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AN INVESTIGATION OF FACTORS OTHER THAN THOSE MEASURED BY THE  
AMERICAN COUNCIL ON EDUCATION PSYCHOLOGICAL TEST THAT INFLUENCE  
COLLEGE GRADES

by

Margaret Ann Ryan

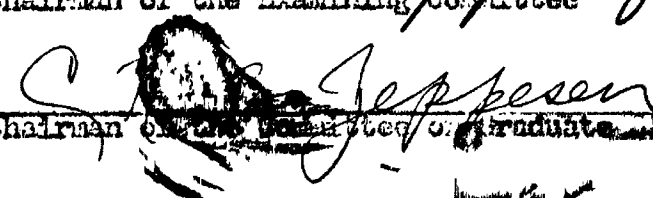
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## CHAPTER I

### INTRODUCTION

"The well-known correlation of about 0.5 between grades in high school or college and the results of intelligence tests leaves three quarters of the factors influential in producing academic success unmeasured by intelligence tests."<sup>1</sup> The following is a review of a part of the work that has been done in recent years to determine some of the factors other than intelligence that influence academic success.

In a study made at the University of Kentucky, Asher and Gray used as their subjects two hundred students who entered the College of Arts and Sciences of the University in September, 1930, or September, 1931. They found that those who were most likely to be successful, as measured by the criterion of grades, were "students under twenty years of age, not born in Kentucky, whose parents attended college, who hadn't earned any money of their own, who didn't have to work their way through college or borrow money to get through, who had held important or responsible offices before coming to college, earned prizes, honors, etc., who had skipped one or more half grades in school, and who hadn't failed in any school subjects in elementary or high school." The personal history scores yielded a positive coefficient of .398 with grades, "in spite of the fact that there were only 15 items involved in the personal history score ... If one could find 15 additional items of equal

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<sup>1</sup> G. E. Watson, "Character Tests and Their Application Through 1930," Review of Educational Research, 1932, 21:186-210.

validity, it is very likely that this coefficient would be increased," according to these investigators. They obtained a multiple coefficient of .521 between the criterion, personal history, and general ability.<sup>2</sup>

Kulp, defining purpose as "the motive which a student has when he registers for a particular course of study," obtained a correlation of .31 between purpose and "initial score ratings," a correlation of .18 between purpose and time spent in reading, and a correlation of .13 between purpose and percentage improvement. He concluded: "There is a tendency for students who registered for the course for the purpose of acquiring information or for the purpose of advancing professionally, to achieve more and improve more markedly than those who registered for the course because they needed the credit, etc. It appears, tentatively, that those students whose purposes for taking the course were allied to general scholastic aims, had a tendency to higher achievement and to greater improvement."<sup>3</sup>

Gerberich observed the following in a study using 62 pairs of students having "high aptitude" and 41 pairs of "low aptitude" students:

The most meaningful consistent differences found show the group of lower scholastic achievement to have experienced greater difficulty in paying attention in class, to have had greater difficulty in taking notes and reading graphs... and to have found

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<sup>2</sup> E. J. Asher and Florence E. Gray, "The Relation of Personal History Data to College Success," Journal of Educational Psychology, 1940, 31:517-528.

<sup>3</sup> D. H. Kulp, "The Role of Purpose in Achievement," Journal of Applied Psychology, 1935, 19:478-79.

University work more difficult than high school work...On the other hand, the students of the higher scholarship groups usually handed themes and papers in promptly, crammed for examinations, had a good place to study, used the library for study,... liked most of their courses and instructors. The superior scholastic success of the low aptitude students is apparently accompanied by a significantly greater amount of time spent in study and a significantly smaller amount of time spent in optional types of reading than is the low scholarship of the group having higher aptitude.

The above evidence supports the conclusion that the more successful students spend more time than the relatively unsuccessful students in sleep, at meals, in the classroom or laboratory, and in studying. The less successful students appear to spend more time in voluntary or optional reading not connected with class work, at the movies, and in other forms of entertainment. Although the relationships stated are not shown by the data to be causally related necessarily, the evidence lends support to the belief that at least two of the factors contributing to the low scholarship of high aptitude students are study techniques and time expenditure not most conducive to the attainment of high course marks, and that at least a partial explanation of the high marks made by low aptitude students lies in careful study methods, attention to the demands made by instructors, and elimination of extra-class activities from their schedules.<sup>4</sup>

Wrenn and Humber do not give correlations to back up their statements, but they state that the non-scholastic factors which influence scholarship have not, in their opinions, yielded readily to quantitative treatment. In particular, they found that the study habits of students have been analyzed repeatedly but without great success. "One fault of many investigations is failure to control the related factor of intelligence, so that the results too frequently have been a composite of unknown determination."<sup>5</sup>

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<sup>4</sup>J. R. Gerberich, "Factors Related to the College Achievement of High Aptitude Students Who Fail of Expectation and Low Aptitude Students Who Exceed of Expectation," *Journal of Educational Psychology*, 1941, 32:253-65.

<sup>5</sup>G. Gilbert Wrenn and Wilbur J. Humber, "Study Habits Associated with High and Low Scholarship," *Journal of Educational Psychology*, 1941, 32:611-18.



Williamson, in a study at the University of Minnesota, using 105 students, found a correlation of  $-.08$  between scholarship and hours of study, and a correlation of  $-.20$  between hours of study and "academic intelligence." He concluded, "The hours of study a student gives to his scholastic work have less significance than academic intelligence... A minimum of 18 to 20 hours and a maximum of 30 to 35 hours of study a week should permit students to get the grades that their academic aptitude makes possible. Within these limits, improvement in study skills, reading habits, and interest and pride in studying for the sake of being well trained professionally are the important factors to note in any attempt to improve the scholarship of students."<sup>6</sup>

Killer used the college records of a group of 228 "exceptionally able" individuals, compared with the corresponding records of an average group of college students at the University of Pittsburg. He found that 79.5% of the superior group and 43.5% of the average group had served in one or more official positions in some of the more important extra-curricular organizations. He found that the mean number of 2.4 of the superior group of graduates had been elected to positions of leadership in extra-curricular activities, while the mean number of .76 of the average group had been elected to positions of leadership. He concluded, "To the extent that participation in extra-curricular activities as members or officers was accepted as an evidence of social adjustment, we are justified in saying that this group of superior

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<sup>6</sup>E. G. Williamson, "The Relation of the Number of Hours of Study to Scholarship," *Journal of Educational Psychology*, 1935, 26:882-88.

students was not suffering from social maladjustment in college."<sup>7</sup>

Darley compared the scores of a group of college freshmen women on the Bell Adjustment Inventory and the Minnesota Inventories of Social Values to get statistical deviate scores.<sup>8</sup> The following are the results he obtained: Women with four or more statistically significant deviate scores: Deviate scores correlated .398 with a combination of ACE scores and grades. Women with no statistically significant deviate scores: Deviate scores correlated .578 with a combination of ACE scores and grades. He stated, "While it is impossible to state that measured maladjustment and radicalism lead to student mortality, it does appear that measured radicalism or maladjustment may depress achievement below the level to be expected from ability, unless affected by some counter-stimulant." In his opinion, "Failing work often results from a choice of curriculum not consonant with the individual's abilities and interests."<sup>9</sup>

A very common method of approaching the problem of predicting success in college has been by comparing grades of students who participated in college activities with those who did not. In twelve out of

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<sup>7</sup> A. J. Miller, "Is the Exceptionally Able College Student Socially Maladjusted?" *School and Society*, 1937, 45:862-84.

<sup>8</sup> On the Minnesota Scale for Surveys of Opinion and the Minnesota Inventories of Social Values, significant deviate scores meant all standard scores of 80 or above. On the Bell Adjustment Inventory, it meant all cases with numerical scores in the "Unsatisfactory" and "Very Unsatisfactory" range.

<sup>9</sup> J. G. Darley, "Scholastic Achievement and Measured Maladjustment," *Journal of Applied Psychology*, 1937, 21:485-93.

thirteen group comparisons at Susquehanna University, Dunkelberger found that the students with no or little participation proved to be the inferior students academically. In one comparison, there was no difference in the academic achievements of the groups.<sup>10</sup>

Melus, in a study at Wittenberg College, showed that the students who were the most active in campus activities were the students who tended to receive the highest grades while those who participated in no campus activities tended to receive the lowest grades. He concluded from these results that causes other than participation in extra-curricular activities were the determining factor in low scholarship.<sup>11</sup>

An interesting sidelight on the problem were the findings of Melus in a later investigation. He stated that the students who made the best grades in college tended to find an outlet for their extra-curricular activities in such fields as oratory, debate, publications, and departmental clubs, while the students who took an active part in athletics, music, and dramatics were lower in scholarship than the first group. He also found that women who were earning during college were lower in scholarship.<sup>12</sup>

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<sup>10</sup> G. F. Dunkelberger, "Do Extra-Curricular Activities Make for Poor Scholarship?" Journal of Educational Sociology, 1934, 8:50-56.

<sup>11</sup> O. M. Melus, "Extra-Curricular Activities and Academic Achievement," Journal of Educational Sociology, 1932, 6:43-49.

<sup>12</sup> O. M. Melus, "The Extra-Curricular Activities of High and Low Scholarship Groups," Journal of Educational Sociology, 1934, 8:50-56.

While no adequate conclusions can be drawn from the available evidence concerning the students who participate in campus activities, it may be that the students who participate in activities do so because of their high intelligence. This would discount the theory often advanced that students who participate in activities tend to receive lower grades because they have less time in which to study.

Several studies have been concerned with the significance of certain personality traits in relation to college grades. Fleming correlated grades with ratings on personality traits such as pleasingness of personality and general social adjustment. He used the Thorndike test as a measure of intelligence, the Colgate schedule C-2 as a measure of introversion-extroversion, the Pressey I-0 test as a measure of emotional response. His subjects were 89 college men--mostly sophomores--no freshmen. He obtained the following correlations with grades: Thorndike,  $-.37$ ; Introversion-extroversion,  $.26$ ; Emotional Intensity,  $-.12$ ; Emotional Variability,  $-.10$ ; Emotional Deviation,  $-.16$ ; Emotional Reliability,  $-.29$ ; Pleasingness,  $.10$ ; Steadiness,  $-.37$ ; Expressiveness,  $.11$ ; Adjustment,  $-.2$ . He concluded, "From a knowledge of the Thorndike score of a student in college, with the score on the Colgate schedule C-2, with a satisfactory estimate of his emotional steadiness and a record of his emotional reliability or consistency as measured by the Fleming revision of the Pressey I-0 Test, we would be able to predict with some assurance the academic achievement of a college student in terms of grades."<sup>13</sup>

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<sup>13</sup> E. G. Fleming, "College Achievement, Intelligence, Personality, and Emotion," Journal of Applied Psychology, 1932, 16:668-74.

Eckert made a study of superior college students, using students who had entered the University of Buffalo between 1926 and 1930 and were in the upper or lower quartiles of the grade-point distribution for this period. (120 in each case.) He used the ACE scores of these students, and also the University of Buffalo Personnel Blank which "affords information on a number of non-scholastic factors which might be related to marked academic ability or disability." "Taken as a whole, the superior college student has been the superior high school student, so that adequate provision for his needs may well begin with advisement and guidance of individuals of marked ability on the high school level. The trends found as to family background of these superior students would apparently indicate that, for the University of Buffalo population at least, academic superiority cannot be attributed to a very favorable socio-economic situation, thus opening up an interesting problem as to the motivational factors involved in superior high school and college performance. Finally, while the largest distinctions were found in factors closely allied to college work, enough differences were discovered in personality traits, social attitudes, recreational interests, and vocational objectives to warrant the statement that the superior student has a different outlook upon life and organizes his thinking and activities to somewhat different ends than does the student of limited scholastic ability."<sup>14</sup>

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<sup>14</sup> R. E. Eckert, "Analysing the Superior College Student," School and Society, 1935, 41:69-72.

In a study made by Young and Estabrooks, in which they attempted to relate non-intellective factors to scholastic achievement, they calculated a "studiousness index" for each of 582 students at Colgate University, by a formula which determined the relative grade point standing with intelligence held constant. The 100 highest and the 100 lowest SI's were selected. They used items from the Colgate B-2 and C-2 Personal Inventories, weighted according to their power to distinguish between high and low SI groups. The test was then scored for "studiousness" on a new group of 275 students. "Studiousness showed the following correlations with grades: .27, using the Colgate B-2; .21, using the Colgate C-2; .34, using the Strong Interest Blank. The correlations of studiousness and intelligence were negligible... Studious students were found to be relatively favorable toward science, art, education, and clerical occupations; unfavorable toward business and athletics. On self-ratings, they showed caution, conscientiousness, industriousness, persistence, and indifference to pleasure. They were unsocial, self-sufficient, self-conscious, impulsive, selfish, but self-sacrificing on principle. They accepted ideal, rather than conventional standards, and were liberal on social and economic but not on moral questions. In sum, the studious personality closely resembled the accepted picture of the introverted personality."<sup>15</sup>

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<sup>15</sup> C. W. Young and G. H. Estabrook, "Non-Intellective Factors Related to Scholastic Achievement," Psychological Bulletin, 1934, 31:735-36.

Summary

A review of the literature on predicting a student's success in college shows that certain factors other than intelligence have been found to influence grades to various degrees. Some of these factors are: personal history, general scholastic aims, efficiency in studying, and the degree of organization in thinking and planning.

While a knowledge of these variables helps in predicting grades, other influential factors are probably present, also, but little seems to be known about them.

## CHAPTER II

### THE PROBLEM

Knowledge of a student's score on an intelligence test or college entrance examination furnishes only part of the necessary information needed to predict accurately his achievement in college. Discrepancies in grade point averages are found among students who receive identical scores on intelligence tests. While some obtain grades that are very near the average that would be expected for their level of intelligence, others are either much higher or much lower.

It is assumed that certain factors of motivation determine the use one makes of his intelligence. This would seemingly account for the discrepancies. If a student is reaching a higher level of achievement than would be expected, certain motivating factors may be present that incite him to put forth more effort than others who have equal intelligence. He may also be free from disturbing influences that are depressing the level of achievement of another student in the same range of intelligence.

What these motivating factors are that cause one student to fall far below his expected level and another to rise to a much higher level is not known. They may be attributable to differences in the environment of the individuals. Conditions in the home may cause the student to worry, making it difficult for him to get the maximum value from the time he devotes to studying. On the other hand, having his parents or other members of his family take an interest in his work may motivate



him to better than average achievement. For freshmen, adjustment to the school situation may be difficult, and this may possibly affect their scholastic performance. Dormitory life may seem difficult to the new student, and desire to conform to the accepted standards may take precedence over scholastic aims.

It is possible that a student who has made definite plans for the future, for which college training is a necessity, will reach a higher level of achievement than the student who has no definite plans when he begins his college course.

The aim of this particular study has been to determine the differences in the home and school environments of the students constituting the two groups--those who had reached a level of achievement higher than had been expected, judging from their scores on the American Council on Education Test, and those who were below the expected level. Assuming that such differences do exist, it was desired to ascertain the methods of adjustment employed by the individuals to the situations.

## CHAPTER III

### METHODS AND TECHNIQUES

As has been mentioned previously, many college students with high "college aptitude" make low grades, while many with fairly low "college aptitude" reach a level of achievement that is much higher than would be expected.

In this investigation, factors other than intelligence were considered. Specifically, interest was centered in factors in the home environment, school environment, reasons for attending college, the individual's degree of concern over her grades, and her adjustment to situations caused by the school environment.

The raw scores on the American Council on Education Psychological Examination for all girls entering college in October, 1945, were obtained.

The ACE scores were found to correlate .479 with the grades received by these students during their first two quarters in college. The mean of the grade point averages was 1.224. The mean of the ACE scores was 100.38. By employing a regression equation, the theoretical grade point average for each student was determined. The difference between the actual and the theoretical grades was calculated.

A total of 258 girls took the entrance examination at the beginning of the fall quarter, in September, 1945. The records of thirty-five of the girls were eliminated because they were not freshmen, because they were older than the average freshman girl, or because they

had dropped out of school during either the fall or winter quarter.

Of the 223 remaining, it was desired to single out those who deviated farthest on actual grade point averages from the theoretical averages, found by means of the regression equation.

Twenty five students were found to vary .5 or more above their expected scores, and twenty five were found to vary .5 or more below their expected scores. The range of deviations was from .5 to 1.49 for the high group and from -.5 to -1.20 for the low group.

From here on throughout the study, the group having grades above the theoretical grade point average will be referred to as the "high" group, and those having grades below the theoretical average will be called the "low" group.

All the students used in the study were freshmen girls, 18 or 19 years of age, who had not attended college prior to the fall quarter, 1945.

The total number in each group was not included in the study because of the following reasons:

One in the high group could not be interviewed because of illness.

Six in the low group left school during spring quarter, the time when this study was being made.

Three in the low group were not willing to be interviewed.

Two in the low group could not be interviewed because of unavoidable circumstances.

Therefore, the total number interviewed was twenty four in the high group and fourteen in the low group.

The group interviewed was representative of the whole, however, because in all cases in which a subject could not be interviewed, it was found that her grade point deviation was either duplicated by another member of the group, or varied from that of another by only + or - .1 or .2.

A list of questions was compiled, designed to reveal the study habits of the individual, her reasons for attending college, whether she is happy at college, and whether she worries excessively about her studies, her parents, or financial matters. Questions concerning her extra-curricular activities, the size of her high school graduating class, etc. were also included, for it was thought that all these factors might affect a student's adjustment to the college situation.

The following questions were included:

1. Do you usually study alone or with others?
2. Which do you consider the better way?
3. Do you read fast or slowly?
4. How many times must you read an assignment in order to understand and remember it?
5. Do you take notes on the material you read?
6. How many hours per day do you study? (average)
7. Do you do most of your studying at night or during the day?
8. Is it your ambition to make a high grade average?
9. Are you taking courses that you dislike because they are required?
10. Can you apply yourself to these courses?
11. Do you sometimes feel depressed about your studies?
12. How often?
13. What do you do in such instances?
14. Do you plan to attend college for four years?
15. What is your main purpose in attending college?
16. Did you come to college because you wanted to or because your parents wanted you to come?
17. Are your parents or other relatives especially anxious for you to succeed in college?
18. What is the average amount of sleep that you get each night?

19. Is it enough or are you tired in the morning?
20. Do you enjoy living in the dormitory?
21. Does dormitory life interfere with your studying?
22. Are your living conditions satisfactory?
23. Do you go home often?
24. Do you worry about conditions at home or about your parents' health?
25. Are your parents under a considerable burden in sending you to college?
26. Do you have attacks of headaches or upset stomach that interfere with your studying?
27. Is your social life at college satisfactory?
28. Did you find that college life was what you had expected, or were you disappointed?
29. How many students were in your high school graduating class?
30. Is your family large or small?
31. In what extra-curricular activities do you participate in college?
32. How much time per week do you have for recreation?
33. Are you working to pay part of your expenses?
34. Did you work while attending high school?

The girls were then contacted and interviewed.

The answers given to each question were tabulated, upon completion of the interviews. The majority of the questions received concise answers, and could be placed in either two or three categories. For those answers which could not be so classified, the actual answers were submitted to a group of six judges (students majoring in psychology, sociology, or education). They were given the following instructions: "Please indicate whether you think each response to the following questions indicates that the person making the response would be one who would work to reach a high level of achievement in school. Write yes or no opposite the letter corresponding to each response."

The Chi Square test was applied to all the answers. This showed whether or not there was a significant difference between the answers

given by the students comprising the high and the low groups.

The following formula for testing agreement between observed and expected results was used:

" $f_o$ " represents the observed frequencies; " $f$ " represents the theoretical frequencies.

TABLE I  
ITEMS THAT SHOWED SIGNIFICANT DIFFERENCES IN ANSWERS BETWEEN THE HIGH  
AND LOW GROUPS

I	II	III	IV	V	VI	VII	VIII	
2	Do you think it is better to study alone or with others? <sup>2</sup>	H L		83% 44%	12% 6%	5% 50%	11.33	.00
13	What do you do when you feel depressed about your studies? <sup>3</sup>	H L	96% 25%	5% 75%			17.3	.00
14	Do you plan to attend college for four years? <sup>4</sup>	H L	96% 45%	4% 55%			7.47	.00
15	What is your main purpose in attending college? <sup>5</sup>	H L	83% 57%	17% 43%			5.45	.05
16	Did you come to college because you wanted to or because your parents wanted you to? <sup>6</sup>	H L	75% 85%	25% 35%			3.69	.04
17	Are your parents or other relatives especially anxious for you to succeed in college? <sup>7</sup>	H L	75% 65%	25% 35%			3.69	.04
22	Are your living conditions satisfactory? <sup>8</sup>	H L	100% 88%	0% 13%			3.96	.05
24	Do you worry about conditions at home or about your parents' health? <sup>9</sup>	H L	85% 50%	15% 50%			6.26	.01
31	Do you participate in extra-curricular activities? <sup>10</sup>	H L	96% 35%	4% 65%			16.8	.00
32	How much time per week do you have for recreation? <sup>11</sup>	H L		54% 75%	46% 65%		5.56	.02

<sup>1</sup> The Roman Numerals refer to the column headings as follows: I, Item number; II, Item; III, Group (high or low); IV, Percentage giving favorable answers; V, Percentage giving unfavorable answers; VI, Answers grouped otherwise; VII, Chi Square; VIII, Probability.

<sup>2</sup> Percentages refer to "alone," "both," "others," respectively. Alone means that she prefers to do all her studying alone, both, that she thinks it is better to study for examinations with others, and others, that she thinks it best to do all her studying by the discussion method.

<sup>3</sup> The following are the exact answers that were given to the question. The number giving each answer is indicated.

Judged favorable to high achievements:

I go for a walk. (3-high group)

I study harder. (5-high group-1-low group)

I leave it and do something else for awhile. (11-high group-1-low group)

I start working hard on something else. (1-low group)

Judged unfavorable to high achievements:

I worry about it. (1-high group)

I stop studying; usually I get mad. (1-low group)

I get so nervous that I can't do anything. (1-low group)

I get upset and then I can't work at all. (1-low group)

I stop and don't do anything. (6-low group)

<sup>4</sup> "Yes" was interpreted as a favorable answer, and "no" as an unfavorable answer.

<sup>5</sup> The following are the answers that were given to the question:

Judged favorable to high achievements:

To assure myself of security—a good time and social life didn't enter into it at all. (1-high group)

I wanted a college degree. (7-high group)

I wanted a concrete education. (1-high group)

To prepare for a career. (1-high group-6-1 w group)

To get more education and to meet people. (2-high group)

I wanted a degree. I don't care about the social life. (1-high group)

To take pre-nursing. (1-high group)

To learn to be a reporter. (1-high group-1-low group)

I want to teach music. (2-high group-2-low group)

I want to be a dietician. (5-high group)

I wanted a little background in business administration. (1-low group)

You have a better chance for advancement with a college education. (1-low group)

Judged unfavorable to high achievements:

My parents wanted me to come. (1-high group)

I wanted to get more education, and I wanted a taste of college life. (2-high group)

I wanted a cultural background. (1-high group)

I wanted to develop my social life. (1-low group)

Just for a good time. (3-low group)

To pass the time until I get married. (1-low group)



<sup>6</sup>"I wanted to come" or "I wanted to come, and my parents wanted me to come," were interpreted as favorable. "My parents wanted me to come," was interpreted as unfavorable.

<sup>7</sup> See footnote 4.

<sup>8</sup> See footnote 4.

<sup>9</sup> "No" was considered a favorable answer, and "yes," unfavorable.

<sup>10</sup> See footnote 4.

<sup>11</sup> 15 hours per week and under was considered favorable. Over 15, unfavorable.

TABLE II

ITEMS RECEIVING ANSWERS THAT DID NOT DIFFER SIGNIFICANTLY BETWEEN THE HIGH AND LOW GROUPS

I	II	III	IV	V	VI	VII	VIII	IX
1	Do you usually study alone or with others? <sup>2</sup>	H L	67% 28%	17% 7%				2.52 .30
3	Do you read fast or slowly? <sup>3</sup>	H L	27% 47%	47% 50%	10% 7%			.78 .70
4	How many times must you read an assignment in order to understand and remember the material? <sup>4</sup>	H L	62% 57%	20% 28%		18%		1.57 .50
5	Do you take notes on the material that you read?	H L	70% 64%	20% 36%				2.07 .30
6	How many hours per day do you study? <sup>5</sup>	H L			(see footnote)			3.48 .30
7	Do you do most of your studying at night or during the day? <sup>6</sup>	H L	50% 78%	12% 0%	28% 21%			3.33 .20
8	Is it your ambition to make a high grade average?	H L	71% 60%	22% 50%				1.57 .10
9	Are you taking required courses that you dislike?	H L	59% 72%	41% 26%				2.91 .10
10	Can you apply yourself to these courses?	H L	59% 50%	41% 50%				.14 .70
11	Do you sometimes feel depressed about your studies?	H L	17% 12%	25% 28%				.05 .50
12	How often? <sup>7</sup>	H L	17% 29%	62% 64%	21% 7%			3.25 .15
1	How much sleep do you get? <sup>8</sup>	H L	50% 20%	50% 71%				1.55 .30
19	Is it enough or are you tired in the morning?	H L	55% 50%	25% 50%				2.55 .10

TABLE II  
(CONTINUED)

I	II	III	IV	V	VI	VII	VIII <sup>1</sup>
20	Do you enjoy living in the dormitory?	H 95% L 91%	5% 9%			.23	.60
21	Does dormitory life interfere with your studying?	H 41% L 37%	59% 63%			.02	.90
23	Do you go home often?	H 19% L 23%	81% 77%			.04	.85
25	Are your parents under a considerable burden in sending you to college?	H 27% L 12%	83% 88%			.06	.80
26	Do you have attacks of headache or stomach upsets that interfere with your studying?	H 8% L 36%	92% 64%			3.33	.06
27	Is your social life at college satisfactory?	H 75% L 88%	25% 12%			1.59	.25
28	Did you find college life to be what you expected?	H 92% L 88%	8% 12%			.03	.85
29	How many students were in your high school graduating class?	H L			Small Med. Large 34% 37% 29% 46% 46% 8%	1.44	.40
30	Is your family large or small?	H L			63% 37% 85% 15%	2.44	.10
33	Are you working to pay part of your expenses?	H 42% L 43%	58% 57%			.004	.95
34	Did you work while attending high school?	H 17% L 28%	83% 72%			.85	.40

<sup>1</sup> The Roman Numerals refer to the column headings as follows: I, Item number; II, Item; III, Group; IV, Percentage answering yes; V, Percentage answering no; VI, Answers grouped otherwise; VII, Chi Square; VIII, Probability.

<sup>2</sup> Percentages refer to "alone," "both," "others," respectively.

<sup>3</sup> This is the student's judgement of her reading speed.

<sup>4</sup> Percentages refer to "once," "twice," "three times," respectively.

<sup>5</sup> Percentages refer to number of hours as follows:

	1	2	3	4	5	6
High	0%	20%	33%	33%	6%	8%
Low	7%	45%	21%	7%	13%	7%

<sup>6</sup> Percentages refer to "night," "day," "both," respectively.

<sup>7</sup> Percentages refer to "often" "seldom," "never," respectively.

<sup>8</sup> Percentages refer to "eight or more hours," and "seven or less hours," respectively.

## CHAPTER IV

### RESULTS

In Table I, the items for which the answers differed significantly between the two groups are presented. The table reads as follows: Column number 1, the number of the item; column number 2, the item, as presented to the students; column number 3, the group to which the figures refer (high or low); column number 4, the percentage giving answers that were judged favorable to high achievement; column number 5, the percentage giving answers that were judged unfavorable to high achievement; column number 6, answers grouped otherwise. This included answers that were other than "yes" and "no" and that could not be grouped under two opposite headings. Column number 7 contains the Chi Squares for the total answers to each question, and column number 8 (P), the probability that the obtained difference between the answers given by the two groups could have arisen by chance in the absence of a real difference.

The following are the items that proved significant:

Number 2 (Do you think it is better to study alone or with others?) was answered in three ways. Of the high group, 83% felt that it was better to study alone, 12% of the high group thought that it was better to study alone for most of their courses, but more advantageous to study with others for tests, and 5% of this group thought that it was better to do all their studying with someone else. In the low group, 11% thought it better to study alone,

6% thought it better to study together for tests but alone for regular class work, and 50% thought it was better to do all their studying with other people. In the question related to this one, number 1 (Do you usually study alone or with others?)<sup>1</sup> none in the high group stated that they studied with others, and only 7% in the low group said that they studied with others. Therefore, the great difference between those in the low group who do study with others and who think it better to study with others might indicate that many in the low group are dissatisfied with their present method of studying and feel that the other method might be more advantageous.

Number 13 (What do you do when you feel depressed about your studies?) was answered favorably by 95% of the high group, unfavorably by 5% of the high group, favorably by 25% of the low group, and unfavorably by 75% of the low group. The answers given by the students in the low group indicated that they were unable to make a satisfactory adjustment to the problem of feeling depressed about their studies. Some answered that "they got so nervous that they couldn't do anything." Three in the low group stated that they had had nervous breakdowns during either the fall or winter quarter, caused by worry over their studies. Many of those in the high group said that they left their studying when they felt depressed and went back to it later. Others said that they studied all the harder. These answers would indicate that those in the high group were able to make more

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<sup>1</sup> See Table II

satisfactory adjustments to their problems than were those in the low group.

Number 14 (Do you plan to attend college for four years?) was answered "yes" by 86% of the high group, "no" by 4% of the high group, "yes" by 45% of the low group, and "no" by 55% of the low group. When those in the low group were asked why they did not plan to attend for four years, they answered that they didn't think they could retain interest in college over that long a time, that they had planned to come only for a year or two to have a good time, or that they were planning to teach in grade schools, which would not require four years of training. These answers from those in the low group are not indicative of a high degree of motivation toward college work. The answers given by those in the high group seem to show a greater degree of long-range planning. They were, for the most part, taking courses that required four or five years of college work to complete. The majority of these students had definite purposes in mind when they registered for college.

Number 15 (What is your main purpose in attending college?) was answered by 62% of those in the high group in a manner judged favorable, 17% of the high group, unfavorable, 57% of the low group, favorable, and 43% of the low group, unfavorable. The answers to this question seem to be somewhat related to those given to question number 14.

Number 16 (Did you come to college because you wanted to or because your parents wanted you to come?) was answered favorably by

75% of the high group, unfavorably by 25% of the high group, favorably by 65% of the low group, and unfavorably by 75% of the low group. Answers interpreted as favorable to high achievement indicated that either the girl herself wanted to come to college, or she and her parents wanted her to come. Answers that indicated that she came only because her parents wanted her to come were interpreted as unfavorable to high achievement.

In answer to number 17 (Are your parents or other relatives especially anxious for you to succeed in college?) "yes" was considered a favorable answer, "no," an unfavorable answer. Of the high group, 75% of the students answered "yes," and 25% of the students in this group answered "no." Of those in the low group, 65% answered "yes," and 35% answered "no." As the percentages of favorable and unfavorable answers for this question and the one before it are identical, it would seem that interest by the parents as well as by the student, in the student's college career, might serve as a motivational factor toward success in college. The majority of the students in the high group answered that their parents were anxious for them to succeed in college, but indicated that it was because they had done well in high school, and they were expected to do at least as well in college. Many in the low group said that their parents weren't particularly anxious for them to get high grades, but wanted them to maintain a "C" average. Others stated that their parents were very anxious for them to get high grades, and that they worried about the possibility of "letting them down," for they did not feel capable of



making the grades expected of them. Two in the low group indicated that they were putting themselves through school, and it made no difference to their parents whether or not they succeeded. Taken as a whole, the answers given by the high group indicated a better family adjustment than did the answers of the low group.

To number 22 (Are your living conditions satisfactory?) 100% of the high group answered "yes," 88% of the low group answered "yes," and 12% of the low group answered "no." As no significant differences were found in answer to the question, "Do you like living in the dormitory?"<sup>2</sup> these differences may be attributable to the girls who were living with relatives in town, and working for their board and room, as several in this group were doing.

Number 24 (Do you worry about conditions at home or about your parents' health?) received significantly different answers. Of those in the high group, 85% did not worry, and 15% stated that they worried. In the low group, 50% worried and 5% did not. The majority of those in the high group stated that they did not worry because their parents were well, because they wrote to them regularly, or because they lived close enough to their homes to enable them to go home often. Those in the low group worried because their parents were not well, because members of the family had recently been in accidents, or because they lived so far away. The two who stated that members of their families had recently been in serious accidents attributed their low grades to this cause, saying that they had been too worried to study, and had gone home often during that time, so that they fell behind in their

<sup>2</sup> See Table II, Item number 20.

assignments. This would explain only the low grades of the members of the group, however. On the whole, it was found that those who worry about their parents' health, or about conditions at home are the ones who worry about their school work. This could be interpreted to mean that those in the group of low achievers worry about their problems instead of searching for a satisfactory solution to them.

Number 31, (Do you participate in extra-curricular activities?) received 98% "yes" answers, and 4% "no" answers from the high group, and 35% "yes" answers and 65% "no" answers from the low group. No great differences in the type of activities participated in by the two groups were evident, possibly because activities open to freshmen are somewhat limited. As most of the activities open to them are connected with the various departments, it may be that those in the high group participated more in the activities related to their major course of study because they were interested in the subject to a greater degree than were those in the low group. Therefore, interest in the general field related to their major course of study might have been a motivating factor.

Number 32, (How much time per week do you have for recreation?) was answered, "15 hours or under," by 64% of those in the high group, "over 15 hours," by 46% of those in the high group, "15 hours or under," by 75% of those in the low group, and "over 15 hours" by 65% of those in the low group. This question might be related to those concerning the amount of time they studied and the amount they slept. Although neither of those questions received significantly different answers from the two groups, it was indicated that, to some extent, the high

group studied more and slept more. Combined with this question, it might be indicated that those in the low group did not budget their time as satisfactorily as those in the high group.

The questions presented in Table II did not receive significantly different answers from the two groups.

Question number 3, (Do you read fast or slowly?) might have received more significantly different answers if the answers had been stated in terms of the results of a reliable reading test. However, the answers given were the opinions of the students themselves.

It was thought that number 4, (How many times must you read an assignment in order to understand and remember the material?) was indicative of efficiency in reading and concentration.

Number 5, (Do you take notes on the material that you read?) was expected to bring answers showing conscientiousness regarding studying.

Number 6, (How many hours per day do you study?) was expected to show conscientiousness and efficiency in studying.

Number 7, (Do you do most of your studying at night or during the day?) was thought to be related to questions such as, "What is the average amount of sleep that you get?" and "How much leisure time do you have?" It was expected that, by means of this group of questions, a clear picture could be obtained of how each student budgeted her time.

Number 8, (Is it your ambition to make a high grade average?) was included because of its' possible motivational value.

Numbers 9 and 10, (Are you taking required courses that you

dislike?) and (Can you apply yourself to them?) were intended to determine whether the student thought of his courses in long-term values or merely as courses for which he was getting credit.

Numbers 20, 21, and 22, (Do you enjoy living in the dormitory?) (Does dormitory life interfere with your studying?) and (Do you go home often?) were included in an attempt to determine the degree of adjustment the individual had made to the college situation. Numbers 27 and 28, (Is your social life at college satisfactory?) and (Did you find college life to be what you expected?) were also included for this reason.

Number 26, (Do you have attacks of headache or stomach upsets that interfere with your studying?) was included because it was thought that these might possibly be caused by worry.

Number 25, (Are your parents under a considerable burden in sending you to college?) was thought of possible value in touching home motivational forces.

Numbers 29 and 30, (Is your family large or small?) and (How many students were in your high school graduating class?) were added to help determine the amount of adjustment that would be necessary for the student coming from a small family and a small high school.

Number 23, (Are you working to pay part of your expenses?) was thought to be related to the questions concerning leisure time and time for study. Number 24, (Did you work while attending high school?) would be valuable, it was thought, in determining the adjustment necessary to work at college.

## CHAPTER V

### SUMMARY AND CONCLUSIONS

#### Summary:

The problem in general consisted of attempting to determine some of the factors that are responsible for the existing discrepancies between the levels of achievement attained by different students having the same score on a test of intelligence.

Two groups of freshmen girls were interviewed. One group consisted of students whose actual grade average was .5 or more above their predicted grade average. The other group consisted of those whose actual grade average was .5 or more below the predicted average.

The results of the study have shown that certain questions received answers that differed significantly between the two groups. Other questions were answered similarly by individuals in both groups. Those receiving significantly different answers were thought to be indicative of motivational factors which would cause a student's grades to be higher or lower than that expected from the average predictable by the regression equation, relating "aptitude" and grade point average.

These results seem to indicate that the students who planned to attend college for four years and who entered with a definite purpose in mind reached a higher level of achievement than the students who had no definite purpose. For this group, it would seem that the students whose families were anxious for them to succeed in college made higher grades than those whose families were not interested in

their achievement. The answers given to some of the questions, when taken as a group, seemed to imply that students who had learned to successfully solve their emotional problems were more likely to take higher grades than those who worried excessively. It was indicated that those who were able to budget their time adequately and who were satisfied with their living conditions and were interested in their college courses would probably receive higher grades than those who were dissatisfied and disinterested.

#### Conclusions:

It may be concluded that certain factors of motivation, namely, worry over school work, worry over family matters, and poor adjustment to the college situation, may depress a student's achievement below the level that would be expected, judging from his scores on the American Council on Education Test. Conversely, one may conclude, from this study at least, that a good adjustment to the college situation and a good family adjustment may aid a student in attaining a higher grade point average than would be expected on the basis of ACE scores.

It is possible that if a counseling service were maintained for freshmen, offering advisement on budgeting of time and help in solving personal problems, some of the depressing factors might be eliminated and a higher scholastic standing achieved.

Possibly the evidence presented would have been more conclusive if more significant questions could have been included. More infor-

action is needed on the reasons back of those given by the students as their reasons for coming to college, why they worry, and why they have budgeted their time in the way that they have. Perhaps making an initial contact by means of a questionnaire, followed later by interviews to obtain more information on significant points, would prove to be a more satisfactory method of approaching the problem.

## BIBLIOGRAPHY



## BIBLIOGRAPHY

- Asher, E. J. and Gray, Florence E., "The Relation of Personal History Data to College Success," *Journal of Educational Psychology*, 1940, 31:517-26.
- Darley, J. G., "Scholastic Achievement and Measured Maladjustment," *Journal of Applied Psychology*, 1937, 21:485-93.
- Dunkelberger, O. F., "Do Extra-Curricular Activities Make for Poor Scholarship?" *Journal of Educational Sociology*, 1934, 8:50-56.
- Eckert, R. E., "Analysing the Superior College Student," *School and Society*, 1935, 41:69-72.
- Flemming, E. G., "College Achievement, Intelligence, Personality, and Emotion," *Journal of Applied Psychology*, 1932, 18:660-74.
- Gorberich, J. R., "Factors Related to the College Achievement of High Aptitude Students Who Exceed of Expectation," *Journal of Educational Psychology*, 1941, 32:253-65.
- Kulp, D. H., "The Role of Purpose in Achievement," *Journal of Applied Psychology*, 1936, 19:478-89.
- Melus, O. W., "Extra-Curricular Activities and Academic Achievement," *Journal of Educational Sociology*, 1932, 6:143-49.
- Melus, O. W., "The Extra-Curricular Activities of High and Low Scholarship Groups," *Journal of Educational Sociology*, 1934, 8:50-56.
- Miller, A. J., "Is the Exceptionally Able College Student Socially Maladjusted?" *School and Society*, 1937, 45:862-64.
- Watson, G. B., "Character Tests and Their Application Through 1930," *Review of Educational Research*, 1932, 21:185-210.
- Williamson, E. G., "The Relation of the Number of Hours of Study to Scholarship," *Journal of Educational Psychology*, 1935, 26:682-68.
- Wrem, G. Gilbert and Humber, Wilbur J., "Study Habits Associated with High and Low Scholarship," *Journal of Educational Psychology*, 1941, 32:611-16.
- Young, C. R. and Estabrook, G. H., "Non-Intellective Factors Related to Scholastic Achievement," *Psychological Bulletin*, 1934, 31:735-36.