1935

Psychological Tests and College Success

George Helm

Western Kentucky University

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Helm,

George R.

1935
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PREFACE

The author of this paper wishes to express his grateful appreciation to Mr. E. H. Canon and his personnel of workers, for the aid that they have rendered in making the material used in this study available.

To Dr. N. C. Taff, my minor professor, I wish to acknowledge my sincere appreciation for the many helpful suggestions. To Dr. Lee Francis Jones, my major professor, I wish to express my grateful thanks for his guidance and wise counsel during the writing of this thesis.
CHAPTER I
INTRODUCTION

The general psychological test has been used widely as a means of predicting college success. Within the last few years their value has been rather generally questioned. The writer, in order to have a better understanding of the subject, has read extensively in the field of psychological testing and guidance, as well as all of the available studies in this and related fields.

The writer has made a study of the academic grades received and the scores earned on the Terman Psychological Examination. Many educators have been of the opinion that a psychological examination is a more accurate predictive agent than the high school scholastic record. Most of the studies made in this field have pointed to the scholastic records in high school as being the more accurate predictive factor. Where the psychological test is used, it is advised that it be supported by other rating measures. This does not point to the psychological test as being a poor predictive factor but rather points that as a means for individual prediction it fails in a per cent of the cases. If a battery of tests is used the scores on the different tests for an individual can be checked and thus validated.

The purpose of this study is to determine the predictive value of the psychological examination when applied to college grades, with the motive of establishing standards by which students may be guided in their selection of college work.

This study is limited to an examination of the scholastic
records and Terman test scores of the people who registered in Western Kentucky State Teachers College as Freshmen during the academic year of 1930.

The following major objectives are treated in this initial chapter:

1. Problem.
2. Scope of the study.
3. Treatment of the data.

Problem: This study is primarily concerned with the coefficient of correlation between the Terman test scores and the college academic grades. It consists of the following factors:

a. Computing the coefficient of correlation between the first and last semester spent in college, to determine the predictive value of the academic grades of the first semester.

b. Comparison of the I Q'S of people in the Freshman, Sophomore, Junior and Senior classification.

c. Comparison of the grades of people spending only one semester with those who have gained senior standing.

d. Coefficient of correlation between the general composite grade average and psychological test score.

Scope of the Study: The study includes four hundred and eighty one freshmen who registered in Western Kentucky State Teachers College, during the academic year of 1930.

Treatment of data: The data used in this study are treated from a comparative, analytical and statistical standpoint.

Many studies have been made in this field but the writer can
The American Medical Association gives an aptitude test to all students applying for entrance to medical schools. The association reports that the results of the test are of value but that scholarship in premedical work, and personal qualifications should have equal weight in admitting students to medical school.

A study, made at the request of the Association of Minnesota Colleges, showed that psychological tests are more efficient in rating students than the high school scholarship rating or the college ability test.

The White House Conference of 1931 advised that psychological tests both as a measure of educational advancement and mental capacity provide one of the most valuable instruments for educational and vocational guidance, but such tests constitute only one factor in the study of the individual.

It is the desire of the author that this study may lead to the establishment of an efficient guidance program and that other studies may be made along this line which will either support or throw a different perspective on the findings of this study.

CHAPTER II
COLLECTION OF DATA

The academic record of students entering into this study was taken from the permanent record sheets on file in the registrar's office of the Western Kentucky State Teachers College. The Terman psychological test scores, which are expressed in terms of the intelligence quotient, were taken from the files of the education office.

A master data sheet was used for the collection of the data. One sheet was used for each student. The number of hours earned was listed according to the subject and the semester in which they were earned. Each registration was subdivided into hours and points, and the results placed directly below the subject. At the right hand margin the total hours, points, and average points per subject were listed. The composite average for hours, points, and average number of points per hour were totaled and placed in the lower right hand corner of the sheet.

A total of fourteen registrations were studied, however, only a few people enrolled that number of times. The subjects were divided according to the college classification.

Table I and II shows the numerical evaluation of grades by Western Kentucky State Teachers College and the evaluations used in this study. In this study a grade of "F" is given a value of "-1", "D" a value of "0", "C" a value of "1", "B" a value of "2", and "A" a value of "3". The college uses the same valuation with the exception of "F" which is given the evaluation of "0", the same quality point valuation as "D".
The author of this paper feels that a "-1" will better weigh an hour failed than a "C". It seems just as logical to drop one point from "D" to "F" as it would be from "C" to "D". If "D" and "F" are given the same value a student failing has the same quality point rating as a student receiving "D".
CHAPTER III
INTERPRETATION OF DATA

In mental, social, and educational measurements there are so many actual and potential sources of error due to the variability of the material dealt with, and the relative crudity of the measurements made, that very few tests indeed could meet what might in other fields be called a high correlation. F.S. Freeman, after making a survey of the studies made on matriculation examinations found that psychological test scores and college grades seldom show a correlation of higher than .60 and it was found that many run less than .50. In educational measurements a correlation of less than .20 is negligible.

The coefficient of correlation between the Terman psychological test scores and the grades received for the four year period is .23. According to this correlation the intelligence quotient as determined by the Terman Psychological test is not of great value as a predictive agent. Since other studies collaborate this work, we may say that the intelligence quotient is a very poor device for predicting college grades over the four year course.

The coefficient of correlation as obtained between the first semester's grades and the Terman psychological test scores is .20. This is .08 less than the correlation obtained above between the Terman psychological test and the grades for all the four year period. The difference in the two correlations is so slight that little weight can be placed on this point but it points to the tendency for the Terman psychological test to predict the grades of the entire college course with greater accuracy than for the first semester. This is rather difficult to explain unless we accept the belief that it takes a considerable period of time for a student to adjust himself to the new environment, and thus do representative work. This explanation is questionable on the grounds that the student of superior ability should be able to adjust himself the more rapidly for intelligence is often defined as the ability to adapt oneself to a changed environment.

Table IV shows the four hundred and eighty-one students grouped according to the number of semester hours earned. This shows that over the four year period since 1930 some had graduated from the four year course while others were still classified as
This does not necessarily mean that the majority left school due to lack of ability to carry college work. Many have taught the major part of the year, thus they are still in the first years of the college course, but without question many have dropped out due to lack of ability.

TABLE IV
CLASSIFICATION OF GROUP IN NUMBERS

<table>
<thead>
<tr>
<th>Classification</th>
<th>Freshman</th>
<th>Sophomores</th>
<th>Juniors</th>
<th>Seniors</th>
</tr>
</thead>
<tbody>
<tr>
<td>Number in this Classification</td>
<td>112</td>
<td>163</td>
<td>121</td>
<td>85</td>
</tr>
<tr>
<td>Intelligence Score</td>
<td>95.54</td>
<td>97.70</td>
<td>98.76</td>
<td>103.06</td>
</tr>
</tbody>
</table>

The group classified as freshmen had an average Terman psychological test score of 95.54, the sophomore group had an average of 97.70, the junior group an average of 98.76, and the senior group an average of 103.06. The increase in the number of hours held is accompanied by an increase in the Terman psychological test. This is evidently due to the fact that those with the lower scores on the Terman psychological test leave school in the early part of the college course, thus the Terman psychological test might be considered a good predictive agent for determining the per cent of a group that will receive the college degree. This does not validate it for individual guidance work.

Table V shows the classification of the freshman class of 1930 in per cent.
TABLE V  
CLASSIFICATION OF FRESHMAN CLASS OF 1930 IN PER CENT

<table>
<thead>
<tr>
<th>Classification</th>
<th>Freshmen</th>
<th>Sophomores</th>
<th>Juniors</th>
<th>Seniors</th>
</tr>
</thead>
<tbody>
<tr>
<td>Per Cent</td>
<td>23</td>
<td>34</td>
<td>25</td>
<td>18</td>
</tr>
</tbody>
</table>

The freshman group contains one hundred and twelve cases, or 23 per cent of the total; the sophomore group contains one hundred and sixty-three cases, or 25 per cent of the total; the senior group contains eighty-five cases, or 18 per cent of the total. These findings show that a person entering college has twenty-three chances out of a hundred of being a freshman four years later, thirty-four chances to be a sophomore, twenty-five chances to be a junior and eighteen chances in a hundred to be a senior. This does not mean that 18 per cent graduated in the fourth year. A few graduated at the end of the third and fourth years while a large number had barely earned the eighty-eight semester hours which are necessary for senior classification.

Table VI gives the grade point standing of people in the first semester of college work as compared with advanced semesters.

TABLE VI
AVERAGE GRADE POINT STANDING

<table>
<thead>
<tr>
<th>Semester</th>
<th>First Semester</th>
<th>Last Semester</th>
<th>Difference</th>
</tr>
</thead>
<tbody>
<tr>
<td>Average Grade</td>
<td>1.11</td>
<td>1.26</td>
<td>.15</td>
</tr>
</tbody>
</table>
The average grade for the first semester was 1.11 or slightly more than one tenth above "C". The average for the last semester that a student remained in college was 1.26, which is only .15 more than the average for the first semester. This grade point average is not obtained in the same manner as that obtained by the registrar's office. In this study "F" was given a valuation of "-1" while the colleges in obtaining the average grade ignored the grades below "D".

From this study it is apparent that a person making low grades the first semester in college cannot be expected to show decided improvement in his future college work. In light of the low correlations found earlier in the study the author is of the opinion that the work of the first semester is the most accurate predictive factor in determining the grade of work a pupil will do over the remaining part of his college work. Our present system of probation is to be commended.
CHAPTER IV
SUMMARY, CONCLUSIONS, AND RECOMMENDATIONS

The findings of this study are closely in harmony with other studies made in this field.

The correlation between the intelligence quotient and the average grades was found to be .28. This is considered a low correlation, thus it is the conclusion of the writer that the intelligence quotient as found by the Terman psychological test is not a good predictive factor of a student's success in the four year college course.

The correlation between the first semester's grades and the intelligence quotient as found by the Terman Psychological Test was .20. This is even lower than the correlation with the grades for all semesters and shows that the Terman psychological test is a weaker predictive factor for the first semester's work than for the entire college course.

The average grades received by students in their first semester's college work and the other semesters show only slight variations. This indicates that the first semester's college work and the other semesters show only slight variations. This indicates that the first semester's college work is a good predictive factor for the entire college course. A student making an unsatisfactory scholastic record the first semester has a very slight chance of completing the college course of four years.

The intelligence quotient for students leaving school before gaining sophomore standing is approximately eight points below that of those gaining senior standing. Those having acquired
sophomore standing are slightly higher than the freshman, and those obtaining junior standing are slightly below those holding senior standing. In the light of this evidence we may expect those of lower intelligence quotients to be eliminated before reaching senior classification.

The conclusion of the writer is that there is a decided need for research in the field of testing and guidance. Psychological testing is a comparatively new field and many conclusions have been drawn without sufficient objective studies.

The results of this study may be erroneous due to inaccurate grades and many other factors of which the writer is unaware. It has been the purpose of the writer to make as scientific and accurate a study as possible.
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Paula Rae Helm

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CORRECTION

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