

A STUDY OF THE CORRELATION OF HIGH-SCHOOL  
ENGLISH MARKS AND THE MARKS MADE ON  
COLLEGE ENGLISH ENTRANCE EXAMINA-  
TION AT INDIANA STATE TEACHERS  
COLLEGE

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Contributions of the Graduate School  
Indiana State Teachers College  
Number 343

Submitted in Partial Fulfillment  
of the Requirements for the  
Master of Science Degree  
in Education

1938

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The thesis of Herbert Wey,  
Contribution of the Graduate School, Indiana State  
Teachers College, Number 343, under the title  
A Study of the Correlation of High-School English  
Marks and the Marks Made on College English Entrance  
Examination at Indiana State Teachers College  
is hereby approved as counting toward the completion  
of the Master's degree in the amount of 8 hour's  
credit.

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Date of Acceptance

June 27, 1938.

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## CHAPTER I

### INTRODUCTION

During the past generation success in the various high-school subjects has been measured with increasing objectivity. Much of the interest in this type of work has been brought about by the desire to predict success in college on the basis of high-school achievement.

At Indiana State Teachers College the freshman English classes ranked higher in the number of failing grades than other freshman classes for the few terms that data were obtained.<sup>1</sup> Thus the question arises: Are pupils given high grades in English in high school only to have their hopes blasted by a freshman college English examination, or vice versa? In light of the fact that the failures are so high in freshman English, one might conclude that English is one of the stumbling blocks of many freshmen who enter Indiana State Teachers College.

#### I. PURPOSE OF THE STUDY

Some authorities contend that one may predict the success of high-school students by studying the marks that the pupils made during their high-school careers.

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<sup>1</sup> Data for years 1934, 1935, 1936, and 1937 were used.

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A letter from Dr. H. L. Creek of Purdue University states that the Purdue Division of Educational Reference reports that there is little difference between the average high-school grade and the success in college courses.

A study made by Mildren B. Orr<sup>2</sup> of Indianapolis, Indiana, reported that:

1. Success in high school does not in itself mean success in college.
2. The correlation .588 indicates a positive relationship between high-school and college averages. It also indicates that all students making high averages in high-school do not make correspondingly high averages in college.
3. The efficiency of predicting success in college on the basis of success in high school is 19.2 per cent which is more efficient than selection by chance.

Dr. Creek's statement and Miss Orr's study tend to indicate that there is some relationship between high-school success and college success.

The purpose of this study is to determine the possibility of predicting success on the college freshman English examination on the basis of the marks received in high-school English classes.

The study is divided into three parts: first, to find the correlation of a composite score of the high-school English

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<sup>2</sup> Mildred B. Orr, "The Relation of Success in College to Success in High School." Educational Law and Administration. 4:42-3, April, 1936.

grades made by pupils during the first three years of high-school work with their score made on the freshman English entrance examination at Indiana State Teachers College; second, to find the correlation of 11-B English grades made by pupils in Wiley, Garfield, and Gerstmeyer Technical high schools with their scores made on the freshman English entrance examination at Indiana State Teachers College; third, to find the correlation of the public speaking or debating grades made by pupils in high-school with their scores made on the freshman English entrance examination at Indiana State Teachers College.

## II. OTHER RELATED STUDIES

Elizabeth Crawford Heylem<sup>3</sup> made a study in which an analysis of freshman English requirements in 122 colleges was presented. In replies to 194 questionnaires sent to 194 chairmen of freshman English committees, she found that nearly all the chairmen listed deficiency in preparation of their freshmen pupils in English as the chief problem.

In a study of 280 freshmen of Colorado State Teachers College of Education during the years of 1934-1935, it is reported that a correlation of .724 was found between the average scholastic grade and the scores made on the freshman English entrance examination and the psychological examination. This

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<sup>3</sup> Elizabeth Crawford Heylem, "An Analysis of Present Practices and Tendencies in Freshman English in Certain Colleges and Universities." Master's thesis, Washington, D. C.: George Washington University, 1935.

study shows a decided relationship between success in college work and the scores made on the freshman entrance examination given in English and the psychological examination.<sup>4</sup>

### III. LIMITATIONS OF THE STUDY

There is one factor that might cause some variation in the findings of this study. This study is a correlation of teacher's marks with scores made on an objective examination. Therefore, the question arises as to the reliability of teacher's marks with the actual achievement of a pupil.

Among the investigations that have been made of the relation between achievement test scores and school marks, a recent study reported the correlation between scores on a series of the tests published by the Cooperative Test Service and marks assigned on a percentage basis during the year 1934-1935 in eight independent secondary schools for boys.<sup>5</sup> Co-operative tests in the following subjects were included in the study: English, Latin, German, elementary algebra, intermediate algebra, plane geometry, solid geometry, trigonometry, biology, chemistry, and others.

The study showed that the median of 121 correlations was approximately .72, and that all except two of the correlations were statistically significant. It was also found that

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<sup>4</sup> Carrie Mae Scott, "Background and Personal Data as Factors in the Prediction of Scholastic Success in College." Journal of Applied Psychology. XXII, February, 1938. p. 42.

<sup>5</sup> Arthur E. Traxler, "Correlation of Achievement Scores and School Marks." School Review. 45:776, 1937.

the median correlation did not vary greatly from department to department. The median of correlation in English was .71 which was just .01 lower than the median for all departments.

These correlations between achievement test scores and school marks tend to be higher than those reported in most studies of this kind. The general tendency appears to be for school marks and achievement scores to give a positive correlation not far from .50.<sup>6</sup>

Roberts<sup>7</sup> reports correlations on 25 studies of .53 to .69 between college and high-school marks and also correlations from .31 to .60 between intelligence test scores and high-school marks. He makes the statement that combining intelligence scores with all other good measures, the exceedingly high correlations of .75 to .80 are obtained between these measures and school marks. He also states that the intelligence scores have shown themselves our surest guide in detecting the very highest and the very lowest of intellectual ability.

No failing grades were listed on the transcript of credits. The reason for this is that if a student fails in any one of the first six semesters of English in high-school he must make up this English work at a later date. The pupil is then given the grade that he receives when he makes up the failing grade.

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<sup>6</sup> Ibid.

<sup>7</sup> A. C. Roberts, "Objective Measures of Intelligence in Relation to High School and College Administration." Educational Administration and Supervision. 8:530-40, December, 1922.

## CHAPTER II

### METHOD AND PROCEDURE

#### I. COLLECTION OF DATA

Sources of data. The data for this study were obtained from two sources. First, the English grades made by the pupils in high school were obtained from the record of each pupil from the high school from which he graduated. These transcripts may be found in the files of the Registrar's Office of Indiana State Teachers College. Second, the scores made by the pupils on the freshman English entrance examination at Indiana State Teachers College were obtained from the files of the English department of Indiana State Teachers College. It was necessary to use a questionnaire to find out the English curriculum in the different high schools.

Selection of data. The high-school English grades of every pupil that had entered Indiana State Teachers College during the years 1934, 1935, 1936, and 1937 were tabulated except the grades made in the fourth year of high school English. Only three years of high school English are required and the majority of the students had credit for only three years. The fourth year in most high schools is composed entirely of literature and would not be related to the freshman examination, as it tested only grammar, composition, spelling, and rhetoric.

Not all of the grades found on the transcript of credit of the pupils were usable because several grading systems had been employed in making the permanent records in the different high schools. The five-point letter system and the percentage system were the most commonly used, and only the cases in which these systems had been used were retained. There were only a few schools that used grading systems that differed from these two general types.

There was some difference in the range of the percentage values that each letter represented in the five-point letter system used by the different schools. Table I shows the percentage values of each letter of the five-point letter system used by eight of the high schools sending the most students to Indiana State Teachers College. It can be seen by the table that a letter grade does not have the same value in every high school.

It was decided to change the grades given on the transcript in percentages to the five-point letter grading system. In order to do this the values used by the Gerstmeyer Technical high school were used as a standard, because they were found to be the median values of all the high schools listed in the table, and also it is the largest high school listed in the group.

After all grades were placed on the five-point letter system a composite score for the six grades was made by assigning a numerical value of four to an A, a value of three

TABLE I  
 DIFFERENCE IN PERCENTAGE VALUES OF LETTERS  
 GIVEN BY EIGHT HIGH SCHOOLS

School	Value of an "A"	Value of a "B"	Value of a "C"	Value of a "D"
Worthington	100-95	94-88	87-80	79-75
Vincennes	100-95	94-88	87-80	79-75
Jasonville	100-95	94-88	87-80	79-75
Terre Haute:				
Garfield	100-95	94-90	89-80	79-75
Gerstmeyer	100-95	94-88	87-80	79-75
Wiley	100-95	94-87	86-80	79-75
Glenn	100-94	93-87	86-81	80-75
Clinton	100-95	94-87	86-81	80-75

Below 75 is "F", or failure

to a B, a value of two to a C, and a value of one to a D. The value of each pupil's grades were added, giving each pupil a composite score ranging from six to twenty-four. A pupil having six A's for his six semester grades in English would receive a rating of twenty-four. A pupil having six D's would receive a rating of six. Thus other pupils would have a rating somewhere between six and twenty-four. These composite scores were used as one set of scores in calculating the coefficient of correlation.

Some schools used a plus or minus sign after the letter grades and others did not. All the plus and minus signs were dropped from all grades by the writer in making his computations.

In some cases only the yearly grades were listed. In order to get six semester grades for every pupil, it was necessary to write in three grades for those pupils who had only yearly grades given. In these cases, the grades given were the same as the pupil's grade for the entire year.

The freshman English examination score for each of the pupils was found in deciles from 1 to 99. Many different English examinations have been given to the entering freshman over the four-year period, but the English department has reduced the scores made on all examinations to a decile ranking. These scores constitute the remainder of the data for calculating the coefficient of correlation in each part.

The questionnaire. In an endeavor to find out the English curriculum in different high schools, questionnaires were sent to eight of the high schools that send the most pupils to Indiana State Teachers College.

Five of these schools reported that the first three years of English were composed of grammar, composition, and literature intermingled. The fourth year was given over to literature alone.

The other three high schools, Garfield, Wiley, and Gerstmeier Technical, reported a slight difference in that their third year was broken up into two parts, the first half of the year being entirely composed of grammar and composition and the last half being composed of literature.

It was necessary to know these facts before the first two parts of this study could be separated from each other.

In answer to the eight letters sent to these schools it was also indicated that each school has already adopted a special composition and grammar course with the idea of preparation for college, or that it is going to adopt one in the near future. For instance, this reply was received from Sullivan High School, Sullivan, Indiana: "Beginning next year a summary and review of grammar, punctuation, and composition will be offered for seniors planning to attend college. The students themselves are asking for it."

In reply from Clinton High School this answer was received: "We are now offering a grammar-composition review

course designed especially for students who expect to enter college."

Similar answers were received from the other high schools.

## II. STATISTICAL PROCEDURE

In finding the coefficient of correlation between the grades made by the pupils in high school and the scores made on the freshman English entrance examination, a modified form of Pearson's Product-Moment Method formula was used. The formula is:

$$r = \frac{N \sum XY - \sum X \sum Y}{\sqrt{[N \sum X^2 - (\sum X)^2][N \sum Y^2 - (\sum Y)^2]}}$$

Although the above formula is somewhat more complicated in form than Pearson's first formula,<sup>1</sup> it is generally preferable to the latter because it involves only the use of raw scores and the mathematical computation may be done on a calculating machine. The modified form of Pearson's Product-Moment Method formula was obtained from Mr. R. F. McDaid of the Mathematics department of Indiana State Teachers College.

## III. PRESENTATION OF DATA

Correlation between high school English grades and the scores made on freshman English entrance examination. One thousand six hundred ten cases were available for use in this

<sup>1</sup> Karl J. Holzinger, Statistical Methods for Students in Education. (Boston: Ginn and Company, 1928). p. 146.

part of the study. Using the composite score for each pupil computed by using the high-school English grades and the decile ranking of each pupil on the freshman English examination a coefficient of correlation of .624 was found. Owing to the fact that the number of cases used was exceedingly large, the probable error was a very small one. The probable error was .01.

Correlation between 11-B composition and grammar courses at Wiley, Garfield, and Gerstmeyer Technical high schools and decile rankings of pupils on freshman English entrance examination. Owing to the fact that the college freshman English examination tested only spelling, composition, and grammar, it is important to see what variation in correlation there would be in the marks made on a strictly grammar and composition course with the scores on the freshman English examination and the marks made on a course in which it was necessary to include literature along with the composition and grammar as was the case in the first part of this study. The three city high schools of Terre Haute, Garfield, Wiley, and Gerstmeyer Technical, were the only schools included in this part of the study because each of these schools has a course during the first half of the junior year consisting of grammar and composition alone. Since all three schools require their pupils to take this course, each pupil entering Indiana State Teachers College from these three schools in the last four years is included in this part of the study. Since there was only one mark given

each pupil in the course and this mark was a letter in every case, it was not necessary to make a composite score. Each letter was given a numerical value as in Part I of this study. There were 482 cases used in this part of the study. The coefficient of correlation between the mark made in 11-B composition and grammar course in Wiley, Garfield, and Gerstmeier high schools and the decile rank made by the pupils on the freshman college English entrance examination was found to be .598. This correlation was .26 lower than the correlation between the composite score for all English marks and the scores made on the freshman English examination. This finding was unexpected, since the freshman English examination tested exactly what is given in the 11-B English classes by these three high schools of Terre Haute. The coefficient of correlation found in this part of the study is also very significant owing to the fact that the probable error is only .02.

Correlation between the marks made in debating or public speaking with the decile rankings made on the freshman college English entrance examination. This third part of the study consists of the correlation of marks made by pupils in debating or public speaking with the scores made on the freshman English examination. Only those pupils were used whose transcripts of credits specified that they had taken public speaking or debating and had received a mark in either of them. There were 285 such cases found during the four year period which was used for the study. Of these 285 cases, some of the cases were from

high schools that used the percentage system of grading. These percentage grades were transposed into letter grades and a numerical value was attached to each. The coefficient of correlation was calculated using these numerical values and the decile rankings as mentioned in the previous parts. It was found that the coefficient of correlation existing between the marks made in debating or public speaking and the decile rankings made on the freshman college English entrance examination was .398.

Comparison of correlations. Table II gives the correlations found in each part of this study.

TABLE II

COEFFICIENTS OF CORRELATIONS BETWEEN SCORES MADE  
ON FRESHMAN ENGLISH ENTRANCE EXAMINATION  
AND MARKS MADE IN CERTAIN HIGH-SCHOOL  
ENGLISH SUBJECTS

Type of high school subject	Number of cases	Correlation
Composite grade for first three years of high-school English	1610	.624 $\pm$ .01
11-B English grades of Wiley, Garfield, and Gerstmeyer Tech	480	.598 $\pm$ .02
Debating or public speaking	285	.398 $\pm$ .035

The correlation between the marks made in debating or public speaking with the score made on the freshman English examination was .226 lower than the correlation found between the scores made in the first three years of high-school English with the scores made on the freshman college English entrance examination; and it was .2 lower than the correlation found between the mark made in the 11-B English class and the scores made on the freshman college English examination. Since debating and public speaking do not necessarily teach grammar and composition, this lower correlation was expected.

While working with the transcripts of credits of the different pupils it was discovered that some school offered a special college preparatory course in grammar and composition during the last half of the senior year. An effort was made to make a separate part of the study out of these particular students who had taken such a course before entering Indiana State Teachers College, however, owing to the lack in the number of such cases, the study was not considered a significant one.

## CHAPTER III

### CONCLUSIONS AND RECOMMENDATIONS

#### I. CONCLUSIONS

It was not possible to find any studies like, or similar to, this one. Therefore, the conclusions listed are drawn from facts set forth in this study alone.

1. The positive correlation of .624 found between the marks made in the first three years of high school English and the scores made on the freshman English examination indicates that some relation exists between the two.

2. A student who makes high marks in high school English probably will make a high score on the freshman English entrance examination. Also, a student who makes low marks in high school English will probably make a low score on the English entrance examination.

3. Success in high school English is not an absolute proof of success on the freshman English examination given at the college.

4. The correlation of .598 found between the marks made on composition-grammar course and the scores made on the freshman English examination is lower than the correlation found in the first part of the study where literature is intermingled in the grammar and composition course.

5. There is no closer relation between success in high school English classes composed of composition, grammar, and literature as compared with success on the college freshman English entrance examination than there is between success in high school English classes composed of only grammar and composition as compared with success on the college freshman English entrance examination.

6. The correlation of .398 shows that public speaking and debating do not have a high relationship to abilities in grammar, spelling, and composition.

## II. RECOMMENDATIONS

1. The writer recommends that a follow-up study be made to find the relation between success on the college freshman English entrance examination with success in the freshman English classes.

2. Since pupils begin to realize the need for the fundamentals of English during their senior year in high school, then it is recommended that the senior literature be given during the junior year and that a complete year of grammar and composition be offered during the senior year of high school.

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