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Personality adjustment of high-school athletes and non-athletes

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PERSONALITY ADJUSTMENT OF HIGH-SCHOOL
ATHLETES AND NON-ATHLETES

By

Gerald Clayton Carter

Contributions of the Graduate School
Indiana State Teachers College
Number 382

Submitted in Partial Fulfillment
of the Requirement for the
Master of Arts Degree
in Education

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The thesis of Gerald Clayton Carter
Contribution of the Graduate School, Indiana State
Teacher College, Number 382, under the title
Personality Adjustment of High-School Athletes
and Non-Athletes

is hereby approved as counting toward to completion
of the Master's degree in the amount of 8 hour's
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CHAPTER I

INTRODUCTION

Opinions have differed greatly as to the merits of the athletic programs of our public schools. On behalf of athletics, leaders have been highly enthusiastic in their claims of untold benefits and values to be derived by participation in athletic contests. On the other hand, many people have been prone to laugh at these claims and to point out harmful effects of athletics. The latter group has, perhaps, darkened the picture to as great an extent as the former has brightened it.

I. PREVIOUS STUDIES

Studies have been made comparing athletes and non-athletes in various ways. These studies have been thoroughly reviewed up to 1932 in Eaton's¹ study which found among other things that a greater proportion of high-school athletes than non-athletes graduate from college. The literature since 1932 has been treated by Snoddy² in his comparisons of the mental ability and scholastic achievement of athletes

¹ Dorothy Eaton, "College Carrers of High-School Athletes." (Master's thesis, Indiana State Teachers College, Terre Haute, Indiana, 1933).

² Marvin L. Snoddy, "A Comparison of Scholastic Achievement of High-School Athletes and Non-Athletes of Greene County, Indiana." (Master's thesis, Indiana State Teachers College, Terre Haute, Indiana, 1938).

and non-athletes. This study showed no significant difference in either mental ability or achievement of the two groups.

As far as the writer has been able to discover none of these studies has shown the effects of athletics upon the personality adjustment of participants. Research by Shannon³ and also by Crosser⁴ compared the success in later life of high-school leaders with non-leaders. These studies, however, were not concerned directly with the effects upon personality, and they are not limited to athletes.

II. THE PROBLEM

Statement of the problem. The purpose of this study is to ascertain whether participation in organized high-school athletics had any effect upon personality adjustment as measured by Symonds' Adjustment Questionnaire and by the rating scale prepared by the writer. The writer felt this was a highly important phase of athletics and quite worthy of careful scientific research.

Definitions of "athlete" and "non-athlete". Various definitions of the term athletes have tended to confuse the issues studied by various writers. Snoddy used the following definition: "The athletes are the junior and senior boys who

³ J. R. Shannon, "Post-School Careers of High-School Leaders and High-School Scholars." School Review. XXXVII (November, 1929). Pp. 956-965.

⁴ Margaret Crosser, "Follow-up Vocational Study of Students of the Upper and Lower Quartiles of Brazil High-School For the Years 1914-1919." (Master's thesis, Indiana State Teachers College, Terre Haute, Indiana, 1933).

have been awarded a school letter in one or more sports."⁵

Since some of the junior athletes are not awarded letters until their senior year, the writer felt that these students should be included as athletes. The writer thought an athlete should be defined as any high-school boy who is, according to the coach's judgment, definitely earning a letter in one or more high-school sports. A non-athlete is any high-school boy who, according to the coach's judgment is not earning a letter in any high-school sport. Most of the schools in this study gave letters only in basketball.

III. METHODS OF PROCEDURE AND SOURCES OF DATA

This study was limited largely to the junior and senior boys, because by the junior year the coach should be able to tell definitely which boys are earning letters. However, in two of the small schools the sophomores were included because the number of boys was so small that several of the sophomore boys were definitely earning letters. The Symonds' Adjustment Questionnaire was given to all of the boys of the junior and senior classes. These boys were then rated by the principal, coach, and two classroom teachers. The rating scale⁶ made possible a rating from 0 to 10 on each of the

⁵ Snoddy. loc. cit.

⁶ Both the questionnaire and the rating scale may be found in the appendix.

following traits: Cooperation, self-control, leadership, reliability, agreeability, and sociability.

The above-mentioned traits were selected because the writer felt they were indicative of development of wholesome personalities. Five degrees of each trait were described. These descriptions were arranged uniformly along a scale which began with the most undesirable rating and increased gradually in desirability to a maximum at the other extremity of the scale. The scale was divided into 10 sections by small vertical lines. The persons doing the rating were instructed to indicate each boy's relative position along the scale by making a check mark. In scoring the rating scales, the score on each trait, as well as the total score, was recorded for each boy. The score on each trait was determined by the section of the scale checked.

In preparing the descriptions, the writer attempted to make them clear and concise so that they would serve to guide the persons doing the rating to make as accurate ratings as possible. Although the rating scale was not standardized, it was used on the same number of athletes and non-athletes. No references to norms was needed.

The writer was very careful not to let either the teachers or the students know that the groups was to be divided into athletes and non-athletes until after the data were all taken. In almost every case the writer gave definite instructions to each teacher personally as to how to use the rating scale

properly. Care was exercised in explaining to the students that the teachers would not read their answers and that it would in no way affect their school work.

When the numbers of athletes and non-athletes were unequal in any school the groups were equalized by throwing out the number in excess from the larger group. This was done so that each teacher would rate the same number of athletes as non-athletes. The discarding was done at random before the questionnaire and rating scales were scored so that there would be no tendency to favor either group.

The data were taken in the ten following high-schools: St. Paul, Burney, Newpoint, Clarksburg, Letts, and Jackson, all of Decatur County; Holton of Ripley County; Silver Creek of Clark County; Fontanet and West Terre Haute of Vigo County.

Data were taken for 219 cases. In equalizing the groups, nineteen cases were thrown out leaving 200 cases, equally divided into 100 athletes and 100 non-athletes.

CHAPTER II

PRESENTATION OF DATA

I. ORGANIZATION OF DATA

After the group was divided, the scores of the questionnaire were tabulated and arranged in tables showing range of all the athletes and non-athletes on each of the seven phases of adjustment; curriculum, social life, administration, relation to teachers, relation to other pupils, home and family, and personal. Another table was prepared showing range on total scores.

Tables were made showing the range of averages of the ratings by the principal, coach, and teachers on each of the six traits; cooperation, self-control, leadership, reliability, agreeability, and sociability. The total ratings were then tabulated making separate tables for ratings of the principal, coach, and average of the two class-room teachers. Then a table was prepared showing range in total ratings according to the average of all of these raters.

II. STATISTICAL METHODS

Throughout the study the central tendency and dispersion of the athletes and non-athletes were compared by the use of the arithmetic mean and the standard deviation.

The arithmetic mean was computed by the formula:

true mean = assumed mean + $\frac{\sum fd}{N}$ \times interval. Sigma,

or standard deviations, was obtained by use of the formula:

S. D. $\left[\frac{\sum (EFD)^2}{N} - \left(\frac{\sum EFD}{N} \right)^2 \right] \lambda$ interval. The standard error was computed by formula: S. E. or $E_m = \frac{6}{\sqrt{N}}$.

In finding the reliability of the differences of the means, the standard error of the differences was obtained by formula: $E_D = \sqrt{(E_m)^2 + (E_m)^2}$. The significance of the differences in means is indicated by the critical ratio which is obtained by dividing the difference in means by the standard error of the difference. A critical ratio of 3 indicates that it is practically certain a true difference exists. A critical ratio of 2 means that the chances are 97.72 out of 100 that a true difference exists; and if the critical ratio is 1 the chances are 84.13 out of 100 that there is a true difference.¹

III. COMPARISONS ACCORDING TO ADJUSTMENT QUESTIONNAIRE

Comparison of athletes and non-athletes on adjustment in relation to the curriculum. A comparison based on Table I reveals there was little difference in the groups in range and means. The range was from 5 to 20 in each case. The means of the athletes was 13.53, and for the non-athletes was 13.65. There is a difference of .12 in favor of the non-athletes. The reliability of the difference was indicated by the critical ratio which was .24, meaning that only 57.93 times

¹ Ernest W. Tieg, and Claude C. Crawford.
Statistics For Teachers, Houghton Mifflin Company, Cambridge,
Mass. 1930. Pp. 138-144.

out of a 100 a difference would be expected. In light of the facts presented it is safe to conclude that neither the athletes nor the non-athletes are better adjusted in relation to the school curriculum.

TABLE I
COMPARISON OF ATHLETES AND NON-ATHLETES ON
ADJUSTMENT IN RELATION TO THE CURRICULUM

Scores	Athletes	Non- Athletes
18-20	9	10
16-17	28	28
12-14	30	34
9-11	23	16
6- 8	8	9
3- 5	2	3
Total	100	100
Means	13.53	13.65
Standard Deviations	3.61	3.63
Standard Error	.361	.363
Reliability:		
Diff. in means	.12	
In favor of	NA	
Standard Error of Difference	.505	
Critical Ratio	.24	
Chances in 100 of a true difference	57.93	

Comparison of athletes and non-athletes on adjustment in relation to social life. Again little difference was found in the two groups as shown in Table II. The range of each was from 0 to 13. The mean of the athletes was 8.22, and that of the non-athletes was 8.06. The difference was .16 in favor of the athletes. Since the critical ratio was only .48, it is safe to conclude that the data fail to show that either the non-athletes or the athletes are better adjusted in relation to social life.

TABLE II
 COMPARISON OF ATHLETES AND NON-ATHLETES ON
 ADJUSTMENT IN RELATION TO SOCIAL LIFE

Scores	Athletes	Non-Athletes
12-13	1	2
10-11	22	17
8-9	34	31
6-7	27	27
4-5	13	17
2-3	2	5
0-1	1	1
Total	100	100
Means	8.22	8.06
Standard Deviations	2.22	2.52
Standard Error	.222	.252
Reliability:		
Diff in means		.16
In favor of		A
Standard Error of Difference		.336
Critical Ratio		.48
Chances in 100 of a true difference		67.36

Comparison of athletes and non-athletes on adjustment in relation to administration. The range of the groups was from 1 to 9. The mean of the athletes, indicated in Table III, was 5.92, and that of the non-athletes was 6.09. The difference was .17 in favor of non-athletes. The critical ratio was .67 meaning that the difference of the means was not significant. In view of the data presented it may be concluded that neither group is better adjusted in relation to administration.

TABLE III
 COMPARISON OF ATHLETES AND NON-ATHLETES ON
 ADJUSTMENT IN RELATION TO ADMINISTRATION

Scores	Athletes	Non- Athletes
9	4	2
8	13	8
7	17	23
6	17	22
5	17	19
4	10	18
3	15	4
2	4	1
1	3	3
Total	100	100
Means	5.92	6.09
Standard Deviations	1.92	1.66
Standard Error	.192	.166
Reliability:		
Diff. in means	.17	
In favor of	NA	
Standard Error of Difference	.254	
Critical Ratio	.67	
Chances in 100 of a true difference	74.22	

Comparison of athletes and non-athletes on adjustment in relation to the teachers. The athletes ranged from 0 to 39, while the non-athletes ranged from 0 to 34. The mean of the athletes, as shown in Table IV, was 21.20, and that of the non-athletes was 22.20. This revealed a difference in the means of 100 in favor of the non-athletes. The reliability of the difference was indicated by the critical ratio, which was found to be .90. This is not high enough to justify a conclusion that either group was superior in adjustment in relation to the teachers in light of the facts presented. The chance of a true difference being 81.69 out of 100.

TABLE IV
COMPARISON OF ATHLETES AND NON-ATHLETES ON
ADJUSTMENT IN RELATION TO THE TEACHERS

Scores	Athletes	Non- Athletes
35-39	1	0
30-34	18	17
25-29	14	21
20-24	24	28
15-19	20	15
10-14	12	14
5- 9	9	2
0- 4	2	3
Total	100	100
Means	21.20	22.20
Standard Deviations	8.20	7.35
Standard Error	.820	.735
Reliability:		
Diff. in means		1.00
In favor of		NA
Standard Error of Difference		1.110
Critical Ratio		.90
Chances in 100 of a true difference		81.59

Comparison of athletes and non-athletes on adjustment in relation to other pupils. In comparing the groups, according to Table V, the range of the athletes was found to be from 8 to 35, and that of the non-athletes to be from 0 to 31. The mean of the athletes was 26.44, and that of the non-athletes was 24.48. A difference of .96 in favor of the athletes was found. A critical ratio of 1.49 shows that the reliability of the difference is not great enough to justify a conclusion that a true difference exists. However, in light of the facts presented, the chances are 92.65 out of 100, or 12.6 to 1, that the athletes are better adjusted in relation to other pupils than the non-athletes.

TABLE V
COMPARISON OF ATHLETES AND NON-ATHLETES ON
ADJUSTMENT IN RELATION TO OTHER PUPILS

Scores	Athletes	Non- Athletes
32-35	2	0
28-31	31	19
24-27	36	45
20-23	18	21
16-19	9	12
12-15	3	2
8-11	1	0
4- 7	0	0
0- 3	0	1
Total	100	100
Means	25.44	24.48
Standard Deviations	4.64	4.42
Standard Error	.464	.442
Reliability:		
Diff, in means		.96
In favor of		A
Standard Error of Difference		.641
Critical Ratio		1.49
Chances in 100 of A true difference		92.65

Comparison of athletes and non-athletes on adjustment in relation to the home. The range of the athletes, as shown in Table VI, was from 2 to 19, and that of the non-athletes was from 4 to 19. The athletes had a mean of 14.50, while the mean of the non-athletes was 14.08. This made a difference in means of .42 in favor of the athletes. The critical ratio of .95 indicated that the difference is not sufficiently high to indicate that the athletes are superior in home adjustment in view of the facts presented.

TABLE VI
COMPARISON OF ATHLETES AND NON-ATHLETES ON
ADJUSTMENT IN RELATION TO THE HOME

Scores	Athletes	Non- Athletes
18-19	11	8
16-17	25	24
14-15	24	23
12-13	23	24
10-11	10	9
8- 9	6	5
6- 7	1	6
4- 5	1	1
2- 3	1	0
Total	100	100
Means	14.50	14.08
Standard Deviations	3.04	3.22
Standard Error	.304	.322
Reliability:		
Diff. in means		.42
In favor of		A
Standard Error of Difference		.44
Critical Ratio		.95
Chances in 100 of a true difference		82.89

Comparison of athletes and non-athletes on adjustment in relation to personal life. The athletes ranged from 0 to 17, as shown in Table VII, and the non-athletes from 0 to 20. The mean of the athletes was 10.32, and the mean of the non-athletes was 10 to 59, leaving a difference of .27 in favor of the non-athletes. This difference of means was not a reliable one, as shown by the critical ratio of .54. It is safe to conclude that the data fail to show either group is better adjusted in relation to personal life.

TABLE VII

COMPARISON OF ATHLETES AND NON-ATHLETES ON
ADJUSTMENT IN RELATION TO PERSONAL LIFE

Scores	Athletes	Non- Athletes
18-20	0	2
15-17	11	9
12-14	21	23
9-11	27	31
6- 8	34	27
3- 5	6	7
0- 2	1	1
Total	100	100
Means	10.32	10.59
Standard Deviations	3.45	3.60
Standard Error	.345	.360
Reliability:		
Diff. in means		.27
In favor of		NA
Standard Error of Difference		.499
Critical Ratio		.54
Chances in 100 of a true difference		69.15

Comparison of athletes and non-athletes in relation to total points of the adjustment questionnaire.

A slight difference in range was found in Table VIII. The athletes ranged from 40 to 129, while the non-athletes ranged from 50 to 139. The athletes had a mean of 97.00; the non-athletes had a mean of 95.50, making a difference in means of 1.50 in favor of the athletes. Since the critical ratio was .59, it is safe to conclude that the data shows neither group is better adjusted in relation to total points covered by the questionnaire.

The differences in means on the separate parts were not great. Each group showed a favorable difference on four tables. On the whole, the critical ratios in favor of the athletes were a little higher, but in the light of facts presented sufficient evidence to establish superiority was not present. The greatest critical ratio was 1.49 in favor of the athletes on adjustment in relation to other pupils.

TABLE VIII
 COMPARISON OF ATHLETES AND NON-ATHLETES IN
 RELATION TO TOTAL POINTS OF THE
 ADJUSTMENT QUESTIONNAIRE

Score	Athletes	Non- Athletes
130-139	0	3
120-129	13	7
110-119	18	13
100-109	14	17
90- 99	19	24
80- 89	16	14
70- 79	11	12
60- 69	6	9
50- 59	2	0
40- 49	1	0
30- 39	0	1
Total	100	100
Means	97.00	95.50
Standard Deviations	18.40	18.20
Standard Error	1.84	1.82

Reliability:

Diff. in means	1.50
In favor of	A
Standard Error of Difference	2.590
Critical Ratio	.59
Chances in 100 of a true difference	70.88

IV. COMPARISONS ACCORDING TO THE RATING SCALE

Comparison of athletes and non-athletes on the average of teacher rating on cooperation. The range of the athletes, as shown in Table IX, was from 5 to 19 and that of the non-athletes was from 4 to 10. The mean of the athletes was 7.55, while that of the non-athletes was 7.42, making a difference of .14 in favor of the athletes. The critical Ratio of .71 means that the difference is not a very reliable one. It may be concluded that neither group is superior in cooperation, on the basis of facts presented.

TABLE IX
COMPARISON OF ATHLETES AND NON-ATHLETES ON
THE AVERAGE OF TEACHER RATING
ON COOPERATION

Score	Athletes	Non- Athletes
10-10.9	1	2
9- 9.9	16	8
8- 8.9	31	32
7- 7.9	16	23
6- 6.9	18	16
5- 5.9	14	11
4- 4.9	2	8
3- 3.9	2	0
Total	100	100
Means	7.56	7.42
Standard Deviations	1.35	1.33
Standard Error	.135	.143

Reliability:

Diff. in means	.14
In favor of	A
Standard Error of Difference	.197
Critical Ratio	.71
Chances in 100 of A true difference	75.80

Comparison of athletes and non-athletes
on the average of the teachers ratings on self-
control. Both groups ranged from 3 to 9. The
mean of the athletes, as indicated in Table X,
was 6.90, and that of the non-athletes 6.87,
leaving a difference of only .03 in favor of the
athletes. Since the critical ratio was .05, it
is safe to conclude that on the basis of the facts
discovered, neither group is superior in self-
control.

TABLE X
COMPARISON OF ATHLETES AND NON-ATHLETES ON
AVERAGE OF THE TEACHERS RATING
ON SELF-CONTROL

Score	Athletes	Non- Athletes
9-9.9	7	4
8-8.9	16	16
7-7.9	28	24
6-6.9	19	33
5-5.9	22	17
4-4.9	5	4
3-3.9	3	2
Total	100	100
Means	6.90	6.87
Standard Deviations	1.44	1.27
Standard Error	.144	.127
Reliability:		
Diff. in means		.03
In favor of		A
Standard Error of Difference		.607
Critical Ratio		.05
Chances in 100 of a true difference		51.99

Comparison of athletes and non-athletes on the average of teacher ratings on leadership. The range of both groups, indicated in Table XI, was from 2 to 9. The mean of the athletes was 5.89, and that of the non-athletes was 4.86, making a difference in means of 1.03 in favor of the athletes. The reliability of the difference was very high as shown by the critical ratio of 4.70. In so far as the scale was reliable and the data representative of a typical cross-section, it is safe to conclude, on the basis of the facts presented, that the athletes are superior to the non-athletes in leadership.

TABLE XI
COMPARISON OF ATHLETES AND NON-ATHLETES ON
AVERAGE OF THE TEACHER RATINGS
ON LEADERSHIP

Total	Athletes	Non- Athletes
9-9.9	1	1
8-8.9	9	4
7-7.9	16	8
6-6.9	16	9
5-5.9	29	13
4-4.9	19	33
3-3.9	9	24
2-2.9	1	8
Total	100	100
Means	5.89	4.86
Standard Deviations	1.50	1.59
Standard Error	.150	.159

Reliability:

Diff. in means	1.03
In favor of	A
Standard Error of Difference	.219
Critical Ratio	4.70
Chances in 100 of a true difference	99.99987

Comparison of athletes and non-athletes
on the average of teacher ratings on reliability.

The athletes ranged from 4 to 10 and the non-athletes from 3 to 10. The athletes, as shown in Table XII, had a mean of 7.32, and that of the non-athletes was 6.96, leaving a difference in means of .36, in favor of the athletes. The critical ratio was 1.46, meaning that it is by no means certain that the athletes are superior on reliability to non-athletes in light of the facts presented. However, the chances are 92.65 out of 100 that the difference is a true one.

TABLE XII
COMPARISON OF ATHLETES AND NON-ATHLETES ON
THE AVERAGE OF TEACHER RATINGS
ON RELIABILITY

Score	Athletes	Non- Athletes
10-10.9	2	1
9- 9.9	14	11
8- 8.9	12	18
7- 7.9	30	21
6- 6.9	19	19
5- 5.9	14	14
4- 4.9	9	14
3- 3.9	0	2
Total	100	100
Means	7.32	6.96
Standard Deviations	1.51	1.66
Standard Error	.151	.166
Reliability:		
Diff. in means	.36	
In favor of	A	
Standard Error of Difference	.246	
Critical Ratio	1.46	
Chances in 100 of a true difference	92.65	

Comparison of athletes and non-athletes on the average of teacher ratings on agreeability. The range of the athletes, indicated in Table XIII, was from 5 to 10 and that of the non-athletes from 5 to 9. There was very little difference in the means. That of the athletes was 7.21, and that of the non-athletes was 7.24, leaving a difference of .03 in favor of the non-athletes. Since the critical ratio was .17, it may be concluded that neither group is superior in relation to agreeability in light of the facts presented.

TABLE XIII
COMPARISON OF ATHLETES AND NON-ATHLETES ON
THE AVERAGE OF TEACHER RATINGS
ON AGREABILITY

Score	Athletes	Non-Athletes
10-10.9	1	0
9- 9.9	9	6
8- 8.9	19	24
7- 7.9	27	31
6- 6.9	28	24
5- 5.9	8	9
4- 4.9	7	4
3- 3.9	1	2
Total	100	100
Means	7.21	7.24
Standard Deviations	1.39	1.30
Standard Error	.159	.130
Reliability:		
Diff. in means		.03
In favor of		NA
Standard Error of Difference		.174
Critical Ratio		.17
Chances in 100 of a true difference		55.96

Comparison of athletes and non-athletes
on average of the teacher ratings on sociability.
Comparison, based on Table XIV, revealed a considerable difference in range. The athletes ranged from 5 to 9, while the non-athletes ranged from 2 to 9. The mean of the athletes was 7.46, while that of the non-athletes was 6.49, making a difference of .97 in favor of athletes. This difference was shown to be highly reliable, as was indicated by the critical ratio of 5.71. According to the measures used and in so far as the data represented a typical cross-section, it may be concluded that the athletes are superior in view of the facts presented.

TABLE XIV
COMPARISON OF ATHLETES AND NON-ATHLETES ON
AVERAGE OF THE TEACHER RATINGS
ON SOCIABILITY

Total	Athletes	Non- Athletes
9-9.9	11	1
8-8.9	20	13
7-7.9	32	19
6-6.9	28	30
5-5.9	9	28
4-4.9	0	7
3-3.9	0	1
2-2.9	0	1
Total	100	100
Means	7.46	6.49
Standard Deviations	1.13	1.27
Standard Error	.113	.127
Reliability:		
Diff. in means		.97
In favor of		A
Standard Error of Difference		.170
Critical Ratio		5.71
Chances in 100 of A true difference		99.99999

Comparison of athletes and non-athletes
on total points according to the coaches' rating.
The range of both groups, indicated in Table XV,
was from 20 to 59. The mean of the athletes was
41.85, and that of the non-athletes was 38.55, making
a difference of 3.30 in favor of the athletes. This
difference was fairly reliable, as shown by the
critical ratio of 2.80, which indicates that the
chances are 99.74 out of 100 that the difference
is a true one. The superiority of the athletes is
not quite a certainty in the light of the facts
presented.

TABLE XV
 COMPARISON OF ATHLETES AND NON-ATHLETES ON
 TOTAL POINTS ACCORDING TO THE
 COACHES' RATING

Scores	Athletes	Non- Athletes
55-59	7	2
50-54	11	4
45-49	19	13
40-44	24	31
35-39	15	14
30-34	15	20
25-29	6	12
20-24	3	4
15-19	0	0
Total	100	100
Means	41.85	38.55
Standard Deviations	8.70	7.90
Standard Error	.870	.790
Reliability:		
Diff. in means	3.30	
In favor of	A	
Standard Error of Difference	1.18	
Critical Ratio	2.80	
Chances in 100 of a true difference	99.74	

Comparison of athletes and non-athletes
on total points according to the principals' rating.

Both groups ranged from 20 to 59. The mean of the athletes, indicated in Table XVI, was 8.75, and that of the non-athletes was 8.15, leaving a difference of 1.25 in favor of the athletes. The critical ratio was 1.04 indicating that it is not certain that there is a true difference according to the ratings of the principals. The chances are 85.31 out of 100 that the athletes are superior according to the measures used.

TABLE XVI
COMPARISON OF ATHLETES AND NON-ATHLETES ON
TOTAL POINTS ACCORDING TO THE
PRINCIPALS' RATING

Scores	Athletes	Non- Athletes
55-59	8	5
50-54	15	8
45-49	17	22
40-44	21	19
35-39	15	23
30-34	16	17
25-29	7	2
20-24	1	4
Total	100	100
Means	42.45	41.20
Standard Deviations	8.75	8.15
Standard Error	.875	.815
Reliability:		
Diff. in means		1.25
In favor of		A
Standard Error of Difference		1.20
Critical Ratio		1.04
Chances in 100 of a true difference		85.31

Comparison of athletes and non-athletes
on total points according to the class-room teachers'
rating. The athletes ranged from 25 to 59 and
the non-athletes from 20 to 59. The mean of the
athletes, indicated in Table XVII, was 41.90.
and that of the non-athletes was 38.60, making
a difference in means of 3.30. The critical ratio
of 3.17 indicates that it is practically certain
that the difference is a true one. In so far as
the measures used are reliable and the data re-
presentative of a typical cross-section, it
is safe to conclude that the athletes are superior
according to the ratings of the class-room teachers.
It is interesting to note that difference according
to the class-room teachers was just the same as
the difference according to the coaches' rating.
The coaches might have shown a tendency to over-
estimate the athletes.

TABLE XVII
 COMPARISON OF ATHLETES AND NON-ATHLETES ON
 TOTAL POINTS ACCORDING TO THE
 CLASS-ROOM TEACHERS' RATING

Score	Athletes	Non- Athletes
55-59	3	1
50-54	11	4
45-49	18	19
40-44	30	19
35-39	21	23
30-34	11	21
25-29	6	10
20-24	0	3
Total	100	100
Means	41.90	38.60
Standard Deviations	7.20	7.60
Standard Error	.720	.760

Reliability:

Diff. in means	3.30
In favor of	A
Standard Error of Difference	1.04
Critical Ratio	3.17
Chances in 100 of a true difference	99.918

Comparison of athletes and non-athletes on total points according to average of all teachers' ratings. The athletes ranged from 25 to 59 and the non-athletes from 20 to 54. The mean of the athletes, as shown in Table XVIII, was 42.25, and that of the non-athletes was 39.05, making a difference in means of 3.80 in favor of the athletes. Since the critical ratio was 3.40, it is safe to conclude that the data show the athletes are superior. The writer felt that these findings were rendered more significant by not letting the teachers doing the rating know the cases were to be divided into athletes and non-athletes until after the data were taken.

TABLE XVIII

COMPARISON OF ATHLETES AND NON-ATHLETES ON
TOTAL POINTS ACCORDING TO AVERAGE
OF ALL TEACHERS' RATINGS

Score	Athletes	Non-Athletes
55-59	4	0
50-54	7	5
45-49	20	13
40-44	35	29
35-39	20	25
30-34	11	18
25-29	3	9
20-24	0	1
Total	100	100
Means	42.25	39.05
Standard Deviations	6.60	6.70
Standard Error	.660	.670
Reliability:		
Diff. in means		3.80
In favor of		A
Standard Error of Difference		.940
Critical Ratio		3.40
Chances in 100 of a true difference		99.996

CHAPTER III

SUMMARY AND CONCLUSION

I. SUMMARY OF FINDINGS

Comparison of the athletes and non-athletes according to adjustment as measured by Symonds' Questionnaire, as shown in Table XIX, revealed no findings certain enough to justify definite conclusion. The most significant difference was found in favor of the athletes on adjustment in relation to other pupils. According to the data presented, the odds are 12.6 to 1 that the athletes are superior.

Comparisons according to the ratings of the principals, coaches, and class-room teachers, the judges not knowing the cases were to be divided into athletes and non-athletes, revealed a highly significant difference in favor of the athletes on leadership and sociability. The ratings on all traits according to the average ratings of the principals, coaches, and class-room teachers also revealed a highly significant difference in favor of the athletes. There were five differences in favor of the non-athletes; but all of the critical ratios of these were below 1. There were five differences in favor of the athletes with critical ratios below 1; 4 with critical ratios between 1 and 3; and 4 with critical ratios above 3.

TABLE XIX
SUMMARY OF DATA

Tables of Questionnaire	Diff. in means	Favor	Critical Ratio
Curriculum	.12	NA	.24
Social Life	.16	A	.48
Administration	.17	NA	.67
Teachers	1.00	NA	.90
Other Pupils	.96	A	1.49
Home	.42	A	.95
Personal Life	.27	NA	.54
Total points of Questionnaire	1.50	A	.59
<hr/>			
Tables of Rating Scale			
Cooperation	.140	A	.71
Self-control	.03	A	.05
Leadership	1.03	A	4.70
Reliability	.36	A	1.46
Agreeability	.03	NA	.17
Sociability	.97	A	5.71
Coaches' ratings	3.30	A	2.80
Principals' ratings	1.25	A	1.20
Class-room Teachers' ratings	3.30	A	3.17
Average of all Teachers' ratings	3.20	A	3.40

II. CONCLUSION

In so far as the data represented a typical cross-section, and in so far as the teachers' ratings are reliable, it is safe to conclude that the athletes are superior in leadership and sociability. The writer does not conclude, however, that participation in athletics is responsible for this superiority.

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APPENDIX

ADJUSTMENT QUESTIONNAIRE

FORM A

By PERCIVAL M. SYMONDS

TEACHERS COLLEGE, COLUMBIA UNIVERSITY

me
(First name) (Last name)

e years Last Birthday.....

te Class in School.....

me Address

her's Name Father's Occupation.....

Brothers' and Sisters' Names Age School Grade or Occupation

Brothers' and Sisters' Names	Age	School Grade or Occupation

Subjects taken this year

Teacher's Name

Subjects taken this year	Teacher's Name

What School Organizations do you belong to?

If you hold an office mention it below

What School Organizations do you belong to?	If you hold an office mention it below

In what sports do you participate?

In what sports do you participate?

The questions in this folder are given to you to find out how well you are satisfied with your school and your home. They are asked to find out whether you would like to have some things changed or whether everything suits you as it is. Probably everyone is troubled about some things which he wishes were different and is satisfied with other things which he would like to keep as they are. This is an opportunity for you to indicate whether you like or dislike things at school and at home. Answer all the questions as carefully and as truthfully as you can.

Below are 23 questions each of them to be answered by *YES* or *NO*. Read each statement carefully. If your answer is *YES* draw a line under the word "*YES*"; if your answer is *NO*, draw a line under the word "*NO*".

Take each question in order. *Answer every question.* Answer truthfully.

Read the samples before you begin so that you will understand how the questions shall be answered.

SAMPLES

- a. Do you like to have a good time? YES NO
- b. Do you enjoy a toothache? YES NO

IN RELATION TO THE CURRICULUM

1. Do you dislike any of the subjects you are now studying in school? YES NO
2. Name them.
3. Are you required to take these subjects that you dislike? YES NO
4. Do you make good marks in the subjects that you like? YES NO
5. Do you spend much time in study on the subjects you do not like? YES NO
6. Do you often fail in the subjects you dislike? YES NO
7. Would you like to drop any of your subjects?
Name them. YES NO
8. Do you think there are too many required subjects? YES NO
9. Would you like more freedom in choosing what you study? YES NO
10. Do you think there should be more try-out or optional subjects? YES NO
11. Do you think your high school training will do you much good unless you go on to college? YES NO
12. Are there subjects you would like to take in school if they were offered? YES NO
13. Do you ever feel that you would like to leave school and go to work? YES NO
14. Are most of your studies interesting? YES NO
15. Do you ever worry for fear you will not pass in school? YES NO
16. Is there any subject in which you don't care whether you do good work or not? YES NO

7. Do you like to master difficult subjects? YES NO
8. Are your textbooks interesting and easy to read? YES NO
9. Do you feel that most of your subjects will be of great help to you when you finish school? YES NO
10. Do you expect to quit school as soon as possible? YES NO
1. Do you have difficulty in doing all the work required of you in most of the subjects you are studying? YES NO
2. Do you wish there were more holidays and longer vacations? YES NO
3. Do you feel sometimes that you must work harder to keep up the record you made in previous years in school? YES NO

IN RELATION TO THE SOCIAL LIFE OF THE SCHOOL

1. Do you think student organizations tend to be snobbish? YES NO
2. Do you think that pupils have an equal chance to become officers in school organizations? YES NO
3. Do you think pupils must belong to a special group in order to become members of social organizations? YES NO
4. Should student organizations be given more liberty than they now have? YES NO
5. Is the student government of this school controlled by a small group? YES NO
6. Do you enjoy the assembly periods in the school? YES NO
7. Is the student government worth while? YES NO
8. Should the principal and the teachers take part in the work of the student council? YES NO
9. Are the assembly periods too long? YES NO
10. Do extra-curricular activities take time that should be used for lessons? YES NO
11. Do you feel that you are not a welcome member in any of the school clubs? YES NO
12. Do you like the way the clubs to which you belong are run? YES NO

IN RELATION TO THE ADMINISTRATION

1. Would you hesitate to go to the principal for advice if you thought you needed it? YES NO
2. Do you dread being called upon to recite when the principal or supervisor visits your class? YES NO
3. Is it your opinion that too much emphasis is placed upon good order or discipline in this school? YES NO
4. Do discipline or rules often interfere with your activities? YES NO
5. Are you ever punished for things you do not do? YES NO
6. Do you think there are too many rules in the school? YES NO

- | | | |
|---|-----|----|
| 7. Do you think the rules are enforced equally against all offenders? | YES | NO |
| 8. Do you like examinations in school? | YES | NO |
| 9. Do you think that examinations in general are fair? | YES | NO |

IN RELATION TO THE TEACHERS

- | | | |
|---|-----|----|
| 1. Do any of your teachers show favoritism? | YES | NO |
| 2. Do you dislike any of your teachers? | YES | NO |
| 3. Would you select another teacher in any of your subjects if you were permitted to? | YES | NO |
| 4. Do all of your teachers make the assignment clear? | YES | NO |
| 5. Do your teachers praise you when you hand in good work? | YES | NO |
| 6. Do any of your teachers enjoy criticising your faults and errors? | YES | NO |
| 7. Do your teachers usually understand your difficulties? | YES | NO |
| 8. Do any of your teachers mark examinations too severely? | YES | NO |
| 9. Do your teachers require too much home work? | YES | NO |
| 10. Are all of your teachers thoughtful and considerate? | YES | NO |
| 11. Do you believe that the marks that a teacher gives depend upon how much he or she likes the pupil? | YES | NO |
| 12. Do all of your teachers treat you as a friend? | YES | NO |
| 13. Are any of your teachers conceited and pleased to express what they know? | YES | NO |
| 14. Are all of your teachers willing to explain again topics that you do not understand? | YES | NO |
| 15. Do your teachers make assignments too long? | YES | NO |
| 16. Do any of your teachers have a wrong opinion about you? | YES | NO |
| 17. Do your teachers make the assignments too difficult? | YES | NO |
| 18. Do you like criticism from your teachers? | YES | NO |
| 19. Do any of your teachers spend most of their time "preaching" to the class? | YES | NO |
| 20. Do all your teachers give you opportunities to express your opinions? | YES | NO |
| 21. Do any of your teachers allow a few pupils to do all the reciting? | YES | NO |
| 22. As a rule are students who make the best marks in your classes the ones who bluff? | YES | NO |
| 23. Do you think any of your teachers would like to transfer you to another class or to another school? | YES | NO |
| 24. Do most of your teachers try to make the class interesting? | YES | NO |
| 25. Have you any teacher who does not appreciate something funny that happens in class? | YES | NO |

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|---|-----|----|
| 26. Do you think that any of your teachers are too strict? | YES | NO |
| 27. Are you given a chance to tell or show what you know in your classes? | YES | NO |
| 28. Are you glad when any of your teachers are absent? | YES | NO |
| 29. Do your teachers ever embarrass you before the class? | YES | NO |
| 30. Are any of your teachers cold and impersonal? | YES | NO |
| 31. Are you ever unjustly reprimanded by any of the teachers in the school? | YES | NO |
| 32. Are any of your teachers more interested in their subjects than in the pupils? | YES | NO |
| 33. Do any of your teachers use sarcasm or ridicule as a method of keeping discipline? | YES | NO |
| 34. Are your teachers generally willing to talk with you about your problems and give you advice? | YES | NO |
| 35. Do any of your teachers resent having a pupil express an opinion which differs from her own? | YES | NO |

IN RELATION TO OTHER PUPILS

- | | | |
|---|-----|----|
| 1. Are you popular with other students? | YES | NO |
| 2. Are there members of your class that you thoroughly dislike? | YES | NO |
| 3. Are you disliked by many of your classmates? | YES | NO |
| 4. Do you think pupils who are grinds make the best marks? | YES | NO |
| 5. Do your best friends ridicule school work? | YES | NO |
| 6. Do you like the best students in your class? | YES | NO |
| 7. Do you like to excel or beat others in their class work? | YES | NO |
| 8. Do a few of the pupils do all the talking during a recitation? | YES | NO |
| 9. Do you like to volunteer in a recitation? | YES | NO |
| 10. Are your classmates more friendly than they were in the lower grades? | YES | NO |
| 1. Do you have as much fun now as you did in the lower grades? | YES | NO |
| 2. Do you find that friends are easy to make? | YES | NO |
| 3. Do other pupils ever give you a chance to express yourself? | YES | NO |
| 4. Have you many friends among your classmates? | YES | NO |
| 5. Do you make any effort to have more friends? | YES | NO |
| 6. Do any of your classmates show that they dislike you? | YES | NO |
| 7. Do other pupils ever call you names? | YES | NO |
| 8. Do you sometimes wish you had no friends? | YES | NO |
| 9. Do other pupils ever ridicule you when you recite in class or when you play games? | YES | NO |

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|--|-----|----|
| 20. Do you feel free to express your opinion among other students? | YES | NO |
| 21. Do people like to tease you? | YES | NO |
| 22. Are many of your classmates snobbish? | YES | NO |
| 23. Do you like to talk with girls (if a boy); or do you like to talk with boys (if a girl) | YES | NO |
| 24. Do girls like to talk with you (if a boy); or do boys like to talk with you (if a girl) | YES | NO |
| 25. Do other pupils tend to ignore you? | YES | NO |
| 26. Do you approve of the conduct of most of the students? | YES | NO |
| 27. Do you feel that most of the students are superior to you in school work? | YES | NO |
| 28. Do you feel out of place in a group of pupils? | YES | NO |
| 29. Do pupils enjoy playing jokes on you? | YES | NO |
| 30. Do other pupils give you all the credit you deserve? | YES | NO |
| 31. Do you ever worry because you are not as strong as other pupils? | YES | NO |
| 32. Do you often wish you could get completely away from everyone so that you could enjoy being alone? | YES | NO |
| 33. Would your friends "stand by" you if you were in serious difficulties? | YES | NO |

IN RELATION TO HOME AND FAMILY

- | | | |
|---|-----|----|
| 1. Are you doing as much or as well in school as your parents expect you to do? | YES | NO |
| 2. Do you do as well as your brothers and sisters (or friends)? | YES | NO |
| 3. Do you feel that you have as much spending money as you ought to have? | YES | NO |
| 4. Do your parents require you to do many tasks around the house? | YES | NO |
| 5. Do you like to ask your father for advice or help? | YES | NO |
| 6. Do you often ask your friends to go home with you? | YES | NO |
| 7. Are you often embarrassed because you are ashamed of your clothes? | YES | NO |
| 8. Do you ever feel that your parents do not care for you? | YES | NO |
| 9. Do your parents think that most of your teachers are good teachers? | YES | NO |
| 10. Do you study or pretend to study to avoid home duties? | YES | NO |
| 11. Do you feel lonely when at home? | YES | NO |
| 12. Do your parents want you to do many things that you dislike to do? | YES | NO |
| 13. Do you ever feel that you would like to leave home? | YES | NO |

- | | | |
|--|-----|----|
| 14. Do your parents ever praise you when you have done something particularly well? | YES | NO |
| 15. Do you have a place to keep your own things at home where they will not be disturbed? | YES | NO |
| 16. Does your brother or sister seem to be more of a favorite with either of your parents than you do? | YES | NO |
| 17. Do you feel that you can tell either your father or mother about the things that trouble or worry you? | YES | NO |
| 18. Do your parents still treat you as if you were a little child? | YES | NO |
| 19. Do you have to go to bed too early? | YES | NO |

PERSONAL

- | | | |
|---|-----|----|
| 1. Do you feel that you are making quite a success of the things you do? | YES | NO |
| 2. Do you feel that people appreciate you? | YES | NO |
| 3. Do you often wish you could have more fun than you have now? | YES | NO |
| 4. Do you think your work this year is rather monotonous? | YES | NO |
| 5. Would you like to be able to go to parties, movies, etc., more often? | YES | NO |
| 6. Do people ever make fun of you? | YES | NO |
| 7. Do you ever worry about things you have done that you have never told anyone about? | YES | NO |
| 8. Do you ever feel afraid because you don't understand about the world and what controls it and where it is going? | YES | NO |
| 9. Do you ever wish that you had someone who could tell you things about sex that you would like to know? | YES | NO |
| 10. Do you ever feel ashamed of things that you have done? | YES | NO |
| 11. Do you sometimes feel that you would like to be free to do just what you pleased? | YES | NO |
| 12. Do you sometimes feel that the things you do are of little importance? | YES | NO |
| 13. Do you feel that your ideas and opinions are as good as those of your classmates? | YES | NO |
| 14. Do you wish for things that you know you cannot have? | YES | NO |
| 15. Do you ever have the "blues"? | YES | NO |
| 16. Do you think that people often have a really better opinion of you than you deserve? | YES | NO |
| 17. Do you wish you could be more attractive? | YES | NO |
| 18. Are you in good health? | YES | NO |
| 19. Do you like to daydream? | YES | NO |
| 20. Do you get tired easily? | YES | NO |

ADJUSTMENT RATING SCALE

Cooperation

flatly re-
fuses to
cooperate

seldom
cooperates
willingly

often
cooperates

usually
cooperates

always
cooperates
willingly

Self-control

extreme
reaction
high strung

easily
excited

displays
normal
self-control

usually
is self-
controlled

always dis-
plays self-
control

Leadership

never
able to
lead

lets
others
lead

leads when
it isn't
difficult

often
leads

unusual
ability

Reliability

never meets
responsi-
bilities

rarely to
be relied
upon

reliable un-
less something
interferes

almost
always
reliable

always meets
responsi-
bilities

Agreeability

gets along
with
no one

often has
conflicts
with others

usually gets
along with
others

rarely has
conflicts
with others

gets along
with
everyone

Sociability

associates
with
no one

often
seclusive

usually
sociable

almost
always
sociable

associates
with
everyone