1951

Relationship of participation in athletics to personality as measured by the Bell adjustment inventory among boys in the Butte high schools in 1950-51

Patrick Henry McCarthy
The University of Montana

THE RELATIONSHIP OF PARTICIPATION IN ATHLETICS TO PERSONALITY AS MEASURED BY THE BELL ADJUSTMENT INVENTORY AMONG BOYS IN THE BUTTE HIGH SCHOOLS IN 1950-51

by

Patrick H. McCarthy
B.A., Montana State University, 1950

Presented in partial fulfillment of the
requirement for the degree of
Master of Education

Montana State University
1951

Approved:

Chairman of Board
of Examiners

W. P. Clark
Dean, Graduate School

ProQuest LLC.
789 East Eisenhower Parkway
P.O. Box 1346
Ann Arbor, MI 48106 - 1346

TABLE OF CONTENTS

LIST OF TABLES

CHAPTER I

NATURE AND PURPOSES OF THE STUDY

During the past fifty years much work has been done on personality measurement. Many different techniques have been used to measure student adjustment in both the areas of personal and social adjustment. Much progress has been made in pencil and paper personality testing; however, some educators and psychologists are very skeptical of such measures. Others take the view expressed by John G. Darley as follows:

> Personality and interests, broadly conceived are some of the weapons with which human motivation and the dynamics of personality must be attacked and by which, possibly, they can be reduced to the level of prediction and control in human behavior. The battle will not stop merely because our weapons are less than perfect.[1]

A review of the literature pertaining to personality adjustment and athletic participation uncovered a wealth of theoretical discussion on the subject by physical educators, psychologists, and sociologists. A general opinion was found to exist among many physical educators and mental hygienists that participation in athletics makes for more wholesome personalities.

---

[1] E. G. Williamson, editor, Trends in Student Personnel Work (Minneapolis: University of Minnesota Press, 1949), p. 77

Statements to this effect are made by Voltmer and Esslinger,[2] Heaton,[3] Watson,[4] and other writers. At the same time there are opinions in the literature which question the influence of athletics on personality adjustment. These views are contained in books by Cole,[5] and Witty and Skinner.[6]

I. THE PROBLEM

Statement of the problem. The purpose of this study was to determine the relationship of personality adjustment to participation in athletics. Specifically, the primary purpose of this study was to analyze the scores on the Bell Adjustment Inventory to find if there were significant differences between the responses made by participants and non-participants in high school athletics.

---

[2]F. Voltmer and A. Esslinger, The Organization and Administration of Physical Education, (F. S. Crofts and Co., New York, 1938) p. 89

[3]K. L. Heaton, Character Building Through Recreation, (The University of Chicago Press, Chicago, Illinois, 1929)

[4]G. B. Watson, "Personality Growth Through Athletics," Journal of Health and Physical Education, 9 (Sept.,1938) p.408

[5]L. Cole, Psychology of Adolescence, (Farrar and Rinehart, New York, 1936) p. 29

[6]P. A. Witty and C. E. Skinner, et al., Mental Hygiene in Modern Education, p. 262

The subjects of this study consisted of 240 high school students selected from Butte Public High School and Boys' Central High School representing all four high school classes. There were 120 athletes and 120 non-athletes in the entire group tested.

Importance of the study. Today, competitive sports are receiving greater attention and recognition in the schools than ever before. This movement has gradually gained momentum until it has become one of the traditions of high school life.

This study was undertaken in order to furnish some experimental data which might assist in clarifying the issue of adjustment and to enable one to say with greater assurance than now exists that athletic participation is, or is not, associated with more favorable personality adjustment.

John L. Griffith,[7] in an editorial, quotes the lines of John Galsworthy written after World War I worth repeating today:

> Sport, which keeps the flag of idealism flying is perhaps the most saving grace in the world at the moment with its spirit of rules kept, and regard for the adversary whether the fight is going for or against. When, if ever, the fair play spirit of sports reigns over international affairs, the cat force which rules there now will slink away and human life emerge for the first time from the jungle.

---

[7]John L. Griffith, "The Flag of Idealism," The Athletic Journal, 27:18, September, 1946

> After World War II, [wrote Griffith],[8] international competition on any type of equitable basis is out of the question with war-torn Europe or the Phillipines. We who are associated with athletics should take pride in our profession. With disease, inadequate housing, and starvation facing Europe, still its people are once again turning to sports and athletics.
>
> Every truly democratic country has been through history, an athletic nation. Athletics develop the very qualities which are essential in democracy. Private initiative and competition are democracy and hence competitive sports are not permitted to flourish in dictatorships.

II. DEFINITIONS OF TERMS USED

Athlete. An athlete was defined as any boy who was a member of any team engaged in interscholastic or organized intramural competition, under the supervision of a coach provided by the high school, regardless of his winning a letter or being a regular starter on a team during any part of his high school career.

Non-Athlete. For purposes of this study a non-athlete was defined as an individual who had never been a member of a varsity, junior varsity, intramural, class, or club team under the supervision of a teacher or coach during any part of his high school career. Students who engaged in informal class or team competition only were not considered in this study.

---

[8] Ibid, p. 27

Home Adjustment. The term home adjustment as used in the Bell Adjustment Inventory considers the conflicts of the individual with parents in the home as well as other maladjusted situations within the household.

Health Adjustment. The health adjustment section is so constructed as to locate any specific health problems of the examinee.

Emotional Adjustment. The area of emotional adjustment deals with fear, introversion, excitation, and depression as applied to the examinee.

Social Adjustment. The social adjustment section of the inventory attempts to score timidity and reticence as well as the aggressive and dominant attitude in social relationship of each individual.

Upper Group. The upper group consisted of boys with the highest academic standing and included approximately 15 per cent of those enrolled.

Lower Group. The lower group consisted of students with the lowest academic standing and included approximately 15 per cent of the class enrolled.

III. ORGANIZATION OF THE PAPER

A review of the literature pertaining to the problem will be presented in Chapter II. A description of the particular test used in this study, method and materials

of the study, the methods used in selecting the subjects for this study, and the procedure that was employed in testing the subjects will be presented in Chapter III. The report and findings will be contained in Chapter IV, and Chapter V will present the Summary and Conclusions.

CHAPTER II

REVIEW OF THE RELATED LITERATURE

An extensive study was made by Sperling[1] in 1942 at the College of the City of New York to show the relationship between personality adjustment and achievement in physical education activities using the Human Behavior Inventory devised by Randolph Smith; Introversion-Extroversion Scale by J. P. and R. B. Guilford, and revised by G. W. and F. H. Allport, Social Study by M. H. Harper, Study of Values by G. W. Allport and P. E. Vernon as well as a personal information sheet prepared by the investigator. These measuring instruments were administered to the following three groups of students who were differentiated with respect to athletic achievement; namely, a group of varsity athletes, a group of intramural athletes, and a group of non-athletes. To investigate the problem a total of 435 tests were administered to 171 varsity athletes, 138 intramural athletes and 126 non-athletes. He found that the non-athlete group showed significantly poorer adjustment scores than the varsity and intramural group and that they

---

[1]Abraham P. Sperling, "The Relationship Between Personality Adjustment and Achievement in Physical Education Activities," Research Quarterly, 13:351-63, October, 1942

had significantly greater scores in the direction of introversion and submission.

Statistically reliable differences were found in the personality patterns of the varsity athletes as distinguished from those of the non-athlete group. In personality adjustment, ascendence, and extroversion scores the varsity athlete and intramural group proved to be reliably superior to the non-athlete group.

Comparisons between two groups of varsity athletes differentiated on the basis of the number of seasons of athletic experience showed the group having greater experience to have significantly more favorable adjustment scores, to be more ascendant and more extroverted. In attitude and interests no differences were indicated.

Finally it was stated that due to the empirical nature of his investigation it could not be determined whether participation in the activities caused the obtained personality status, whether those with the characteristic status were attracted to the activity, or whether the activities were such that only those with the required personality status would be successful participants.[2]

---

[2]Ibid, p. 352

Hackensmith and Miller in "A Comparison of the Academic Grades and Intelligence Scores of Participants and Non-Participants in Intramural Athletics at the University of Kentucky," came to these conclusions:

> 1. That Freshman participation in intramural athletics does not have a marked effect upon the student's academic grade.
> 2. That participants in intramural athletics as a whole have a higher mean intelligence sigma ranking than those who do not participate.
> 3. That Sophomore participants show a slightly higher mean academic grade and that Junior and Senior participants demonstrate a definitely higher mean academic grade than do non-participants of the same.[3]

Paul R. Washke[4] completed a study, at the University of Oregon, of intramural sports participation and scholastic attainment using the intramural participation records for the five years (1931-1936) of those students who competed in from five to eight activities of which there were 271 in number. By referring to the permanent record sheets data concerning each of the 271 intramural participants were secured. To be used for the purpose of comparison, a second group of 271 students was selected who had not competed in

---

[3]C. W. Hackensmith and L. Miller, "A Comparison of the Academic Grades and Intelligence Scores of Participants and Non-Participants in Intramural Athletics at the University of Kentucky," Research Quarterly 9:1 (March 1938) p. 94

[4]Paul R. Washke, "A Study of Intramural Sports Participation and Scholastic Attainment," Research Quarterly, 11: pp. 22-27

intramurals but who paralleled the intramural participants in the five control factors determined after perusual of the Registrar's student files. Grade Point Averages and Scholastic grades were used for comparison of the groups. Grade Point Averages show the intramural participants scored a cumulative G. P. A. for the five-year period slightly higher than the non-participants. These averages show that the intramural program at the University of Oregon had no deleterious effect on the participants' scholastic attainment. The results of this study corroborate the findings at the University of Michigan and the University of Kentucky.

Rarick made a survey[5] of the literature dealing with the relationship of scholastic achievement to interscholastic, intercollegiate, and intramural athletic participation. The studies reviewed included seven surveys of interscholastic athletics, the Carnegie Foundation Report on Collegiate Athletics which included ten studies, and four studies of intramural participation.

The general trend seemed to indicate no decline in scholastic achievement accompanying participation in

---

[5]Lawrence Rarick, "A Survey of Athletic Participation and Scholastic Achievement," Journal of Educational Research, 37:3 (Nov., 1943).

athletics. Those participating extensively in intramural programs compared most favorably in scholastic achievement.

Rarick[6] concluded that since it is difficult to demonstrate that time spent in athletic participation is detrimental to scholarship, and since it is becoming increasingly evident that good health and physical fitness are worthy things, more time could be spent on conditioning activities in both high schools and colleges.

Hull[7] examined the marks and intelligence quotients of athletes in the high school at Sullivan, Indiana. He paired athletes and non-athletes as to intelligence and found superior scholarship on the part of non-athletes to the extent of between 1 and 2 per cent. Hull considered as athletes all boys who continued on the squad and in practice for at least eight weeks whether or not they received letters. However, football and basketball were the only sports considered.

Swanson[8] conducted a survey of the relation of

---

[6]Ibid, p. 3

[7]J. D. Hull, "A Comparison of the Grades and Intelligence Quotients of Athletes and Non-Athletes," American School Board Journal, 69: 107-09, August, 1924

[8]A. M. Swanson, "The Effect on High School Scholarship of Pupil Participation in Extra-Curricular Activities," School Review, 32: 613-26, October, 1924

scholarship and participation in various student activities in four high schools in Kansas City, Missouri. Athletics constituted but one of the activities studied, and the total number of athletes involved was twenty-two boys and seventeen girls. The conclusion reached was that the small number of cases rendered results hardly reliable, but that possibly "participation in athletics disturbs to some extent the normal careers of these pupils."[9] Scholarship for boys and girls turned out to be slightly higher during participation than before participation, perhaps because of the desire to remain eligible.

---

[9]Ibid, p. 626

CHAPTER III

METHODS OF PROCEDURE AND SOURCES OF DATA

Public opinion about school functions is conservative. Because of this fact educators are handicapped in their efforts to introduce new ideas and methods into the modern curriculum. In addition to this conservative public opinion physical educators had to combat powerful prejudices to gain proper recognition for their profession. Until recently many persons often agreed with the statement "Strong back, weak mind"; however, this attitude no longer holds weight among the better informed. This study, then, becomes an effort on the part of the writer to contribute additional data on the subject, in the hope that with the material already available and that which will be written in the future, it will help to formulate definite conclusions.

I. SELECTION OF INSTRUMENTS USED

Selection and Description of Diagnostic Instruments.

The subjects of this study consisted of 240 high school students selected from Butte Public High School and Boys' Central High School representing all four high school classes. There were 120 athletes and 120 non-athletes in the entire group tested.

In order to obtain a profile of each individual to be

studied, it was considered necessary to select a test or questionaire that would diagnose the traits of personality generally found in a personality psychograph. After an extensive review of personality adjustment scales, the Bell Adjustment Inventory, Student Form, devised by Hugh M. Bell[1] was regarded by the investigator as being the most suitable, and the most convenient to administer and score for this particular study. The Inventory has been validated[2] in the following ways; First, the items for each of the sections in the Inventory were selected in terms of the degree to which they differentiated between the upper and lower fifteen per cent of the individuals in a distribution of scores. Only those items which clearly differentiated between these extreme groups are included in the present form of the Inventory. Second, the results of the various sections of the Inventory were checked during interviews with four hundred college students over a period of two years. Third, the Social adjustment section, the Emotional adjustment section, and the total score of the Inventory were validated by correlating the Social adjustment section with the Allport Ascendance-Submission test and the Bernreuter Personality Inventory, B4-D, and by correlating the Emotional adjustment section, and the total similarly

---

[1]Hugh M. Bell, Manual For The Adjustment Inventory (Stanford, California: Stanford University Press, 1939)

[2]Ibid, p. 3

with the Thurstone Personality Schedule. These coefficients are reported in Table I. Fourth, The Inventory has been validated through "Very Well" and "Very Poorly" adjusted groups to determine the degree to which the Inventory differentiates among them.

The coefficients of reliability[3] for each of the four sections of the Inventory and for its total score are reported in Table II. These were determined by correlating the odd-even items and applying the Spearman-Brown prophecy formula. The subjects were college freshman and sophomores.

As a result of the statistical analysis of the items, 271 of the original list of 411 were eliminated. This left 140 questions in the final form of the Adjustment Inventory. There were 35 questions dealing with Home Adjustment, 35 with Health Adjustment, 35 with Social Adjustment, and 35 with Emotional Adjustment. Of the questions, 91 have been contributed by Bell and 49 have been taken from other sources.[4]

The groups used to validate the Home Adjustment section were selected by the counselors in the high schools

---

[3]Ibid, p. 3

[4]Hugh M. Bell, "The Theory and Practice of Personal Counseling (Stanford University, California: Stanford University Press, 1939), p. 27

TABLE I

COEFFICIENTS OF VALIDITY*

OF THE BELL ADJUSTMENT INVENTORY

	N	Uncorr.	Corr.
Allport and Social Adjustment (Men)	46	.58	.72
Allport and Social Adjustment (Women)	50	.67	.81
Thurstone Schedule and Emotional	96	.83	.93
Thurstone Schedule and Total Score	96	.89	.94
Bernreuter B4-D and Social	39	.79	.90

*Hugh M. Bell, Manual for The Adjustment Inventory (Stanford, California: Stanford University Press, 1939) p. 3

TABLE II

COEFFICIENTS OF RELIABILITY*

OF THE BELL ADJUSTMENT INVENTORY

	N	
Home Adjustment.....	258	.89
Health Adjustment.....	258	.80
Social Adjustment.....	258	.89
Emotional Adjustment..	258	.85

*Ibid, p.3

at Chico, California, and Hasbrouck Heights, New Jersey.

The groups used to validate the Health Adjustment section were selected in the high schools at Chico and Redwood City, California, and at Hasbrouck Heights, New Jersey. Students who had been absent from school three or more times during the school year on account of illness were included in the "Poorly adjusted" group. Students who had not been absent during the school year because of illness were included in the "Well adjusted" group.

The Social Adjustment section was validated by groups selected in the junior college at Sacramento, California. Students who had been leaders in school activities during their freshman and sophomore years were included in the "Well adjusted" group, and students who had participated in few or no school activities during these years were included in the "Poorly adjusted" group.

The Emotional Adjustment validating groups were selected by the counselors in the junior college at Pasadena, California.

In Table III tentative norms are presented for high school students. These norms are for freshman, sophomore, junior, and senior boys at Chico and Redwood City, both in California. The interpretation of the individual scores was made more meaningful by the use of descriptive designations.

TABLE III

NORMS FOR HIGH SCHOOL STUDENTS*

AT CHICO AND REDWOOD CITY, CALIFORNIA

	Score Range (N = 161)	Description
Home Adjustment	0 - 1	Excellent
	2 - 4	Good
	5 - 9	Average
	10 -16	Unsatisfactory
	Above 17	Very Unsatisfactory
Health Adjustment	0 - 1	Excellent
	2 - 4	Good
	5 - 9	Average
	10 -15	Unsatisfactory
	Above 15	Very Unsatisfactory
Social Adjustment	0 - 4	Excellent
	5 - 9	Good
	10 -20	Average
	21 -26	Unsatisfactory
	Above 26	Very Unsatisfactory
Emotional Adjustment	0 - 2	Excellent
	3 - 5	Good
	6 -11	Average
	12 -18	Unsatisfactory
	Above 18	Very Unsatisfactory

*The tentative norms are given for high school boys and the scores were obtained from freshman, sophomore, junior, and senior students at Chico and Redwood City, both in Calif.

Hugh M. Bell, Manual for The Adjustment Inventory (Stanford, California: Stanford University Press, 1939) p. 2

However, the difference between two descriptive terms should not be over emphasized since a difference of only one point frequently determines whether a score falls under one heading or another.[5]

The Adjustment Inventory provides four separate measures of personal and social adjustment. The Inventory has been successful when used with persons of high school and college ages. The high reliabilities of the measures make possible comparisons of one individual with another. The total score may be used to indicate the general adjustment status. Individuals scoring high tend to be unsatisfactorily adjusted. Individuals scoring low indicate satisfactory adjustment.

---

[5]Hugh M. Bell, Manual for The Adjustment Inventory (Stanford, California: Stanford University Press, 1939) p. 4

II. THE SUBJECTS USED

The Groups. To investigate the problem, two groups of male students were selected from the Butte Public High School and Boys' Central High School of Butte, Montana, who were differentiated with respect to competitive athletic participation; namely, a group of athletes and a group of non-athletes. By definition an athlete was any boy who was a member of any competitive team under the supervision of a coach, regardless of winning a letter or being a regular starter on a team, during any part of his high school career. A non-athlete was an individual who had never been a member of a varsity, intramural, class, or club team in high school. An athlete was a boy participating in interscholastic or organized intramural competition while the non-athlete was a person who did not take part in either interscholastic or intramural competition. An attempt was made to keep the groups as uniform as possible with respect to class and scholastic standing. Two-hundred-forty boys were chosen from the two high schools. One-hundred-sixty from Butte Public and eighty from Boys' Central. The population of boys at Butte Public is approximately double that of Boys' Central; consequently, the selection was determined on that basis. Equal numbers of students were selected from each class consisting of 60 Seniors, 60 Juniors, 60 Sophomores, and 60 Freshman. An equal

number of "Very Good" and "Very Poor" students was selected by class from the official school records supplied by the Principals. These selections were made for each respective group and an attempt was made to obtain the top ranking and lowest ranking students among the athletes and the non-athletes of each group. The "Very Good" and the "Very Poor" students were drawn from the upper and lower 15 per cent of the student population according to academic standing.

III. COLLECTION OF DATA

Collection of Data. Varsity athletes were contacted through coaches, team managers, and captains, as well as classroom teachers. The subjects for the non-athletic group were obtained through the class advisors, class officers, and teachers. The official files of both schools were used extensively. The investigator personally administered, with uniform instructions, and collected, a total of 240 Bell Adjustment Inventories previously described. Of this number 120 forms were from athletes, and 120 forms from non-athletes. Through the high school records, the Principals, and the athletic coaches the athletic experience and class scholastic standing were checked. In addition, data about the students were secured from the class advisors and classroom teachers.

Treatment of the Data. The scores on the Inventory

for all groups were recorded and organized in raw score distribution tables. From these tables were obtained means, difference in means, standard error of the mean difference, and standard deviations for each group on the respective personality adjustment areas. The statistical technique employed in the study consisted of computing the difference of the mean scores of the two groups in order to determine the degree of significance of the difference.

In order to determine differences in the four areas of adjustment for participants and non-participants the distribution of scores on the four scales of the Bell Adjustment Inventory for each of these two groups was plotted separately. The means for the groups were then computed and the standard deviations determined. In order to determine whether the difference between the means was significantly greater than chance it was assumed that the population mean difference was zero and that any observed difference was merely due to chance. In order to test this hypothesis the "t"[4] test as devised by Fisher for determining the significance of the mean difference was employed. The following formula as

---

[4]R. A. Fisher, Statistical Methods for Research Workers, (Edinburg: Oliver and Boyd, 1938), 120-33

presented by Edwards[5] was used for this test.

$$\text{"t"} = \frac{M_o - M_h}{\sigma_{m_d}}$$

M_o = observed mean difference

M_h = population mean difference

σ_{m_d} = standard error of the mean difference

Tables providing values for "t" at the 5 per cent and 1 per cent levels of significance, as presented by Edwards,[6] were employed in determining the significance of difference between means. For purposes of this study a difference with a corresponding "t" value at the 5 per cent level of probability or better was accepted as significantly greater than chance.

How may this observed difference between the means of the two groups be evaluated? Is difference so small that it might simply be the result of sampling variation? One way in which the problem might be approached is to set up some hypothesis concerning the population mean difference and then see whether the sample difference departs significantly from

---

[5] A. L. Edwards, Statistical Analysis, (New York: Rinehart and Company, Inc., 1946), pp. 172-77

[6] Ibid, p. 176

this hypothetical value. The deviation of the sample difference from the hypothetical population mean difference when divided by the standard error of the difference would give the familiar "t" ratio. Assuming the hypothesis to be true, it could, by reference to the table of "t", be determined how frequently absolute values of "t" this size or larger would occur by chance. According to the standards agreed upon, if the value of "t" is such that it would be expected to occur less than 5 per cent of the time by chance it could be said that "t" was significant. Therefore, it might be concluded, that the hypothesis concerning the population mean difference is not likely and reject it as untenable. Suppose, however, that it was found just the opposite, that "t" was not significant at the 5 per cent level. What might then be concluded? There would be no basis for rejecting the hypothesis, but would this mean that the hypothesis was true? The answer is definitely no. The hypothetical value that was tested is but one among many values that might result in a non-significant value of "t".[7] Edwards[8] stated that the "t" was justified for use when dealing with small samples rather than the "critical ratio" usually used with larger samples.

---

[7] Ibid, p. 176

[8] Ibid, p. 172

CHAPTER IV

RESULTS OF THE STUDY

Comparative performance on the Bell Adjustment Inventory of Athletes and Non-Athletes. In order to determine differences in personality adjustment for Participants and Non-Participants in athletics, the distributions of raw scores were calculated separately for each group. The data for the groups tested in the four areas of adjustment are presented in Tables IV through XIX and contain the total raw scores, means, standard deviations, standard error of mean differences, difference in means, and the corresponding value of "t".

In Table XX the cummulative data is presented showing the comparative means, standard deviations, and the corresponding value of "t" for each group tested in this study.

In order to determine whether the differences between means are significantly greater than chance, Fisher's "t"[1] test was employed. The specific formula for calculating "t" as used by Edwards[2] has been previously presented.

---

[1]Fisher, op. cit., pp. 120-33

[2]Edwards, op. cit., pp. 172-77

It will be noted in Table IV that the difference of 0.90 in mean scores between athletes and non-athletes yielded a "t" value of 2.64 which was significantly greater than chance. Thus, the data indicate that there was a significant difference in home adjustment between high school freshmen athletes and non-athletes and that the difference favors the non-athlete. In order for a difference to be significant in this study a "t" value of 2.04 or larger must be attained. Therefore, Table IV shows a significant difference at the 5 per cent level or better.

In Tables V, VI, VII, VIII, IX, X, XI, XII, and XIII the values disclosed for "t" range from .08 to 1.46 which indicate no significant differences.

Table XIV presents a range in raw scores from 0 to 20 and the mean scores for these two groups were 8.77 and 8.07 respectively. The difference between the two means was 0.70, and the corresponding standard deviations were 5.07 and 5.52. The corresponding "t" value was shown to be 2.31 and was significant at the 5 per cent level or better. This difference again favored the non-athlete, showing a significant difference in emotional adjustment for high school juniors.

An examination of Tables XV and XVI discloses corresponding "t" values ranging from .06 to .89. These

differences are somewhat below the value of "t" at the 5 per cent level and indicate no significant differences.

In Table XVII a total raw score difference between the two sophomore groups in social adjustment was 48 points, the difference in the means was found to be 1.60 and the corresponding "t" value was 2.16, being significant at the 5 per cent level or better. This significant difference in social adjustment favored the sophomore non-athlete. The means calculated for these groups were 14.80 and 13.20 respectively, while the standard deviations were 5.86 for the athlete and 6.47 for the non-athlete.

Tables XVIII and XIX show values of 1.14 and .63 respectively when the "t" formula was applied. Therefore, these values proved non-significant.

The differences in mean scores and the significant "t" values, of Tables IV, XIV, and XVII, were the most significant differences noted in the entire study. They indicate rather definitely that there were significant differences in those adjustment areas. Since, such differences were found in only three out of sixteen groups in the four high school classes and the four sections of the inventory they would bear further scrutiny as to the factors underlying the differences

An examination of the data shown in the summary Table XX discloses corresponding "t" values ranging from

0.08 to 1.46, excluding the three tables previously mentioned. These differences were somewhat below the value of "t" at the 5 per cent level, a fact which does not necessarily prove or disprove the hypothesis of this study since the sampling variation might be the result of factors unknown to the writer.

An inspection of the total scores of all classes of athletes and non-athletes in the four areas of adjustment as presented in Table XXI indicate that there is not too great a variance in mean scores, with the exception of the home adjustment area which shows means of 6.00 and 5.48 respectively. This difference of 0.52 would seem to indicate that there was no real significant differences in the total group scores. Tables XXII and XXIII present the difference in means, standard error of the mean differences, and the corresponding values of "t" which indicate no significant differences in the total group scores. The four areas show respective "t" values of .77, .27, .31, and .19 which were considerably below the value of "t" at the 5 per cent level.

TABLE IV

COMPARISON OF HOME ADJUSTMENT SCORES FOR FRESHMEN ATHLETES AND NON-ATHLETES IN THE BUTTE HIGH SCHOOLS DURING 1950-51

ATHLETES		NON-ATHLETES	
Upper Group	Lower Group	Upper Group	Lower Group
6	17	4	6
7	8	1	3
1	6	2	5
4	5	20	10
13	10	0	7
1	4	12	2
5	8	4	2
5	1	1	9
4	12	13	4
2	6	4	2
4	8	0	0
9	4	1	6
6	2	3	3
2	1	0	4
1	4	3	9
70	96	68	71
N = 30		N = 30	
Total Raw Score	166	Total Raw Score	139
Mean	5.53	Mean	4.63
S. D.	3.81	S. D.	4.50

Difference in Means - 0.90

σ_{Md} = .34

"t" = 2.64

Note: The above scores were the actual results by male students of Butte Public and Boys' Central High Schools during the 1950-51 school term on the Bell Adjustment Inventory.

TABLE V

COMPARISON OF HOME ADJUSTMENT SCORES FOR SOPHOMORE ATHLETES AND NON-ATHLETES IN THE BUTTE HIGH SCHOOLS DURING 1950-51

ATHLETES		NON-ATHLETES	
Upper Group	Lower Group	Upper Group	Lower Group
1	5	2	8
10	2	9	11
7	2	5	16
4	9	4	2
2	0	1	6
8	6	10	9
3	2	6	7
2	1	8	14
1	17	12	26
18	11	3	6
8	4	9	12
14	2	1	4
7	9	5	4
12	5	0	3
15	16	13	3
112	91	88	131
N = 30		N = 30	
Total Raw Score	203	Total Raw Score	219
Mean	6.77	Mean	7.30
S. D.	5.23	S. D.	5.39

Difference in Means 0.53

σ_{md} = 0.60

"t" = 0.87

Note: The above scores were the actual results by male students of Butte Public and Boys' Central High Schools during the 1950-51 school term on the Bell Adjustment Inventory.

TABLE VI

COMPARISON OF HOME ADJUSTMENT SCORES FOR JUNIOR ATHLETES AND NON-ATHLETES IN THE BUTTE HIGH SCHOOLS DURING 1950-51

ATHLETES		NON-ATHLETES	
Upper Group	Lower Group	Upper Group	Lower Group
1	19	5	6
3	6	9	2
8	3	2	1
3	18	12	5
2	4	12	14
8	2	11	12
1	0	3	9
24	6	6	3
0	3	10	1
3	15	0	1
1	3	1	5
2	5	2	3
9	5	5	1
1	6	0	3
6	3	12	3
72	98	90	69
N = 30		N = 30	
Total Raw Score	170	Total Raw Score	159
Mean	5.67	Mean	5.30
S. D.	4.14	S. D.	4.27

Difference in Means 0.37

σm_d = 0.60

"t" = 0.62

Note: The above scores were the actual results by male students of Butte Public and Boys' Central High Schools during the 1950-51 school term on the Bell Adjustment Inventory.

TABLE VII

COMPARISON OF HOME ADJUSTMENT SCORES FOR SENIOR ATHLETES AND NON-ATHLETES IN THE BUTTE HIGH SCHOOLS DURING 1950-51

ATHLETES		NON-ATHLETES	
Upper Group	Lower Group	Upper Group	Lower Group
0	5	3	0
0	10	3	6
16	9	4	5
4	22	7	12
2	8	1	2
6	0	10	6
2	1	3	2
12	1	3	5
10	2	5	4
2	5	3	5
12	2	8	15
22	0	11	3
6	7	2	0
1	3	1	5
3	8	2	5
98	83	66	75
N = 30		N = 30	
Total Raw Score	181	Total Raw Score	141
Mean	6.03	Mean	4.70
S. D.	3.59	S. D.	3.49

Difference in Means 1.33

σ_{M_d} = 0.91

"t" = 1.46

Note: The above scores were the actual results by male students of Butte Public and Boys' Central High Schools during the 1950-51 school term on the Bell Adjustment Inventory.

TABLE VIII

COMPARISON OF HEALTH ADJUSTMENT SCORES FOR FRESHMEN ATHLETES AND NON-ATHLETES IN THE BUTTE HIGH SCHOOLS DURING 1950-51

ATHLETES		NON-ATHLETES	
Upper Group	Lower Group	Upper Group	Lower Group
7	4	9	14
6	7	11	3
0	7	2	9
4	12	11	4
8	6	0	16
8	4	6	3
7	11	2	3
5	5	5	10
3	13	8	11
5	14	4	4
2	5	8	2
9	12	5	5
9	0	9	7
4	5	4	8
9	9	7	6
86	114	91	105
N = 30		N = 30	
Total Raw Score 200		Total Raw Score 196	
Mean 6.66		Mean 6.53	
S. D. 3.48		S. D. 3.70	

Difference in Means 0.13

σ_{md} = 0.29

"t" = 0.45

Note: The above scores were the actual results by male students of Butte Public and Boys' Central High Schools during the 1950-51 school term on the Bell Adjustment Inventory.

TABLE IX

COMPARISON OF HEALTH ADJUSTMENT SCORES FOR SOPHOMORE ATHLETES AND NON-ATHLETES IN THE BUTTE HIGH SCHOOLS DURING 1950-51

ATHLETES		NON-ATHLETES	
Upper Group	Lower Group	Upper Group	Lower Group
4	7	5	5
4	4	21	6
16	2	2	4
2	3	6	5
6	5	7	2
6	12	6	1
3	3	4	7
5	9	3	16
11	13	8	9
11	6	5	0
2	3	3	9
9	4	2	6
3	8	2	1
3	3	2	3
13	7	2	5
98	89	88	79
N = 30		N = 30	
Total Raw Score	187	Total Raw Score	167
Mean	6.23	Mean	5.57
S. D.	3.81	S. D.	4.34
Difference in Means	0.66		
σ_{md} =	0.46		
"t" =	1.43		

Note: The above scores were the actual results by male students of Butte Public and Boys' Central High Schools during the 1950-51 school term on the Bell Adjustment Inventory.

TABLE X

COMPARISON OF HEALTH ADJUSTMENT SCORES FOR JUNIOR ATHLETES AND NON-ATHLETES IN THE BUTTE HIGH SCHOOLS DURING 1950-51

ATHLETES		NON-ATHLETES	
Upper Group	Lower Group	Upper Group	Lower Group
8	29	5	2
4	9	9	8
6	2	3	4
4	6	2	6
5	2	17	3
12	0	4	14
1	9	14	6
13	1	9	3
3	5	5	5
3	8	1	7
2	5	5	4
3	8	7	3
7	4	3	5
6	14	1	5
6	5	7	11
83	107	92	86
N = 30		N = 30	
Total Raw Score	190	Total Raw Score	178
Mean	6.33	Mean	5.93
S. D.	5.42	S. D.	3.84

Difference in Means 0.40

σ_{m_d} = 0.43

"t" = 0.93

Note: The above scores were the actual results by male students of Butte Public and Boys' Central High Schools during the 1950-51 school term on the Bell Adjustment Inventory.

TABLE XI

COMPARISON OF HEALTH ADJUSTMENT SCORES FOR SENIOR ATHLETES AND NON-ATHLETES IN THE BUTTE HIGH SCHOOLS DURING 1950-51

ATHLETES		NON-ATHLETES	
Upper Group	Lower Group	Upper Group	Lower Group
1	4	4	4
1	2	4	4
13	4	5	5
4	6	11	7
10	5	0	4
2	2	5	4
3	5	2	6
3	3	4	6
5	6	4	2
6	5	4	4
9	2	10	8
9	3	14	6
11	7	2	2
9	7	7	4
4	3	13	8
90	64	89	74
N = 30		N = 30	
Total Raw Score	154	Total Raw Score	163
Mean	5.13	Mean	5.43
S. D.	3.00	S. D.	3.22

Difference in Means - 0.30

σ_{m_d} = 0.30

"t" = 1.00

Note: The above scores were the actual results by male students of Butte Public and Boys' Central High Schools during the 1950-51 school term on the Bell Adjustment Inventory.

TABLE XII

COMPARISON OF EMOTIONAL ADJUSTMENT SCORES FOR FRESHMEN ATHLETES AND NON-ATHLETES IN THE BUTTE HIGH SCHOOLS DURING 1950-51

ATHLETES		NON-ATHLETES	
Upper Group	Lower Group	Upper Group	Lower Group
9	9	0	12
5	2	1	14
0	15	3	8
1	11	21	6
15	7	1	12
6	2	4	2
8	14	12	4
10	4	2	13
2	15	15	16
11	12	1	7
10	11	8	4
7	10	5	16
14	1	13	6
15	1	5	3
5	8	4	6
118	122	95	129
N = 30		N = 30	
Total Raw Score	240	Total Raw Score	224
Mean	8.00	Mean	7.47
S. D.	4.78	S. D.	5.46

Difference in Means 0.53

σ_{m_d} = 0.46

"t" = 1.15

Note: The above scores were the actual results by male students of Butte Public and Boys' Central High Schools during the 1950-51 school term on the Bell Adjustment Inventory.

TABLE XIII

COMPARISON OF EMOTIONAL ADJUSTMENT SCORES FOR SOPHOMORE ATHLETES AND NON-ATHLETES IN THE BUTTE HIGH SCHOOLS DURING 1950-51

ATHLETES		NON-ATHLETES	
Upper Group	Lower Group	Upper Group	Lower Group
10	2	4	4
10	10	5	5
12	1	1	7
6	12	12	6
1	7	13	1
10	7	9	10
2	4	4	10
4	5	5	22
5	5	10	9
17	12	12	5
7	5	4	11
13	5	6	5
1	12	4	9
5	4	0	8
17	13	19	3
120	104	108	115
N = 30		N = 30	
Total Raw Score	224	Total Raw Score	223
Mean	7.46	Mean	7.43
S. D.	4.51	S. D.	4.86

Difference in Means 0.03

σ_{M_d} = 0.37

"t" = 0.08

Note: The above scores were the actual results by male students of Butte Public and Boys' Central High Schools during the 1950-51 school term on the Bell Adjustment Inventory.

TABLE XIV

COMPARISON OF EMOTIONAL ADJUSTMENT SCORES FOR JUNIOR ATHLETES AND NON-ATHLETES IN THE BUTTE HIGH SCHOOLS DURING 1950-51

ATHLETES		NON-ATHLETES	
Upper Group	Lower Group	Upper Group	Lower Group
10	8	11	11
4	7	11	6
6	2	2	0
5	18	8	5
8	8	18	9
10	11	11	17
4	14	7	3
21	2	14	4
1	8	9	1
3	20	2	1
7	11	4	3
3	6	17	12
17	9	7	7
12	8	0	10
10	10	12	20
121	142	133	109
N = 30		N = 30	
Total Raw Score	263	Total Raw Score	242
Mean	8.77	Mean	8.07
S. D.	5.07	S. D.	5.52

Difference in Means 0.70

σ_{m_d} = 0.32

"t" = 2.31

Note: The above scores were the actual results by male students of Butte Public and Boys' Central High Schools during the 1950-51 school term on the Bell Adjustment Inventory.

TABLE XV

COMPARISON OF EMOTIONAL ADJUSTMENT SCORES FOR SENIOR ATHLETES AND NON-ATHLETES IN THE BUTTE HIGH SCHOOLS DURING 1950-51

ATHLETES		NON-ATHLETES	
Upper Group	Lower Group	Upper Group	Lower Group
0	1	7	0
0	10	8	4
14	9	4	7
0	23	13	10
1	12	0	1
2	4	13	9
3	4	7	6
1	8	1	16
7	6	5	2
0	7	7	1
7	3	4	9
20	11	25	9
7	3	5	1
24	8	2	9
3	7	8	13
89	116	109	97
N = 30		N = 30	
Total Raw Score	205	Total Raw Score	206
Mean	6.83	Mean	6.86
S. D.	6.40	S. D.	5.38

Difference in Means -0.03

σ_{m_d} = 0.51

"t" = 0.06

Note: The above scores were the actual results by male students of Butte Public and Boys' Central High Schools during the 1950-51 school term on the Bell Adjustment Inventory.

TABLE XVI

COMPARISON OF SOCIAL ADJUSTMENT SCORES FOR FRESHMEN ATHLETES AND NON-ATHLETES IN THE BUTTE HIGH SCHOOLS DURING 1950-51

ATHLETES		NON-ATHLETES	
Upper Group	Lower Group	Upper Group	Lower Group
8	22	8	19
17	11	6	7
2	9	6	7
19	12	9	12
5	15	9	22
12	6	3	14
10	18	18	4
12	6	2	18
2	16	5	20
14	19	19	17
22	27	11	15
6	15	13	20
9	10	19	26
18	17	17	12
5	4	9	13
161	207	154	226
N = 30		N = 30	
Total Raw Score	368	Total Raw Score	380
Mean	12.27	Mean	12.67
S. D.	5.75	S. D.	6.16

Difference in Means -0.40

σ_{m_d} = 0.45

"t" = 0.89

Note: The above scores were the actual results by male students of Butte Public and Boys' Central High Schools during the 1950-51 school term on the Bell Adjustment Inventory.

TABLE XVII

COMPARISON OF SOCIAL ADJUSTMENT SCORES FOR SOPHOMORE ATHLETES AND NON-ATHLETES IN THE BUTTE HIGH SCHOOLS DURING 1950-51

ATHLETES		NON-ATHLETES	
Upper Group	Lower Group	Upper Group	Lower Group
14	15	6	12
6	18	5	23
18	4	12	11
13	17	21	12
11	21	14	15
11	9	22	13
18	16	3	26
6	15	2	21
12	6	6	9
27	20	24	14
13	16	14	21
11	29	10	12
20	11	6	18
22	10	8	6
19	16	18	12
221	223	171	225
N = 30		N = 30	
Total Raw Score	444	Total Raw Score	396
Mean	14.80	Mean	13.20
S. D.	5.86	S. D.	6.47

Difference in Means 1.60

σ_{m_d} = 0.74

"t" = 2.16

Note: The above scores were the actual results by male students of Butte Public and Boys' Central High Schools during the 1950-51 school term on the Bell Adjustment Inventory.

TABLE XVIII

COMPARISON OF SOCIAL ADJUSTMENT SCORES FOR JUNIOR ATHLETES AND NON-ATHLETES IN THE BUTTE HIGH SCHOOLS DURING 1950-51

ATHLETES		NON-ATHLETES	
Upper Group	Lower Group	Upper Group	Lower Group
4	14	20	0
19	10	23	14
5	7	6	6
10	16	16	2
17	4	3	7
8	8	12	25
6	14	9	11
27	9	25	19
26	13	6	11
6	21	16	7
14	15	6	5
5	9	14	4
14	13	2	20
24	16	12	22
3	22	9	25
188	191	179	178
N = 30		N = 30	
Total Raw Score 379		Total Raw Score 357	
Mean 12.63		Mean 11.90	
S. D. 6.66		S. D. 7.52	

Difference in Means 0.73

σ_{m_d} = 0.64

"t" = 1.14

Note: The above scores were the actual results by male students of Butte Public and Boys' Central High Schools during the 1950-51 school term on the Bell Adjustment Inventory.

TABLE XIX

COMPARISON OF SOCIAL ADJUSTMENT SCORES FOR SENIOR ATHLETES AND NON-ATHLETES IN THE BUTTE HIGH SCHOOLS DURING 1950-51

ATHLETES		NON-ATHLETES	
Upper Group	Lower Group	Upper Group	Lower Group
1	10	8	7
1	14	14	8
15	2	9	11
2	27	16	21
5	18	5	9
5	19	8	29
2	18	25	22
4	16	15	16
10	22	1	7
8	11	8	10
23	14	10	10
8	21	32	16
16	9	17	14
21	19	4	12
14	22	12	15
135	242	184	207
N = 30		N = 30	
Total Raw Score 377		Total Raw Score 391	
Mean 12.56		Mean 13.03	
S. D. 7.48		S. D. 7.04	

Difference in Means -0.47

σ_{m_d} = 0.75

"t" = 0.63

Note: The above scores were the actual results by male students of Butte Public and Boys' Central High Schools during the 1950-51 school term on the Bell Adjustment Inventory.

TABLE XX

MEANS, STANDARD DEVIATIONS, AND CORRESPONDING "t" VALUES OF INVENTORY SCORES FOR ATHLETES AND NON-ATHLETES IN THE BUTTE HIGH SCHOOLS DURING 1950-51

Adjustment Area and Class	Athletes (N = 30) Mean	S. D.	Non-Athletes (N = 30) Mean	S. D.	Difference in Means	"t"
HOME						
Freshmen	5.53	3.81	4.63	4.50	- 0.90	2.64
Sophomore	6.77	5.23	7.30	5.39	0.53	0.87
Junior	5.67	4.14	5.30	4.27	0.37	0.62
Senior	6.03	3.59	4.70	3.49	1.33	1.46
HEALTH						
Freshmen	6.66	3.48	6.53	3.70	0.13	0.45
Sophomore	6.23	3.81	5.57	4.34	0.66	1.43
Junior	6.33	5.42	5.93	3.84	0.40	0.93
Senior	5.13	3.00	5.43	3.22	- 0.30	1.00
EMOTIONAL						
Freshmen	8.00	4.78	7.47	5.46	0.53	1.15
Sophomore	7.46	4.51	7.43	4.86	0.03	0.08
Junior	8.77	5.07	8.07	5.52	0.70	2.31
Senior	6.83	6.40	6.86	5.38	- 0.03	0.06
SOCIAL						
Freshmen	12.27	5.75	12.67	6.16	- 0.40	0.89
Sophomore	14.80	5.86	13.20	6.47	1.60	2.16
Junior	12.63	6.66	11.90	7.52	0.73	1.14
Senior	12.56	7.48	13.03	7.04	- 0.47	0.63

Note: The above table is a summary of the results made by male students of Butte Public and Boys' Central High Schools during the 1950-51 school term on the Bell Adjustment Inventory.

TABLE XXI

MEANS AND MEAN DIFFERENCES OF THE TOTAL INVENTORY SCORES FOR ALL ATHLETES AND NON-ATHLETES IN THE BUTTE HIGH SCHOOLS DURING 1950-1951

	ATHLETES	NON-ATHLETES	DIFFERENCE IN MEANS
	Mean	Mean	
Home Adjustment	6.00	5.49	0.51
Health Adjustment	6.09	6.22	0.13
Emotional Adjustment	13.07	12.70	0.37
Social Adjustment	7.75	7.44	0.31
N =	120	120	

Note: The above results were the total scores of all athletes and non-athletes in each of the four areas of the Adjustment Inventory. These scores were made by the male students of Butte Public and Boys' Central High Schools.

TABLE XXII

DIFFERENCE IN MEANS, STANDARD ERROR OF THE MEAN DIFFERENCES, AND THE CORRESPONDING VALUES OF "t" FOR THE TOTAL INVENTORY SCORES FOR ALL ATHLETES AND NON-ATHLETES IN THE BUTTE HIGH SCHOOLS DURING 1950-51

	ATHLETES	NON-ATHLETES
Home Adjustment N =	120	120
Total Raw Score	720	658
Mean	6.00	5.49
S. D.	4.31	5.74
Difference in Means	0.51	
σm_d =	0.66	
"t" =	0.77	
Health Adjustment N =	120	120
Total Raw Score	731	746
Mean	6.09	6.22
S. D.	4.08	3.25
Difference in Means	0.13	
σm_d =	0.48	
"t" =	0.27	

Note: The above results were the total scores of all athletes and non-athletes in each of the two areas of the Adjustment Inventory. These scores were made by the male students of Butte Public and Boys' Central High Schools.

TABLE XXIII

DIFFERENCE IN MEANS, STANDARD ERROR OF THE MEAN DIFFERENCES, AND THE CORRESPONDING VALUES OF "t" FOR THE TOTAL INVENTORY SCORES FOR ALL ATHLETES AND NON-ATHLETES IN THE BUTTE HIGH SCHOOLS DURING 1950-51

	ATHLETES	NON-ATHLETES
Emotional Adjustment N =	120	120
Total Raw Score	1568	1524
Mean	13.07	12.70
S. D.	9.09	9.37
Difference in Means	0.37	
σ_{m_d} =	1.19	
"t" =	0.31	
Social Adjustment N =	120	120
Total Raw Score	930	893
Mean	7.75	7.44
S. D.	12.76	12.41
Difference in Means	0.31	
σ_{m_d} =	1.62	
"t" =	0.19	

Note: The above results were the total scores of all athletes and non-athletes in each of the two areas of the Adjustment Inventory. These scores were made by the male students of Butte Public and Boys' Central High Schools.

CHAPTER V

SUMMARY AND CONCLUSIONS

The purpose of this study was to determine the relationship of personality adjustment to participation in athletics as pertaining to Participants and Non-Participants.

The Bell Adjustment Inventory Student Form, devised by Hugh M. Bell, was the test employed in this study for the purpose of determining the significance of mean difference between groups of participants in athletics and non-participants.

The subjects of this study consisted of 240 high school students selected from Butte Public High School and Boys' Central High School representing all four high school classes. There were 120 Athletes and 120 Non-Athletes in the entire group tested. For the purpose of this study the subjects were devided into two groups:

Athlete. An athlete was any boy who was a member of any competitive team, under the supervision of a coach provided by the high school, regardless of his winning a letter or being a regular starter on a team during any part of his high school career.

Non-Athlete. A non-athlete was a boy who had never been a member of a varsity, junior varsity, intramural, class, or club team under the supervision of a coach during

any part of his high school career.

A further classification of students was made in terms of scholastic aptitude in so far as possible, and consisted of assigning subjects to one of the following two groups:

Upper Group. The upper group consisted of boys in the upper section of each class in relation to scholastic ability and who were normally the better students. Approximately fifteen per cent of those enrolled was used for this study.

Lower Group. The lower group consisted of boys in the lower section of each class in relation to scholastic ability and who were normally the poorer students. Approximately fifteen per cent of those enrolled was used for this study.

The findings of this study indicate that:

(1) Although there was a significant difference in three of the sixteen groups and classes tested this would not mean that there was a preponderance of evidence to show the superior adjustment of the non-athlete over the athlete. Consequently, there is not enough evidence to affirm the hypothesis that non-athletes have better adjustment than athletes.

(2) There was some evidence as shown by the raw

scores in the various tables that there might be a marked difference between the upper groups and the lower groups. However, the scores were not computed between these two groups. It must not be overlooked that some of the lower groups outscored their classmates in some categories of adjustment.

(3) The findings showed that there were no marked degree of consistency of low scores shown by any of the respective classes.

(4) The author of this study found that there were some differences between the two groups tested, but not enough to arrive at any definite conclusion concerning the superior adjustment of one group over the other. However, upon examination of Table XX it was definitely noticeable that large mean differences did occur between the various classes in the high schools. Due to the limitations of this study these comparisons were not computed. It is believed that further research relating to these differences between the various classes would uncover significant mean differences. It was noted in Table XX, in the Home Adjustment area, that there was a difference in the means between the Sophomore and Senior non-athlete classes. This mean difference amounted to 2.60. There was another large difference of 1.94 between the Junior and Senior athletes in the Emotional Adjustment area. In the Social Adjustment

area the Freshmen and Sophomore athletes showed a difference in the means of 1.53. There were many other differences that would bear further study.

In reviewing the findings of this study the following problems are suggested for further research:

Due to the many factors in this study which are not calculated in influencing a person's personality a further study utilizing a combination of tests such as those used by Sperling[1] may uncover some notable significant differences. It is also recommended by the writer that the scores between the high school classes be computed by the Analysis of Variance technique. It is believed that this would uncover some significant differences that would be a contribution to the projects similar to this study.

In the present study an analysis was made on the total scores recorded by each individual inventory during the current school term. A commendable study for further research would be to measure how much a boy was aided by his participation in athletics that might not normally occur. An example of this type of study that is applicable to the locality would be to measure the personality differences in grades seven and eight and note the degree of

---

[1]Sperling, Op. Cit., p. 363

adjustment improvement as the student progresses through high school. This study would be confronted also with the outside factors that indirectly influence personality adjustment.

BIBLIOGRAPHY

A. BOOKS

Arkin, Herbert, and Raymond R. Colton, Tables for Statisticians. New York: Barnes and Noble, Inc., 1950. 152 pp.

Bell, Hugh M., The Theory and Practice of Personal Counseling. Stanford: Stanford University Press, 1939. 167 pp.

Campbell, William G., A Form Book for Thesis Writing. New York: Houghton Mifflin Co., 1939. 122pp.

Burnham, William H., The Wholesome Personality. New York: D. Appleton and Century Co., 1932. 713 pp.

Edwards, Allen L., Statistical Analysis for Students in Psychology and Education. New York: Rinehart and Company, Inc., 1946. 360 pp.

Fisher, R. A., Statistical Methods for Research Workers. Edinburgh: Oliver and Boyd, 1938.

Gavett, Irving G., A First Course in Statistical Method. New York: McGraw and Hill Book Co., Inc., 1937. 400 pp.

Good, C. V., A. S. Barr, and D. E. Scates, The Methodology of Educational Research. New York: Appleton-Century-Crofts, Inc., 1941. 890 pp.

Groves, Ernest R., Personality and Social Adjustment. New York: Longmans, Green and Co., 1923. 296 pp.

Heaton, K. L., Character Building Through Recreation. Chicago: The University of Chicago Press, 1929.

O'Dell, C. W., An Introduction to Educational Statistics. New York: Prentice-Hall, Inc., 1946. 269 pp.

Ross, C. C., Measurement in Today's Schools. New York: Prentice-Hall, Inc., 1947. 551 pp.

Symonds, Percival M., Diagnosing Personality and Conduct. New York: The Century Co., 1931. 602 pp.

Voltmer, F. and A. Esslinger, The Organization and Administration of Physical Education. New York: F. S. Crofts and Co., 1938. 425 pp.

Williamson, E. G., Trends in Student Personnel Work. Minneapolis: University of Minnesota Press, 1949.

Witty, P. A. and C. E. Skinner, et. al., Mental Hygiene in Modern Education.

Young, Kimball, Personality and Problems of Adjustment. New York: F. S. Crofts and Co., 1940. 868 pp.

B. PERIODICAL ARTICLES

Bell, Hugh M., "Manual for the Adjustment Inventory," 1939. 1-4

DiGiovanna, Vincent G., "A Comparison of the Intelligence and Athletic Ability of College Men," The Research Quarterly, 8:96-106, October, 1937.

Griffith, John L., "The Flag of Idealism," The Athletic Journal, 27:18, September, 1946.

Hart, Thomas A., "Our High School Athlete," The Journal of Health, Physical Education and Recreation, March, 1951, 55

Hackensmith, G. W. and L. Miller, "A Comparison of the Academic Grades and Intelligence Scores of Participants and Non-Participants in Intramural Athletics at the University of Kentucky," The Research Quarterly, 9:94-99, March, 1938.

Hull, J. D., "A Comparison of the Grades and Intelligence Quotients of Athletes and Non-Athletes," American School Board Journal, 39:107-109, August, 1924.

Rarick, Lawrence, "A Survey of Athletic Participation and Scholastic Achievement," Journal of Education Research, 37:3, November, 1943

Sperling, Abraham P., "The Relationship Between Personality Adjustment and Achievement in Physical Education Activities," Research Quarterly, 13:351-363, October, 1942.

Swanson, A. M., "The Effect on High School Scholarship of Pupil Participation in Extra-Curricular Activities," School Review, 32: 613-626, October, 1924.

Veenker, George F., "The Role of Athletics in Our Military Program," The Journal of Health, Physical Education, and Recreation, 14:26-27, January, 1943

Vernier, Elmon L., "Baltimore Interscholastic Athletics," The Journal of Health and Physical Education, 16-17, April, 1951.

Washke, Paul R., "A Study of Intramural Sports Participation and Scholastic Attainment," Research Quarterly, 11:22-27, May, 1940.

Watson, G. B., "Personality Growth Through Athletics," Journal of Health and Physical Education, 9:408, September, 1938.

Wismer, Harry, "Value of the Athlete," The Journal of Health, Physical Education, and Recreation," 30-31, May, 1951.

THE ADJUSTMENT INVENTORY

STUDENT FORM [illegible]

By HUGH M. BELL

[illegible]

DIRECTIONS: [illegible] about your own personality? [illegible] If you have not been living with your parents [illegible] regard to the people with whom you have been living. Use the special pencil and make solid black pencil marks [illegible]

41⅓	43⅓	33	[illegible]
10	90	—	[illegible]
—	13⅓	36⅔	[illegible]
20	13⅓	36⅔	[illegible]
20	70	10	[illegible]
23	7	[illegible]	Do you ever have a strong desire [illegible] from home?
33⅓	21⅔	20	[illegible]
43	16⅔	43	[illegible]
[illegible]	35	46	[illegible]
13⅓	70	23	[illegible]
13⅓	43	43⅓	[illegible]
33⅓	43⅓	—	Do you [illegible] frequently?
10	43⅓	46⅔	[illegible]
13⅓	20	66⅔	[illegible]
[illegible]	33⅓	43	[illegible]
36⅔	43⅓	—	[illegible]
26⅔	13⅓	—	[illegible]
30	20	—	When riding on a train or bus do you sometimes engage fellow travelers in conversation?
10	13⅓	33	[illegible]
33⅓	23⅓	33⅓	[illegible]
50	16⅔	33⅓	[illegible]
43	23⅓	—	[illegible]

33⅓	20	46⅔	Do you feel embarrassed [illegible] to ask permission to leave a group of people?
10	90	—	Do you often feel just miserable?
50	40	10	Do you feel embarrassed when you have to enter a public assembly after everyone else has been seated?
20	70	10	Do you frequently feel very tired toward the end of the day?
20	80	—	In school is it difficult for you to [illegible]
16⅔	73⅓	10	[illegible]
10	90	—	Have you lost weight recently?
16⅔	73⅓	43	Do you think your parents fail to recognize that you are a mature person and hence treat you as if you were still a child?
23⅓	70	36	Does it frighten you when you have to go to a doctor about some illness?
13⅓	86⅔	—	Do you feel there is a lack of real affection and love in your home?
86⅔	13⅓	—	Have you ever been seriously injured in any kind of an accident?
[illegible]	33⅓	43	Has lack of money [illegible] home unhappy for you?
50	40	10	Do you feel very self-conscious in the presence of people whom you greatly admire [illegible]
23⅓	70	43	Has either of your parents frequently [illegible] with your conduct?
10	90	—	[illegible]
10	90	—	[illegible]
10	90	—	Do you dread [illegible]
46⅔	50	33	Would you feel very self-conscious if you had to volunteer an idea to start a discussion among a group of people?
10	70	20	Does your mother tend to dominate your home?
10	90	—	[illegible]
10	90	—	[illegible]
10	10	—	Do things often go wrong for you from no fault of your own?

30	60	—	Have your parents frequently [illegible] the kind of companions [illegible]
20	80	—	[illegible]
10	90	—	Have you frequently disagreed with either of your parents about the [illegible]
10	90	—	[illegible]
20	70	10	[illegible]
46	10	33	[illegible]
33⅓	10	43	[illegible]
10	10	33	[illegible]
33⅓	20	43	[illegible]
10	43⅓	43	[illegible]
16	43⅓	13	[illegible]
33⅓	10	43	[illegible]
33⅓	43⅓	33	[illegible]
36	23⅓	43	[illegible]
23⅓	23	33	[illegible]
20	43⅓	33	[illegible]
20	43	33	[illegible]
23⅓	70	63	Have you had experience in making plans for and directing the actions of other people?
10	90	—	[illegible]
30	43⅓	33	[illegible]
20	70	—	[illegible]