

DIFFERENCES BETWEEN GOOD AND POOR STUDENTS
CHOSEN ON THE BASIS OF ACHIEVEMENT IN
THEIR FIRST TERM IN INDIANA STATE
TEACHERS COLLEGE

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TABLE OF CONTENTS

	Page
LIST OF TABLES.....	vi
I. INTRODUCTION.....	1
A. Statement and Definition of the Problem....	1
1. Definition of Terms Used.....	2
B. The Reason for Making this Study.....	2
C. Previous Studies.....	2
D. Methods and Procedure.....	3
1. Source of Data.....	3
2. Collection of Data.....	4
3. Statistical Procedure.....	5
II. DIFFERENCES IN ELEMENTARY AND HIGH SCHOOL	
BACKGROUND.....	7
A. The Number of Grades Skipped in the	
Elementary School.....	7
1. The Number of Grades Repeated in	
the Elementary School.....	7
2. The Number of Elementary Schools	
Attended.....	9
B. High School Differences.....	9
1. Size of High Schools from which the	
Groups Graduated.....	9
2. The Number of Subjects Failed in	
High School.....	12

3.	The Number of High Schools Attended.....	12
4.	The Number of Offices Held during High School Years.....	12
5.	The Number Who Engaged in Debating in High School.....	15
6.	The Number Who Worked on a School Paper in High School.....	17
7.	The Number Who Engaged in Athlet- ics in High School.....	19
8.	The Number of Social Activities Participated in by Each Group.....	21
9.	The Per Cent Liking Specified Academic and Non-Academic Subjects....	24
10.	The Number of Days Absent during High School.....	24
11.	Scholastic and Personality Rating.....	26
III.	DIFFERENCES IN FAMILY BACKGROUND.....	31
1.	Per Cent having Foreign Born Parents..	31
2.	Per Cent having both Parents Living...	31
3.	Per Cent having both Parents Living together.....	31
4.	The Size of the Families of Each Group.....	32
5.	The Occupations of the Fathers of Each Group.....	32

6.	The Occupation of the Mothers of Each Group.....	39
7.	The Number Having a Home Library.....	39
8.	The Number of Newspapers and Mag- azine Subscriptions of the Families of Each Group.....	39
9.	The Yearly Parental Income of Each Group.....	45
10.	Birthplaces of the Members of Each Group.....	45
A.	Other Differences.....	45
1.	The Number Who Did outside Work while Attending High School.....	45
2.	The Per Cent of Each Group in Good Health while Attending High School....	45
3.	The Per Cent of Each Group in Good Health during their first term in College.....	46
4.	The Per Cent Who Wished to Attend Indiana State Teachers College.....	46
5.	The Per Cent Who Suffered a Recent Disappointment or Shock.....	46
6.	The Number of Recreations in which Each Group Participated.....	47
7.	The Per Cent of Each Group Having a Public Library in their Community...	47

IV. SUMMARY.....	50
A. Significant Differences Found between the Two Groups.....	50
B. Probable Significant Differences.....	51
1. Need for further Investigation.....	51
V. APPENDIX.....	53
A. Bibliography.....	53
B. Questionnaire.....	54

LIST OF TABLES

Table	Page
I. The Number of Grades Skipped and Repeated by Each Group in the Elementary School.....	8
II. The Number of Elementary Schools Attended by Each Group.....	10
III. Size of the High Schools from which Each Group Graduated.....	11
IV. The Number of Subjects Failed by Each Group in High School.....	13
V. The Number of High Schools Attended by Each Group.....	13
VI. The Number of Offices Held by Each Group during High School.....	14
VII. The Number of Each Group Who Engaged in Debating in High School.....	16
VIII. The Number of Each Group Who Worked on a School Paper in High School.....	18
IX. The Number of Each Group Who Engaged in Athletics in High School.....	20
X. The Number of Social Activities in which Each Group Participated during High School.....	22
XI. The Per Cent of Each Group Liking Speci- fied Academic and Non-Academic Subjects.....	23

XII.	The Number of Days Absent by Each Group during High School.....	25
XIII.	Scholastic and Personality Sheet.....	28
XIV.	Comparative Frequencies on Scholastic and Personality Ratings from High School.....	30
XV.	The Number of Older Brothers and Sisters of Each Group.....	33
XVI.	The Number of Younger Brothers and Sisters of Each Group.....	34
XVII.	The Occupation of the Fathers of Each Group.....	35
XVIII.	The Number of Mothers of Each Group that Worked outside the Home.....	38
XIX.	The Number of Volumes in the Home Libraries of Each Group.....	40
XX.	The Number of Newspapers and Magazines to which Each Group Subscribed.....	41
XXI.	The Yearly Income of the Parents of Each Group.....	43
XXII.	The Birthplace of the Members of Each Group.....	44
XXIII.	The Number of Recreations in which Each Group Participated during High School.....	48
XXIV.	Miscellaneous Data.....	49

I. INTRODUCTION

" A normal child in any physical environment will learn a great number of facts as a result of his experience with this environment. It is upon the facts thus learned by the responses to the stimuli of the physical and social environment that intellectual tests of native ability depend."¹ The school has gone upon the erroneous assumption that the stimuli are common to all children, and all children are influenced alike by the contacts of similar environments. A knowledge of the type of environment which is probably conducive to maximum educational growth, should be gained by all who help to determine the environments of children. This is not an attempt to say that heredity plays no part in the education and development of a child. Both may be said to be infinitely important, since each is indispensable; and their functions being different in kind cannot be compared in amount.²

A. STATEMENT AND DEFINITION OF THE PROBLEM

This study is an attempt to find the differences between entering freshmen making good records and those

¹A. Good, Sociology and Education. (New York: Harper & Brothers, 1926), p. 92.

²C. H. Cooley, R. C. Angell and L. J. Carr, Introductory Sociology. (New York: Charles Scribner's Sons, 1933). p. 27.

making poor records in their first term in Indiana State Teachers College. This study deals with differences in the school environment, home environment, and the social environment of students prior to their entrance to college. For the purpose of making comparisons, the students included in this study were divided into two groups of one hundred each: those having high scholastic records were put in one group, and those having low scholastic records were put in another group. The only students used in this study were the freshmen who entered Indiana State Teachers College for their first time in the fall of 1935.

1. Definition of Terms Used. The term "good record" is used to denote all freshmen students who make high scores on the English and psychological examinations, and who make high grades in classwork. The term "poor record" is used to denote all freshmen who rank low on each of the above named items.

B. REASON FOR MAKING THIS STUDY

It is a well known fact that good and poor students differ to a large degree in respect to intelligence. Other than this difference, little is known. This study is the outgrowth of curiosity on the part of the writer as to whether or not other differences do exist rather than individual ones within the group. For the purpose of satisfying this curiosity, this study was undertaken.

C. PREVIOUS STUDIES

Contemporary literature contains little concerning

a study of this kind, only one such study having been found.³ This study showed some of the differences which exist between the better and the poorer students who entered Washington State Normal at Bellingham for the first time in September, 1931. The results of the study are based on a questionnaire report from twenty-eight good students and thirty-three poor ones. The numbers used in this study were so small that the differences may not be as conclusive as they would be were they obtained by a study of a larger group. This study, however, paves the way for more of its kind and opens up a field of research hitherto neglected. No conclusions were drawn from the study. The authors, however, say that the exact extent to which environmental factors and hereditary factors are responsible for low scholarship is still a matter of conjecture.

D. METHOD AND PROCEDURE

1. Source of Data. The data used in this study were obtained from three sources: the Registrar's office, the English department, and the freshman class. Psychological percentiles, scholarship indexes, and scholastic and personality ratings were obtained from the Registrar's office. Scores made on the Freshman English examination were obtained from the English department.

³ C. C. Upshall and H. V. Masters, "Differences Between Good And Poor Students Chosen On The Basis Of College Entrance Test Scores." Educational Administration and Supervision. Vol. 19. 1933. pp. 507-510.

The freshmen supplied information by filling out a questionnaire.

2. Collection of Data. The collection of data began after the freshmen finished their first term in college. The scholarship indexes, English and psychological examination scores were gathered for the entire freshman class. The students were then ranked on each of the three items: scholarship indexes, English examination, and psychological examination. After completing this ranking, a composite rank for each student was obtained by adding the ranks made on the English examination, the psychological examination and scholarship indexes. A composite rank made on the basis of a combination of the three items was used because it was thought to be more differentiating as to good and poor students than a ranking based on any one of the three items alone. It has also been shown that there is a high relationship between grades made on the psychological examination and grades made on the English examination.⁴ Composite rankings were obtained for four hundred eight freshmen. Of this number, only two hundred were to be used. All freshmen who ranked between one and one hundred five were considered the good students. All freshmen ranking from three hundred three to four hundred eight were considered the poor students. All freshmen students who did

⁴ C. A. Jordan, "A comparison in English Ability of Indiana State Teachers College Freshmen Between Those Who Had Latin and Those Who Had No Latin In Their High School Training." Contribution of the Graduate School. No. 145. 1933.

not come under either of these categories were not used in this study. Throughout this study, the good students will be referred to as group one and the poor students as group two.

After the rankings were obtained, questionnaires were sent out to each member of the two groups. This was done through the English classes in which the students were enrolled. In order to be sure to get returns from one hundred students in each group, a few more than the required number of questionnaires were sent out. Out of a total of two hundred ten questionnaires that reached their destination, exactly two hundred were returned. Approximately 96 per cent were returned. These two hundred questionnaire reports formed the main basis for this study.

In addition to the questionnaire, scholastic and personality ratings were secured for each freshman included in this study.

3. Statistical Procedure. Many authorities differ in their use of signs and symbols in statistical procedure, and because of this, it seems fitting that some explanation be given of the statistical measures used in this study.

The mean or average was used in all cases as a measure of central tendency. The mean was computed by use of the following formula: true mean = assumed mean + $\frac{\sum fd}{N}$ x (size of interval). Sigma or the standard deviation was computed from the following formula: S. D. = $\sqrt{\frac{\sum fd^2}{N} - \left(\frac{\sum fd}{N}\right)^2}$ x (size of the interval). The standard error of the mean was derived thus: S. E. $\bar{m} = \frac{S.D.}{\sqrt{N}}$. For the purpose of comparing means,

a measure of the reliability of the difference between means was used. The measure was the standard error of the difference between means and was computed from the formula: $S. E. d = \sqrt{S. E. m_1 + S. E. m_2}$. This statistical procedure is set forth by Tiegs.⁵

In ascertaining whether or not a difference between means was significant, the difference between means was divided by the standard error of the difference and the results were referred to a table.⁶ This table gives the number of chances in a hundred that the differences between the means will be greater than zero and in favor of the group with the highest mean. Whenever the difference between the means divided by the standard error of the difference is three or more, the difference is said to be significant. The higher the number over three, the more reliable the difference.

⁵ E. W. Tiegs, Tests and Measurements For Teachers. (New York: Houghton Mifflin Company, 1931). pp. 222-36.

⁶ H. E. Garrett, Statistics In Psychology and Education. (New York: Longmans, Green and Company, 1926). p. 134.

II. DIFFERENCES IN ELEMENTARY AND HIGH SCHOOL BACKGROUND

A. The Number of Grades Skipped in the Elementary School

A comparison of the two groups in regard to the number of grades skipped in the elementary school revealed the fact that 38 per cent of group one skipped one or more grades as compared with 24 per cent of group two who skipped one or more grades. The mean or average number of grades skipped by group one was .51 with a standard error of .0741. For group two, the mean was .28 with a standard error of .0529. The difference of the means divided by the standard error of the difference was 2.527. The chances are 99.4 out of a hundred that the difference between means is significant. For practical purposes it would be safe to say, that from the figures given, group one skipped more grades than group two.

1. The Number of Grades Repeated in the Elementary School. Group one had only 6 per cent of its members to fail in one or more grades as compared with 19 per cent in group two who failed in one or more grades. The average number of grades failed by group one was .06 and for group two was .22. The standard error of the mean was .0237 for group one, and .0479 for group two. The difference of the means divided by the standard error of the difference is

TABLE I
THE NUMBER OF GRADES SKIPPED AND REPEATED BY EACH
GROUP IN THE ELEMENTARY SCHOOL

Grades Skipped	Group 1	Group 2	Grades Repeated	Group 1	Group 2
0	62	76	0	94	81
1	27	20	1	6	16
2	9	4	2	..	3
3	2	..	3	..	..
Total	100	100	Total	100	100
Average	.51	.28	Average	.06	.22
S. D.*	.741	.529	S. D.	.237	.479
S. E.m*	.0741	.0529	S. E.m	.0237	.0479
S. E.d*	.091		S. E.d	.0534	
C. R.*	2.527		C. R.	3.001	
Chances in 100	99.4		Chances in 100	100	

*Legend: S. D. is used for standard deviation;
S. E.m for standard error of the mean; S. E.d
for standard error of the difference; C. R.
for critical ratio, and chances in 100 for
chances in 100 that the difference between
the means is significant.

3.001. The difference of the means is significant and shows high reliability. Group two not only had a larger percentage failing, but they also failed more times than group one.

2. The Number of Elementary Schools Attended. Group one probably attended more elementary schools than group two. The average number of elementary schools attended by group one was 1.99, and for group two was 1.77. The standard error of the mean for group one was .122, and for group two was .0940. The difference of the means divided by the standard error of the difference is 1.55 thus showing 92 chances in a hundred of the difference being significant. The figures given show a difference in means which is probably in favor of group one.

B. HIGH SCHOOL DIFFERENCES

1. Size of High School From Which the Groups Graduated. An analysis of the data shows that group one came from slightly larger high schools than group two. The average enrollment of high schools for group one graduates was 557 with a standard error of 36.4. The average for group two was 432 with a standard error of 37.4. The difference of the means divided by the standard error of the difference is 2.39. The chances are 99 in a hundred that the difference between means is significant.

The size of the high school each student graduated from was obtained by asking the name of it. The name was looked up in the Indiana school directory, which gave the

TABLE II
THE NUMBER OF ELEMENTARY SCHOOLS ATTENDED
BY EACH GROUP

Number of Schools	Group 1	Group 2
1	42	50
2	37	30
3	10	15
4	6	3
5	2	2
6	2	..
7	1	..
Total	100	100
Average	1.99	1.77
S. D.	1.22	.949
S. E. _m	.122	.0949
S. E. _d		.155
C. R.		1.55
Chances in 100	92	

TABLE III
SIZE OF THE HIGH SCHOOL FROM WHICH EACH
GROUP GRADUATED

Enrollment	Group 1	Group 2
Less than 100	17	22
100-199	13	27
200-299	7	8
300-399	2	2
400-499	2	1
500-599	5	..
600-699	2	..
700-799	25	19
800-899	..	..
900-999	16	14
1000 or More	11	7
Total	100	100
Average	557	432
S. D.	364	374
S. E. _m	36.4	37.4
S. E. _d	52.19	
C. R.	2.39	
Chances in 100	99	

exact enrollment. Students coming from outside the state were asked to give the approximate enrollment of the high schools they came from.

2. Number of Subjects Failed in High School. In order to determine as near as possible the exact number of times a student failed, he was asked to list the subjects he failed and the number of times he failed each. The range of failures was so small that no statistical measures were used. Group one had only 5 per cent to fail in high school, all of whom only failed once. Group two had 17 per cent failing in one subject, 16 per cent failing in two subjects, and 1 per cent failing in three or more subjects. Taking into account the superior mental ability of the students in group one, the 5 per cent failing can possibly be accounted for by lack of interest or effort.

3. Number of High Schools Attended. When the two groups were compared as to the number of high schools they attended, practically no differences were found as shown by Table V.

4. The Number of Offices Held During High School Years. With the idea of determining which group furnished the most leaders in high school this item was included in the questionnaire. Group one had 69 per cent who held offices in high school as compared with 55 per cent of group two who held offices. The average number of offices held by group one was 1.48 with a standard error of .144. The average for group

TABLE IV

THE NUMBER OF SUBJECTS FAILED BY EACH
GROUP IN HIGH SCHOOL

Number of Subjects Failed	Group 1	Group 2
0	95	76
1	5	17
2	..	6
3 or more	..	1
Total	100	100

TABLE V

THE NUMBER OF HIGH SCHOOLS ATTENDED
BY EACH GROUP

Number of H. S. Attended	Group 1	Group 2
1	90	90
2	9	4
3	1	5
4 or more	..	1
Total	100	100

TABLE VI
THE NUMBER OF OFFICES HELD BY EACH
GROUP DURING HIGH SCHOOL

Number of Offices Held	Group 1	Group 2
0	31	45
1	25	27
2	26	17
3	8	9
4	5	2
5	3	..
6	2	..
Total	100	100
Average	1.48	.96
S. D.	1.44	1.08
S. E. _m	.144	.108
S. E. _d	.18	
C. R.	2.88	
Chances in 100	99.74	

two was .99 with a standard error of .108. The difference of the means divided by the standard error of the difference is 2.88. The chances are 99.74 in a hundred that the difference is significant. This shows almost definitely that group one held more offices in high school than group two.

5. The Number Who Engaged In Debating In High School.

In order to be able to make fair comparisons between the two groups, the students were instructed to designate the number of hours per week, the number of months per year and the number of years of participation in debating. Both groups had the same percentage of participants in debating, namely 12 per cent. Group one had an average of 3.66 hours per week of participation as compared with 1.66 hours per week for group two. The standard error of the mean for group one is .69 and for group two is .319. The difference of the means divided by the standard error of the difference is 2.63. There are 99.5 chances in a hundred that the difference is significant. The difference is very much in favor of group one who spent more hours per week in debating.

There is very little difference in the number of months per year participation for each group. Group one had an average of 5.33 months per year and group two an average of 5.58 months per year. The standard error of the mean for group one is .9 and for group two is .85. The difference of the means divided by the standard error of the difference is .203 thus showing a little better than a 50-50 chance of the difference being significant.

TABLE VII

THE NUMBER OF EACH GROUP WHO ENGAGED IN DEBATING
IN HIGH SCHOOL

No. of Hours Per Wk.	Group 1	Group 2	No. of Months Per Yr.	Group 1	Group 2	No. of Years	Group 1	Group 2
1	2	7	1	2	1	1	8	7
2	4	4	2	2	2	2	1	4
3	1	.	3	1	1	3	1	1
4	.	.	4	.	1	4	2	.
5	3	1	5	.	.	.	.	.
6	.	.	6	1	2	.	.	.
7	.	.	7	1	.	.	.	.
8	2	.	8	3	2	.	.	.
9	.	.	9	2	3	.	.	.
Total	12	12	Total	12	12	Total	12	12
Average	3.66	1.66	Average	5.33	5.58	Average	1.75	1.5
S. D.	2.39	1.104	S. D.	3.12	2.95	S. D.	1.16	.64
S. E.m	.69	.319	S. E.m	.9	.85	S. E.m	.335	.184
S. E.d		.76	S. E.d		1.23	S. E.d		.387
C. R.		2.63	C. R.		.203	C. R.		.645
Chances in 100		99.5	Chances in 100		58	Chances in 100		74

Comparisons as to the number of years participation in debating shows comparatively little difference. Group one had an average of 1.75 years of participation and group two one of 1.5 years. The standard error of the mean is .335 for group one and .184 for group two. The difference of the means divided by the standard error of the difference is .645. There are 74 chances in a hundred that the difference is significant. A total comparison of the time spent in debating shows that the only point where group one definitely exceeds group two is in the number of hours per week spent in debating.

6. The Number Who Worked On A School Paper In High School. Students who worked on a school paper were compared in regard to the number of hours per week, the number of months per year, and the number of years spent in such an activity. Group one had a total of 30 per cent who worked on a school paper and group two had 19 per cent. The mean number of hours per week for group one is 3.8 with a standard error of .439. The mean for group two is 3.05 with a standard error of .396. The difference of the means divided by the standard error of the difference is 1.27. The chances are only 89 in a hundred that the difference is significant.

The average number of months per year of work on a school paper is 7.26 for group one and 7.05 for group two. The standard error of the mean for group one is .37 and for group two is .4. The difference of the means divided by

TABLE VIII

THE NUMBER OF EACH GROUP WHO WORKED ON A SCHOOL
PAPER IN HIGH SCHOOL

No. of Hours Per Wk.	Group 1	Group 2	No. of Months Per Yr.	Group 1	Group 2	No. of Years	Group 1	Group 2
1	4	2	1	.	.	1	17	14
2	7	8	2	.	2	2	8	4
3	5	4	3	4	.	3	4	1
4	4	.	4	1	2	4	1	.
5	5	4	5	1	.	.	.	.
6	2	.	6	1	1	.	.	.
7	1	.	7	2	.	.	.	.
8	.	1	8	12	10	.	.	.
9	.	.	9	9	4	.	.	.
10	1	.	10	.	.	.	.	.
11	1	.	11	.	.	.	.	.
Total	30	19	Total	30	19	Total	30	19
Average	3.8	3.05	Average	7.26	7.05	Average	1.63	1.32
S. D.	2.41	1.73	S. D.	2.03	2.23	S. D.	.84	.565
S. E. _m	.439	.396	S. E. _m	.37	.4	S. E. _m	.153	.129
S. E. _d		.59	S. E. _d		.548	S. E. _d		.2
C. R.		1.27	C. R.		.343	C. R.		1.55
Chances in 100		89	Chances in 100		64	Chances in 100		93

the standard error of the difference is .343. The chances are 64 in a hundred that the difference is significant. This shows only slightly better than a 50-50 chance of the difference being significant.

The average number of years of work on a school paper for group one is 1.63 with a standard error of .53. The average for group two is 1.32 with a standard error of .129. The difference of the means divided by the standard error of the difference is 1.55. The chances are 93 in a hundred that the difference is significant.

A comparison of the total length of time spent working on a school paper reveals that probably group one spent more years at such work than group two. Differences as to the number of hours per week and months per year are not significant.

7. The Number Engaged In Athletics In High School.

Comparisons were again made on the basis of the number of hours per week, the number of months per year, and the number of years of participation in athletics. Comparisons made on the basis of the number of hours per week show that group two far surpasses group one. The average number of hours per week participation is 7.5 for group two and 4.64 for group one. The standard error of the mean for group two is .53 and .33 for group one. The difference of the means divided by the standard error of the difference is 4.57. The difference of the means is definitely significant and in favor of group two always having the highest mean.

An examination of the data concerning the number of months per year spent in athletics reveals that group one

TABLE IX
THE NUMBER OF EACH GROUP WHO ENGAGED IN ATHLETICS
IN HIGH SCHOOL

No. of Hours Per Wk.	Group 1	Group 2	No. of Months Per Yr.	Group 1	Group 2	No. of Years	Group 1	Group 2
1	.	1	1	.	.	1	7	14
2	14	10	2	3	2	2	23	13
3	10	5	3	3	5	3	14	11
4	11	4	4	2	2	4	18	22
5	14	10	5	2	6	5	.	.
6	3	2	6	4	8	6	.	.
7	.	.	7	3	2	7	.	.
8	3	5	8	6	18	8	.	.
9	.	3	9	29	17	9	.	.
10	5	7	10	..	.	10	.	.
11	.	.	11	.	.	11	.	.
12	2	7	12	.	.	12	.	.
13	.	.	13	.	.	13	.	.
14	.	2	14	.	.	14	.	.
15	.	4	15	.	.	15	.	.
Total	62	60	Total	62	60	Total	62	60
Average	4.64	7.5	Average	7.53	6.93	Average	2.69	2.68
S. D.	2.60	4.14	S. D.	2.07	2.10	S. D.	1.009	1.19
S. E. _m	.33	.53	S. E. _m	.263	.27	S. E. _m	.128	.153
S. E. _d	.625		S. E. _d	.375		S. E. _d	.199	
C. R.	4.57		C. R.	1.6		C. R.	.05	
Chances in 100	100		Chances in 100	94		Chances in 100	52	

has an average of 7.53 and group two 6.93. The standard error of the mean is .263 for group one and .27 for group two. The difference of the means divided by the standard error of the difference is 1.6. The chances are 94 in a hundred that the difference between means is significant.

The average number of years of participation in athletics is 2.69 for group one and 2.68 for group two. The standard error of the mean is .128 for group one and .153 for group two. The difference of the means divided by the standard error of the difference is .05. The chances are 52 in a hundred that the difference is significant.

A comparison as to the total length of time spent in athletics shows that group two spent definitely more hours per week, and that probably group one spent more months per year in athletics. The greater number of hours per week of participation by group two, can be accounted for by the fact that 50 per cent of group two was composed of boys as compared with 25 per cent of group one. Both groups participated about the same number of years.

8. The Number of Social Activities Participated In By Each Group. This comparison of social activities deals only with those that were sponsored by the students and the schools. The students were asked to list the ones in which they took part.

Group one had 12 per cent who were non-participants and group two had 17 per cent non-participants. The average number of social activities for group one is 2.78 with a standard

TABLE X
THE NUMBER OF SOCIAL ACTIVITIES IN WHICH
EACH GROUP PARTICIPATED DURING
HIGH SCHOOL

Number of Social Activities	Group 1	Group 2
0	12	17
1	7	18
2	26	23
3	29	21
4	13	13
5	3	8
6	6	..
7	3	..
8	1	..
Total	100	100
Average	2.78	2.19
S. D.	1.76	1.51
S. E. _m	.176	.151
S. E. _d	.23	
C. R.	2.56	
Chances in 100	99.4	

TABLE XI
THE PER CENT OF EACH GROUP LIKING
SPECIFIED ACADEMIC AND NON-
ACADEMIC SUBJECTS

Subject	Group 1	Group 2
Algebra	71%	51%
Latin	53%	36%
Chemistry	29%	16%
Physics	25%	24%
Art	12%	28%
Home Economics	25%	30%
Industrial Arts	6%	13%
Typing	43%	58%

error of .176. For group two the average is 2.19 with a standard error of .151. The difference of the means divided by the standard error of the difference is 2.56. The chances are 99.4 in a hundred that the difference is significant. For practical purposes, it is probably safe to say that group one took part in more social activities than group two.

9. The Per Cent Liking Specified Academic and Non-Academic Subjects. In order to compare the interest of each group in regard to academic and non-academic school work, certain specified subjects were used. The representatives of the academic group were: algebra, Latin, chemistry, and physics. The representatives of the non-academic group were: art, home economics, industrial arts, and typing. Through an oversight on the part of the writer, no attempt was made to find out whether or not all of the subjects were equally available to members of each group. The results will be given but no conclusions can be drawn. The percentage of students of group one liking academic subjects was in all cases higher than the percentages for group two. Likewise, the percentages of students of group two liking non-academic subjects was in all cases higher than the percentages of group one.

10. The Number of Days Absent During High School. No attempt was made to be absolutely accurate as to the number of days each student was absent. The students were asked to give the approximate number of days they were absent each

TABLE XII

THE NUMBER OF DAYS ABSENT BY EACH GROUP DURING
HIGH SCHOOL

Number of Days Absent	Group 1				Group 2			
	1st Yr.	2nd Yr.	3rd Yr.	4th Yr.	1st Yr.	2nd Yr.	3rd Yr.	4th Yr.
0	31	35	27	33	31	29	19	28
1	11	9	14	12	7	10	11	17
2	9	13	15	14	8	14	13	8
3	13	9	8	7	13	7	12	11
4	8	7	6	6	6	10	10	4
5	9	7	9	8	10	10	14	5
6	3	5	4	3	3	2	..	8
7	1	2	1	5	2	1	1	1
8	2	3	4	2	1	4	3	3
9	..	1	..	..	2	..	..	..
10	4	2	5	4	9	7	9	4
11	..	..	..	..	..	..	..	1
12	..	1	..	1	2	1	1	4
13	..	..	..	..	1	..	1	..
14	1	1	..	..	..	..	1	1
15	4	1	..	1	4	1	2	1
16	..	..	1	2	..	1	1	..
17	..	..	..	..	..	..	..	..
18	..	..	1	1	..	..	..	..
19	..	..	..	..	..	..	..	..
20	1	3	5	1	..	1	1	2
21	1	..	..	..	..	..	..	1
22	..	..	..	..	..	..	..	..
23	..	..	..	..	..	..	..	1
24	..	..	..	..	..	..	..	..
25	2	..	..	..	1	1	..	..
26	..	..	..	..	..	..	..	..
27	..	..	..	..	..	..	..	..
28	..	..	..	..	..	..	..	..
29	..	..	..	..	..	..	..	..
30	..	1	..	..	..	1	1	..
Total	100	100	100	100	100	100	100	100
Average	3.91	3.53	3.84	3.31	4.06	3.88	4.39	3.98

year. For each of the four years, group two had a higher average number of days absent than group one. The differences in means were not significant in all cases. The difference of the means to the standard error ratio grew larger from year to year. The chances in a hundred that the difference is significant were: 74 in 100 the first year, 93 in 100 the second year, 99.4 in 100 the third year and the fourth year showed a significant difference. From the data given, it is evident that group two was probably absent more days than group one. The comparative frequencies of the number of days absent is shown in Table XII.

11. Scholastic and Personality Rating. The scholastic and personality rating sheets covered the points shown in Table XIII. These sheets are filled out by the high school principals of every freshman entering college. The principal rates the student on each of the ten points and sends the sheet to the Registrar's office. These data were secured on all the members of each group. Table XIV shows the comparative frequencies of the composite ratings along with an interpretation of the rating. The ratings are made out in such a way that the lowest score is the highest rank. The average for group one on this rating sheet is 18.72 and for group two is 25.60. The standard error of the mean for group one is .528 and for group two is .568. The difference of the means divided by the standard error of the difference is 8.86. The difference is overwhelmingly in favor of group one.

One of the weaknesses of this rating is that the rater merely estimates what the student is worth on a given item, and rates the student accordingly. This procedure makes the reliability of the sheet somewhat questionable.

TABLE XIII

SCHOLASTIC AND PERSONALITY RATING
SHEET

Name _____	Total Rating _____
------------	--------------------

I. High School Scholarship Record

- [illegible]

II. Scholastic Zeal

- [illegible]

III. Intellectual Ability and Aptitude

- | | | |
|----|---------------------|-------------------------------------|
| 1. | A keen student | <u>oooooooooooooooooooooooooooo</u> |
| 2. | An alert student | <u>oooooooooooooooooooooooooooo</u> |
| 3. | An average student. | <u>ooooooooooooooooooooooo</u> |
| 4. | A slow learner | <u>ooooooooooooo</u> |
| 5. | A dull pupil | <u>oooooo</u> |

IV. Initiative

- | | | |
|----|---|---------------------------------------|
| 1. | Seeks additional tasks | <u>mmmmmmmmmmmmmmmmmmmmmmmmmmmmmm</u> |
| 2. | Completes suggested
supplementary work | <u>mmmmmmmmmmmmmmmmmmmmmmmmmmmm</u> |
| 3. | Prepares assignments | <u>mmmmmmmmmmmmmmmmmmmmmmmmmmmm</u> |
| 4. | Needs occasional prodding | <u>mmmmmmmmmmmmmmmmmmmmmmmmmmmm</u> |
| 5. | Needs constant supervision | <u>mmmmmmmmmmmmmmmmmmmmmmmmmmmm</u> |

V. Integrity

- [illegible]

TABLE XIV
COMPARATIVE FREQUENCIES ON SCHOLASTIC
PERSONALITY RATINGS FROM
HIGH SCHOOL

Ratings	Group 1	Group 2
10-17 Superior	51	7
18-25 Very Good	39	47
26-33 Average	10	40
34-41 Below Average	..	6
42-50 Very Poor	..	..
Total	100	100
Mean	18.72	25.60
S. D.	5.28	5.68
S. E. _m	.528	.568
S. E. _d	.775	
C. R.	8.86	
Chances in 100	100	

III. DIFFERENCES IN FAMILY BACKGROUND

1. Per Cent Having Foreign Born Parents. This item was found to be relatively unimportant. The number of foreign born parents of each group were so small that it is hardly worth mentioning. The answer to this question was derived by asking the students for the birthplace of each of their parents. Group one had nine members or 9 per cent with foreign born fathers. Five per cent of group two had foreign born fathers. Five per cent of group one had foreign born mothers as compared with 6 per cent of group two.

2. Per Cent Having Both Parents Living. The effects of step parents or foster parents on the life of adolescents are not known. This comparison shows no difference between the two groups in regard to the number having both parents living. A strange coincidence is found in the fact that both groups had the same percentages. The per cent of each group having both parents living was 88 per cent.

3. Per Cent Having Both Parents Living Together. It is the writer's opinion that broken homes may affect a student's achievements. The subject, however, seems to be of little importance so far as this study is concerned. Both groups had 16 per cent of its member with parents living, but not living together.

4. Size of the Families of Each Group. The two groups were compared as to the number of older brothers, number of older sisters, number of younger brothers and the number of younger sisters they had. Scarcely any differences were found except that group two had a slightly higher average for younger sisters than group one. Statistically speaking, the average number of younger sisters for group two was .80 and for group one was .55. The chances in a hundred of this difference being significant are 94. In all other cases, the chances are only slightly better than 50-50.

5. Occupations of the Fathers of Each Group. It has been found that different occupations usually embrace workers of different levels of intelligence. The highest type of intelligence is usually found in the ranks of the professional men, and the lowest intelligence in the ranks of the laborers.⁷ It has also been shown that the offspring usually inherit the same mental ability as the parents.⁸ Table XVII shows the occupations of the fathers of each group. Because of the wide variety of occupations and the difficulty in classifying them, no conclusions have been drawn. The occupation having a higher frequency than any other was farming. Thirteen fathers in group one and twenty-nine fathers in group two were farmers. Group one also had more fathers engaged in professional

⁷ L. S. Hollingworth, The Psychology of the Adolescent. (New York: D. Appleton and Company). p. 61.

⁸ Ibid., pp. 62-66.

TABLE XV
THE NUMBER OF OLDER BROTHERS AND SISTERS
OF EACH GROUP

Older Brothers	Group 1	Group 2	Older Sisters	Group 1	Group 2
0	62	63	0	66	53
1	28	23	1	21	32
2	7	10	2	5	12
3	2	3	3	1	3
4	..	1	4	4	..
5	1	..	5	2	..
6	..	..	6	1	..
Total	100	100	Total	100	100
Average	.53	.56	Average	.66	.65
S. D.	.843	.866	S. D.	1.249	.806
S. E. _m	.084	.086	S. E. _m	.124	.0806
S. E. _d	.121		S. E. _d	.0148	
C. R.	.247		C. R.	.67	
Chances in 100	60		Chances in 100	74	

TABLE XVI
THE NUMBER OF YOUNGER BROTHERS AND SISTERS
OF EACH GROUP

Younger Brothers	Group 1	Group 2	Younger Sisters	Group 1	Group 2
0	57	55	0	64	55
1	29	32	1	22	29
2	9	9	2	10	9
3	3	3	3	3	1
4	2	1	4	1	2
5	..	..	5	..	3
6	..	..	6	..	..
7	..	..	7	..	1
Total	100	100	Total	100	100
Average	.64	.63	Average	.55	.80
S. D.	.91	.84	S. D.	.87	1.29
S. E. _m	.091	.084	S. E. _m	.087	.129
S. E. _d	.122		S. E. _d	.155	
C. R.	.081		C. R.	1.6	
Chances in 100	52		Chances in 100	94	

TABLE XVII
THE OCCUPATION OF THE FATHERS OF EACH GROUP

Occupation	Group 1	Group 2
PROFESSIONAL		
Doctor.....	0	1
Lawyer.....	1	0
Teacher.....	5	1
Minister.....	5	0
Engineer.....	1	0
Architect.....	0	1
Total Professional	12	3
BUSINESS		
Executive Officer	8	5
Merchant.....	4	4
Grocer.....	2	3
Local Business...	1	2
Salesman.....	9	3
Total Business	24	17

TABLE XVII (Continued)

CLERICAL		
Bookkeeper.....	2	2
Accountant.....	3	2
Total Clerical	5	4
PUBLIC OFFICIALS		
Mail Carrier.....	1	1
Postal Clerk.....	0	1
County Assessor..	0	2
Fireman.....	3	2
Total Public Officials	4	6
TRADES		
Contractor.....	3	0
Linotype Operator	2	0
Carpenter.....	3	3
Plumber.....	1	1
Mechanic.....	1	0
Machinist.....	2	0
Tailor.....	2	0
Metal Worker.....	2	0
Barber.....	0	1
Plasterer.....	0	1
Welder.....	0	1

TABLE XVII (Continued)

Total Trades	16	7
AGRICULTURAL		
Farmer.....	15	29
Gardener.....	0	2
Total Agricultural	15	31
TRANSPORTATION		
R. R. Clerk.....	2	0
R. R. Brakeman...	1	3
Total Transportation	3	3
COMMON LABOR		
Miner.....	2	14
Janitor.....	1	1
Day Laborer.....	6	1
Truck Driver.....	2	1
Elevator Operator	0	1
Total Common Labor	11	18
Not Stated	10	11
Total	100	100

TABLE XVIII
THE NUMBER OF MOTHERS OF EACH GROUP THAT
WORKED OUTSIDE THE HOME

Occupation	Group 1	Group 2
Teacher.....	2	4
Bookkeeper.....	2	1
Clerk.....	2	0
Milliner.....	1	0
Librarian.....	1	0
Factory Worker...	1	0
Nurse.....	0	1
Day Worker.....	1	1
Store Keeper.....	0	1
Telephone Operator	0	1
Total	10	9

work and business work than group two.

6. Occupations of the Mothers of Each Group. This item was included mainly for the purpose of finding out how many of the mothers worked outside the home. Group one had 10 per cent of its mothers who worked away from home as compared with 9 per cent in group two. The different occupations were so few that they need scarcely be mentioned. The different occupations are shown in Table XVIII. One item of interest, but not significant, is the fact that group two had more mothers in the teaching profession than group one.

7. The Number Having A Home Library. When the groups were compared as to the number having libraries in their homes, group one was found to exceed group two. Fifty-four per cent of group one had libraries in their homes as compared with 37 per cent having them in group two. The average number of volumes in the home library was 234.5 for group one and 113.5 for group two. The standard error of the mean was 24.8 for group one and 17.68 for group two. The difference of the means divided by the standard error of the difference was 3.97 thus showing a significant difference. Table XIX shows the comparative frequencies of the number of volumes in home libraries, for each group.

8. The Number of Newspaper and Magazine Subscriptions of the Families of Each Group. Comparisons of the number of newspapers and magazines available to members of each group showed that group two had access to more newspapers

TABLE XIX
THE NUMBER OF VOLUMES IN THE HOME
LIBRARIES OF EACH GROUP

Number of Volumes	Group 1	Group 2
1- 24	2	3
25- 49	3	8
50- 74	6	11
75- 99	6	1
100-124	4	4
125-149	2	.
150-174	6	3
175-199	2	.
200-224	6	3
225-249	.	.
250-274	1	.
275-299	.	.
300-324	1	1
325-349	.	.
350-374	1	2
375-399	.	.
400-424	2	.
425-449	.	.
450-474	1	1
475-499	.	.
500-524	3	.
525-549	.	.
550 or More	8	.
Total	54	37
Average	234.5	113.5
S. D.	182.5	107.5
S. E. _m	24.8	17.68
S. E. _d	30.45	
C. R.	3.97	
Chances in 100	100	

TABLE XX
THE NUMBER OF NEWSPAPERS AND MAGAZINES TO WHICH EACH
GROUP SUBSCRIBED

No. of Newspapers	Group 1	Group 2	No. of Magazines	Group 1	Group 2
0	0	0	0	4	11
1	38	34	1	6	5
2	49	41	2	12	14
3	8	18	3	13	14
4	3	5	4	16	17
5	1	2	5	16	18
6	1	..	6	16	10
7	..	..	7	7	2
8	..	..	8	5	4
9	..	..	9	1	..
10	..	..	10	4	5
Total	100	100	Total	100	100
Average	1.83	2	Average	4.47	3.89
S. D.	.894	.969	S. D.	2.29	2.47
S. E. _m	.089	.0969	S. E. _m	.229	.247
S. E. _d	.13184		S. E. _d	.3368	
C. R.	1.28		C. R.	1.72	
Chances in 100	89		Chances in 100	96	

than group one. On the other hand, group one had access to more magazines than group two. The average number of newspapers subscriptions for the families of group one was 1.83 with a standard error of .0894. The average number for group two was 2 with a standard error of .0969. The difference of the means divided by the standard error of the difference was 1.28 thus showing 89 chances in a hundred of the difference between means being significant.

The average number of magazine subscriptions per family for group one was 4.47 with a standard error of .2291. The average number for group two was 3.89 with a standard error of .247. The difference of the means divided by the standard error of the difference was 1.72. The chances in a hundred that the difference between means is significant are 96. While not showing perfect reliability, the difference is relatively significant in favor of group one.

9. The Yearly Parental Income of Each Group. The yearly parental income of each group represents the estimates of the students. This tends to lower the reliability somewhat but suffices to give a general picture of the situation. There was not much difference in the average parental income of each group. This may be explained by the fact that the students tended to present the ideal situation rather than the one that actually existed. The average yearly parental income of group one was \$1375.00 and for group two was \$1344.00. The standard error of the mean was 59.6 for group one and 60.2 for group two. The difference of the means divided by the standard error of the difference is .365 thus showing

TABLE XXI
THE YEARLY INCOME OF THE PARENTS OF
EACH GROUP

Amount of Income	Group 1	Group 2
Less than \$500	6	3
\$500-999	22	29
\$1000-1499	31	30
\$1500-1999	19	13
\$2000 or More	20	20
Not Stated	2	5
Total	100	100
Mean	1375	1344
S. D.	590	587
S. E. _m	59.6	60.2
S. E. _d	84.71	
C. R.	.365	
Chances in 100	64	

TABLE XXII
THE BIRTHPLACE OF THE MEMBERS OF
EACH GROUP

Birthplace	Group 1	Group 2
City of 2500 or More	59	45
Village Less than 2500	20	18
Open Country	21	37
Total	100	100

only 64 chances in a hundred of the difference being significant. From the figures given, we must conclude that no differences exist according to the reports given by the students.

10. Birthplaces of the Members of Each Group. The birthplaces of the members of each group were classified under three headings: city, village, and open country. This classification is the one used by the United States Postoffice and classifies a city as having 2500 or more population, a village as less than 2500, and open country as being just what the term indicates. An examination of Table XXII reveals the fact that group one was decidedly more urban by birth than group two. Group two having most of its members from rural areas.

A. OTHER DIFFERENCES

1. Number Who Did Outside Work While Attending High School. Students doing outside work are not able to devote as much of their time to their studies as students not working. This item was intended to determine whether or not group two had as much available time to study as group one. An analysis of the data revealed the fact that 50 per cent of group two did outside work while attending high school as compared with 38 per cent of group one who did outside work. This fact may account in a small part for the low scholastic level achieved by group two in high school.

2. Per Cent of Each Group In Good Health While Attending High School. A point somewhat related to outside work

is health. A student in poor health is not able to do as good a piece of work as he could if in perfect health. So far as this study is concerned, the item was found to be negligible. Ninety-nine per cent of each group enjoyed good health while attending high school.

3. Per Cent In Good Health During Their First Term In College. To determine whether or not some of the poor scholastic records could be attributed to ill health, this question was included. The results are again not significant. Ninety-nine per cent of group one were in good health their first term in college as compared with 92 per cent of group two in good health.

4. Per Cent Who Wished To Attend Indiana State Teachers College. Seventy-two per cent of group one wished to attend Indiana State Teachers College as did 67 per cent of group two. The fact that 33 per cent of group two did not wish to attend this college along with their lower level of mental ability, may account in part for their low level of achievement in college. On the other hand, the 28 per cent of group one who did not wish to attend this college, would find things somewhat easier because of their higher mental ability.

5. Per Cent Who Suffered A Recent Disappointment or Shock. Comparisons between the two groups revealed the fact that 12 per cent of group one experienced such as compared with 23 per cent of group two. Of the effects of such a catastrophe on human personality, little is known. It is the writer's opinion, however, that it may affect the achievement of a person working under such conditions.

6. The Number of Recreations In Which Each Group Participated. To ascertain the number of recreations in which an individual participated, he was asked to list the ones in which he engaged. The average number of recreations participated in by group one was 1.5 with a standard error of .122. The average number for group two was 1.84 with a standard error of .204. The difference of the means divided by the standard error of the difference was 1.45. The chances are 93 in a hundred that the difference is significant. We can say that probably group two participated in more recreational activities than group one.

7. Per Cent Having a Public Library In Their Community. This item was included to determine whether or not all students had the same, or approximately the same reading facilities in their communities. Seventy-six per cent of group one came from communities that had a library as did 68 per cent of group two. Thus with a little better than two thirds of group two having library facilities, this may have been a partial handicap to them upon entering college.

TABLE XXIII
THE NUMBER OF RECREATIONS IN WHICH EACH
GROUP PARTICIPATED DURING
HIGH SCHOOL

No. of Recreations	Group 1	Group 2
0	23	19
1	26	28
2	33	21
3	14	20
4	4	8
5	..	3
6	..	..
7	..	1
Total	100	100
Average	1.50	1.84
S. D.	1.12	2.04
S. E. _m	.112	.204
S. R. _d	.223	
C. R.	1.45	
Chances in 100	93	

TABLE XXIV
MISCELLANEOUS DATA

	Group 1	Group 2
Per cent that did outside work while attending high school.....	38	54
Per cent in good health while attending high school.....	99	99
Per cent having foreign born fathers.....	9	5
Per cent having foreign born mothers.....	5	6
Per cent having both parents living together.....	84	84
Per cent having both parents living.....	88	88
Per cent who suffered a recent disappointment or shock.....	12	23
Per cent having a public library in their community.....	76	68
Per cent that wished to attend this college...	72	67
Per cent in good health their first term in Indiana State Teachers College.....	98	92

IV. SUMMARY

A. SIGNIFICANT DIFFERENCES FOUND BETWEEN THE TWO GROUPS

The differences to be set forth here are the most significant ones found in the whole study. Differences were considered significant when the difference of the means to the standard error of the difference revealed high reliability. Any case where the chances were from 99.4 to 100 in a hundred of the difference in means being significant, was called high reliability. The main differences revealed by this study are as follows:

1. Group one held more offices in high school than group two.
2. Group one failed fewer subjects in high school than group two.
3. Group one had a higher average on the scholastic and personality rating sheet than group two.
4. Group one participated in more social activities than group two.
5. Group one spent more time in debating in high school than group two.
6. Group one spent fewer hours per week in athletics in high school than group two.
7. Group one skipped more grades in the elementary school than group two.

8. Group one repeated fewer grades in the elementary school than group two.

9. Group one had larger home libraries than group two.

B. PROBABLE SIGNIFICANT DIFFERENCES

Other differences were found in which the reliabilities were not as high as in the ones previously mentioned. In all cases, however, the chances in a hundred of the difference between means being significant were from 90 to 99. To set forth these differences, we might say that probably:

1. Group one spent more time working on a school paper in high school than group two.

2. Group one was absent fewer days during high school than group two.

3. Group one came from larger high schools than group two.

4. Group one participated in fewer recreations than group two.

5. Group one attended more elementary schools than group two.

Differences found on all other items were negligible.

1. Need For Further Investigation. At the time of conception, a person's ultimate limit of possible development is determined. Whether or not an individual reaches this limit, depends to a large extent upon his environment. Those individuals who are fortunate in securing the proper type of environment from the time of conception until at least maturity, are likely to reach their ultimate limit

of possible development. In a large number of cases, this limit is never reached because of the lack of certain environmental factors.

An application of this principle to education tends to infer that all students do not attain their maximum level of scholarship, as determined by heredity, because of the absence of certain environmental factors. One must be careful, however, not to say that all cases of low scholarship are directly traceable to environmental deficiencies. Heredity and environment play important roles in the scholastic attainments of an individual. The extent to which each is responsible for low scholarship is not known, both are infinitely important.

This study has set forth some of the main environmental differences found between good and poor students. Some of these differences may be partial causes of low scholarship, while others may be the effects of such. At the present, it is impossible to distinguish between causes and effects. Further investigation should be made to determine which differences, if any, are partial causes of low scholarship, and which are the effects of it.

If any of these differences found in this study are partial causes of low scholarship, then further investigation should be made to determine the extent to which they are causes. Until further research is made, the effects of the differences, set forth by this study, upon the achievement of college freshmen will remain a matter of conjecture.

V. APPENDIX

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B. THE QUESTIONNAIRE

Freshmen, I. S. T. C.

Dear Student:

One of our graduate students is making a study which requires information from you. Your answers will be held strictly confidential. Please fill out the following questionnaire and return it to your teacher within the next few days.

I wish to thank you for this help.

J. W. Jones, Dean

1. What is the name of the high school from which you graduated? _____
2. If the school from which you graduated was outside the state of Indiana, what was the approximate enrollment?

3. How many subjects were failed by you in high school?
() Name the subjects failed and the number of times each was failed. _____
4. How many high schools did you attend? _____
5. Did you hold any kind of an office in high school?
() If so, list the ones held. _____
6. Did you do more than one or two hours of work at home or elsewhere, other than school work, while attending high school? ()
7. Were you generally in good health while attending high school? ()
8. Did you engage in debating in high school? () If so, how many hours per week? () How many years?
() How many months per year? ()
9. Did you work on the school paper in high school? () If so, how many hours per week? () How many years?
() How many months per year? ()
10. Did you engage in athletics in high school? () If so, how many hours per week? () How many years?
() How many months per year? ()

11. List the social activities sponsored by the students and the school in which you took part during your high school career. _____
-
12. If you had any of the following subjects in high school, check the ones that you liked.
- | | |
|------------------------------------|--|
| <input type="checkbox"/> Algebra | <input type="checkbox"/> Art |
| <input type="checkbox"/> Latin | <input type="checkbox"/> Home Economics |
| <input type="checkbox"/> Chemistry | <input type="checkbox"/> Industrial Arts |
| <input type="checkbox"/> Physics | <input type="checkbox"/> Typing |
13. About how many days were you absent from high school your first year? ☐ Your second year? ☐ Your third year? ☐ Your fourth year? ☐
14. How many grades did you skip in the elementary school? ☐
15. How many grades did you repeat in the elementary school? ☐
16. How many elementary schools did you attend? ☐
17. Where is your father's birthplace? _____
Your mother's _____
-
18. Are your parents living together? ☐
19. Are both your parents living? ☐ If either is dead, which one? ☐
20. Have you experienced any great disappointment, shock, or death within your family, within the past year? ☐
21. How many living older brothers do you have? ☐
Living older sisters? ☐
22. How many living younger brothers do you have? ☐
Living younger sisters? ☐
23. What is your mother's occupation, if other than housewife? _____
24. What is your father's occupation? _____
25. Were you born in a city of 2500 or more? ☐ In a village of less than 2500? ☐ In the open country? ☐
26. To how many newspapers does your family subscribe? ☐

27. To how many magazines does your family subscribe?
()
28. Do you have a library in your home? () If so,
about how many volumes does it contain? ()
29. Is there a public library in your community? ()
30. Underline any of the following recreational programs
in which you participated while attending high school.
Boy Scouts, Girl Scouts, community playgrounds,
Y. M. C. A., Y. W. C. A., Theaters, others, _____
-
31. Check the item that would most nearly represent the
yearly income of your parents. (If you live on a
farm include in the income the approximate yearly
value of products consumed that are grown on your
farm).
- | | | | |
|-----------------|-----|------------------|-----|
| Less than \$500 | () | \$1500 - \$1999 | () |
| \$500 - 999 | () | \$2000 - or more | () |
| \$1000 - 1499 | () | | |
32. Did you wish to attend this college? () or, was
it a matter of circumstances that caused you to
enter here? ()
33. Were you generally in good health during the past
term? ()

Sign your name here _____