent of B's for Group II. The failures for Group I were 3.84 percent compared to 3.74 percent of failures for Group II. The most difficult subjects for Group I and II were Algebra and English. The total number of failures was less for Group II, but the percentage of failures differed by only .1 of one percent.

The number of pupils who dropped out of school before the close of the first semester was increased by four in Group II. The mean age of the pupil who left school was 14 years 8.1 months for Group I. The mean age of the pupil remaining in school was 14 years 2.43 months for Group I. Therefore, the pupils who left school during 1931-1933 were, on an average, 5.67 months older than the pupils who remained in school during this period. The mean age of the pupil who left school during the period covered by Group II was 14 years 9.2 months. The

mean age of the pupil who remained in school during this period was 14 years 3.4 months. This indicated that the pupil who left school during the latter period was, on the average, 5.8 months older than the pupil who remained in school.

CHAPTER V

CONCLUSIONS AND SUGGESTIONS FOR FURTHER STUDY

The following conclusions are indicated from the findings of the preceding study:

1. There was a slightly higher percentage of failures among rural ninth grade pupils who entered the high schools of Huron County before the elimination of the county eighth grade examinations than among the rural pupils who entered the same high schools after the elimination of the county eighth grade examinations.

2. The boys included in this study received a much higher percentage of failing marks than did the girls.

3. There was no significant difference in the mean point score of the high school marks of pupils who wrote the county examinations and the high school marks of pupils who entered Huron County high schools since the elimination of the county eighth grade examinations.

4. The mean scholastic high school mark for the first semester earned by rural pupils who entered with the examination and those who entered high

school after its elimination was slightly higher than a "C".

5. Rural pupils who entered high school with the county eighth grade examinations left school in greater numbers and higher percentages than the rural pupils who entered high school without the eighth grade county examination. There was no evidence to show that the county eighth grade examination was a factor of the difference.

6. The rural pupils who entered high school after taking the county examination and later dropped out of school before completing the first semester were younger than the rural pupils leaving high school since the discontinuance of the county examination.

7. In accordance with the findings of this study, the elimination of the county eighth grade examination seems to have had little effect upon the scholastic success of rural pupils, as measured by teacher's marks.

Suggestions for Further Study

A problem growing out of this study includes

a survey of a larger area, possibly the entire state of Michigan, to determine the possibility of the effect of the elimination of the county eighth grade examinations on the scholastic success of the rural pupils of Michigan.

There is a need for a study to determine the pupil tests necessary for complete pupil records. According to many superintendents, the cost of an adequate yearly testing program is greater than the available funds for that purpose. A method of supplying these tests by some central agency, free of charge to the schools, would tend to eliminate faulty records.

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APPENDIX

THE RELIABILITY OF TEACHER'S MARKS

Because there is a difference of opinion as to the reliability of teacher's marks the following quotations are included:

" Promotion, continuance at school itself, depends upon the pupil's standing as measured by marks." (18)

" 1. An analysis of the marks assigned by Seattle teachers on a given set of twenty four sixth grade arithmetic papers shows great uniformity of rating by the twenty two teachers.

2. A re-analysis of the results of marking of ten Freshman English examination papers submitted by Starch to ten instructors in English in the University of Wisconsin seems to show great uniformity instead of great diversity ...

3. This study of the new data combined with the restudy... seems to discount entirely the belief that there is little or no uniformity in teacher's marks...

8. In all probability there is sufficient

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(18) Korey, Ruth. " The Question of Marks," School and Society, XXIV (August 7, 1926), 175-76.

reliability in teacher's marks to justify their continued use as a means of determining promotions in the grades or of graduation from high school or college and for the purpose of determining college entrance. When all the grades assigned to a pupil at all times in a given subject, and all the grades given by different teachers in the pupil's school career are massed and a composite rating is secured undoubtedly it represents quite fairly the pupil's past performance." (19)

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(19) Bolton, Frederick E. "Do Teacher's Marks Vary as Much as Supposed?" Education, XLVIII (September, 1927), 23-39.

Sample of Form Used to Record Data in this Study

School _____ _____

Name of Pupil _____ Sex _____

Year of Entrance _____

Birthdate _____

Age on Entrance to High School _____

Mental Test Score _____ Name of Test _____

First Semester Marks _____ _____ _____ _____

Failures by Subjects _____ _____ _____

Drop-out _____

LIST OF SCHOOLS INCLUDED IN THIS STUDY

Bad Axe

Bay Port

Elkton

Harbor Beach

Kinde

Owendale

Pigeon

Pinnebog

Port Austin

Port Hope

Sebewaing

Ubly

Reliability of the Difference Between Two Means

"The formula for calculating the significance of the difference between two obtained means, when dealing with different groups, is

$$\sigma_D \text{ or } \sigma_{M_1 - M_2} \qquad \sqrt{\sigma^2_{M_1} + \sigma^2_{M_2}}$$

σ_{M_1} is the standard error of the mean of the first group.

σ_{M_2} is the standard error of the mean of the second group.

σ_D is the standard error of the difference between the two means." (20)

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(20) Garrett, Henry E. Op. cit., p. 211.