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A comparative study of acheievement in English of township high school and city high school graduates

Virgil Alfred Clift
Indiana State University

A COMPARATIVE STUDY OF ACHIEVEMENT IN ENGLISH OF TOWNSHIP HIGH SCHOOL AND CITY HIGH SCHOOL GRADUATES

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by

Virgil Alfred Clift

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Committee on thesis:

E. E. Ramsey

E. L. Abell

J. R. Shannon, Chairman

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CHAPTER I

THE PROBLEM AND DEFINITION OF TERMS USED

There has been much discussion in recent years on the inefficiency of township schools. Most authorities in the field of education contend that the township organization does not function as it should and that many changes should be made. In both the city and township high schools English is regarded as an important subject. Since both types of schools offer about the same amount of English and both consider it to be so important, it should not be difficult to find which type of school is graduating students that are most efficient in English.

The two most important local units of educational administrative organization in the state of Indiana are the city and township units. One of the most serious and perplexing problems in the provision of equality of educational opportunity in Indiana is that of providing an adequate educational program in township units or rural areas. It is usually conceived by educators that the larger cities in Indiana have progressed most in the development of an adequate administrative organization for the supervision and control of schools. Some of the reasons for this conception are: (1) the township attendance units are too small;

(2) the township trustee is incompetent to employ the teaching staff; (3) the length of school terms is shorter in most township schools; (4) the county superintendent has too many duties to perform and cannot adequately administer and supervise; (5) the more competent teachers are employed in the city school systems; and (6) in city school systems materials of local significance are collected and used to enrich and vitalize the curriculum and courses of study.

The Committee on the Economic Status of the Rural Teacher of the National Education Association shows by contrasting rural and urban conditions some of the important problems that face public schools in rural areas. In this study are found the following conclusions:

> In rural schools where instructional materials are often scarce and the complexities and handicaps of teaching many--the average teacher has less preparation for his task than has the teacher under more favorable urban conditions.
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> . . . . . .
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> Teaching in rural areas offers only 40 per cent as much income on the average as is offered in city schools. Yet rural children deserve the same high quality of instructional service as city children receive.
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> Mobility is widespread among teachers in rural schools partly because the conditions of employment are not always attractive. In city schools the teaching load is more evenly distributed, supervisory assistance is provided, living conditions are better, and salaries more adequate.
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> . . . . . .
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> With an equal number of children to be educated

and proportionately fewer adults, rural areas have been unable to provide equipment and teaching facilities comparable in value to the investment in city schools.[1]

I. THE PROBLEM

Statement of the problem. The purpose of this study is (1) to determine whether or not the students who enter Indiana State Teachers College from the larger city high schools have acquired a better knowledge of English than those who came from township high schools; (2) to find the correlation of scores made on psychological examinations and English examinations of students that have graduated from the two types of schools.

Importance of the study. Great changes have taken place in the life of rural Indiana since an administrative organization was provided for the educational needs of a pioneer civilization. The administrative organization in rural areas has received relatively little modification. Modern farm machinery, modern transportation, modern household conveniencies, and modern communication have transformed farm and village life. The small isolated,

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1 National Education Association, Rural and Urban Schools, Commission on the Economic Status of the Rural Teacher, Bulletin I, (June, 1937), pp. 11-19.

individualistic groups of a few years ago are integrated parts of society as a whole. Agriculture has been transformed from a simple economy to a specialized and commercialized industry. The substitution of the internal combustion engine and electrical power for the steam engine and animal power has had a tremendous influence on rural life. Automobiles, busses, motor trucks, and good roads have made what was formerly a day's journey in an ox-wagon a trip of a few minutes. The telephone, rural free delivery, and the radio provide new contacts and enlarged educational opportunities, which were impossible even twenty years ago. The population is more mobile. New activities have changed attitudes of mind, social relations and institutional relationships.

These changes, which have broadened horizons and increased group activities, have emphasized the need for an educational administrative unit larger and more efficient than the local township attendance area. They have increased the demands upon education and made necessary activities which can be carried on more effectively and economically in groups larger than those contained in the rural attendance area.

II. DEFINITION OF TERMS USED

City high schools. The term city high school refers to those secondary schools that are located in cities and are under control of the city board of education and the city superintendent of schools.

Township high schools. Township high schools are those secondary schools that are located in township administrative units and are under the control of the township trustee and county superintendent of schools.

III. STEPS IN THE SOLUTION OF THE PROBLEM

Attack on the problem was made through the following steps: (1) students were selected for the study from cities and townships where the economic conditions, social life, nationality of population and general interests were similar; (2) percentile ranks of students on the freshmen psychological examination and English entrance examination were used to compare students who have graduated from city high schools with those who have graduated from township high schools; (3) a distribution table was made to compare the English and mental ability of students that have graduated from the two types of high schools; (4) students from

the two types of school systems that have exactly the same percentile rank on the psychological examination were equated and means computed for both the English and psychological examinations; and (5) the coefficient of correlation was computed to find the correlation between the psychological and English percentile ranks of students from both types of high schools.

IV. SURVEY OF LITERATURE

Mr. Hochmeister made a comparative study of eight and nine months high schools at Indiana University and found:

> In the light of this study, it would seem fairly safe to conclude that graduates of nine months schools are better prepared for advanced educational work than are graduates of eight months schools of approximately the same size.[2]

Since most township schools have only eight months terms and the city schools have nine months terms, it would seem to indicate that the city schools are graduating students who are better prepared for advanced educational work than the township high school graduates.

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[2] Fred C. Hochmeister, "A Comparative Study of the Records Made at Indiana University by Graduates of Eight and Nine Months High Schools of Approximately the same Size," (unpublished Master's thesis, Indiana University, Bloomington, 1927).

Mr. Ely in a later study at Indiana State Teachers College compared scholastic achievements of graduates from large and small high schools and found:

> In general there is strong evidence that the students from the large high schools are more successful in advanced educational work than are students from small high schools. Some of this superiority evidently is resultant from the secondary school training which the two groups received.[3]

Norman Frost[4] found in an unpublished survey of the Holdane School, Cold Springs, New York, made in 1917, a table on page thirty which gave a comparison of median achievement in English composition by grades (Hillegas Scale, Nassau County Extension), which includes grade medians for the schools of Mobile County, Alabama, and for the city of Mobile. In every grade reported the median for the city schools is higher than for the country schools.

Norman Frost made a survey of twenty-eight studies dealing with the comparative results of instruction in rural and in urban schools and found:

> In all 28 studies are reported, of which 20 find the results better in urban schools, 6 find negligible differences, and 2 find results superior in rural schools.[5]

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[3] Wayne H. Ely, "The Scholastic Success of Students from Small High Schools Versus Students from Large High Schools are Shown by the Records Made at Indiana State Teachers College in 1925, 1926, 1927, and 1928," (unpublished Master's thesis, Indiana State Teachers College, Terre Haute,) p. 38.

[4] Norman Frost, A Comparative Study of Achievement in Country and Town Schools (New York: Teachers College, Columbia University, 1921), p. 8.

[5] Ibid., p. 14.

Dr. Frost made a study of the achievement of students enrolled in the public schools at Madison County, Kentucky; Paterson, New Jersey; Louisville, Kentucky; and St. Paul, Minnesota. In the Madison County schools the length of term was six months and in the other system the length of term was nine months. He concluded that:

> The comparison of the Madison County 6-month schools with the other schools tested may be summed up in the statement that the children in these schools have less ability along every line tested than have the children of the same ages in other schools, and that they are learning more slowly, except that the children in St. Paul are improving as slowly as they do in language.[6]

In this study achievement was measured by the Trabue Language Scale and the Thorndike Silent Reading Scale.

The Indiana State School Survey, January, 1923, was undertaken in order to throw more light on the problem of high school size and its related factors. The Survey Commission states that, "Most of the problems of secondary education in Indiana center around the small high school of less than 100 pupils, located in rural and semi-rural communities."[7]

As one step in improving the high school system of

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[6] Ibid., p. 66.

[7] Public Education in Indiana, Report of the Indiana Educational Commission, 1923, p. 99.

the State, the State Survey Commission says, "Small high schools should be eliminated or consolidated."[8]

Another step in improving the high school system is that of better administration, and the State Survey recommended, "The county unit plan of control, and provision that town or city systems must meet certain independent standards."[9] There is general agreement that the units for administration and for the supervision of schools should be the same.

In a final suggestion for the improvement of the small high school the State Survey says:

> But to make the most effective equalization of local school tax burdens and of educational opportunities, it is absolutely essential to create a larger local unit than the township.[10]

Mr. James H. Barr made a study at Indiana University of large and small high schools in Indiana based on (1) personnel of instruction and administration; (2) the housing and equipment of the school; (3) curricular and extra-curricular advantages; (4) the final success of the school; and (5) the success in college of high school graduates.

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8 Ibid., p. 117.

9 Loc. cit.

10 Ibid., p. 185.

In his findings he reported:

> . . . practically all four year high schools, about 600 or more for the entire state, are now on the Commissioned list. These are not uniform in standards actually reached, though the same standards are required by the State for Commissioned Schools, and this creates a variety of actual conditions.
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> . . . . . .
>
> The larger schools in Indiana make better provisions for school work, and are actually doing more successful work, as shown by the present investigation.[11]

In the chapters of the same study that are concerned with the personnel of instruction and administration, Mr. Barr says:

> The large schools provide better trained, more experienced persons for these duties and that they then pay better salaries and retain the teachers and administrators longer in the system than the small schools. These facts suggest better instruction and management in larger high schools, and further suggests that at present the smaller schools now have many younger teachers training for advancement to larger schools, and some untrained and inexperienced teachers. The small schools thus serve in part as a training camp for the larger systems. It is further found that the principals in smaller schools spend half of their time in teaching and thus can do less administrative work.[12]

Mr. Barr also finds that the large high schools provide better facilities in the housing and equipment facilities, and more extensive curricular and extra-curricular advantages.

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[11] James H. Barr, "A Comparison of Large and Small High Schools," (unpublished Master's thesis, Indiana University, 1923), pp. 257-58.

[12] Ibid., p. 258.

V. METHOD OF PROCEDURE AND THE SOURCES OF DATA

Source of data. The entering freshmen at Indiana State Teachers College are required to take a psychological examination and the Iowa English examination and are given percentile ranks for each examination. This becomes a part of the permanent record and was obtained by the writer at the registrars' office at Indiana State Teachers College.

Records of students that have graduated from township high schools in Vigo, Sullivan, Owen, Parke, Putnam, Clay, Vermillion, and Green Counties, of Indiana, were used in this study. Graduates from the city high schools in Terre Haute, Brazil, and Clinton, Indiana, were used to compare with the above township high school graduates. Data were collected for students from the above two types of schools who entered Indiana State Teachers College during the years 1935, 1936, 1937, and 1938, in order to have a representative cycle of students. A total of 352 students from the city high schools and 231 students from township high schools were used in this study.

CHAPTER II

TREATMENT OF DATA

Achievement as measured by the psychological and Iowa English examinations. After having collected the data the next step was to arrange them in logical manner which was appropiate for the purposes of investigation. In doing this the writer made a distribution table with each statistical class having a range of five with the intervals representing percentiles of the psychological examination. The mean intelligence score and the mean English score were computed for the cases in each statistical class for the city high school and township high school graduates.

Table I shows how the two groups of high school graduates were distributed according to intelligence and English scores. It is clear that the mean intelligence for the city high school graduates is higher than that of the township graduates. The same is true with the mean English scores. If one were to cut the distribution table in half at the 50-54.99 interval, it is easy to note that a fewer number of cases from the city fally in the lower half and a larger number in the upper half of the distribution. However, the largest number of graduates from

TABLE I

COMPARISON OF GRADUATES FROM THE TWO TYPES OF HIGH SCHOOLS FOR THE YEARS 1935, 1936, 1937, AND 1938

	CITY HIGH SCHOOL GRADUATES			TOWNSHIP HIGH SCHOOL GRADUATES		
Interval	No. of cases	Mean Scores Intelligence	Mean Scores English	No. of cases	Mean Scores Intelligence	Mean Scores English
95-99	25	96.4	81.4	9	96.1	80.9
90-94	12	91.7	78.3	11	91.8	72.7
85-89	15	87.4	66.0	9	68.2	51.2
80-84	20	82.6	75.5	8	82.0	70.0
75-79	26	77.3	63.1	6	77.0	73.3
70-74	15	71.1	56.7	9	72.1	64.3
65-69	25	67.4	65.2	11	67.1	52.8
60-64	15	61.8	48.0	15	62.1	47.3
55-59	21	57.0	47.1	18	56.8	41.7
50-54	18	54.7	46.5	7	51.4	37.3
45-49	16	47.0	48.8	5	46.4	44.0
40-44	24	41.9	43.8	13	42.5	39.9
35-39	16	36.8	46.9	14	36.8	40.7
30-34	17	34.3	46.3	11	32.4	31.0
25-29	15	26.8	35.3	10	27.5	41.1
20-24	18	22.2	41.4	13	21.8	30.8
15-19	11	17.6	41.0	18	17.6	34.5
10-14	19	11.3	26.6	16	12.4	25.4
5- 9	14	7.6	20.9	12	7.2	24.3
0- 4	10	2.8	11.6	16	1.5	17.8
Totals	352	53.4	55.9	231	46.9	47.7

township high schools are at the lower half of the distribution with a smaller number at the top.

The mean English and psychological percentile ranks were computed for both groups of students by dividing the sum of the percentile ranks by the number of cases. From the finding in this portion of the study the author has drawn the following conclusions:

1. City high school graduates are higher in intelligence than township high school graduates.

2. City high school graduates make higher scores on the freshman English entrance examination that graduates from township high schools.

3. When the number of cases from city high schools are plotted the curve is skewed with over 50 per cent of the cases in the upper part of the distribution or above the 55-59.99 interval.

4. When the number of cases from the township high schools are plotted the curve is skewed with over 50 per cent of the cases in the lower part of the distribution or below the 40-44.99 interval.

Table I, page 13, represents a relative comparison of the two groups of graduates because each statistical class has a range of five. It may be possible for the cases from one type of school to be at the top of a

statistical class and the cases from the other type of school to be at the bottom. This would cause the comparison to be made between students who have not shown themselves to be equal in intelligence. In order to make the comparison more absolute graduates from the township and city high schools who have exactly the same percentile rank on the psychological examination were compared. Table II shows this comparison.

After having equated both groups on the basis of intelligence the data were treated to show (1) the mean rank of students on the psychological examination who had graduated from city high schools, and also the mean rank on the same examination for graduates of township high schools; (2) the mean percentile rank was computed for students on the Iowa English examination who had graduated from city high schools, and also the mean rank on this examination for the graduates of township high schools; (3) the standard error for each of the above four means was computed; (4) the standard error of difference between the means of city high school and township high school graduates on the psychological examination was computed; (5) the standard error of the difference between the means of city high school and township high school graduates on the English examination was computed; and (6) the coefficient

TABLE II

COMPARISON OF GRADUATES FROM THE TWO TYPES OF HIGH SCHOOLS FOR THE YEARS 1935, 1936, 1937, AND 1938 AFTER GRADUATES HAD BEEN EQUATED ON THE BASIS OF INTELLIGENCE

CITY HIGH SCHOOL GRADUATES			TOWNSHIP HIGH SCHOOL GRADUATES		
Psy. Perct.	No. of cases	English Mean	Psy. Perct.	No. of cases	English Mean
98	6	88.3	98	4	94.5
97	3	80.0	97	1	60.0
96	9	84.0	96	2	75.0
95	4	72.5	95	2	70.0
94	2	75.0	94	1	90.0
93	3	73.0	93	4	70.0
91	3	80.0	91	2	75.0
90	4	82.5	90	3	66.7
89	3	73.3	89	3	70.0
88	5	60.0	88	1	30.0
87	4	76.5	87	2	70.0
86	1	90.0	86	2	25.5
85	2	40.0	85	1	30.0
84	7	74.3	84	1	40.0
83	4	76.5	83	2	85.0
82	4	77.8	82	2	60.0
81	3	66.7	81	2	85.0
80	2	90.0	80	1	60.0
79	10	76.0	79	2	90.0
77	7	45.7	77	1	70.0
76	2	60.0	76	2	70.0
75	6	65.0	75	1	50.0
74	1	60.0	74	2	40.0
73	2	60.0	73	2	55.0
72	3	56.7	72	2	65.0
71	1	80.0	71	1	90.0
70	8	55.1	70	2	84.5
69	5	74.0	69	3	60.0
68	7	61.4	68	1	40.0
67	5	66.0	67	2	55.0
66	4	70.0	66	4	50.0
65	4	72.5	65	1	50.0
64	3	53.3	64	4	57.5
63	1	60.0	63	2	60.0

TABLE II (continued)

COMPARISON OF GRADUATES FROM THE TWO TYPES OF HIGH SCHOOLS FOR THE YEARS 1935, 1936, 1937, AND 1938 AFTER GRADUATES HAD BEEN EQUATED ON THE BASIS OF INTELLIGENCE

CITY HIGH SCHOOL GRADUATES			TOWNSHIP HIGH SCHOOL GRADUATES		
Psy.	Perct.	No. of cases	English Mean	Psy.	Perct.	No. of cases	English Mean
62		3	50.0	62		3	43.7
61		6	33.3	61		4	50.0
60		2	75.0	60		2	25.0
59		7	39.9	59		5	36.0
57		5	48.0	57		4	32.8
56		4	45.0	56		4	52.5
55		5	58.0	55		4	50.0
54		2	20.5	54		1	30.0
53		5	34.0	53		1	60.0
52		1	60.0	52		1	50.0
51		4	72.5	51		1	1.0
50		6	38.3	50		3	40.0
48		6	43.3	48		2	35.0
47		6	46.7	47		2	60.0
46		2	55.0	46		1	30.0
44		8	52.5	44		6	38.3
42		4	47.5	42		1	60.0
41		3	41.0	41		2	40.0
40		8	42.5	40		4	37.3
39		1	70.0	39		1	30.0
38		4	37.3	38		3	53.3
37		6	38.3	37		5	36.0
35		5	50.0	35		2	36.7
34		5	50.0	34		3	23.3
33		2	30.0	33		2	40.0
32		3	53.3	32		3	40.0
31		6	40.0	31		2	30.5
30		1	30.0	30		1	20.0
29		3	50.0	29		3	60.0
28		3	30.0	28		1	1.0
27		2	40.0	27		5	30.0
25		5	36.0	25		1	80.0
24		3	23.3	24		2	55.0
23		2	40.0	23		1	30.0
22		10	41.0	22		5	22.2

TABLE II (continued)

COMPARISON OF GRADUATES FROM THE TWO TYPES OF HIGH SCHOOLS FOR THE YEARS 1935, 1936, 1937, AND 1938 AFTER GRADUATES HAD BEEN EQUATED ON THE BASIS OF INTELLIGENCE

CITY HIGH SCHOOL GRADUATES			TOWNSHIP HIGH SCHOOL GRADUATES		
Psy. Perct.	No. of cases	English Mean	Psy. Perct.	No. of cases	English Mean
21	2	45.0	21	2	55.0
20	1	10.0	20	3	25.0
19	4	35.0	19	7	40.0
18	4	55.0	18	4	55.0
16	1	60.0	16	3	20.3
15	2	15.5	15	2	20.0
14	5	26.4	14	7	24.5
12	5	18.4	12	2	25.0
11	6	33.7	11	3	27.0
10	3	26.7	10	3	36.7
9	5	18.2	9	3	7.0
8	1	20.0	8	2	30.0
7	2	10.0	7	2	10.5
6	4	32.8	6	4	30.0
5	2	15.0	5	1	10.0
4	3	7.3	4	3	26.7
3	2	20.0	3	2	55.0
2	3	7.0	2	2	5.5
1	1	20.0	1	6	12.0
0	1	1.0	0	3	4.0

of correlation was computed to find the relationship between intelligence scores and English scores of the graduates from city high schools. The coefficient of correlation was also computed for the township high school graduates by the same procedure.

Findings. The following formula was used in the computation of the means:

$$M. = G.M. + \left(\frac{\Sigma fd}{N}\right)h$$

The mean for the city high school graduates on the psychological examination was found to be 52.70, and that of the township high school graduates on the same examination was 45.70.

The mean for the city high school graduates on the English examination was 55.9, and that of the township high school graduates on the examination was 48.1.

The standard error of each of the above four means was found by:

$$S.E._{m.} = \frac{\sigma dis.}{\sqrt{N}}$$

The standard error of the mean of the city high school graduates on the psychological examination was 1.47; for the same group in the English examination it was 1.47.

For the township high school graduates the standard error of the mean on the psychological examination was 1.95, and that on the English examination was 1.70.

The standard error of difference between the mean of the city high school and township high school group for both types of examinations was computed by:

$$S.E._{diff.} = \sqrt{SE_1^2 + SE_2^2}$$

As has been noted above, the standard error of the mean for the city high school graduates on the psychological examination was 1.47, and the standard error of the mean for the township group on the same examination was 1.95. The standard error of difference between these two means is 2.4413. The mean of the city group was 52.70, and for the township group 45.70, with a difference of seven. The possibilities are 99.8 out of 100 that this difference is too great to be caused by fluctuations of random sampling.

The standard errors of the mean on the English examination for the city and township group were 1.47 and 1.70, respectively. The standard error of difference between these two means was 2.2471. The difference between the means of the two groups on the English examination is 7.8. This difference, then, is too great to be interpreted as possibly caused by fluctuations of random sampling.

In order for the reader to be able to compare the findings more easily, Table III has been prepared.

In order to find the relationship between intelligence percentile ranks and English percentile ranks the coefficient of correlation was computed for both the city and township groups.

The formula used in this computation was Piersons Product Moment Coefficient of correlation:

$$\rho = \frac{\Sigma dx\,dy - \frac{\Sigma dx \Sigma dy}{N}}{\sqrt{\Sigma dx^2 - \frac{(\Sigma dx)^2}{N}} \quad \Sigma dy^2 - \frac{(\Sigma dy)^2}{N}}$$

For the city high school graduates the correlation between intelligence and English achievement was .588.

For the township high school graduates it was .335.

TABLE III

SIGNIFICANCE OF THE DIFFERENCE IN MEANS OF TOWNSHIP HIGH SCHOOL AND CITY HIGH SCHOOL GRADUATES ON THE BASIS OF INTELLIGENCE AND ENGLISH

Group	Mean	Standard error of means	Difference between means	In favor of	Standard error of difference between means	Critical ratio	Chances in 100 that the difference is significant
Total City Psychological	53.35	1.46	6.45	City	2.387	2.702	99.7
Total Twp.	46.90	1.89					
Total City English	55.90	1.45	8.2	City	2.287	3.589	100.
Total Twp.	47.70	1.77					
Equated City Psychological	52.70	1.47	7.0	City	2.441	2.867	99.8
Equated Twp.	45.70	1.95					
Equated City English	55.90	1.47	7.8	City	2.247	3.471	100.
Equated Twp.	48.10	1.70					

CHAPTER III

SUMMARY AND CONCLUSIONS

This study is based on a review of previous studies that are related to this thesis study and data of high school graduates from three cities and eight counties in the state of Indiana. Analysis of the data reveals certain conditions that can be summarized as follows:

1. A review of the literature shows that city schools are superior to rural schools. In all studies except two, city school graduates are superior in ability and achievement to rural school graduates.

2. Chapter II evaluated the two types of high school graduates and the data seemed to show graduates from city high schools rank higher in intelligence and English achievement than do the township high school graduates.

3. The graduates were then equated on the basis of intelligence and students from one type of high school were compared with those from the other type who had shown themselves to be equal in intelligence. The findings revealed that the city high school graduates had achieved more in English than the township high school graduates.

4. The relationship between intelligence and English achievement was found for both types of high school

graduates by the Pierson Product Moment Method. For the city high school graduates the coefficient of correlation between English and intelligence was .588. The coefficient of correlation for the township high school graduates was .335.

The significance of this is that it shows that city high school graduates use their intelligence more efficiently in their English than do the township high school graduates.

To show how this relationship compares with other studies in correlation between psychological tests and academic standing, the writer quotes Boynton:

> While reported coefficients from recent studies probably run a little higher on the average than many of the early coefficients, the present cluster is still between .40 and .60 in the main.[1]

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[1] Paul L. Boynton, Intelligence Its Manifestations and Measurement (New York: D. Appleton and Company, 1933), p. 363.

BIBLIOGRAPHY

Barr, James H., "A Comparison of Large and Small Schools in Indiana." Unpublished Master's thesis, The University of Indiana, Bloomington, 1923.

Blanton, Annie W., The Child of the Texas One-Teacher School. University of Texas Bulletin No. 3613, April, 1936.

Boynton, Paul L., Intelligence Its Manifestations and Measurement. New York: D. Appleton and Company, 1933.

Ely, Wayne H., "The Scholastic Success of Students from Small High Schools Versus Students from Large High Schools as Shown by a Study of the Records Made by Freshmen at Indiana State Teachers College." Unpublished Master's thesis, Indiana State Teachers College, 1931.

Fider, Daniel D., "An Evaluation of Some Problems in Prediction of Achievement at College Level," Journal of Educational Psychology, 26:597-602, November, 1935.

Frost, Norman, A Comparative Study of Achievement in Country and Town Schools. New York: Teachers College, Columbia University, 1921.

Gates, A. I., "The Correlations of Achievement in School Subjects with Intelligence Tests and other Variables," Journal of Educational Psychology, 13:129ff; 233; 277, 1922.

Hochmeister, Fred C.,"A Comparative Study of the Records Made in Indiana University by Graduates of Eight and Nine Months High Schools of Approximately the Same Size." Unpublished Master's thesis, The University of Indiana, Bloomington, 1927.

Hughes, W. H.,"Provision for individual differences in High School Organization and Administration," Journal of Educational Research, 5:71ff, 1922.

Madsen, I. N. "Relationship between General Intelligence and Success in Certain High School Subjects," Journal of Educational Research, 3:396ff, 1921.

National Education Association, Rural and Urban Schools, Committee on the Economic Status of the Rural Teacher, June, 1937.

Orr, Mildred B., "The Relation of Success in College to Success in High School," Educational Law and Administration, 4:43, April, 1936.

Simon, D. L., "Turnover Among Teachers in the Smaller Secondary Schools of Indiana," School Review, 44:114-26, February, 1936.

Report of the Indiana Educational Commission, Public Education in Indiana, 1923.

Wert, James E., Educational Statistics. New York: McGraw-Hill Book Company, Inc., 1938.

APPENDIX

TABLE IV

PERCENTILE RANKS OF GRADUATES FROM TOWNSHIP AND CITY HIGH SCHOOLS ON THE PSYCHOLOGICAL AND ENGLISH EXAMINATIONS

CITY GRADUATES		TOWNSHIP GRADUATES	
Psychological percentile ranks	English percentile ranks	Psychological percentile ranks	English percentile ranks
99	60		
99	88		
99	80		
98	90	98	90
98	99	98	90
98	80	98	99
98	80	98	99
98	90		
98	90		
97	70	97	60
97	80		
97	90		
96	80	96	90
96	99	96	60
96	90		
96	60		
96	99		
96	88		
96	89		
96	90		
96	70		
95	90	95	90
95	60	95	50
95	50		
95	90		
94	60	94	90
94	90		
93	30	93	90
93	99	93	50
93	90	93	60
		93	80
		92	80
91	100	91	90
91	70	91	60

TABLE IV (continued)

PERCENTILE RANKS OF GRADUATES FROM TOWNSHIP AND CITY HIGH SCHOOLS ON THE PSYCHOLOGICAL AND ENGLISH EXAMINATIONS

CITY GRADUATES		TOWNSHIP GRADUATES	
Psychological percentile ranks	English percentile ranks	Psychological percentile ranks	English percentile ranks
91	70		
90	90	90	70
90	90	90	70
90	80	90	60
90	70		
89	50	89	90
89	80	89	70
89	90	89	50
88	20	88	30
88	90		
88	60		
88	50		
88	80		
87	60	87	80
87	70	87	60
87	80		
87	90		
86	90	86	50
		86	1
85	20	85	30
85	60		
84	80	84	40
84	80		
84	80		
84	20		
84	90		
84	80		
84	90		
83	80	83	80
83	40	83	90
83	90		
83	90		
82	80	82	60
82	90	82	60
82	60		

TABLE IV (continued)

PERCENTILE RANKS OF GRADUATES FROM TOWNSHIP AND CITY HIGH SCHOOLS ON THE PSYCHOLOGICAL AND ENGLISH EXAMINATIONS

CITY GRADUATES		TOWNSHIP GRADUATES	
Psychological percentile ranks	English percentile ranks	Psychological percentile ranks	English percentile ranks
82	80		
81	90	81	90
81	30	81	80
81	80		
80	90	80	60
80	90		
79	90	79	90
79	40	79	90
79	80		
79	70		
79	80		
79	50		
79	80		
79	90		
79	90		
79	90		
78	60		
77	80		
77	10	77	70
77	40		
77	40		
77	70		
77	40		
77	40		
76	40	76	80
76	80	76	60
75	70	75	50
75	10		
75	50		
75	90		
75	80		
75	90		
74	60	74	10
		74	70
73	80	73	20

TABLE IV (continued)

PERCENTILE RANKS OF GRADUATES FROM TOWNSHIP AND CITY HIGH SCHOOLS ON THE PSYCHOLOGICAL AND ENGLISH EXAMINATIONS

CITY GRADUATES		TOWNSHIP GRADUATES	
Psychological percentile ranks	English percentile ranks	Psychological percentile ranks	English percentile ranks
73	40	73	90
72	70	72	70
72	20	72	60
72	80		
71	80	71	90
70	20	70	70
70	1	70	99
70	70		
70	70		
70	60		
70	50		
70	90		
70	80		
69	90	69	30
69	70	69	60
69	90	69	90
69	50		
69	70		
68	50	68	40
68	50		
68	60		
68	70		
68	60		
68	90		
68	50		
67	40	67	40
67	40	67	70
67	70		
67	90		
67	90		
66	60	66	30
66	80	66	80
66	60	66	30
66	20	66	60
65	70	65	50

TABLE IV (continued)

PERCENTILE RANKS OF GRADUATES FROM TOWNSHIP AND CITY HIGH SCHOOLS ON THE PSYCHOLOGICAL AND ENGLISH EXAMINATIONS

CITY GRADUATES		TOWNSHIP GRADUATES	
Psychological percentile ranks	English percentile ranks	Psychological percentile ranks	English percentile ranks
65	70		
65	90		
65	60		
64	60	64	70
64	20	64	80
64	80	64	60
		64	20
63	60	63	50
		63	70
62	70	62	1
62	50	62	50
62	30	62	80
61	10	61	30
61	70	61	40
61	10	61	90
61	40	61	40
61	40		
61	30		
60	70	60	20
60	80	60	30
59	70	59	40
59	50	59	30
59	20	59	30
59	10	59	30
59	80	59	50
59	30		
59	19		
		58	50
57	20	57	80
57	80	57	1
57	40	57	20
57	70	57	30
57	30		
56	30	56	60
56	40	56	30
56	40	56	60
56	70	56	60

TABLE IV (continued)

PERCENTILE RANKS OF GRADUATES FROM TOWNSHIP AND CITY HIGH SCHOOLS ON THE PSYCHOLOGICAL AND ENGLISH EXAMINATIONS

CITY GRADUATES		TOWNSHIP GRADUATES	
Psychological percentile ranks	English percentile ranks	Psychological percentile ranks	English percentile ranks
55	50	55	70
55	80	55	10
55	80	55	80
55	20	55	40
55	60		
54	40	54	30
54	1		
53	20	53	60
53	20		
53	90		
53	20		
53	20		
52	60	52	50
51	70	51	1
51	70		
51	80		
51	70		
50	20	50	50
50	40	50	40
50	30	50	30
50	50		
50	40		
48	30	48	30
48	90	48	40
48	10		
48	60		
48	40		
48	30		
47	50	47	40
47	50	47	80
47	10		
47	20		
47	70		
47	80		
46	60	46	30
46	50		
45	40		

TABLE IV (continued)

PERCENTILE RANKS OF GRADUATES FROM TOWNSHIP AND CITY HIGH SCHOOLS ON THE PSYCHOLOGICAL AND ENGLISH EXAMINATIONS

CITY GRADUATES		TOWNSHIP GRADUATES	
Psychological percentile ranks	English percentile ranks	Psychological percentile ranks	English percentile ranks
45	90		
44	60	44	60
44	40	44	10
44	30	44	70
44	60	44	30
44	40	44	40
44	30	44	80
44	30		
44	80		
43	30		
42	30	42	60
42	70		
42	60		
42	30		
41	60	41	50
41	10	41	30
41	50		
40	40	40	10
40	20	40	70
40	40	40	30
40	30	40	39
40	40		
40	30		
40	50		
40	90		
39	70	39	30
38	40	38	40
38	70	38	30
38	50	38	90
38	40		
37	20	37	50
37	70	37	20
37	70	37	40
37	10	37	50
37	40	37	20
37	20		
36	30		
36	30		

TABLE IV (continued)

PERCENTILE RANKS OF GRADUATES FROM TOWNSHIP AND CITY HIGH SCHOOLS ON THE PSYCHOLOGICAL AND ENGLISH EXAMINATIONS

CITY GRADUATES		TOWNSHIP GRADUATES	
Psychological percentile ranks	English percentile ranks	Psychological percentile ranks	English percentile ranks
35	40	35	50
35	60	35	40
35	50		
35	40	35	30
35	50		
34	70	34	30
34	20	34	20
34	40	34	20
34	40		
34	80		
33	30	33	20
33	30	33	50
32	50	32	30
32	80	32	20
32	30	32	70
31	50	31	1
31	40	31	60
31	40		
31	40		
31	50		
31	20		
30	30	30	20
29	50	29	80
29	10	29	40
29	90	29	60
28	10	28	1
28	60		
28	20		
27	40	27	30
27	40	27	70
		27	20
		27	20
		27	10
26	10		
26	20		
25	30	25	80
25	60		

TABLE IV (continued)

PERCENTILE RANKS OF GRADUATES FROM TOWNSHIP AND CITY HIGH SCHOOLS ON THE PSYCHOLOGICAL AND ENGLISH EXAMINATIONS

CITY GRADUATES		TOWNSHIP GRADUATES	
Psychological percentile ranks	English percentile ranks	Psychological percentile ranks	English percentile ranks
25	30		
25	20		
25	40		
24	10	24	70
24	50	24	40
24	10		
23	40	23	20
23	40		
22	20	22	10
22	40	22	1
22	90	22	70
22	20	22	10
22	70	22	20
22	50		
22	20		
22	10		
22	50		
22	40		
21	60	21	50
21	30	21	60
20	10	20	10
		20	10
		20	30
19	40	19	50
19	10	19	20
19	70	19	10
19	20	19	50
		19	40
19	60		
		19	50
18	70	18	30
18	60	18	70
18	70	18	50
18	20	18	70
		17	10
		17	10
16	60	16	30
		16	30

TABLE IV (continued)

PERCENTILE RANKS OF GRADUATES FROM TOWNSHIP AND CITY HIGH SCHOOLS ON THE PSYCHOLOGICAL AND ENGLISH EXAMINATIONS

CITY GRADUATES		TOWNSHIP GRADUATES	
Psychological percentile ranks	English percentile ranks	Psychological percentile ranks	English percentile ranks
		16	1
15	30	15	20
15	1	15	20
14	30	14	80
14	70	14	10
14	1	14	30
14	1	14	1
14	30	14	40
		14	1
		14	10
		13	10
12	50	12	20
12	1	12	30
12	20		
12	20		
12	1		
11	50	11	30
11	1	11	50
11	30	11	1
11	80		
11	30		
11	10		
10	20	10	40
10	40	10	60
10	20	10	10
9	20	9	1
9	50	9	10
9	10	9	10
9	10		
9	1		
8	20	8	50
		8	10
7	10	7	20
7	10	7	1
6	70	6	40

TABLE IV (continued)

PERCENTILE RANKS OF GRADUATES FROM TOWNSHIP AND CITY HIGH SCHOOLS ON THE PSYCHOLOGICAL AND ENGLISH EXAMINATIONS

CITY GRADUATES		TOWNSHIP GRADUATES	
Psychological percentile ranks	English percentile ranks	Psychological percentile ranks	English percentile ranks
6	40	6	10
6	1	6	30
6	20	6	40
5	20	5	10
5	10		
4	1	4	50
4	20	4	10
4	1	4	20
3	30	3	60
3	10	3	50
2	1	2	10
2	10	2	1
2	10		
1	20	1	30
		1	10
		1	1
		1	1
		1	10
		1	20
0	1	0	1
		0	1
		0	10
Totals			
18,499	17,998	10,328	9,934