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A Discriminative Study of Boys' Physical Education in High Schools of the Big Eight Athletic Conference

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A DISCRIMINATIVE STUDY OF BOYS' PHYSICAL EDUCATION IN HIGH SCHOOLS OF THE BIG EIGHT ATHLETIC CONFERENCE

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by

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CHAPTER I

INTRODUCTION

Evaluation has become increasingly important to the process of education, especially since the advent of Sputnik changed the curricular patterns so drastically in so many schools. Physical education, as a part of the curriculum, should be evaluated as are the academic subjects. It is evident that the teacher should attempt to measure and judge physical education programs and students as well as his own effectiveness in terms of the program objectives.

The objectives, according to Nash, a recognized authority of physical education, are:

a. the improvement and maintenance of physical fitness
b. the improvement and maintenance of nauro-muscular skill
c. the teaching of strategy and intelligence in sports situations
d. the application and utilization of sportsmanship through learned applications found in competitive game conditions (11:80)

Importance of the Problem

It is rather universally accepted that physical education exerts beneficial influence upon a participant in at least four measurable ways, as follows: A good physical education program builds and

maintains (1) physical fitness, (2) neuromuscular skills, (3) adequate working knowledge of various aspects of the physical education program, and (4) wholesome attitudes about the program.

The proposition is easily defended that a knowledge of the outcomes of the physical education should be available regularly, and that such knowledge should form the basis for regular program review and revision. Knowledge of the adequacy of the physical education program can be obtained in two general ways, viz., by interview with those school personnel under whose jurisdiction the program operates, and secondly, by the administration of tests possessing adequate validity and reliability, to program participants.

The extent of agreement in perceptions of program between department chairmen and chief school administrators, and the extent of agreement between those program perceptions and the measured attainment of program participants, are considered adequate justification for this study.

Statement of the Problem

There are four purposes for this study: first, to assess the status of physical education programs in schools of the Big Eight Athletic Conference in terms of how the programs are perceived by the chief school administrator or his designate, and by the man in charge of boys' physical education in these respective schools;

second, to determine physical fitness, motor skills performance, knowledge, and the attitudes toward physical education participation possessed by selected sophomore students in each of the schools studied; third, to indicate the direction and magnitude of differences which exist between the perceptions of the school program as seen by those who administer it versus the outcome of those respective programs as displayed by those who take part in it; and fourth, to compare the responses to perceptions of the program as shown by the principals to those of the boys' and girls' department chairmen separately and to compare the perceptions of program of the two department chairmen, resulting from use of the survey instrument.

As in any other part of the curriculum, physical education requires equipment, facilities, and personnel in order to help assure a successful program. The degree of attainment of this success will be shown by the opinions of those whose judgments are considered valid. In contrast with this will be the performance capabilities of the students who take part in the program in terms of physical fitness performance, physical fitness knowledge, and neuromuscular skills. Finally, attitudes about physical education are also held to be important and should also be judged.

This study is limited to those schools which make up the Big Eight Athletic Conference in the state of Washington. Their enrollments,

as of the 1967-1968 school year, the cities in which they are located, and the approximate populations of those cities are listed in Table I. Each of these schools is designated as AAA by the school population criterion of the Washington High School Interscholastic Activities Association and as such are considered equated athletically.

Costs involved in the study were negligible with respect to special equipment or for test instruments. The LaPorte Scorecard is a survey instrument which required approximately an hour of interview time to complete per interviewee. In addition, approximately a class period was required for the physical fitness test, a class period each for the physical fitness knowledge and attitude tests, and a class period for the neuromuscular skills test.

DEFINITION OF TERMS

Attitudes: The beginning of feeling or ways of thinking about something which results in emotionalized tendencies to respond in certain ways (1:545).

Criterion: A standard by which a test may be judged or evaluated. A set of scores, ratings, etc., that a test is designed to predict or to correlate with (1:545).

Diagnostic Test: An examination intended to measure achievement in a narrow subject field or in related sub-fields, particularly

TABLE I

ENROLLMENTS AND CITY SIZES OF SCHOOLS
IN THE BIG EIGHT ATHLETIC CONFERENCE

High School	Enrollment	City	Approximate Population
Wenatchee	1,375	Wenatchee	16,700
Davis	1,511	Yakima	47,000
Eisenhower	1,375	Yakima	47,000
Kennewick	1,675	Kennewick	15,000
Richland	1,797	Richland	25,000
Pasco	1,355	Pasco	14,500
Walla Walla	1,614	Walla Walla	24,500
Moses Lake	973	Moses Lake	11,300

with a view to determining specific weaknesses of pupils as a basis for remedial measures (1:546).

Motor Ability: The present acquired and innate ability to perform motor skills of a general or fundamental nature, exclusive of highly specialized sports or gymnastic techniques (1:548).

Physical Fitness: The measure of total personality in action with emphasis on the factors--strength, endurance, power, agility, flexibility, speed, and balance (4:25).

Knowledge: The accumulated facts, truths, principles, and information to which the human mind has access (6:308).

OVERVIEW OF REMAINDER OF THESIS

Chapter II contains a review of the literature pertaining to the problem; Chapter III contains procedures used in this investigation. Chapter IV contains the results of the thesis problem involving the evaluation of the data collected. Chapter V contains the summary, conclusions, and suggested recommendations found through the evaluation of the results of the study.

CHAPTER II

RELATED LITERATURE

The purposes of this study, as specified in Chapter I, suggested a search of the literature centering around adequate measurement devices suitable for the assessment of those qualities deemed important in terms of objectives of physical education. In addition, an adequate survey instrument was necessary which would seek the proper information from principals and boys' physical education chairmen about practices in their schools' programs of physical education. In accordance with these needs, this chapter deals with a discussion of the needs for this problem as specified.

I. LaPORTE SCORECARD

In 1929, the College Physical Education Association initiated a project through its membership chaired by William Ralph LaPorte, whose principal aim was to establish uniformity in physical education curricula at the various school levels over the entire nation. A curriculum evaluative device known as the LaPorte Scorecard was a tangible outcome of this work.

Over the years the LaPorte Scorecard has been revised a number of times by subsequent committees of the same association. In the early 1950's a series of doctoral dissertations from Indiana University under the chairmanship of Dr. Karl W. Bookwalter showed the status of physical education as a program in more than 2,600 high schools by means of the LaPorte Scorecard (2:2).

LaPorte Scorecard #2 is a survey instrument divided into ten areas, each sampling the ability of a school to provide a curriculum service for the benefit of the pupils in physical education. Each area consists of ten questions to which an interviewee reacts by his or her own judgment as shown by assignment of the numeral three to the question if he is in full accord, a zero if he is in complete discord, and the numerals 1 or 2 if in intermediate degrees of accord.

The scorecard consists of the following areas (2:1):

I. Program of activities
II. Outdoor areas
III. Indoor areas
IV. Locker and shower areas
V. Swimming pool
VI. Supplies and equipment
VII. Medical examination and health service
VIII. Modified individual corrective activities
IX. Organization and administration of class programs
X. Administration of intramural and interscholastic activities

In a summary of the several dissertations referred to above, Bookwalter found that the scorecard areas IX and X, Organization and Administration of Class Programs and Administration of Intramural

and Interscholastic Activities rated highest nationwide, being 43.6% and 42.1% of possible attainment, respectively. Swimming Pool (area V) and Modified Individual (Corrective) Activities (area VIII) were the two lowest, being virtually non-existent (2:3).

According to Bookwalter, the main purposes to be served in using the LaPorte Scorecard are to center attention upon the characteristics of a good program and to provide opportunity for a school to compare its offering somewhat objectively with these characteristics. The evaluation should serve to disclose significant weaknesses that are subject to improvement, rather than to present merely a critical rating of the school (2:7).

Over a period of years since the beginning of work by the College Physical Education Association, the Scorecard has undergone several revisions and improvements. More than 150 national authorities contributed to its development by utilizing it and subsequently making constructive suggestions for its improvement. Bookwalter, having employed it so extensively as previously described, tested the ability of the Scorecard to discriminate between good and bad programs, item by item, by use of the Votaw curve. He showed that 99 of the 100 items did, in fact, discriminate program quality adequately. The other item was retained due to its logical (rather than statistical) association to program quality (7:2).

Neilson found a need for an objective evaluation of physical education programs in the state of California.

Neilson's scorecard had five different sections:

a. Professional preparation
b. Facilities -- indoor and outdoor
c. Program organization
d. Program of activities
e. Professional assistance (12:119)

Neilson felt that in looking over the scores of each scorecard that

> . . . their chief value lies not so much in the total score as in the analysis made of the detailed score in each unit. Upon completion of the program survey, the principal of the school and the physical education instructors should meet to discuss results and to lay plans for the future. The score should be used as a stimulus to improvement rather than to compare one school's standing with that of another (12:121).

Hall reviewed the Neilson Scorecard in his study and stated that the scoring takes such a long time that "this scorecard is not feasible for use in studies involving large samples." (7:16)

II. PHYSICAL PERFORMANCE TESTS

Objectives of Physical Education

Objectives of physical education have been stated in many ways, ranging from a few general statements to a great many specific, diverse statements, narrowly applied. One of the most respected philosophers in physical education was Jay B. Nash whose statement of objectives of physical education enjoys virtually universal acceptance,

is applicable for both sexes at all age levels, and effectively integrates social, psychological, and biological phenomena. Nash's objectives are on four levels and may be stated and described briefly as follows (11:80):

Organic level -- possession of soundly functioning bodily organs.

Neuromuscular level -- ability to voluntarily direct the muscles of the body through a soundly functioning nervous system.

Interpretive-cortical level -- ability to make intelligent judgments in situations of play.

Emotional-impulsive level -- willingness to accept victory with humility and defeat with forbearance, to be a sportsman in the true sense of the term.

Elder's Physical (Motor) Fitness Test -- Organic Level

Elder developed a physical (motor) fitness test which would reflect individual status and progress in respect to achievement of the physical fitness objective (organic level) of physical education (4:4).

Elder in determining the validity of the Physical (Motor) Fitness test, utilized the following criteria.

1. Critical ratios indicating the significance of the difference between the P(M)F test means of eight groups which it was reasonable to believe were different in terms of physical fitness.

2. Rogers' Strength Index: Justification for use of the S.I. criterion is based upon the relationship of strength to physical (motor) fitness. As indicated by authoritative opinions, frequency of use of strength tests in physical fitness test batteries, and the isolation of strength as a factor in fitness by numerous factor analysis studies.

3. Rogers' Physical Fitness Index: This index correlated .65 with medical judgments of physical condition. Primarily on the strength of this relationship, the P.F.I. was proposed as a measure of physical fitness. Although it has been the object of considerable criticism, it is included as a criterion in this study on the basis of experimental and clinical evidence presented by numerous investigators.

Elder's P(M)F multiple correlation of .911 between his five-item test and his fourteen-item criterion test, and the fact that his short test accounted for 82.35% of the total variance as measured by the fourteen-item test all constitutes convincing evidence of validity.

McCloy General Motor Achievement Test (GMA)— Neuromuscular Level

In the development of the General Motor Achievement test, coefficients of correlation were obtained between the scores made in various individual tests and the total scores made in a large battery of physical achievement tests. Two types of tests were found to have high coefficients of correlation with the large battery of tests: (1) track and field events, and (2) strength tests (10:208).

McCloy's General Motor Achievement test for boys for purposes of this study was comprised of:

1. Pull-ups
2. Standing broad jump
3. Basketball throw
4. 50-yard dash
5. Running high jump

A battery of tests devised to measure general motor achievement should not include events that involve highly specialized skills, according

to McCloy (10:208).

Further evidence for the validity of track and field events for the prediction of G. M. A. was obtained from a study in which coefficients of correlation were obtained between total points for track and field events and ratings of technical skills in soccer, basketball, softball, and volleyball. All the subjects who had been trained intensively for a number of years in all the events, rated the technical skill of one another, disregarding such psychological elements as quick thinking and courage. The resulting R's of technical skills in basketball, soccer, volleyball, and softball with total points in track and field events were respectively .92, .84, .88, and .78. (10:208)

The general motor achievement score indicates a performer's achievement due to his innate capacity, and his training and experience as well, and is therefore subject to change. Since the motor quotient, on the other hand, indicates the relationship between a performer's innate motor capacity for performers of the same sex, size, and maturity, it should not theoretically change. The motor quotient is usually fairly stable for each person. Since a measure of achievement in motor skills reflecting a combination of innate capacity, training, and experience, and therefore reflecting program quality, was desired in this study, McCloy's General Motor Achievement Test was chosen.

Stradtman Test of Physical Fitness Knowledge -- Interpretive-Cortical Level

To determine the effectiveness of a teaching program in physical education, the teacher should have some measuring device to determine what the student knows and whether he can apply his knowledge to a practical situation. Stradtman's study, "A Physical Fitness Knowledge Test for Secondary School Boys and Girls," was completed in 1947 at the University of Illinois. The following served as a partial list of criteria in its construction: (1) it must be purely objective; (2) it must deal with recognized aspects of physical fitness; (3) it must reveal the areas of knowledge in which the student is deficient; (4) the test items must be those in which the students have had some experience; (5) the context should be written for the sixth grade level vocabulary range for secondary school students (13:19).

Stradtman's preliminary form was a 148-question test given to graduate classes in physical fitness. The controversial or extremely difficult items were eliminated. Out of these 148 items he derived the present 100-question test. The Teachers Word Book of 30,000 Words was referred to so the vocabulary would remain at the sixth grade level. Stradtman's test was designed for a forty-minute working time period.

The reliability of the Stradtman Knowledge test was:

Boys	Girls	Combined
.94 -- 153 cases	.96 -- 180 cases	.95 -- 333 cases

(14:54)

Kneer Attitude Inventory and Diagnostic Test -- Emotional-Impulsive Level

The purpose of Kneer's study was to develop an instrument which would enable one to make a reliable and valid estimate of the direction and intensity of individual and group attitudes toward physical education as an activity course. Although intended for high school girls, it was used here for high school boys.

> The Kneer Inventory was adapted from the one developed by Wear for college men. The reading ability level was geared to the eighth grade and above. The scale correlated .84 with the Wear Attitude Inventory serving as the validity criterion and .87 and .89 with graphic self-ratings of attitude. The reliability coefficient was .95 (8:114).

In Wear's 120-item test the reliability of the inventory as determined by the split-halves method was .96. For 472 cases, this coefficient became .98 when raised by the Spearman-Brown prophecy formula (12:119). With reference to Wear's forty-item test, the short form had a split-half reliability of .94 for 272 cases. This became .97 when raised by the Spearman-Brown formula (14:121).

CHAPTER III

PROCEDURES

In general terms it was the purpose of this study to determine the status of physical education instructional programs in the eight schools which make up the Big Eight high school athletic conference of the State of Washington. Status as used herein was determined in two ways, viz., through use of a standardized evaluative questionnaire-type interview instrument in an effort to assess opinions of those who administer the respective programs, and secondly, through the use of student performance tests which measure objectives of physical education which enjoy profession-wide acceptance.

Application of certain judgment criteria led to the selection of the interview instrument and to tests of each of the objectives of physical education. A presentation of these criteria follows.

Interview Instrument -- Selection Criteria

Three interview type evaluation instruments were reviewed, each judged according to the following criteria:

(1) Completeness -- the instrument should evaluate all important aspects of program content and administration.

(2) Length -- the instrument should be of sufficient length to insure a reasonably exhaustive search for pertinent information but at the same time not provoke the interviewee into cursory responses in an effort to escape an inordinately prolonged interview session.

(3) Clarity -- the wording of the instrument should be clear and should invite responses without hesitation or undue search for further explanation.

(4) Reliability and validity -- the instrument should measure with consistency and should be highly related to a defensible criterion of program content, conduct, and administration.

(5) Accepted profession-wide use -- the instrument should be one readily acceptable by a majority of those in physical education.

The three interview evaluation instruments reviewed were: (1) The Indiana Scorecard, (2) The Neilson Scorecard, and (3) The LaPorte Health and Physical Education Scorecard II. Of these, the LaPorte Health and Physical Education Scorecard II was empirically chosen as best meeting the criteria above.

Student Performance Tests -- Selection Criteria

The student performance tests were selected according to the following specific criteria and bear direct relationship to Nash's objectives:

(1) Validity and reliability -- tests should be highly related to a defensible criterion and should measure with consistency.

(2) Number of items -- other things being equal, the shortest test was chosen.

(3) Differentiation of ability levels -- tests chosen should be capable of distinguishing various ability levels.

(4) Equipment -- tests for field use should require a minimum of specialized equipment.

(5) Norms -- performances should be capable of judgment against a numerical scale suitable for sex and age groups.

(6) Test criterion -- the tests should be based upon a suitable criterion.

(7) Use in the field -- tests enjoying wide acceptance are preferable to those having limited acceptance.

(8) Applicability to both sexes -- for purposes of comparability in this study, tests suitable for both sexes were chosen.

Conducting the Interview with the La Porte Scorecard

The survey of personnel in the Big-Eight Conference required the total cooperation of all concerned. In an effort to solicit official support for this study the State Supervisor of Health and Physical Education was asked to write the principal of each of the high schools involved. The letter contained a description of the study, its justification, purposes, and the specific type of information an interview would elicit. Following this, a letter was sent to each of the high

school principals requesting an appointment time for a personal interview.

In order to determine the status of programs of physical education in each of the schools in question, interviews were conducted between each of the principals or vice principals of the eight schools. In addition, an interview was conducted separately with each physical education boys' department chairman. Each interview required approximately forty-five minutes.

Administration of the Student Performance Tests

Utilizing the criteria presented earlier, the following tests were selected. Elder Physical (Motor) Fitness Test, McCloy Test of General Motor Achievement, Stradtman Test of Physical Fitness Knowledge, and Kneer Attitude Inventory and Diagnostic Test. Each of the above tests was administered to a class of sophomore boys by an instructor at each of the schools. Instructions were clearly written for each test so that the possibility of error was minimized. Each instructor administered the test, marked the test accurately and returned by mail to the writer. Each test required approximately one class hour to complete.

In spite of precautions to the contrary, one error was committed in the administration of the McCloy GMA Test. Both standing broad jump and running high jump were a part of the original battery of five

tests. The running high jump was not designated on the record card, so, therefore, was not performed. To compensate for this, the standard score equivalent for each boy based on his standing broad jump score was substituted for the running high jump.

Analysis of Data

In analyzing the results emerging from the use of these two types of evaluative instruments, the following statistical procedures were employed.

In order to assess program effectiveness, the LaPorte Scorecard was employed. Separate interviews with the principal or vice principal and with the boys' deparment chairman produced two separate opinions. Where a single judgment was required for statistical purposes, the average of the two was employed. The schools were ranked alphabetically in order of total scorecard attainment.

In order to calculate percent of attainment (as shown in Figure 3), the mean rating by the principals was divided by the possible score attainable and multiplied by 100; that is, percent attainment $= \frac{\text{achieved score}}{\text{possible score}} \times 100$. This process was followed for department chairmen, the mean judgment of the principal and department chairman combined, and for each of the student performance tests.

In order to focus effectively on variability between schools in student performances, those two schools ranked highest by La Porte Scorecard were compared to those two schools ranked lowest. The t ratio test for significance of difference between means was utilized for this purpose.

Cohen's k coefficient of agreement was used to estimate the agreement between judges in reacting to the La Porte Scorecard. The coefficient makes three assumptions: (1) that the units are independent; (2) the categories are independent, mutually exclusive, and exhaustive; and (3) the judges operate independently. Cohen siggests that in the typical situation relying upon judgment there is no true criterion for "correctness" of judgments and the judges are deemed equally competent to make judgments. As Cohen describes it, there are only two relevant quantities; viz., p_o = the proportion of unites in which judges agree, and p_c = the proportion of units in which agreement is expected by chance. Cohen defines k as "the proportion of agreement after chance agreement is removed from consideration." (3:40)

The formula is as follows: $$k = \frac{p_o - p_c}{1 - p_c}$$

CHAPTER IV

FINDINGS OF THE STUDY

I. STATUS OF PHYSICAL EDUCATION -- LaPORTE SCORECARD

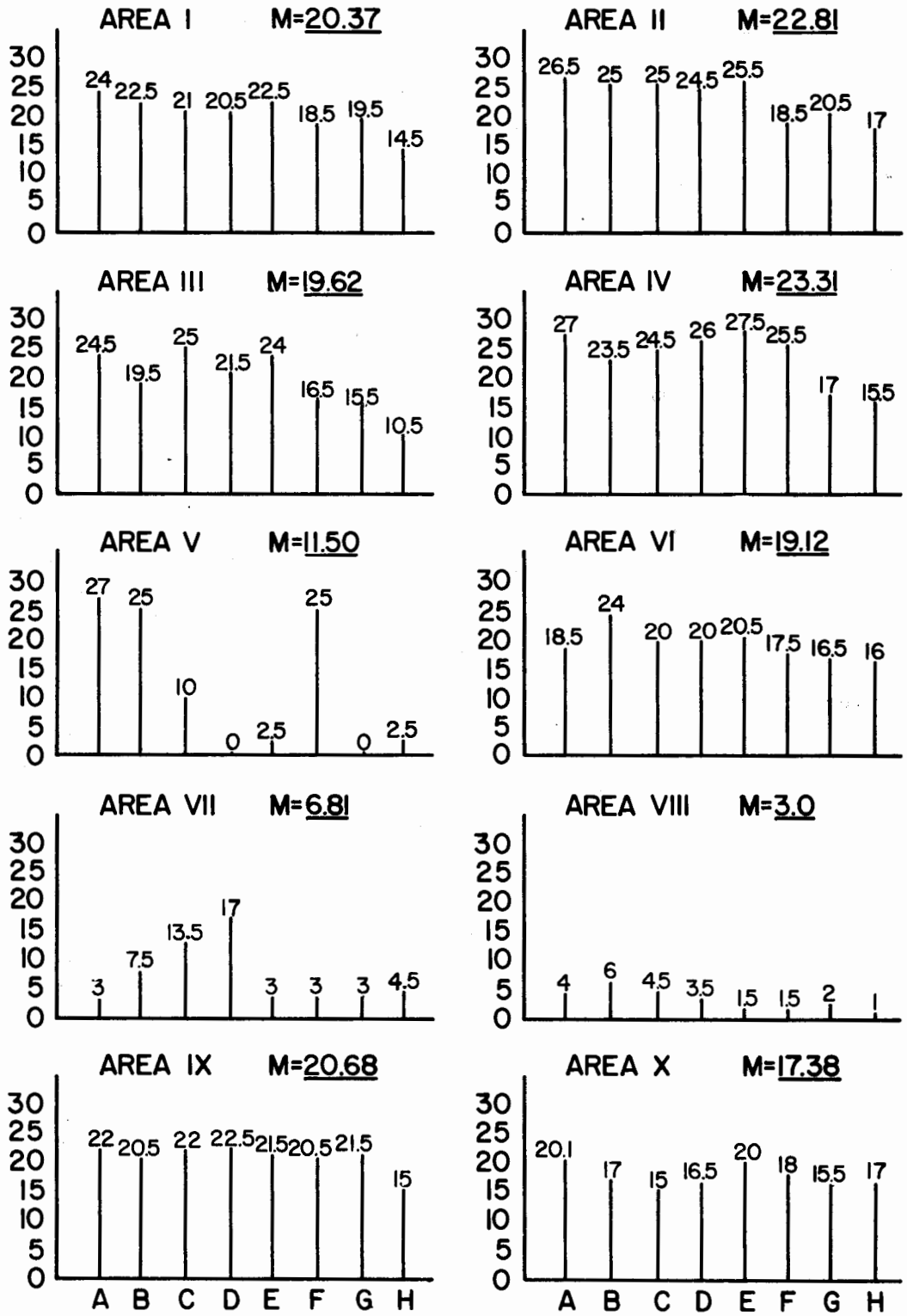
As described in Chapter I, the first purpose of this study was to assess physical education by means of the LaPorte Scorecard. Judgments were made independently by the school principal and by the boys' department chairman. In order to stabilize the judgment, an average of the two scores was determined for each school. This average score was used for comparative purposes.

Figure 1 represents a summary of the scorecard attainment for each school. Ratings for each area of the scorecard can better be gauged by the following standards: 10 points = fair or minimum; 20 points = good or average; and 30 points = superior or ideal programs (LaPorte). Figure 1 illustrates the position of the schools in each area of the scorecard.

Status of Physical Education as Judged by the Principal

As seen in Table II, the mean of the eight ratings given by the principals was 168.8, with a standard deviation of 34.2. Thus, according to the principals, the average scorecard attainment among

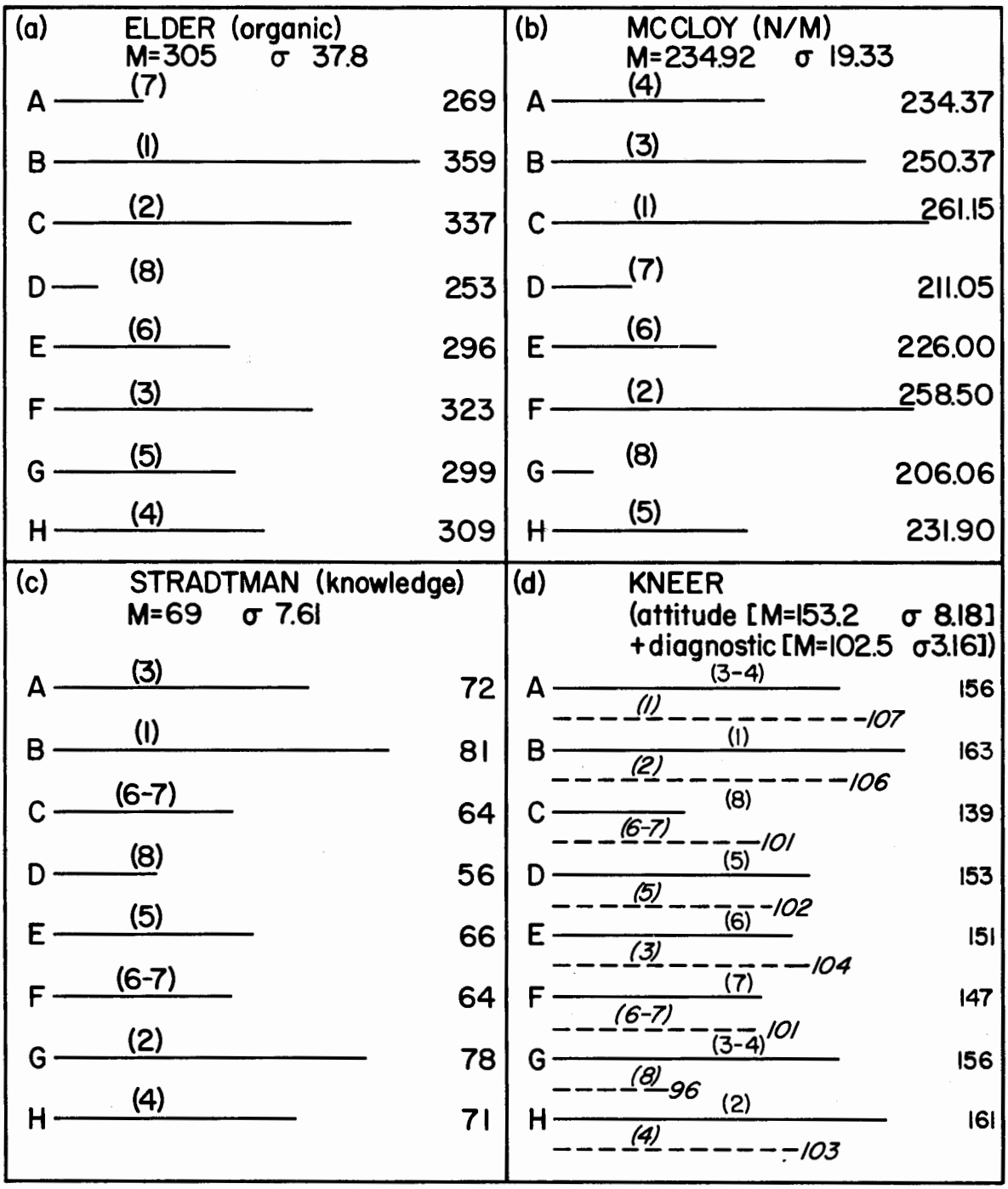
FIGURE I



LA PORTE SCORECARD AREA SCORES

Capital letters on the abscissa represent the schools which have been ranked in order of La Porte scorecard attainment.

FIGURE 2



PERFORMANCE POINTS SCORED AND SCHOOL RANKS

Legend: left column–La Porte scorecard rank; middle column–order of rank; right column–points scored.

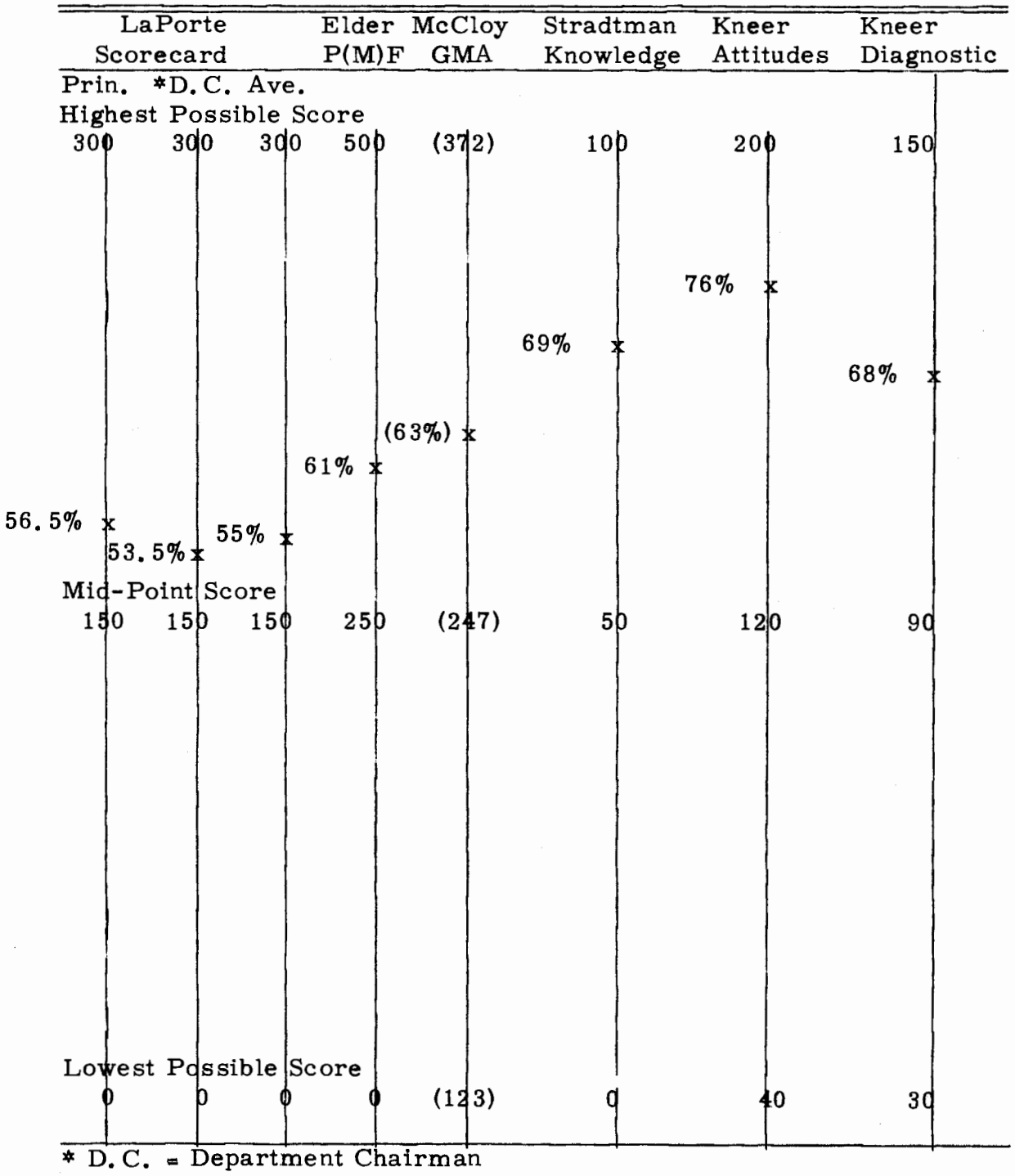


FIGURE 3

PERCENTAGE ATTAINMENT
ON LA PORTE SCORECARD AND STUDENT PERFORMANCE TESTS

TABLE II

LaPORTE SCORECARD AND PERFORMANCE TEST MEANS

	LaPorte Scorecard Scores			Physical Fitness	Motor Skills	Knowledge	P. E. Attitudes	Diag. Stmnts.
Schools	Principal	Department Chairman	Average	Elder P(M)F	McCloy GMA	Stradtman P F	Kneer	Kneer
A	184	210	197	269	234.37	72	156	107
B	209	172	190.5	359	250.37	81	163	106
C	192	169	180.5	337	261.15	64	139	101
D	175	169	170	253	211.05	66	153	102
E	167	170	168.5	296	226.00	56	151	104
F	192	137	164.5	323	258.50	64	147	101
G	118	144	131	299	206.06	78	156	96
H	107	120	113.5	309	231.90	71	161	103
Mean	168.8	161.4	164.7	305	234.92	69	153.2	102.5
S. D.	34.2	25.52	26.8	37.8	19.33	7.61	8.18	3.16

these schools was 56.5% of possible. The range of scores was 102, from a low of 107 points for School H to a high of 209 for School B. Thus, the range of judgment represented more than one-third of the possible score attainable on the entire scorecard.

In Table II, the alphabetical listing of schools represents their order of rank on the LaPorte Scorecard according to principal-department chairman mean.

Status of Physical Education as Judged by the Department Chairman

As seen in Table II, the mean of the eight ratings given by the department chairmen was 161.4 with a standard deviation of 25.5. Thus, according to the department chairmen, the average scorecard attainment among these schools was 53.5% of possible. The range of scores was 90, from a low of 120 points for School H to a high of 210 for School A.

Status of Physical Education as Judged by an Average of the Ratings of Principal and Department Chairman

The mean of the eight averaged ratings was 164.7 with a standard deviation of 26.8. Percentage attainment of possible was 55%. Here the scores ranged from a low for School H of 113.5 to a high of 197 for School A, a range of 83.5 points. The mean difference between judgments of the principal and those of the department chairman was 23.6 points. The range of difference varied from 3 points (School E) to 55 points (School F).

II. PERFORMANCE TESTS

The second purpose of this study was to determine the physical fitness, motor skills, knowledge, and attitude toward physical education of a representative sophomore class at each school. Figure 2 illustrates the student performance test results showing each school's relationship to the conference-wide mean and standard deviation for each test.

Physical Fitness -- Elder P(M)F Test

As seen in Table II, the mean of the eight ratings given by the schools was 305 with a standard deviation of 37.8. The range of scores was 106, from a low of 253 points for School D to a high of 359 for School B. The range here was equivalent to more than 20% of the entire standard score scale (0 to 500) and the mean performance was 61% of possible, obtained by dividing the achieved mean score by the highest possible score (500) and multiplying by 100.

Motor Skills -- McCloy G. M. A. Test

The mean of the eight schools for the McCloy General Motor Achievement Test was 234.9 with a standard deviation of 19.3. The range of mean scores was 55.09, from a low of 206.06 points for School G to a high of 261.15 for School C. Due to the nature of the test battery, no ultimate achievement ceiling or floor is known.

However, if the range of scores attained in this study is computed from the highest and lowest attained score, such a range can be utilized as a rough estimate of ultimate high and low achievement in this test battery. These high and low scores were 372 and 127 respectively. Therefore, the range of mean scores here was 22% of the range existing on the scale and the mean attainment of 234.92 was 63% of possible.

Knowledge -- Stradtman Knowledge Test

The mean of the eight schools for the Stradtman Knowledge Test was 69 points with a standard deviation of 7.61. The range of scores was 25; from a low of 56 points for School E to a high of 81 for School B. The range here was equivalent to 25% of the entire score scale (0 to 100) and the average attainment was 69%.

Attitude -- Kneer Attitude Inventory

The mean of the eight schools for the Kneer Attitude Inventory Test was 153.2 with a standard deviation of 8.18. The range of scores was 24, from a low of 139 points for School C to a high of 163 for School B. The range here was equal to 15% of the entire score scale (40 to 200) and the average attitude attainment was 76%.

Diagnostic Rating -- Kneer Attitude Inventory and Diagnostic Test

The mean of the eight schools for the Kneer Diagnostic rating was 102.5 points with a standard deviation of 3.16. The range of

scores was 11 points; from a low of 96 points for School G to a high of 107 points for School A. The range here was equivalent to slightly more than 9% of the entire score scale (30 to 150) and the average attainment was 68%.

III. JUDGMENT OF PROGRAM VERSUS STUDENT PERFORMANCES

The LaPorte Scorecard #2 was used to assess the perceptions of physical education as a curricular program area by area, as seen by those who directly administer it, the department chairmen and by those whose ultimate responsibility it is, the school administration. In contrast to this, tests of physical (motor) fitness, general motor achievement, knowledge and attitude toward physical education were administered to representative sophomore classes as another approach to evaluation of program effectiveness.

Comparison of Means of All Schools

A comparison between program judgment by use of LaPorte Scorecard II, with program accomplishment by students in terms of tests of program objectives was made by using the respective percentages of attainment as shown in Sections I and II preceding. Reference to Figure 3 summarizes these findings and permits the following conclusions.

1. Principals tended to rate their boys' programs higher than department chairmen.

2. The average rating attained was 55% on LaPorte Scorecard II which is compared to 28% for schools nationwide during the period 1950-1954.

3. Each of the five mean percentages on tests administered to the boys represented higher attainment than that shown for LaPorte Scorecard II.

4. It is interesting to note that of the five tests, the two representing physical or muscular performances, namely the Elder P(M)F Test and McCloy's GMA, were lowest in percent attainment.

5. The highest percent of possible attainment was scored on Kneer's Attitude Inventory.

Comparison of Means of Upper Two Schools Versus Lower Two Schools

An examination of Table II showed that the middle four schools (C, D, E, and F) varied from each other by only 16 points in the LaPorte Scorecard ratings. The net effect of such similarity is to reduce variability existing between the eight schools. In order to focus effectively on such variability as did exist, it was decided that the two schools rating highest on the LaPorte Scorecard would be contrasted to the two schools rating lowest, on each of the five remaining variables, the student performance tests. Accordingly, the significance of difference between mean scores of the upper two schools and the lower two schools was tested by use of the t ratio. Table III

TABLE III

SIGNIFICANCE OF DIFFERENCE BETWEEN PERFORMANCE SCORE MEANS OF SCHOOLS RANKED AT OPPOSITE ENDS OF THE LaPORTE SCORECARD

ELDER P(M)F TEST

SCHOOL		SCHOOL G	SCHOOL H	DIFF	SE_{DIFF}	df	t	LEVEL
A	269		309	40.0	11.15	71	*3.63	.01
A	269	299		30.0	10.56	71	*2.60	.05
B	359		309	49.0	8.70	70	5.63	.01
B	359	299		60.0	8.64	60	6.94	.01

McCLOY TEST OF GENERAL MOTOR ACHIEVEMENT

A	234		232	2.0	8.95	71	.22	---
A	234	206		28.0	11.68	71	2.40	.05
B	250		232	18.0	8.43	70	2.14	.05
B	250	206		44.0	11.28	60	3.90	.01

Note: For significance at the .05 level of confidence for 71 degrees of freedom, t must equal 1.99.

* The differences are significant and favor bottom-ranked schools over top-ranked schools.

TABLE III (continued)

STRADTMAN TEST OF PHYSICAL FITNESS KNOWLEDGE

SCHOOL		SCHOOL G	SCHOOL H	DIFF	SE_{DIFF}	df	t	LEVEL
A	72		71.1	1.0	3.98	69	.251	---
A	72	77		5.0	3.60	61	1.39	---
B	81		71.1	10.	2.95	63	3.39	.01
B	81	77		4.	2.42	55	1.44	---
KNEER ATTITUDE INVENTORY								
A	156		161.	5.	6.37	70	.79	---
A	156	156		---	---	---	---	---
B	163	156		7.	5.93	54	1.18	---
B	163		161.	2.	4.60	62	.44	---
KNEER DIAGNOSTIC STATEMENTS								
A	107		103	4.	3.20	70	1.25	---
A	107	96		11.	3.89	62	2.73	.01
B	107		103	4.	2.82	62	1.42	---
B	107	96		11.	3.68	54	2.99	.01

summarizes this information and focuses on the following findings.

Elder P(M)F Test. School A ranked seventh on the Elder test and in comparison with School G (ranked fifth) was 30 points lower. This difference was great enough to result in a t ratio of 2.60. School H ranked fourth; the difference between A and H was 40 points with a resultant t of 3.63. Both t ratios were significant, the first at the .05 and the second at the .01 level of confidence. School B ranked first on the Elder Test and was 60 points superior to School G and 49 points above School H. The t ratios were 6.94 and 5.63 respectively, both significant at the .01 level of confidence.

McCloy General Motor Achievement Test. School A, with a mean of 234 was superior to School G by a margin of 28 points. The t ratio was 2.40, significantly favoring School A at the .05 level of confidence. School A was superior to School H by only 2 points; the t ratio was not significant. School B had a margin of 44 points over School G and 18 points over School H, resulting in t's of 3.90 and 2.14 respectively. These t's were significant at the .01 and .05 levels.

Stradtman Test of Physical Fitness Knowledge. School A had a mean score of 72, School G 77 for a difference of five points. The t was 1.39 (not significant). A difference of one point between Schools

A and H resulted in a non-significant t of .251. School B's mean of 81 was 4 points higher than School G; the t of 1.44 was not significant. The difference between Schools B and H, however, was 10 points with a resultant t of 3.39, significant at the .01 level of confidence.

Kneer Attitude Inventory. Schools A and G had identical scores. School A scored five points lower than School H, but the difference was not significant as the t was only .79. School B's mean was 163, a seven-point advantage over School G and a two-point advantage over School H. The t's of 1.18 and .44 were not significant.

Kneer Diagnostic Rating. School A had a mean advantage of 11 points over School G and 4 points over School H. The t's were 2.73 and 1.25, the first being statistically significant at the .01 level of confidence and the second not significant. School B also had 11 and 4 points advantage over Schools G and H respectively. The resultant t's were 2.99 and 1.42. The first of these was significant at the .01 level of confidence and the second not significant.

IV. COMPARISON OF PROGRAM JUDGMENTS

It was the fourth purpose of this study to compare judgment responses of the boys' department chairmen to those of the principals and to those of the girls' department chairmen. As the writer was

interested in the agreement between judges and because the scale of values of 0, 1, 2, and 3 used for each item in the LaPorte Scorecard permitted only nominal scaling, the coefficient of agreement k described by Cohen seemed ideally suited to this purpose. Coefficients of agreement were calculated for each of the ten scorecard areas.

Agreement Between Boys' Department Chairmen and Principals

Table IV summarizes the coefficients computed and suggests the following conclusions.

All Schools. In general, coefficients of agreement were not large, indicating considerable difference of opinion between chairmen and principals in most of the Scorecard areas. This is particularly the case for areas 1, 2, 4, and 8 which are Program of Activities, Outdoor Areas, Locker and Shower areas, and Corrective Activities respectively. In areas 3, 6, 7, 9, and 10, the coefficients were somewhat larger but still not impressive, ranging from .373 to .584. It should be noted that the σ_{k_o} in all areas except #8 seemed small indicating narrow confidence limits for agreement between judges. The result of small σ_{k_o} was a series of z's ($z = \frac{k}{\sigma_{k_o}}$) which were statistically significantly different from zero. Only areas 4 and 8, Locker and Shower and Corrective Activities had coefficients which were not significantly different from zero. In all comparisons, Area 5 Swimming Pool elicited too few responses to be statistically considered.

TABLE IV

COEFFICIENTS OF AGREEMENT (COHEN'S $k \pm \sigma k_o$)
LaPORTE SCORECARD AREAS
BOYS' DEPARTMENT HEAD VERSUS PRINCIPAL

Scorecard Areas	All Schools		[1]z	[2]S/L	Lower Two Schools		z	S/L	Upper Two Schools		z	S/L
1	.168	.071	2.37	---	.342	.17	2.01	---	.103	.17	.61	---
2	.162	.009	18.41	.01	.315	.19	1.65	---	.130	.093	1.39	---
3	.494	.075	6.05	.01	.494	.16	3.09	.01	.157	.126	1.24	---
4	.123	.091	1.35	---	.524	.23	2.29	.05	.750	.16	4.68	.01
5	---	---	---	---	---	---	---	---	---	---	---	---
6	.477	.070	6.81	.01	.375	.16	2.34	.05	.318	.116	2.74	.05
7	.584	.065	8.98	.01	.041	.19	.215	---	.400	.32	1.26	---
8	.086	.170	.506	---	.394	.23	1.74	---	.166	.33	.50	---
9	.501	.077	6.51	.01	.506	.79	2.25	.05	.651	.127	5.12	.01
10	.373	.070	5.33	.01	.222	.10	2.11	---	.294	.13	2.24	.05

[1]$z = \frac{k}{\sigma k_o}$ [2]SL = Significance Level

6 df = 2.45 = .05 / 3.71 = .01

12 df = 2.18 = .05 / 3.06 = .01

12 df = 2.18 = .05 / 3.06 = .01

Six df result from there being four categories of response for each of the two judges (0, 1, 2, 3). Twelve df result from the responses of the mean two judges where 1/2 categories were necessary as a result of averaging, i.e., 0, .5, 1.0, 1.5, 2.0, 2.5, 3.0.

Upper Two Schools and Lower Two Schools. An examination of the size of the coefficients in Table IV revealed that in Areas 1, 2, 3, and 8 the respondents of the upper two schools agreed much more closely than did those of the lower two schools. These areas were Program, Outdoor Areas, Indoor Areas, and Corrective Activities, respectively. Contrasted with this was Area 7 Medical Examinations and Health Service about which the upper two schools' respondents agreed virtually not at all but about which the respondents in the lower two schools agreed substantially.

In areas 4, 6, 9, and 10 the coefficients were similar in magnitude between respondents of the upper two schools and the lower two schools, indicating little diversity between department chairmen and principals regardless of over-all rank on the LaPorte Scorecard.

There was, in general, relatively little difference in σk_o between upper and lower schools, indicating similar confidence limits within which agreement was manifest.

Only in Areas 4 (Locker and Shower), 6 (Supplies and Equipment), and 9 (Organization and Administration) were the coefficients of agreement statistically significant in both upper and lower schools. In area 3 (Indoor Areas) the coefficient was significant for upper schools and in Area 10 (Administration of Intramural and Interschool Athletics) the coefficient was significant for the lower two schools.

Comparison of Coefficients for All Schools Versus Upper and Lower Schools. Interpreted in general, within broad limits, an examination of Table IV shows similarities in coefficient magnitude between all schools and upper two schools in Scorecard Area 3, Indoor Areas. The agreement is moderately high (.454 and .494). Similarities in magnitude of coefficients between all schools and lower two schools are seen in Scorecard Areas 1, 2, and 8, which are Program, Outdoor Areas, and Corrective Activities, respectively. Coefficients here are low, indicating lack of agreement between chairmen and principals. Similarities in magnitude of coefficients are seen between all schools and both upper and lower schools in Scorecard Areas 6 and 9, Supplies and Equipment and Organization and Administration of Class Programs. The coefficients were in all cases moderate in size and statistically significant. Judgments in those two Scorecard areas seem to be fairly universally applied.

Finally, coefficients of all schools were similar to neither upper nor lower schools in Scorecard Areas 4, 7, and 10, indicating that mid-ranked schools exerted influence on the coefficients in these areas which were Locker and Shower Areas, Medical Examination and Health Service, and Administration of Intramural and Interschool Athletics, respectively.

Agreement Between Boys' Chairmen and Girls' Chairmen.

An examination of Table V reveals the following information. First, none of the coefficients are high; only two, Areas 6 and 9 which are Supplies and Equipment and Organization and Administration of Class Programs could be considered moderately high (.457 and .411). Virtually no agreement is seen on Area 8 Corrective Activities (.050) and very low agreement on Area 4 Locker and Shower Areas (.156). For the nine Scorecard Areas compared, however, σk_o was small, indicating that such agreement that did exist operated within a narrow confidence band; on seven of the nine comparisons, the z ratio ($z = \frac{k}{\sigma k_o}$) was statistically significant.

A comparison of the coefficients between boys' chairmen and principals for all schools with those of boys' chairmen and girls' chairmen reveals a rather remarkable similarity.

TABLE V

COEFFICIENTS OF AGREEMENT (COHEN'S $\bar{k} \pm \sigma_{k_o}$)

LaPORTE SCORECARD AREAS
Boys' Department Chairman versus Girls' Department Chairman

Scorecard Areas	All Schools	$z' = \frac{\bar{k}}{\sigma_{k_o}}$	Significance Level
1	.244± .074	3.30	.01
2	.384± .078	4.42	.01
3	.366± .078	4.69	.01
4	.156± .087	1.79	---
5	--- ---	---	---
6	.457± .067	6.82	.01
7	.334± .114	2.93	.05
8	.050± .106	.47	---
9	.411± .077	5.34	.01
10	.285± .070	4.07	.01

CHAPTER V

SUMMARY, CONCLUSIONS, AND RECOMMENDATIONS

In this chapter, the material is presented under the following three major headings: I. Summary and General Conclusions; II. Findings and Recommendations by Schools; and III. Recommendations for further study.

I. SUMMARY AND GENERAL CONCLUSIONS

Purpose I -- Program Status -- LaPorte Scorecard

As seen in Table II, principals rated their program higher than boys' department chairmen. In two schools, B and F, the difference in rating between principal and boys' chairman was 1.5 and 2.3 times greater, respectively, than the mean difference in rating for all the schools. In both these schools, the higher of the two ratings was given by the principal. The range of LaPorte scores was 83.5 points, which amounted to 28% of the entire scale.

Mean percentage of Score Card attainment was 55%, equivalent to a percentile rank of 97, according to Bookwalter's nation-wide survey. (2:5).

General Conclusions

First, the relatively great individual disparity between ratings given by principals and department chairmen in Schools B and F is itself sufficient cause for re-examination of program perceptions. Second, although the schools averaged 55% attainment, equivalent to a percentile rank of 97, it must be remembered that Bookwalter's cumulative frequency curve was based on a mean, nationwide attainment of only 28%. The schools in this study averaged only slightly better than half of what ideal programs should attain.

Purpose 2 -- Participant Status by Program Objectives -- Performance Tests

Mean performance in terms of percentage of attainment possible were as follows, with the conference-wide range given as a percentage of the entire score range possible in parentheses.

Elder P(M)F Test	Physical Fitness	61% (20%)
McCloy GMA Test	Motor Skills	63% (22%)
Stradtman Test	Knowledge	69% (25%)
Kneer Inventory	Attitude	76% (15%)
Kneer Inventory	Diagnostic Statements	68% (9%)

Kneer made the following statement about the portion of her thesis dealing with the Diagnostic Statements: "The thirty unvalidated diagnostic statements are useable to help teachers

analyze some of the reasons for the obtained attitude scores." (8:89). It is apparent, therefore, that these statements are of direct use and value only to the teacher whose students have reacted to the attitude scale, and is, therefore, minimized in importance herein, although reported and portrayed graphically.

General Conclusions

First, the conference-wide mean percentage of attainment possible in attitude toward physical education was the highest among the student performance tests. Second, the "heart and soul" of any physical education program is in muscular performance, viz., physical fitness and motor skills. The conference-wide means in these two objectives were the two lowest among the student performance tests. Third, the Stradtman Knowledge Test was developed in 1947 based on tests administered to 153 boys and 180 girls attending Champaign High School and University High School, Urbana, Illinois. Considering the time differential of 21 years, the conference-wide mean of 69% does not compare well with the Illinois boys' mean of 73% based on the sample specified above.

Purpose 3 -- Program Status -- Judgments versus Performance Tests

Each of the five mean percentages on student performance tests represented higher attainment than that shown on LaPorte Scorecard II. Both in LaPorte Scorecard II (judgments) and in the student

performance tests, the mean attainment in percentage of possible was above mid-scale level.

The LaPorte Scorecard was rather reliable as an indicator of student performance status when schools scoring at opposite ends of the Scorecard were contrasted.

When the top two schools as ranked on LaPorte Scorecard II were compared to the bottom two schools on the student performance tests, the following conclusions seem warranted, as seen in Table III.

General Conclusions

First, in only two instances was a bottom-ranked school significantly superior to a top-ranked school; this was in the case of Schools G and H over School A in the Elder Physical (Motor) Fitness Test. Second, in only two instances did a bottom-ranked school score higher than a top-ranked school (but not significantly so); these were School G over School A in the Stradtman Knowledge Test and School H over School A in the Kneer Attitude Inventory. Third, in eight comparisons, top-ranked schools significantly outscored bottom-ranked schools (at .01 level of confidence in six comparisons; at .05 level in two comparisons) and this occurred in all tests except the Kneer Attitude Inventory. Fourth, in seven instances, top-ranked schools outscored bottom-ranked schools (but not significantly so). Fifth, in terms of relative position on the Scorecard as related to relative test scores, placement in the McCloy General Motor Achievement Test seemed most closely

akin to LaPorte Scorecard placement.

Purpose 4 -- Program Judgment Agreement -- Chairmen and Principals

Cohen's coefficient of agreement $\underline{k}$ for comparisons of agreement in judgment between boys' chairmen and principals where all schools were involved, resulted in rather low coefficients in most instances; exceptions were in Areas 7 (Medical Examinations and Health Service) and 9 (Organization and Administration of Class Programs) where the coefficients were moderately high. The ratio of $\frac{k}{\sigma k_o}$ resulted in six of the ten Scorecard coefficients being statistically significant.

Cohen's coefficient applied to the upper two schools (LaPorte ranking) showed in general somewhat higher values. One exception is notable--Area 7 (Medical Examination and Health Service)--where the majority of the items were ranked zero by chairmen and varied from zero to 2.0 for principals.

Use of Cohen's coefficient with the lower two schools in general showed poor agreement. Notable here were Areas 1, 2, and 3. An exception was Area 4 (Locker and Shower Areas) where the coefficient was high (.750). This writer's observation of, and familiarity with, the two schools and the personnel involved tends to corroborate the magnitude of this coefficient.

General Conclusions

First, coefficients of agreement between boys' chairmen and principals in the two top-ranked schools tended, in general, to be somewhat higher than those in the two bottom-ranked schools. Second, the coefficients resulting from comparisons of agreement between boys' chairmen and principals seemed, in general, to stand intermediate in value between those of the top-ranked and the bottom-ranked schools, having somewhat of an obliterative effect, making the comparison of contrast in LaPorte ranking necessary. Third, coefficients of agreement between boys' and girls' chairmen revealed considerable lack of agreement. Only two of the coefficients were moderate in value, though most were significant. Fourth, coefficients between boys' chairmen and principals were quite similar to those between boys' chairmen and girls' chairmen and between boys' chairmen and principals.

II. FINDINGS AND RECOMMENDATIONS BY SCHOOLS

School A (Figure 4)

Strengths. LaPorte Scorecard ranking; student knowledge of physical fitness; student attitude toward physical education.

Weaknesses. The Elder Physical Fitness Test and McCloy General Motor Achievement Test.

Recommendations. Re-examine the LaPorte ratings. Placement is low in physical fitness and general motor achievement for a top-ranked school. Little importance can be attached to high placement on physical fitness knowledge and on attitude about physical education if physical fitness and general motor achievement performances are low.

School B (Figure 5)

Strengths. Rated well above mean in all performance tests, which lends credence to second ranking on LaPorte Scorecard.

Weaknesses. Appear to be none.

Recommendations. Department chairman and principal vary on LaPorte rating by 37 points. A mutual re-examination of values, area by area, is suggested.

SCHOOL A

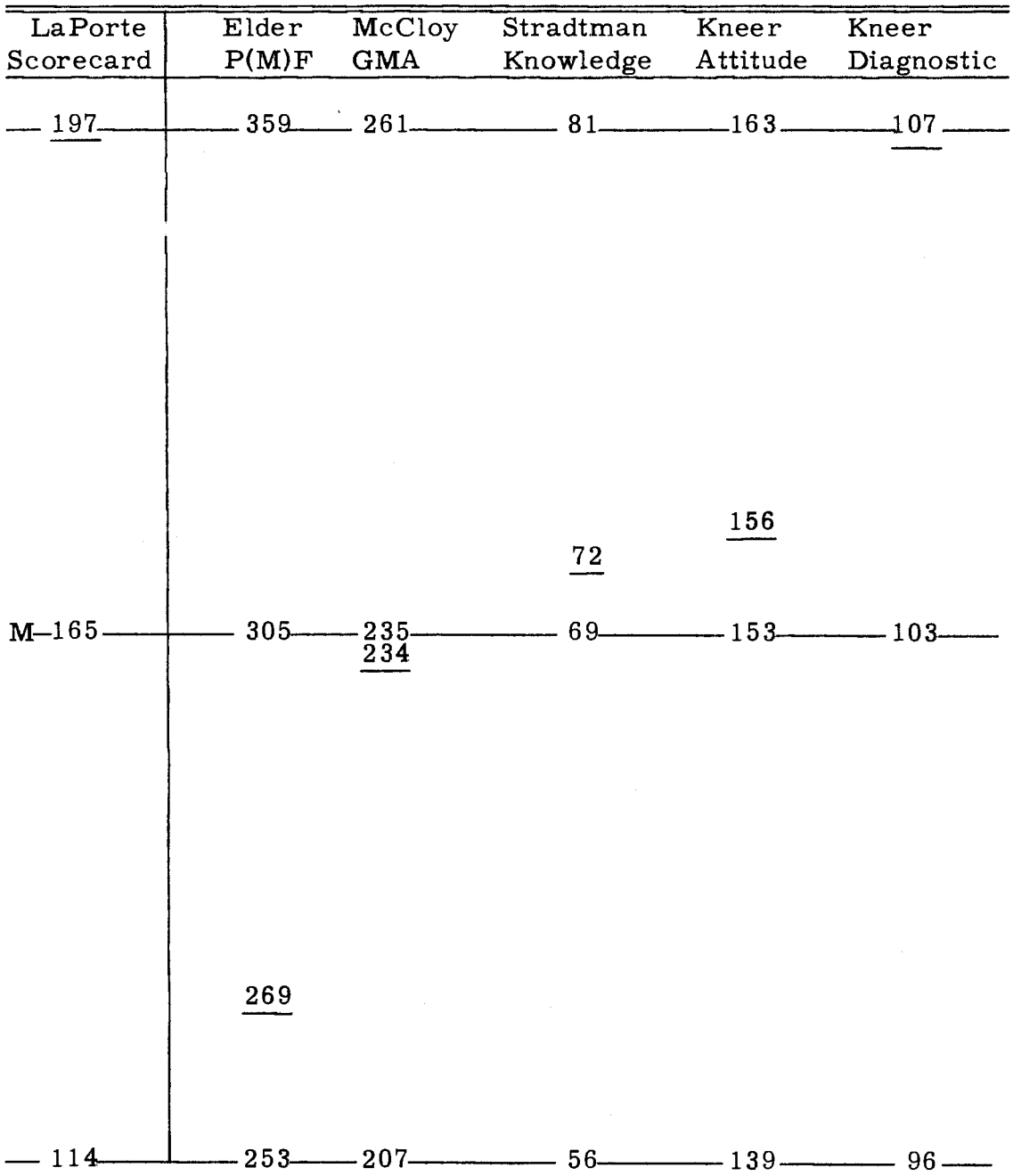


FIGURE 4

SCHOOL SCORES AND RELATIVE PLACEMENT ON LaPORTE SCORECARD AND STUDENT PERFORMANCE TESTS

SCHOOL B

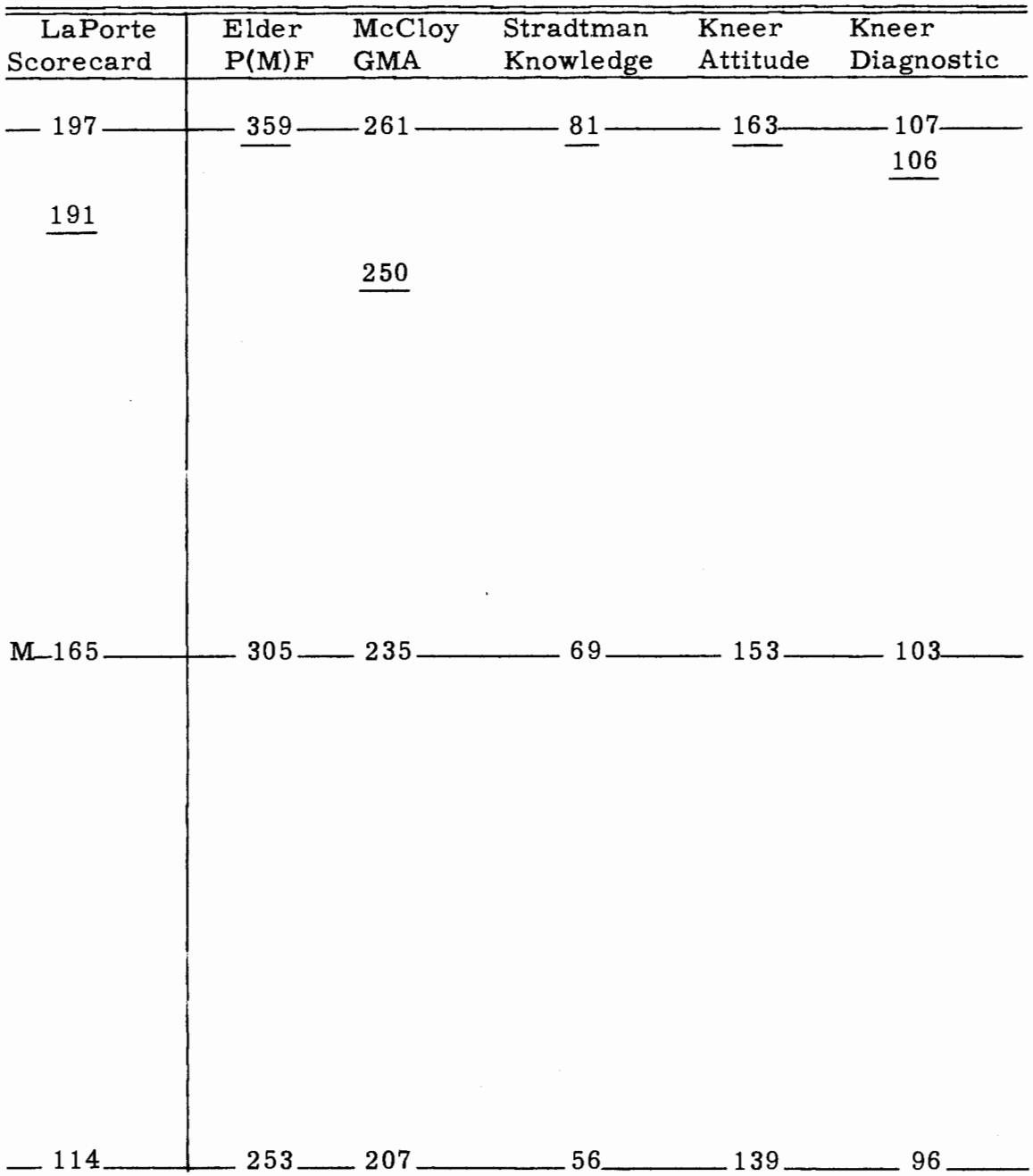


FIGURE 5

SCHOOL SCORES AND RELATIVE PLACEMENT ON LaPORTE SCORECARD AND STUDENT PERFORMANCE TESTS

School C (Figure 6)

Strengths. LaPorte Scorecard; physical fitness performance; general motor achievement performance.

Weaknesses. Physical fitness knowledge; attitude toward physical education.

Recommendations. Give attention to bolstering the knowledge and attitude areas. The results of the attitude test seem quite inconsistent, particularly in view of the LaPorte rating and the placement on the physical fitness and general motor performance tests.

School D (Figure 7)

Strengths. Relatively speaking, none, although placement on LaPorte Scorecard is slightly above average for the conference.

Weaknesses. All student performance areas, except attitude toward physical education, are well below conference-wide average.

Recommendations. Student performance tests fail to corroborate the judgment of the program by principal and department chairman. Definite program up-grading is strongly suggested in all student performance objectives.

SCHOOL C

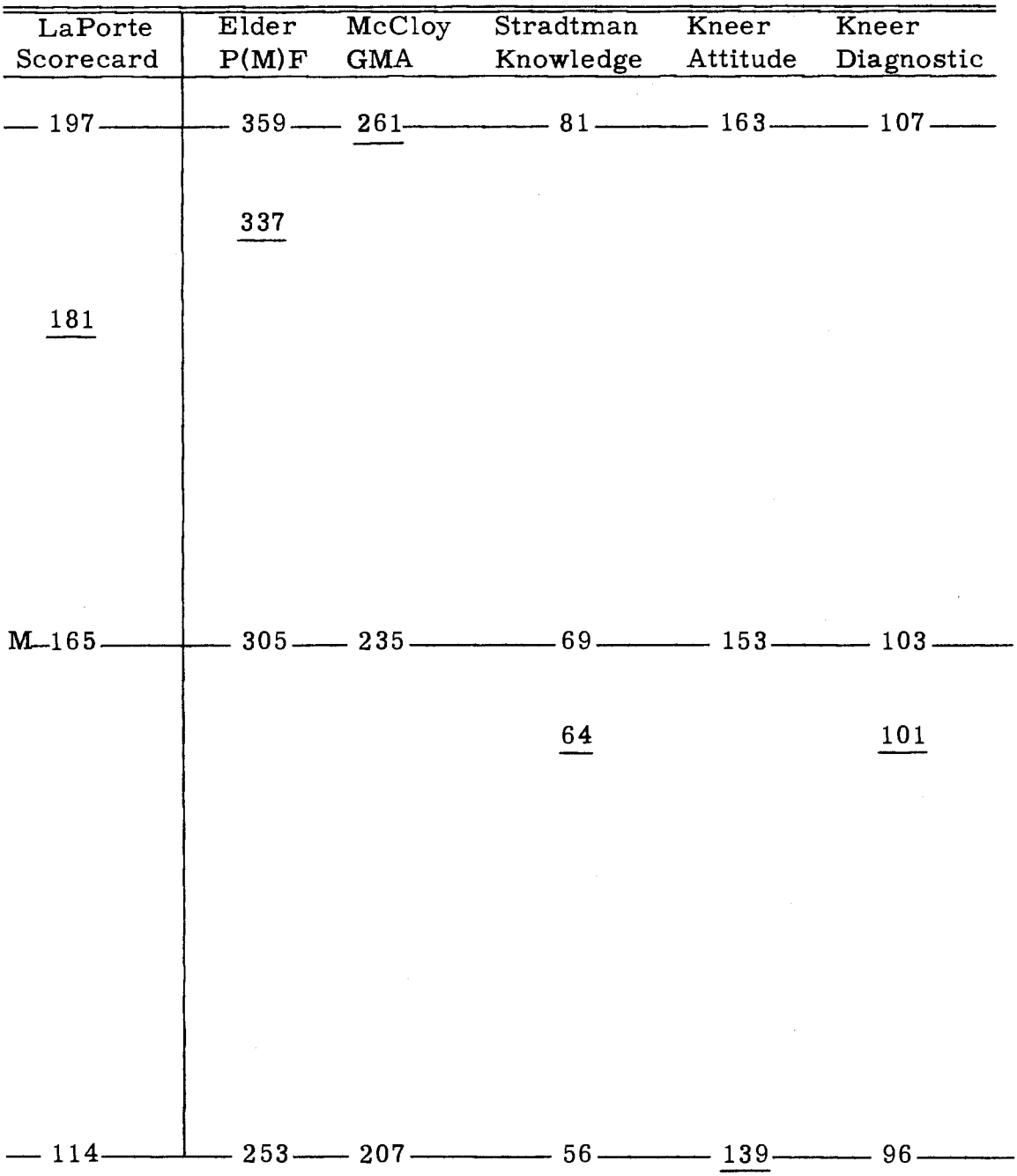


FIGURE 6

SCHOOL SCORES AND RELATIVE PLACEMENT ON LaPORTE SCORECARD AND STUDENT PERFORMANCE TESTS

SCHOOL D

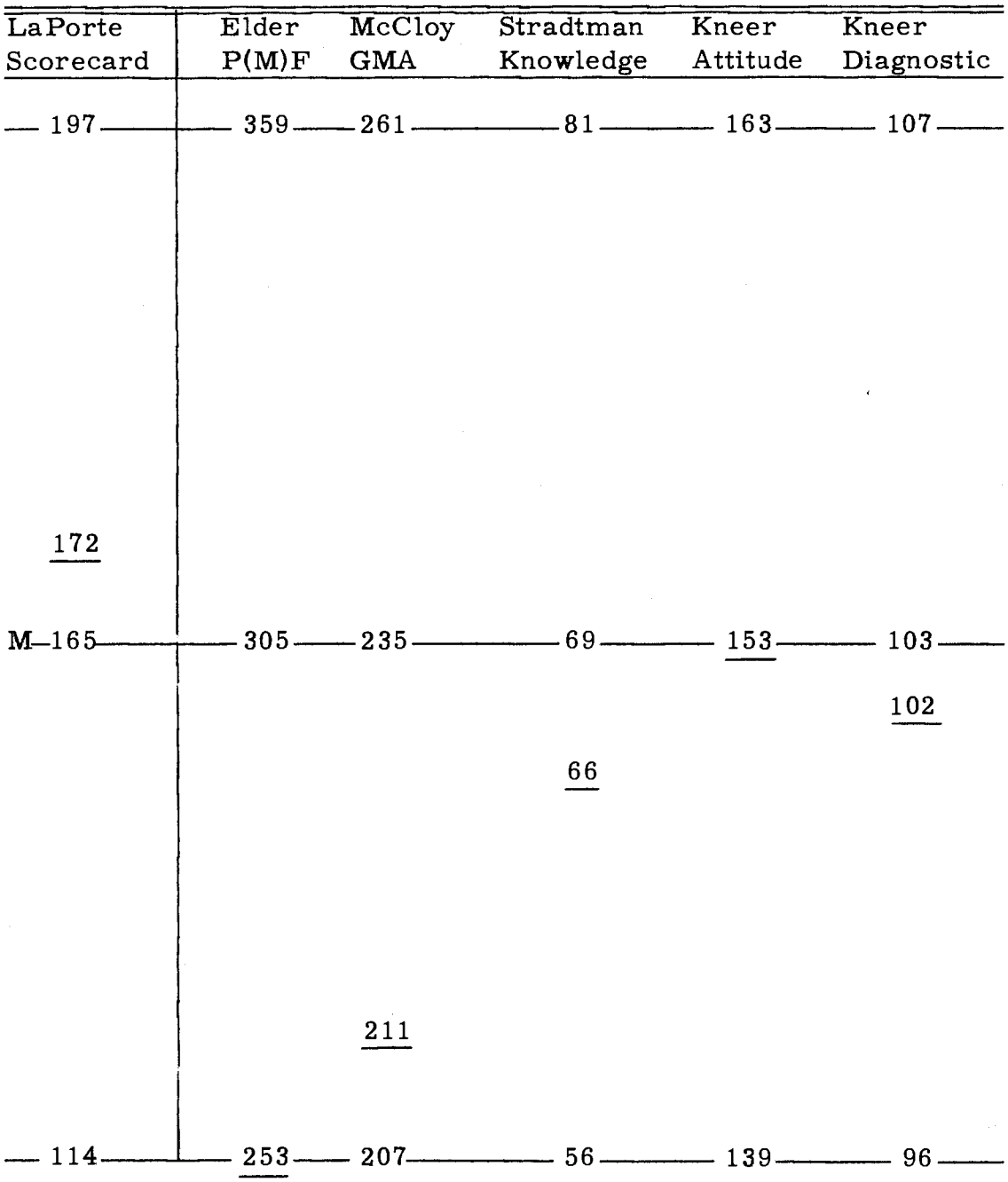


FIGURE 7

SCHOOL SCORES AND RELATIVE PLACEMENT ON LaPORTE SCORECARD AND STUDENT PERFORMANCE TESTS

School E (Figure 8)

Strengths. Relatively speaking, none, although the LaPorte ranking was very slightly above the conference-wide mean. Closest over-all agreement in conference between department chairman and principal.

Weaknesses. All student performance tests were near average. Knowledge of physical fitness was lowest in the conference.

Recommendations. Increased attention to physical fitness and general motor achievement objectives. Attention is definitely needed in the knowledge area pertaining to physical fitness and health.

School F (Figure 9)

Strengths. Physical fitness and general motor achievement performances by students. Ranking in LaPorte Scorecard attainment was at conference mean.

Weaknesses. Physical fitness knowledge and attitude toward physical education.

Recommendations. An examination of reasons for the low score in student attitude toward physical education. Upgrading of the area of student knowledge of physical fitness and health. The disparity

SCHOOL E

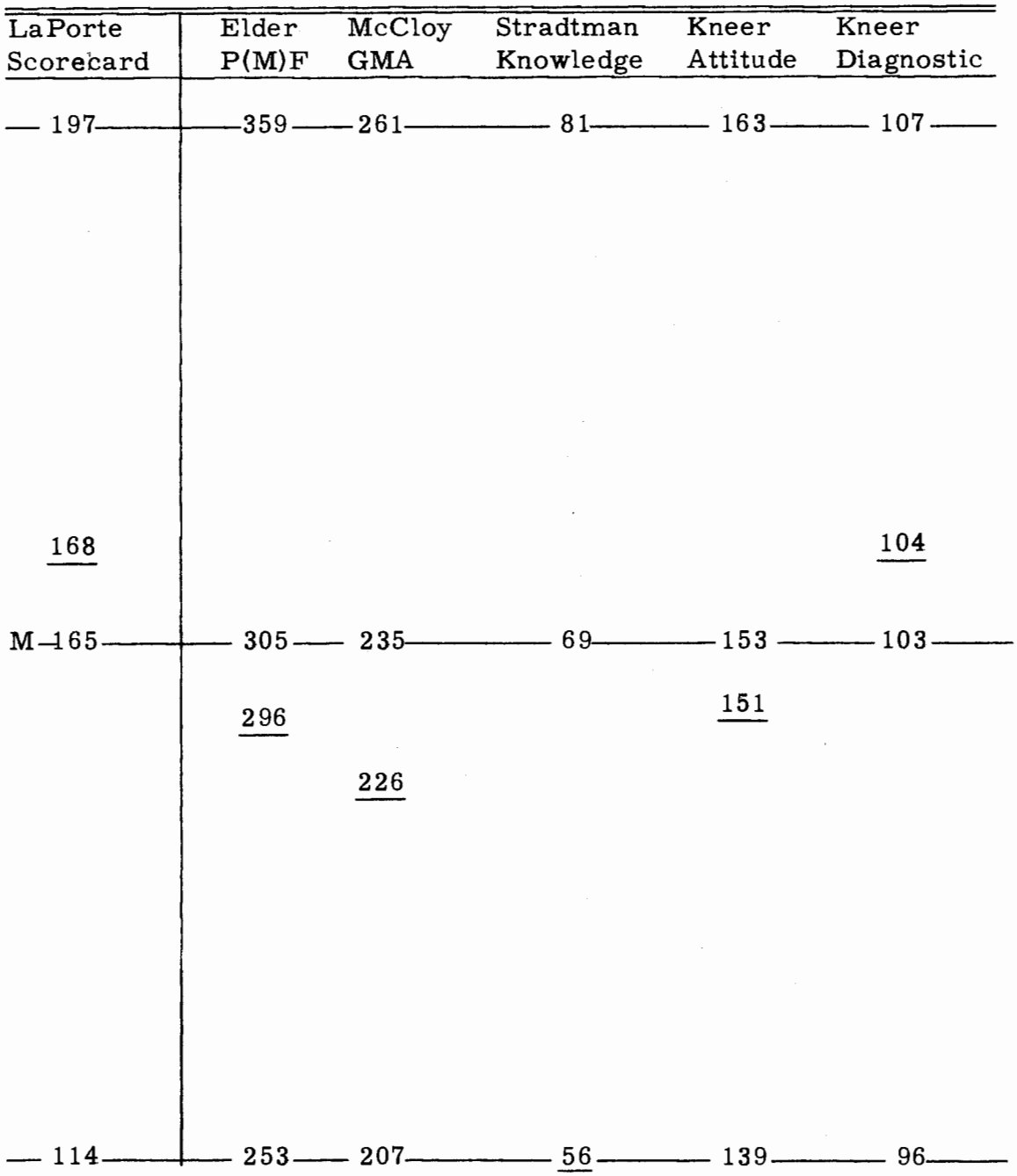


FIGURE 8

SCHOOL SCORES AND RELATIVE PLACEMENT ON LaPORTE SCORECARD AND STUDENT PERFORMANCE TESTS

SCHOOL F

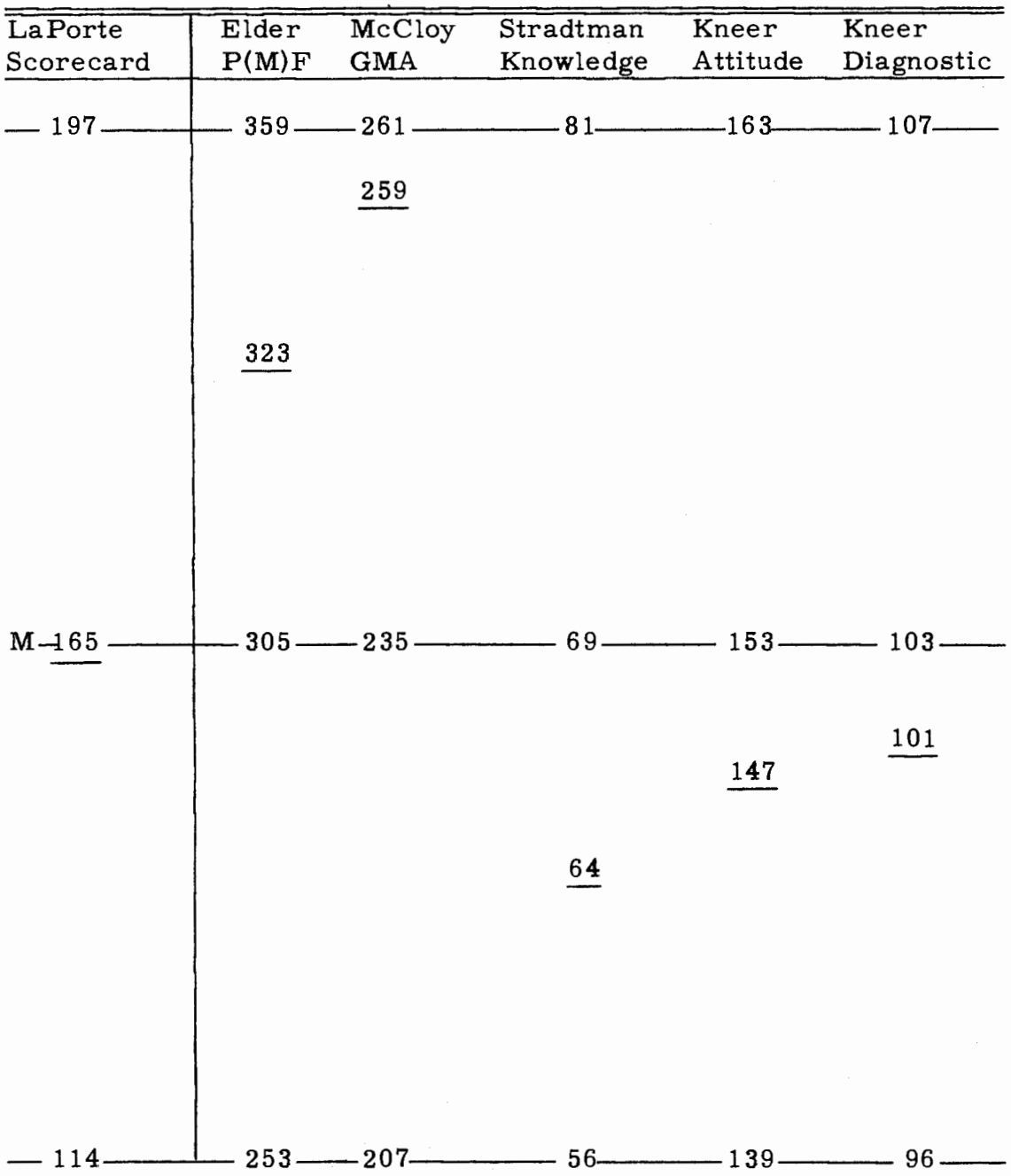


FIGURE 9

SCHOOL SCORES AND RELATIVE PLACEMENT ON LaPORTE SCORECARD AND STUDENT PERFORMANCE TESTS

of 55 points between perceptions of program (LaPorte) by department chairman and principal is greatest in the conference. This, coupled with a similar finding at the same school in the companion study by Finney, casts real suspicion on the usefulness of the LaPorte Scorecard at this school and prompts the strong suggestion that both program chairman and the principal mutually re-examine the program.

School G (Figure 10)

Strengths. Knowledge of physical fitness and health. Slightly above conference mean in attitude toward physical education.

Weaknesses. Lowest score in conference in general motor achievement; slightly below mean in physical fitness. Ranking is low on LaPorte Scorecard.

Recommendations. Disparity between knowledge of physical fitness and performance in general motor achievement should be examined. Examine reasons for LaPorte Scorecard ranking.

School H (Figure 11)

Strengths. Attitude toward physical education. Knowledge of physical fitness and health is very slightly above conference mean.

Weaknesses. Program as rated on LaPorte Scorecard.

SCHOOL G

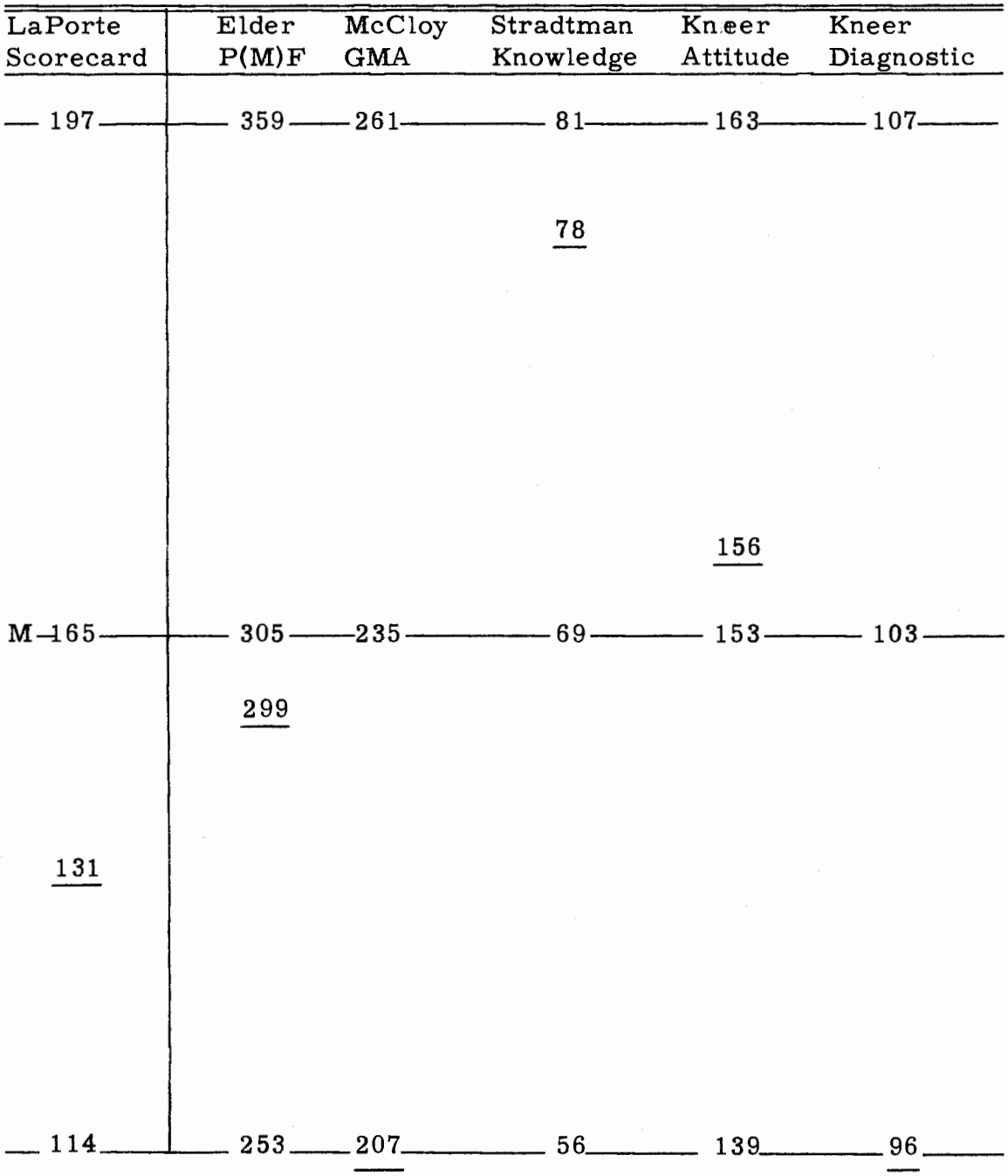


FIGURE 10

SCHOOL SCORES AND RELATIVE PLACEMENT ON LaPORTE SCORECARD AND STUDENT PERFORMANCE TESTS

SCHOOL H

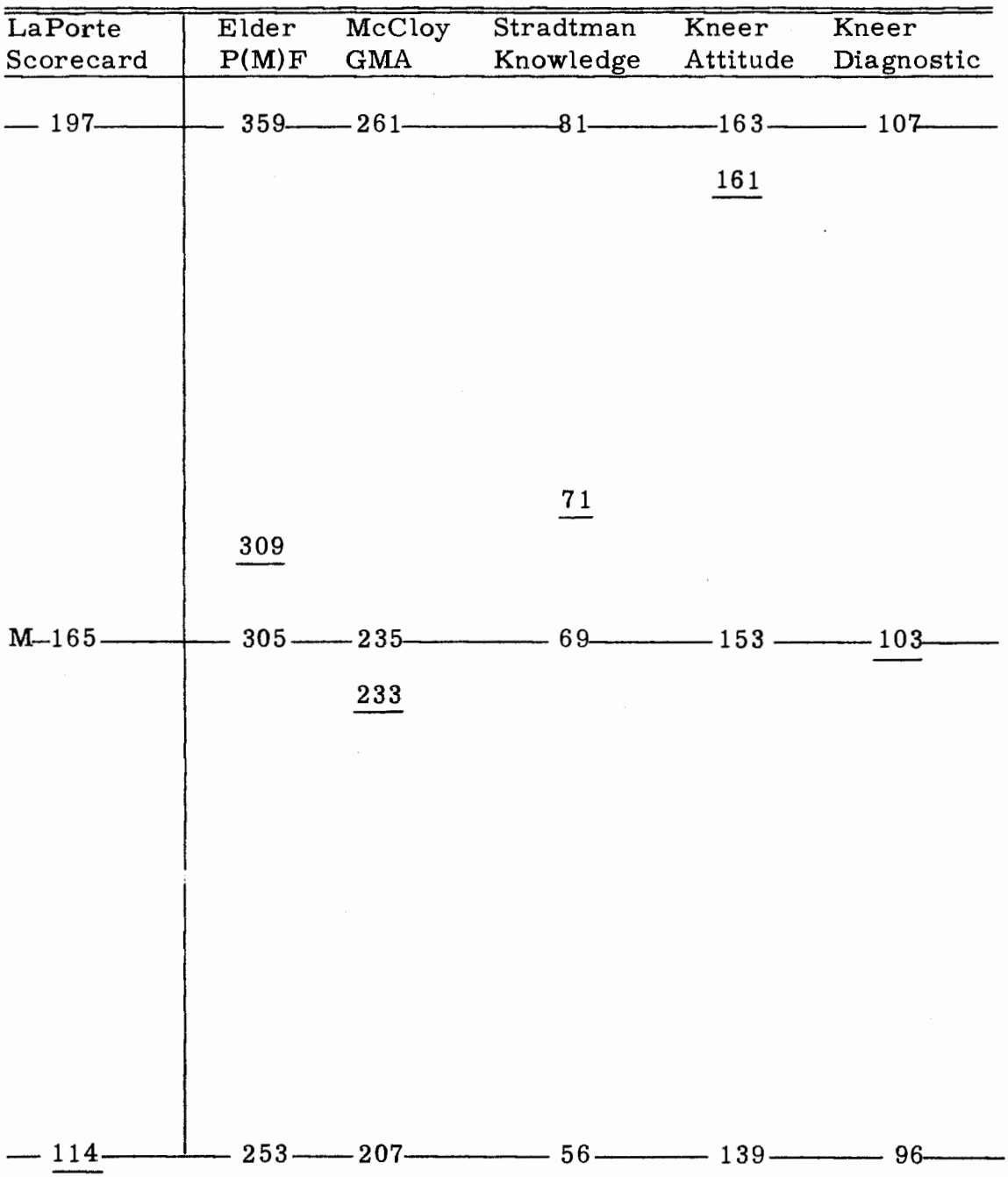


FIGURE 11

SCHOOL SCORES AND RELATIVE PLACEMENT ON LaPORTE SCORECARD AND STUDENT PERFORMANCE TESTS

Recommendations. Examine reasons, mutually, area by area, for low score on LaPorte Scorecard.

III. FURTHER RECOMMENDATIONS

1. A strong recommendation is made that further studies of other athletic conferences throughout the State of Washington be surveyed by means of the LaPorte Scorecard.

2. Investigate the amount of budgeted funds for Physical Education programs versus LaPorte Scorecard findings.

3. A complete study involving indoor facilities and locker and shower area pertaining to square footage available for usage.

4. A mutual effort of all administrators and department chairmen in the Big Eight Athletic Conference to study the findings of this thesis.

5. It is recommended that the Kneer Diagnostic Inventory be used in future studies, although the validity is of no importance in this study.

6. It is recommended that in future similar studies the relationship be determined between school success in athletics and the quality of the physical education program.

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APPENDIX

APPENDIX

LaPorte Scorecard II

Stradtman Physical Fitness Knowledge Test

Kneer Attitude Inventory and Diagnostic Test

Elder Physical (Motor) Fitness Test

McCloy General Motor Achievement

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THE PHYSICAL EDUCATION CURRICULUM

HEALTH AND PHYSICAL EDUCATION SCORE CARDS
Card No. II - Secondary Schools

INSTRUCTIONS FOR USE OF SCORE CARDS

NATURE OF THE CARDS.

These cards are intended as measuring devices for purposes of evaluating the physical education program and the general health, recreation, and safety provisions of an entire school. Independent ratings of the school's standings on the LaPorte Score Card should be made by the principal or vice principal and by the respective department chairmen for boys and girls. The ratings will be made at the time of the interview by the authors and the respective school personnel. The purpose is to center attention upon the characteristics of a good program and to provide opportunity for a school to compare its offering somewhat objectively with these characteristics. The evaluation should serve to disclose significant weaknesses that are subject to improvement, rather than to present merely a critical rating of the school.

THE RATING STANDARDS.

The standards presented in these score cards are based on the twenty-three year study by the Committee on Curriculum Research of the College Physical Education Association. Preliminary score cards were formulated by the chairman from the committee findings, and submitted for critical evaluation to a selected jury of 150 leading state, city, and rural supervisors and administrators of physical education throughout the United States. Their varied criticisms served as the basis for reconstructing the cards in their present form.

In order to keep the standards as flexible as possible for adaptation to schools of all sizes, it was necessary to resort to subjective scoring for some items. It was also

necessary in some cases, for the sake of brevity, to include a number of important characteristics under a single standard.

SCORING PROCEDURE

The rating standards are intended to represent a range from a fair-minimum program to a superior-ideal program: (For example, in the No. II Scorecard, 100=fair-minimum; 200=good-average; 300=superior-ideal). If desired, the scores can be reduced to percentages, as indicated in the summary sections. In most cases a given item should range from one two three points if the program is at all acceptable. If it does not approximate even one point, however, the score should be listed as zero. Scores should represent the unprejudiced judgment of the rater in order to give a reasonably fair picture of the program.

Items have not been weighed relatively (except for a few in the elementary card), because it is almost impossible to determine comparative values, where all factors are of great importance. Only the most significant characteristics of program content, facilities, or administrative procedures have been included in these standards, hence each one is of great importance.

It is recommended that raters skim through the score card to get a general picture of all its phases before starting the detailed rating.

HEALTH AND PHYSICAL EDUCATION SCORE CARD

No. II

FOR JUNIOR AND SENIOR HIGH SCHOOLS AND
FOUR-YEAR HIGH SCHOOLS

NAME OF SCHOOL_____ADDRESS_____

Jr., Sr., or 4-Yr. School_____PRINCIPAL_____

Rating for school year_____Rated by_____Date_____

Number of students enrolled: Boys_____Girls_____

	Score Card Summary	Possible Score	- Score*
I.	Program of Activities	30	
II.	Outdoor Areas	30	
III.	Indoor Areas	30	
IV.	Locker and Shower Areas	30	
V.	Swimming Pool	30	
VI.	Supplies and Equipment	30	
VII.	Medical Examination and Health Service	30	
VIII.	Modified-Individual (Corrective) Activities	30	
IX.	Organization and Administration of Class Programs	30	
X.	Administration of Intramural and Interschool Athletics	30	
	Total Possible Score	300	Total Actual_____

_____

Percentage Score (Actual ÷ 3) =

_____

*Each item is to be scored 1, 2, or 3 according to scales indicated in parentheses. In the subjective scores (fair, good, and excellent), raters should make unprejudiced evaluations. If conditions are approximate but not exact, give estimated equivalent score.

I. PROGRAM OF ACTIVITIES

Possible Score = 30. Actual Score = _____

1. Content of core and elective programs is distributed over gymnastics, rhythms, aquatics, individual sports (including defense activities), and team sports.
(Not less than 6% of time to each of the five types = 1; not less than 9% = 2; not less than 12% = 3:

SCORE_____

2. Program calls for systematic class instruction in activity fundamentals on the "block" or "unit of work" basis (continuous daily instruction in an activity for from three to six weeks).
(Definite, but unsystematic instruction = 1; systematic instruction in other than block program = 2; systematic block instruction = 3)

SCORE_____

3. Daily participation in physical and/or health education class instruction periods of from 45 to 60 minutes is required of all students.
(Two days a week = 1; four days = 2; five days = 3)

SCORE_____

4. Participation in intramural sports in addition to class instruction is available for all students.
(Fair program = 1; good = 2; excellent = 3)

SCORE_____

5. Detailed yearly program (course of study, including special objectives) for each grade level is on file in Principal's Office and activity schedules are posted on gymnasium office bulletin boards.
(Fair program = 1; good = 2; excellent = 3)

SCORE_____

6. A course of study committee (men and women) gives consideration at least annually to needed revisions in the program.
(Fairly active = 1; active = 2; very active = 3)

SCORE_____

7. Provision is made for adequate maintenance and sanitation of school grounds, plant, and classrooms.
(Fair = 1; good = 2; excellent = 3)

SCORE_____

8. A modern health instruction program is maintained under expert leadership in physical education, in home economics, or in general science, or is correlated through several departments.
(Separate course in one department = 1; fairly well correlated = 2; completely correlated, with co-ordinating director = 3)

SCORE_____

9. A comprehensive safety education program is maintained, emphasizing safety habits and practices, safety codes, and safety standards, in all departments.
(Fair program = 1; good = 2; excellent = 3)

SCORE_____

10. Definite efforts are made to encourage faculty recreational activity and to improve the health status of teachers.
(Fair results = 1; good = 2; excellent = 3)

SCORE_____

II. OUTDOOR AREAS

Possible Score = 30. Actual Score = _____

1. Total available unobstructed field and court playing space for school and community use varies from four to fifteen or more acres, according to size of school.
(Minimum of four acres--an area equal to one small soccer field, seven tennis courts, and one hard baseball field--and one additional acre for each added unit of five hundred students (boys and girls) = 1; minimum of six acres, and one additional acre for each additional unit of four hundred students = 2; minimum of eight acres, and one additional acre for each additional unit of three hundred students = 3)

SCORE_____

2. Sufficient playing fields are marked off and equipped (for multiple use in field hockey, field ball, soccer, softball, speedball, touch football, et cetera) to accommodate all outside peak load classes (both boys and girls).
(Fair facilities = 1; good facilities = 2; excellent facilities = 3)

SCORE_____

3. Court areas (for separate or multiple use in archery, badminton, handball, horseshoes, paddle tennis, tennis, et cetera) are marked off and equipped to accommodate both boys' and girls' classes in all court activities offered.
(Fair facilities = 1; good facilities = 2; excellent facilities = 3)

SCORE_____

4. Field and court areas are surfaced with materials that are resilient, non-slippery, firm and as nearly dustless as possible, and have suitable slope for good drainage in rainy weather. At least 20% of area should be paved for multiple court game use, with blacktop (bitumals or asphaltic concrete).
(Hard packed clay or decomposed granite, plus 20% blacktop = 1; calcium chloride, plus 20% blacktop = 2; good turf, plus some dirt area, plus 20% blacktop = 3)

SCORE_____

5. Jumping pits and field apparatus are protected by sawdust, sand, or dirt kept soft.
(Dirt kept soft = 1; sand = 2; sawdust = 3)

SCORE_____

6. Field, court, and diamond areas are kept clean and well marked; are without hazardous obstructions; and are laid out to provide maximum relief from sun glare.
(Fair condition = 1; good = 2; excellent = 3)

SCORE_____

7. Maintenance work on fields and courts is done by workmen other than instructors or students.
(Partly by others = 1; mostly = 2; entirely =3)

SCORE_____

8. All play areas are fenced off from streets, with subdivision fences where necessary for safety and control.
(Partly fenced = 1; all fenced from street = 2; all fenced, with subdivisions = 3)

SCORE_____

9. Play areas are bordered by attractive trees, shrubbery, and vines; and in warm climates are equipped with shaded tables and seats.
(Fair condition = 1; good = 2; excellent = 3)

SCORE_____

10. Play areas are lighted for night use for community recreation programs.
(Fair lighting = 1; good = 2; excellent = 3)

SCORE_____

III. INDOOR AREAS

Possible Score = 30. Actual Score = _____

1. One or more gymnasium areas sufficient for boys' and girls' inside class activities (according to size of school)(for common use for apparatus, boxing, corrective fencing, gymnastics, rhythms, tumbling, and wrestling) are available and are appropriately equipped, and properly heated, lighted and ventilated.
(Standards approximately met = 1-2; fully met = 3)

SCORE_____

2. Gymnasium floors are of hardwood; lines are properly painted; walls are smooth and clear, painting is a light neutral color; radiators and drinking fountains are recessed; ceiling height is between eighteen and twenty-two feet.
(Standards approximately met = 2; entirely met = 3)

SCORE_____

3. Additional classrooms, appropriately equipped for theory instruction and health education classes, are provided in the building or conveniently adjacent.
(One room = 2; two or more rooms = 3)

SCORE_____

4. Special rooms for coeducational social activities are appropriately furnished.
(Classrooms or gymnasiums partly furnished = 1; well-furnished separate rooms = 3)

SCORE_____

5. A rest room for boys (equipped with cots, pads, blankets, and sheets), adequate to handle peak load use of building, is provided for use in injury or illness, or for rest periods.
(One cot for 100 boys in peak load = 1; 1 cot for 75 boys = 2; one cot for 50 boys =3)

SCORE_____

6. A rest room for girls, with equipped cots adequate to handle peak load use of building, is provided for use in injury or illness, or for rest periods.
(One cot in peak load for 50 girls = 1; one cot for 30 girls = 2; one cot for 20 girls = 3)

SCORE_____

7. Rest rooms each for men and women faculty members are provided with appropriate dressing rooms and showers.
(Satisfactory facilities for women only = 2; for both men and women = 3)

SCORE_____

8. An equipment office is provided in both boys' and girls' locker rooms, properly arranged for issuing towels, suits, and supplies for both indoor and outdoor use.
(Satisfactory office for one only (boys or girls) = 1-2; satisfactory for both = 3)

SCORE_____

9. Properly equipped instructors' offices (separate for men and women), with suitable facilities for medical examinations, are available in good locations for adequate supervision of student activities.
(Well-equipped offices, but poorly located for supervision = 1; well-equipped, with good supervision of one major activity area = 2; well-equipped, with supervision of two or more major activity areas = 3)

SCORE_____

10. The combined inside facilities (including classrooms, gymnasiums, and special rooms) are adequate to handle all classes (boys and girls) inside, during bad weather.
(Approximately = 1-2; entirely = 3)

SCORE_____

IV. LOCKER AND SHOWER AREAS

Possible score = 30. Actual score = _____

1. Locker rooms (sunny and well ventilated) provide free floor space, exclusive of lockers, adequate to care for peak load of use. (Peak load equals largest number of students dressing in any one class period).
(Eight sq. ft. per pupil = 1; ten sq. ft. = 2; twelve sq. ft. = 3)

SCORE_____

2. Individual locker facilities are provided for all students.
(Box lockers or narrow vertical lockers = 1; combination box and dressing lockers = 2; half length, standard size lockers, or self-service basket system, combined with full-length dressing lockers for peak load = 3)

SCORE_____

3. Adequate lock protection is provided for lockers or baskets.
(Key locks = 1; permanent combination locks = 2; high-grade combination padlocks - 3)

SCORE_____

4. Continuous supervision by either equipment clerks or instructor is provided for locker areas while in use by students.
(Fair supervision = 1; good = 2; excellent = 3)

SCORE_____

5. Boys' dressing areas are of the open aisle type, with fixed benches in the aisles; girls' areas offer choice of closed booth or open aisle.
(Standards approximately met = 2; fully met = 3)

SCORE_____

6. Boys' shower rooms are of the "gang" type, with adequate drying room capacity; girls' areas offer choice of "gang" type or closed booth type.
(Standards approximately met = 2; fully met = 3)

SCORE_____

7. Shower rooms provide eight to twelve square feet of floor area per shower head, and sufficient showers to take care of peak load adequately.
(Five students per shower at peak load = 1; four per shower =2; three per shower = 3)

SCORE_____

8. Hot water is thermostatically controlled to prevent scalding; shower heads are at neck height; liquid soap dispensers are provided in all shower areas.
(Standards approximately met = 2; fully met =3)

SCORE_____

9. Adequate toilet facilities are available in separate areas immediately adjoining locker and shower rooms (accessible directly to playground; and contain adequate bowls, urinals, washbasins (conforming to established standards for the peak load); hot and cold water, liquid soap dispensers, drinking fountains, mirrors, wastebaskets, and paper towels or drying machines.
(Fair facilities = 1; good = 2; excellent = 3)

SCORE_____

10. Floors are washed daily with antiseptic solution; and antiseptic footbaths are provided for optional use, to aid in control of foot ringworm.
(Standards approximately met = 2; fully met = 3)

SCORE_____

V. SWIMMING POOL

Possible score = 30. Actual score = _____

1. Adequate swimming facilities are available for all students (both boys and girls).
(Off-campus facilities, closely adjoining = 1; small pool (less than 1250 sq. ft.) on school grounds = 2; large pool (over 1250 sq. ft.) on school grounds = 3)

SCORE_____

2. Pool construction provides proper acoustics; suitable scum gutters; nonslip decks; white tile or other light finish on sides and bottom; underwater lighting if pool is used at night; bottom of pool clearly visible at all times of operation.
(Standards approximately met = 1-2; fully met = 3)

SCORE_____

3. Pool is equipped with adequate machinery for heating, filtering, and sterilizing water, and for maintaining it in conformity with established health standards.
(Fair equipment = 1; good = 2; excellent = 3)

SCORE_____

4. Standard tests are made daily for air temperature, water temperature, water acidity, and residual chlorine content and, at least weekly, for bacterial content of water.
(Score = 3)

SCORE_____

5. Pool is equipped with standard safety devices and is protected by control doors which are kept locked at all times except when life guard or instructor is on duty.
(Score = 3)

SCORE_____

6. Swimmers are required to enter pool through a water foot bath, opening from the shower rooms; to visit toilet and take supervised soap shower baths before entering; and are not permitted in pool with colds or skin infections.
(Standards approximately met = 2; fully met = 3)

SCORE_____

7. Spectators in street shoes are not permitted on pool decks but are provided with appropriate gallery space.

(Score = 3)

SCORE_____

8. Use of pool facilities is distributed equally between men and women students.
(Approximately met = 3)

SCORE_____

9. All life guards and swimming instructors are required to hold the Senior Red Cross Life Saving Certificate or the Examiner's Certificate.
(Score = 3)

SCORE_____

10. Pool is available for community recreation use when not required for school purposes, particularly during summer months.
(Score = 3)

SCORE_____

NOTE: Schools without campus pools or adjacent facilities, if they conduct and stress swimming campaigns, may score up to maximum of 15 points for swimming pool, as follows: (annual "learn to swim" campaign, in

cooperation with Red Cross or other agency, reaching successfully 25% of student body = 5; campaign reaching 50% of student body = 10; campaign reaching 75% of student body = 15)

SCORE_____

VI. SUPPLIES AND EQUIPMENT

Possible Score = 30. Actual score = _____

1. Adequate supply of balls (in good condition) and similar equipment is available for class instruction in all team activities offered.
(One ball, or other item, for every ten members of average size class = 1; one for every eight members = 2; one for every six members = 3)

SCORE_____

2. Class sets of supplies for individual or dual sports are provided for class instruction in all activities offered (archery, badminton, handball, golf, horseshoes, table tennis, squash, tennis, et cetera).
(Individual supplies for each member of average size class = 2; for each member of peak load class = 3)

SCORE_____

3. All class supplies are kept repaired and in good condition (balls clean and well inflated, bats taped) both for efficiency and safety.
(Fair condition = 1; good = 2; excellent = 3)

SCORE_____

4. All students wear appropriate uniforms in activity classes.
(Uniform furnished by themselves = 1; provided by school, and fee charged = 2; provided by school, without charge = 3)

SCORE_____

5. Towels and swimming suits or trunks (where needed) are made available.
(Furnished by student = 1; by school with fee = 2; by school without charge = 3)

SCORE_____

6. Swimming suits and towels are laundered daily, and uniforms weekly.
(By student at home = 1; by school, with fee = 2; by school, without charge = 3)

SCORE_____

7. Adequate first aid supplies are available at all times in a first aid room, or in instructors' offices and equipment offices.
(Fair supplies = 1; good = 2; excellent = 3)

SCORE_____

8. Adequate equipment clerks (other than instructors) are provided at all activity hours to handle equipment and supplies (including towel dispensing).
(Volunteer student help (not for phys. ed. credit) = 1; paid student help = 2; full-time equipment clerk = 3)

SCORE_____

9. Piano and pianist, or phonograph, and other necessary musical accompaniment equipment are furnished for dancing classes.
(Fair equipment and service = 1; good = 2; excellent = 3)

SCORE_____

10. Activity supplies are available for community recreation use outside of school hours.
(Score = 3)

SCORE_____

VII. MEDICAL EXAMINATIONS AND HEALTH SERVICE

Possible score = 30. Actual score = _____

1. Medical examining, advisory, and emergency service is provided by school physicians with co-operative

arrangements for handling handicapped and problem cases in school or public clinics or by private medical practitioners.
(Adequate volunteer service by community physicians = 2; part-time paid school physician, or (in schools of 2,000 or more) one or more full-time physicians = 3)

SCORE_____

2. Trained school nurse service is provided for both school and home visitation purposes, by either part-time or full-time nurses according to size of school.
(Fair service = 1; good service = 2; excellent service = 3)

SCORE_____

3. A comprehensive examination by the school physician (assisted by physical education instructors) is required of every student at least once in each school level (example, junior high); and includes at least a careful check for orthopedic and postural defects, vision, hearing, nose, mouth, throat, teeth, heart, lungs, nutrition, skin, nervous condition, and possible hernia.
(Once in school level = 2; two or more times in school level = 3)

SCORE_____

4. No student is permitted to participate in strenuous class or athletic activity without a satisfactory medical examination.
(Score = 3)

SCORE_____

5. A permanent, continuous, progressive health record is maintained and passed on for each child and is used as a basis for advice and follow-up health service.
(Fair = 1; good = 2; excellent = 3)

SCORE_____

6. On basis of medical examination children are classified into three divisions, or equivalent: A,

average normal for unlimited participation; B, subnormal, with temporary or permanent limitation to restricted activity; C, offered individual or corrective treatment, supplementing normal program.
(Fair = 1; good = 2; excellent = 3)

SCORE_____

7. Assignment to rest, restricted, or individual activity, or excuse from required normal physical education activity (for other reason than temporary illness) is approved by the school physician, in consultation with the physical education department head.
(Score = 3)

SCORE_____

8. Students returning after influenza or other serious illness are inspected by the school physician or nurse and assigned to a modified program until their condition justifies resumption of normal activity; students sent home in case of illness or accident are accompanied by an adult.
(Standards approximately met = 1-2; full met = 3)

SCORE_____

9. A health examination is made by the school physician of all teacher applicants; and a careful inspection of all teachers returning to duty after illness of two weeks or more.
(Standards approximately met = 1-2; fully met = 3)

SCORE_____

10. Nonmedical teachers or school officers are never permitted to diagnose or treat health disorders; but a close co-operation is maintained between physical education teachers and the school physician.
(Score = 3)

SCORE_____

VIII. MODIFIED-INDIVIDUAL (CORRECTIVE ACTIVITIES)

Possible score = 30. Actual score = _____

1. Adequate modified and individual activity classes, with limited enrollment, are provided for students incapacitated for normal participation or needing special postural or orthopedic correction (classes B and C).
(Maximum of 30 students per instructor = 1; 25 students per instructor = 2; 20 students per instructor = 3)

SCORE_____

2. All modified and individual activity cases are properly classified and grouped within classes for effective instruction and guidance, according to their condition.
(Fair = 1; good = 2; excellent = 3)

SCORE_____

3. Extreme types of restricted cases are assigned to periodic rest periods, in addition to the modified activity, with appropriate reductions in academic program, where needed.
(Fair = 1; good = 2; excellent = 3)

SCORE_____

4. Adequate facilities are provided for suitable games for modified cases (table tennis, deck tennis, horseshoes, croquet, archery, shuffleboard, et cetera).
(Fair facilities = 1; good = 2; excellent = 3)

SCORE_____

5. Adequate facilities for handling individual activity cases are available either within the school or in a central corrective center, accessible to several schools (or the equivalent).
(Fair facilities = 1; good = 2; excellent = 3)

SCORE_____

6. All teachers assigned to handle individual activity (corrective) classes have had technical training in corrective and therapeutic work.
(Fair training = 1; good = 2; excellent = 3)

SCORE_____

7. In individual activity instruction, emphasis is placed upon practicing the directed exercises at home, frequently, with the co-operation of parents; and upon maintaining good postural alignments at all times.
(Fair = 1; good = 2; excellent = 3)

SCORE_____

8. Wherever possible, interesting activities of the sports, gymnastic, aquatic, or rhythmical types are used in place of corrective drills, to secure postural and corrective results.
(Fair results = 1; good = 2; excellent = 3)

SCORE_____

9. Normal students, who are temporarily incapacitated or strenuous activity because of accident, operation, or serious illness, are assigned to modified activity, under supervision (either in their regular period or in a special class), until school physician or nurse approves their return to regular class work.
(Score = 3)

IX. ORGANIZATION AND ADMINISTRATION OF CLASS PROGRAMS
Possible score = 30. Actual score = ____

1. All persons coaching teams, or handling physical education classes, or community recreation activities under school supervision are properly certified to teach in the state and have had extensive training and/or experience in physical education.
(All certified and experienced = 2; all with a major or minor = 3)

SCORE_____

2. Teachers are active in professional organizations such as the American Association for Health, Physical Education and Recreation, attend professional meetings, subscribe to professional

magazines, and maintain a good supply of late professional books in library.
(Fairly active = 1; active = 2; very active = 3)

SCORE_____

3. Instructors stress co-ordinated teaching; combining with performance fundamentals, the necessary rules, team strategy, social and ethical standards, health and safety factors; and attempt to adapt program to outside recreational needs and interests.
(Fair = 1; good = 2; excellent = 3)

SCORE_____

4. Frequent opportunity is provided for coeducational activity, either in class instruction or in recreational participation.
(Mild encouragement = 1; coeducational intramural sports = 2; coeducational elective class instruction = 3)

SCORE_____

5. Instructional classes for normal students are limited in size for effective instruction purposes.
(Maximum of 45 students per instructor = 1; 40 students per instructor = 2; 35 students per instructor = 3)

SCORE_____

6. Teacher class assignments (including after school responsibilities such as team coaching and playground direction, unless these involve additional salary) are sufficiently limited for adequate instruction.
(Maximum load six hours per day = 2; five hours per day = 3)

SCORE_____

7. Testing for final grade in activity classes is distributed over (1) performance skills, (2) knowledge of rules and strategy, (3) social attitudes (citizenship), (4) posture and body mechanics (or equivalent).
(Fair tests = 1; good = 2; excellent = 3)

SCORE_____

8. Students are not permitted to substitute clerical work, janitor work, towel dispensing, or piano playing, et cetera, in place of physical education class activity.
(Score = 3)

SCORE_____

9. Healthful living (health education instruction) is offered in concentrated instruction periods, in appropriate departments, in addition to coordinated health counseling in other departments. Classes meet in quiet, comfortable classrooms, not in locker rooms or on bleachers.
(Equivalent of at least two hours per week for one semester in each level = 1; equivalent of five hours per week for one semester in each level = 2; equivalent of five hours per week for two semesters in each level = 3)(If substituted for an activity class = 0)

SCORE_____

10. Assignment to activity classes is based on age, physical condition, skill development, need, and interest.
(Assigned at random according to free period = 0; by grades = 1; by medical diagnosis and grade = 2; by medical diagnosis, degree of development and skill, need and interest = 3)

SCORE_____

X. ADMINISTRATION OF INTRAMURAL AND INTERSCHOOL ATHLETICS*

Possible score = 30. Actual score = ____

1. Both intramural and interschool sports programs (for boys and girls) are budgeted and financed from school funds; and ticket selling for contests is discouraged or prohibited.
(Partly financed, and sale discouraged = 1; fully financed, and sale to students prohibited = 2; full financed, and public admitted free to contests = 3)

SCORE_____

*Note: Schools that do not sponsor interschool athletics should double score on items 1-5, leave out items 6-10.

2. Students are classified for competitive purposes on basis of three-point classification plan (or equivalent) in addition to medical examination, in order to reduce hazards and to minimize inequalities between opponents.
(Fair classification = 1; good = 2; excellent = 3)

SCORE_____

3. Instruction, coaching, and officiating of athletics is handled by women instructors for girls, and by men instructors for boys, with close co-operation between the two in coeducational activities and joint sports days; use of athletic facilities is equitably divided between boys and girls.
(Standards approximately met =2; fully met = 3)

SCORE_____

4. Well-organized sports (play) days are staged periodically under trained and experienced leadership with major emphasis on carry-over types of sports.
(Sports days for girls and boys separately =2; both separate and joint sports days for boys and girls = 3)

SCORE_____

5. Noon-hour activities (where time is available beyond adequate period for unhurried eating) are carefully supervised and limited to modified sports of physiologically defensible types.
(Fair organization and supervision = 1; good = 2; excellent = 3)
(If no time available, score = 1)

SCORE_____

6. Interschool competition for girls (when conducted) is under strict supervision and control of well-trained women instructors; is conducted according to girls' rules; and is limited chiefly to interschool sports (play) days.
(Standards approximately met = 2; fully met = 3)

SCORE_____

7. Interschool competition for boys is restricted largely to local leagues; without overnight travel; no state (or larger) championships; no post season games; not over seven games in football season; not over sixteen games in basketball season; other sports with appropriate limits; and with from two to three weeks of preliminary practice preceding first contest.
(Standards approximately met = 2; fully met = 3)

SCORE_____

8. Students are eligible for interschool competition only between fourteenth and nineteenth birthdays; for not more than four years in any one sport; and for not more than one major sport in a given semester or term.
(Standards approximately met = 2; fully met = 3)

SCORE_____

9. Interscholastic athletic policies are determined by school administrators and physical education instructors or by regularly constituted school athletic leagues; and game officials are selected from experienced school people as far as possible.
(Mostly = 2; entirely = 3)

SCORE_____

10. School officials provide necessary traffic and safety protection to and from and during interschool contests; and maintain school physician in attendance at all major athletic contests.
(Standards approximately met = 2; fully met =3)

SCORE_____

Stradtman, Alan D. "A Physical Fitness Knowledge Test for Secondary School Boys and Girls." Unpublished Master's thesis, University of Illinois, Urbana, Illinois, 1947.

A PHYSICAL FITNESS KNOWLEDGE TEST

FOR SECONDARY SCHOOL BOYS AND GIRLS

Name_____ Check which: Date_____

School_____ Male_____

Age_____Grade_____ Female_____

Directions: Read the following statements carefully. Insert in the blank space to the left of the question the number in front of the word or phrase most accurately completing or best related to the statement. Work as rapidly as possible. If you do not know the answer to a question go right on to the next one.

Example:

_____A. The organ of the body most concerned with supplying blood to the entire body is:
1. The heart
2. The liver
3. The stomach
4. The spleen
5. The pancreas

The number 1 is placed in the blank space since "the heart" is the correct answer.

STOP: DO NOT BEGIN UNTIL TOLD TO DO SO BY THE INSTRUCTOR.

_____1. Physical fitness, in addition to being free from sickness and the ability to pass a medical examination, means:
1. condition to run a mile under four minutes
2. ability to handle the body well and capacity to work hard over a long period of time without diminished efficiency.
3. having large bulky muscles
4. having long arms and long legs
5. being far-sighted

_____2. A person with good physical fitness will have:
1. big feet
2. better than average vision
3. endurance and a high energy level in a wide range of activities in life
4. immunity to disease
5. a fast resting heart beat

_____3. A well conditioned, organically sound body will be useful to:
1. permit only 4 to 5 hours sleep a night without harmful effects
2. permit the heavy use of tobacco and alcoholic beverages without harmful effects
3. enable the individual to learn his school work without studying
4. increase the person's self-confidence and self esteem
5. enable him to be better in all sports than anyone else

_____4. The proper amount and regularity of exercise is an aid to:
1. eliminating all cooked food from the diet
2. changing the length and size of the large and small intestines
3. cheerful disposition, clearness of thinking and enjoyment of eating
4. increasing the intelligence of any person
5. making the individual immune from small-pox

_____5. At the end of any activity involving strenuous running, a person should:
1. stop immediately and sit down
2. lie down and cover up with a blanket
3. allow someone to massage the muscles
4. jog slowly and do flexing exercises for about 10 minutes
5. stand still and take deep breaths

_____6. Increased production of red blood cells in the normal person is aided most quickly by:
1. drinking a quart of tomato juice daily
2. decreasing the amount of fatty foods in the diet
3. drinking a large amount of orange juice daily
4. strenuous exercise
5. playing active games of table tennis daily

_____7. If a poorly conditioned individual exercises to the point of extreme fatigue it will:
1. cause fatty deposits around the heart
2. produce soreness which will last several days
3. help the elimination of waste products
4. assist the individual to develop better posture
5. permanently hurt his vision

_____8. In athletics a person becomes "winded" when:
1. the lungs cannot take in air
2. the stomach is empty
3. the body cannot eliminate waste products fast enough
4. there is carbon dioxide in the air
5. he doesn't get help from the rest of the team

_____9. A training diet insuring high energy producing foods for athletic fitness should include:
1. whole milk, butter, cheese, egg yolk
2. cabbage, turnips, celery, cauliflower
3. white bread, pie, pork chops, vegetables
4. whole grain cereals, fruits, sugar, potatoes
5. roast beef, salads, boiled eggs, cake

____10. If a normal individual experiences stomach sickness and headache after strenuous exercise at the start of a season of training it usually indicates:
1. something very wrong with the heart
2. a temporary lack of condition
3. that the individual should stop all exercise
4. food poisoning
5. that the person should go to bed for at least a month and rest

____11. Alkaline producing foods are an aid in developing better endurance. In order to secure these we should eat:
1. beef liver, tapioca, egg whites
2. sugared tomatoes, leg of veal, corn flakes
3. cracked whole wheat, lean beef, white sugar
4. cooked oatmeal, shrimps, sweetened lemon juice
5. oranges, grapefruit, and lemons

_____12. Even though our physical limits are, to a great extent, set by our inherited constitutions many persons can be improved in physical fitness by:
1. attention to proper nutrition
2. drinking large amounts of water
3. taking courses in school in sanitation and disease prevention
4. eating a diet composed mostly of carbohydrates
5. allowing nature to take its course

_____13. In order to build muscular tissue a person should:
1. rest frequently
2. eat a diet high in protein
3. choose food with high fat content
4. exercise only in sunshine
5. refuse to eat meat unless it has been roasted

_____14. The enlargement of a muscle through exercise is due to:
1. growth of bone
2. growth of new muscle fibers
3. an increase in fluid between the muscle fibers
4. deposits of fatty tissues used for energy
5. torn muscle tissues and accumulation of waste products

_____15. The aches and pains in muscles usually suffered by an individual following strenuous exercise for the first time is caused by:
1. lack of water in the blood
2. lack of sleep the night before
3. lack of sufficient heart rate
4. improper method of performing activity
5. torn muscle tissues and accumulation of waste products

_____16. A sign that a person is unfit or is becoming so, may be:
1. a desire to attend movies
2. a liking for ice cream
3. a constant feeling of being tired
4. wanting to go to bed before midnight
5. being able to do more than 50 push-ups

_____17. The warm up preceding a game, contest or exercise period is of value because:
1. it gives a person time to think about the game strategy
2. it provides an opportunity to see the opponents' weakness
3. it provides a chance to try out new ideas or movements
4. it gives the person an opportunity to become adjust to his new clothes
5. it puts the reserve blood supply into circulation

_____18. The amount of improvement in muscular strength possible for normal individual is largely determined by:
1. strictly following a diet of green and yellow vegetables
2. the inherited amount of intelligence
3. the quantity of meat eaten
4. having a set time each day to read
5. the regularity and strenuousness of the exercises

_____19. Many persons believe that exercise is the best way of reducing fat. This statement:
1. is true
2. is absolutely false--no fat is ever burned in the body exercise
3. needs to be corrected to include a program of a supervised reducing diet
4. should be corrected to state that vinegar should be included in the diet
5. indicates that strenuous exercise should always be engaged in by fat people

_____20. The process of eliminating waste products from the body is aided best by:
1. exercising vigorously once a month
2. taking a laxative once a week
3. the regular use of an enema once a week
4. eating food with protein content
5. drinking plenty of water, eating roughage and exercising regularly

_____21. Before engaging in any activity involving physical exertion it is best to:
1. remain quiet in order to calm the nerves
2. take preliminary warm up exercises
3. drink as much water as possible as a lot will be lost during exercise
4. drink several cups of coffee or tea as a stimulant
5. take a shower

_____22. Usually the total body weight of a person decreases after strenuous exercise. This is mostly due to:
1. the reduction of the volume of blood in the abdomen
2. an increase in the amount of oxygen consumed
3. a loss of water from the body tissues
4. the loss of a lot of fat
5. not eating a sufficient amount of food prior to the activity

_____23. Moderate jogging, flexing, and contracting of muscles after severe exercise is valuable because:
1. it is an aid to driving blood back to the heart
2. it helps in the further adoption of sugar
3. it provides for increase in nervous tension
4. it gives the person a chance to breathe without much exertion
5. it makes the coach think the person is interested in the sport

_____24. Prolonged inactivity generally affects organic and muscular efficiency in a way which tends to produce:
1. no marked effect if the person had been in good condition
2. a slight increase in efficiency
3. a weakness and a decrease in efficiency
4. a reduction in the amount of fat deposited around organs and muscles
5. an increase in the ability of the nervous system to react to a stimulus

_____25. The ability to swim under water for any length of time depends on:
1. the ability to swim fast
2. strong muscles
3. the ability to contract all muscles at the same time
4. heart and respiratory endurance
5. possession of a body with good buoyancy

_____26. Swimming regularly, at least 440 yards, three times a week will bring some improvements in:
1. the circulatory system
2. the size of the hands and feet
3. the ability to take ice cold showers
4. the speed with which the body can adjust its temperature
5. the ability to smoke without harmful results

_____27. Heart disease is likely to develop in a great number of people who have:
1. participated in hard athletic work in youth
2. poor vision
3. exercised strenuously too soon after a serious infectious illness
4. neglected to include beef heart and liver in their diet
5. started endurance swimming between ages 8 to 10

_____28. The best activities in which to participate to increase the heart and circulatory condition are:
1. social dancing, bowling and badminton
2. archery, rifle shooting and shuffleboard
3. badminton, tennis and golf
4. soccer, swimming, and cross country running
5. volleyball, baseball and weight lifting

_____29. Young people who participate in athletics and conditioning exercises are likely to develop:
1. a dangerous disease called "athletes heart"
2. a need for constant medical attention in later years
3. fallen arches and leg trouble
4. no ability to enjoy adult recreation and games
5. mentally and physically improved bodily functioning

_____30. A simple method of self-testing to determine one's circulatory-respiratory condition is:
1. to see if one can run up a flight of stairs in 10 seconds
2. determine how long one can hold his breath after running in place for two minutes
3. to exercise for one minute, then measure the trunk flexion
4. to see how many push ups one can do in two minutes
5. to see if one can walk a straight line after turning around ten times in rapid succession

_____31. The ability for sustained endurance effort in any physical activity depends largely upon:
1. the personality of an individual
2. the height of an individual
3. how much food has been eaten preceding the activity
4. the ability of the blood to carry oxygen and the heart to circulate the blood fast enough
5. the ability of the muscles to contract fast over a short period of time

_____32. Organic condition in relation to physical fitness, means the relative state of health and efficiency of:
1. the legs and feet
2. the arms and shoulders
3. the organs of the body
4. the muscles of the abdomen
5. the spinal column

_____33. Because the heartbeat of a trained person is usually slower than an untrained person it causes:
1. the untrained person to show little improvement
2. longer resting periods for the heart
3. less of a stimulus for good digestion
4. less output of blood per minute
5. better skill in varsity players

_____34. The greatest general deficiency of modern youth in capacity for vigorous work of athletic effort is lack of:
1. flexibility
2. balance
3. power
4. endurance
5. agility

_____35. The average person upon climbing a flight of stairs may be considered relatively fit if he:
1. experiences extreme shortness of breath for only 5 minutes
2. if his legs feel tired but recover in 30 minutes
3. experiences very little increase in breathing and heart rate
4. only experiences a dizzy feeling for about one minute
5. experiences a long continued rapid heart beat

_____36. Endurance swimming continued over a period of two months will:
1. produce soft, weak muscles
2. tend to make the muscles unfit for other sports even with a sufficient waiting period
3. strengthen and improve the condition of muscles, blood, and heart
4. cause the individual to become fat and lazy
5. produce too much lengthening of muscles and loss of strength

_____37. When heart damage occurs in exercise or athletics the most probable cause is:
1. not sufficient warm up prior to activity
2. an already existing disease condition
3. a training period of only one month previous to active sports participation
4. strenuous exertion, particularly near the end of a game or race
5. the inability of the heart to deliver sufficient blood as needed

_____38. Participation by a normal individual in strenuous athletics during youth and adolescence will usually have the following effect on the heart:
1. injure the muscle fibers seriously
2. hurt his performance in later years
3. develop a stronger heart
4. cause a bad condition called "athletes heart"
5. tend to produce less efficient pumping of blood to the lungs

_____39. One item which is necessary for good physical fitness is:
1. large bulky muscles
2. good circulatory condition
3. small feet
4. large bones
5. perfect vision

_____40. The best way of developing muscular endurance is:
1. to do stretching exercises 3 minutes daily
2. go "all out" the first day and gradually taper off
3. at each exercise period go beyond the first onset of fatigue
4. when the body feels comfortably tired stop and rest
5. be sure the body is thoroughly warmed up before beginning exercise

_____41. The ability to do twenty push ups requires:
1. a diet rich in sugar
2. good arm and shoulder strength
3. a knack of timing the exercise
4. well developed abdominal muscles
5. a body with little fat tissue

_____42. In order to maintain good physical fitness a person should:
1. take light workouts once or twice a month
2. take relatively vigorous workouts regularly during the week
3. eat a diet rich in protein and carbohydrates
4. sleep 10 to 11 hours a night
5. refrain from drinking tea or coffee

_____43. Rising on the toes from a one foot stand and holding stance for 10 seconds requires:
1. the ability to concentrate
2. endurance
3. balance
4. excellent strength
5. long legs

_____44. The aspect of fitness which is indicated in being able to touch the head to the floor from a sitting position is:
1. agility
2. good body organs
3. size of bones
4. flexibility
5. strength

_____45. Playing the piano, typewriting and sewing are considered:
1. as leisure time occupations
2. motor skills which take considerable time to learn
3. as evidence of a well developed personality
4. abilities everyone possesses
5. characteristic of the artistic temperament

_____46. Excessive fat on an individual will:
1. provide the fastest burning fuel for body energy
2. be of definite help in endurance running
3. have no effect on competitive athletic performance
4. slow down physical activity and hinder endurance
5. indicate that the person is free from disease

_____47. Many persons are handicapped in their attempts to become physically fit due to:
1. lack of knowledge of the rules of games
2. an interest in physical activities
3. inability to swim
4. infections and strains in the body
5. poor eyesight

_____48. The fitness of the feet of a normal individual can best be helped by:
1. having someone massage the ankle joint
2. standing on the heels with the toes elevated for 15 minutes daily
3. full squat jumps, hopping and stride stand jumping
4. sitting tailor fashion with feet under body as long as possible every day
5. wearing arch supports in shoes

_____49. In order to become physically fit quickly a person with no organic trouble should:
1. do light calisthenics
2. practice volleyball and shuffleboard
3. engage in badminton and tennis
4. play three sets of tennis daily for three weeks
5. practice "all out" exercise

_____50. Insofar as the arch and relative condition of the feet are concerned the muscles of the lower leg:
1. are of no particular value
2. only serve as connections between the thigh and foot
3. do not need exercise as much as the toes for good arch development
4. are important in maintaining good condition of the arch
5. develop at a much slower rate than the muscles supporting the arch

_____51. Heavy and massive bones are an aid to the body in withstanding many of the stresses placed upon it. Skeletal development is mostly due to:
1. the drinking of two quarts of milk a day
2. stretching exercises
3. heredity
4. eating a diet high in carbohydrates and low in protein
5. never having broken any bones

_____52. To improve under-developed physique a person should:
1. run a mile twice a week for 2 months
2. engage regularly in tennis, bowling or golf
3. systematically practice fencing, badminton and handball
4. participate in fairly strenuous work, weight lifting and conditioning exercises daily
5. practice deep breathing and holding the breath as long as possible

_____53. If a normal person's feet and legs become fatigued easily he probably should:
1. see a chiropractor
2. take regular massage treatment
3. eat more acid forming foods
4. take leg conditioning exercises
5. refrain from sitting in a crouched position

_____54. Good posture may easily result in:
1. a stiff neck and sore back
2. better digestion
3. a decreased interest in athletics
4. digestive upsets caused by the abdominal muscles being too tense
5. poor circulation to abdominal organs

_____55. There are many causes for poor posture but a person may improve his posture and body carriage by:
1. exercise designed to strengthen the legs
2. an adequate diet of carbohydrates
3. doing strenuous forward body bends and relaxing upon assuming the upright position
4. having a chiropractor adjust the spine
5. exercises designed to educate the muscles controlling the head, chest, spinal curves, pelvis and feet to proper postural position.

_____56. Weak, tired and easily fatigued feet may be due to:
1. poor condition of expiratory force muscles
2. poor condition of lower leg muscles
3. not sufficient number of tendons in lower leg
4. doing exercises of a hopping and jumping nature
5. wearing low heeled shoes with straight inner borders

_____57. Many normal people complain of always having a "tired feeling." This could probably best be aided by:
1. taking additional doses of vitamin pills
2. drinking two quarts or more of water daily
3. taking regular exercises daily in the outdoors
4. increasing the amount of vegetables in the diet
5. taking regular massage treatments

_____58. Many people confine their exercise and physical activity periods to week-ends. This type of exercise is:
1. more than enough to maintain good physical fitness
2. insufficient to keep a good level of physical fitness
3. a good way to keep the fat content of the body down
4. one of the best methods of lengthening life
5. very good for increasing the efficiency of the heart

_____59. Formal calisthenics, gymnastics and conditioning exercises are of value in promoting physical fitness, but for mental hygiene and social value emphasis should be upon:
1. movies
2. diet
3. reading the current news
4. politics
5. sports and recreational games

_____60. In order to stay organically fit a person must pay attention to:
1. the specific hours of the day he works out
2. the rest of the class or persons with whom he exercises
3. the weather conditions under which he exercises
4. regular physical workouts, diet, sleep and proper elimination
5. deep breathing exercises during the workout

_____61. Before entering upon any program designed for strenuous conditioning or competition each participant should:
1. purchase the type of athletic equipment needed for the activity
2. be examined by a physician for his own protection
3. be sure he understands all the movements or exercises to be undertaken
4. obtain an accident and health insurance policy
5. inform the athletic director as to his interest in the program

_____62. One of the basic requirements for sound mental health is:
1. plenty of movies and plays available in the community
2. a job that pays $10,000 a year
3. an organically and efficiently operating body
4. to not have to study hard to get your school work
5. not having to work after school

_____63. It is necessary to take part in conditioning exercises, sports and games to:
1. improve reading ability
2. widen conversational vocabulary
3. be able to pass insurance examinations
4. develop physique, organic condition and motor ability
5. improve possibilities to make varsity teams

_____64. Good physical fitness is valuable in that it:
1. lasts a long time without exercise
2. is associated with greater energy
3. enables the body to store up vitamin C
4. improves the ability to memorize
5. can be used to show how strong you are

_____65. One of the best reasons for getting eight to nine hours of sleep each night is that:
1. it provides a better blood supply to the brain
2. it helps the body to repair damaged cells and tissues
3. it develops better capacity of the heart and lungs
4. each individual needs different amounts of sleep
5. body wastes are eliminated better while sleeping

_____66. From the physical standpoint there is no harm for the normal person in:
1. drinking alcoholic beverages
2. exposing himself to another person with scarlet fever
3. smoking ten cigarettes a day
4. playing basketball at a young age
5. only getting 5 hours of sleep a night

_____67. Physical fitness can best be maintained by:
1. reading good books on the subject
2. listening to illustrated talks on fitness
3. regular systematic vigorous workouts
4. seeing movies once a week of athletic contests
5. watching an expert go through a series of good exercises

_____68. From the health as well as the physical standpoint a person to be considered fit should:
1. know how to play card games
2. be able to converse on foreign politics
3. be able to engage in a variety of active recreational games
4. be able to smoke cigarettes and drink alcoholic beverages
5. possess technical knowledge of all athletic games

_____69. One of the basic courses to be followed in developing all around fitness, mental, social and physical is:
1. a strenuous exercise period once a week
2. to run a mile and walk a mile twice a month
3. to engage in competitive sports until the age of 30
4. a planned and graduated program over a period of years according to expert advice
5. to exercise in the winter and rest during the summer

_____70. A person has had too much exercise or is becoming "state" when he:
1. doesn't feel better but is tired, listless and experiences severe bodily discomfort after exercise
2. becomes interested in playing basketball
3. experiences aches and pains after the first time he has engaged in activity
4. perspires a lot during a workout
5. notices his heart rate is slower than when he started training

_____71. Through systematic training and conditioning activities the body will:
1. have a decreased need for food
2. have ability to do a greater amount of work
3. have less need for vitamins
4. be benefited in primary mental intelligence traits
5. be able to function less efficiently in emergency situations

_____72. Many complaints of eye trouble, headache, nervousness and fatigue could be best remedied by:
1. taking aspirin or other sedatives
2. recreation, physical conditioning, adequate diet and sleep
3. eating fish since it is a brain food and will help the nerves
4. taking laxatives to clean out the bodily poisons
5. seeing an optometrist

_____73. The ultimate contribution of any activity to an individual is largely determined by:
1. the parents consent to engage in the activity
2. having an instructor who is an expert in the activity
3. the amount of effort put forth by the individual
4. whether it is an indoor or outdoor activity
5. the age at which he stops active participation

_____74. A most important function of exercise is:
1. to remove fat
2. to give the individual large bulky muscles
3. to provide increased circulation, organic power and relief of nervous tension
4. to provide some activity to do during your spare time
5. to provide an opportunity for boys and girls with mutual interests to meet together

_____75. The best activity to promote good physical fitness over the entire life span of a normal individual is:
1. football
2. basketball
3. golf
4. swimming
5. bowling

_____76. In order to perform our daily tasks and support our body in the sitting or standing positions from morning to night without undue fatigue we must have:
1. twelve hours sleep a night
2. a fatty deposit around the heart to act as a cushion
3. three large meals of vegetables and meat daily
4. sufficient muscular strength and economical posture
5. an excess of sugar in the diet

_____77. The health of a normal individual may be directly proportional to:
1. the amount of reading he does about health
2. his physical condition
3. the amount of leisure time he has
4. knowledge of diet
5. his knowledge of games and sports

_____78. The safest and most healthful means of relieving constipation is to:
1. take a laxative
2. eat a good meal of macaroni and cheese
3. smoke a cigarette after eating
4. eat more fruit and vegetables
5. drink plenty of milk

_____79. A quick burning high energy food is composed mostly of:
1. fat
2. protein
3. carbohydrates
4. milk
5. butter and eggs

_____80. Food has an important place in determining growth, health and fitness. In order to select a well balanced diet we should:
1. listen to radio programs advertising special foods
2. eat as much as we want to of all food
3. include foods containing protein, fats and carbohydrates, vitamins and minerals
4. take the advice of our butcher and grocer
5. read the advertisements of agencies specializing in health diets

_____81. Of all the following activities the least valuable in improving physical condition in the normal young person is:
1. playing tennis
2. bowling
3. playing handball
4. swimming
5. massage treatments

_____82. The best method of developing heart and respiratory endurance is to:
1. do weight lifting exercises daily
2. practice the mile run fairly strenuously 3 times weekly for 2 months
3. eat a diet low in carbohydrates and high in protein
4. engage in bowling, tennis and volleyball 3 times weekly
5. swim leisurely 100 yards 3 days a week for two months

_____83. Ability to hold the breath for 60 seconds after 3 deep breaths indicates:
1. muscular strength
2. good control of the diaphragm
3. good mental development
4. a large chest development
5. heart and circulatory efficiency

_____84. Good muscular development is valuable, but of more importance to health over the entire life of the individual is:
1. the ability to play cards, dance and talk well
2. knowledge and skill in golf, tennis and bowling
3. the ability to run at top speed for 1000 yards
4. the condition of the heart muscle
5. the condition of the upper arm and lower leg muscles

_____85. The part of complete physical fitness which is most readily developed through exercise is:
1. large muscles
2. freedom from disease
3. better eyesight
4. endurance
5. speed

_____86. Relatively the most vigorous conditioning activity for most parts of the body is:
1. cross country running
2. baseball
3. weight lifting
4. archery
5. tennis

_____87. Good physical fitness is important in that it will:
1. help everyone to high jump 6 feet
2. produce a race of supermen
3. provide the body with a large reserve of vitamin C
4. enable everyone to be a champion
5. provide a sound basis for learning motor skills and feeling fit

_____88. The human body is probably the most wonderful "machine" ever made. We should:
1. not require dental treatment very often
2. always maintain constant muscular contractions
3. be on the alert to see if we can eliminate aspects of unfitness
4. try to develop other machines to do its work in order for it to last longer
5. never have an operation or remove any part of it

_____89. Everyone cannot attain the same degree of physical fitness. This is limited to a great extent by:
1. intelligence
2. the sex of an individual
3. the weather
4. heredity
5. religion

_____90. The part of body build which is considered most harmful to all around athletic performance is:
1. bad posture
2. muscular legs
3. well developed musculature
4. excessive fat
5. size of the feet

_____91. In the normal person, muscular strength is a decided help in:
1. learning how to float in water
2. everyday living and working
3. choosing the right diet
4. being able to hold the breath for more than 2 minutes
5. reading and the ability to memorize

_____92. Generally speaking the conditioning or athletic program for girls as compared to boys should be:
1. the same in all respects .
2. made up of entirely different activities
3. composed of less violent physical contact activities
4. made up only of recreational games
5. confined primarily to those who are interested in teaching

_____93. Following a vigorous period of exercise a person should:
1. eat a candy bar
2. smoke a cigarette to slow down the heart beat
3. take deep breaths of cold air for five minutes
4. take a warm and then cool shower
5. drink enough cold water to make up for the weight lost during exercise

_____94. Physical fitness is an aid in preparation for adult life in that:
1. it will enable us to beat our neighbors in a race
2. smoking and drinking can be done without harmful effects
3. it adds to a person's feelings of social and physical competence
4. all professions demand a lot of muscular strength
5. it will last forever without further effort

_____95. For the proper maintenance of physical fitness we need:
1. a football stadium
2. a doctor to teach and manage our fitness program
3. long baking sun baths or ultraviolet light treatments
4. a diet adequately balanced, vitaminized and mineralized
5. a good massage treatment once a week

_____96. In order to become physically fit a person must:
1. know scientific facts concerning body structure
2. have knowledge of the organs and systems of the body
3. be willing to work hard at a program of exercise
4. never attempt something he cannot do
5. always work until physically exhausted in any activity

_____97. In the proper development and exercise of the body, attention should be paid:
1. to emphasizing one particular exercise
2. to an all around use of various muscle groups with a graduated series of exercises for each, including introductory, peak and tapering phases
3. to a light workout regularly of a few muscle groups
4. to the learning of only one sport well rather than an all around sports program
5. to strictly formal workouts with no regard to the interests of the individual

_____98. An important factor, associated with youthfulness of the body, which tends to decrease as we grow older is:
1. the ability to learn new skills
2. the amount of oxygen which can be inhaled
3. flexibility of the joints
4. baldness
5. an appreciation of recreational activities

_____99. In a normal individual regular physical exercise will cause:
1. red blood cells to form faster
2. an overtrained condition of the muscles
3. the formation of calcium deposits around the joints
4. the body to age faster
5. a decreased production of red blood cells

____100. It is unwise from a health standpoint for growing boys and girls to:
1. occasionally only get six hours sleep at night
2. engage in recreational sports together
3. learn facts about sex and marriage
4. express their opinions on city government
5. go on a restricted unsupervised diet

Kneer, Marian Elizabeth. "The Adaptation of Wear's Physical Education Attitude Inventory for Use with High School Girls." 1956. (University of Oregon Micro Card Publications).

KNEER ATTITUDE INVENTORY AND DIAGNOSTIC STATEMENTS

A. Attitude Inventory

DIRECTIONS - Please read carefully! Below you will find some statements about physical education. We would like to know how you feel about each statement. You are asked to consider physical education only from the standpoint of its place as an activity course taught during a regular class period. No reference is intended in any statement to interscholastic or intramural athletics. People differ widely in the way they feel about each statement. There are no right or wrong answers.

You have been provided with a separate answer sheet for recording your reaction to each statement. (a) Read each statement carefully, (b) go to the answer sheet, and (c) opposite the number of the statement place an "X" in the square which is under the word (or words) which best expresses your feeling about the statement. After reading a statement you will know at once, in most cases, whether you agree or disagree with the statement. If you agree, then decide whether to place an "X" under "agree" or "strongly agree." If you disagree, then decide whether to place the "X" under "disagree" or "strongly disagree." In case you are undecided (or neutral) concerning your feelings about the statement, then place the "X" under "undecided." Try to avoid placing an "X" under "undecided" in very many instances.

Whenever possible, let your own personal experience determine your answer. Work rapidly. Do not spend much time on any statement. This is not a test, but is simply a survey to determine how people feel about physical education. Your answers will in no way affect your grade in any course. In fact, we are not interested in connecting any person with any paper - so please answer each statement as you actually feel about it. BE SURE TO ANSWER EVERY STATEMENT.

1. If for any reason a few subjects have to be dropped from the school program, physical education should be one of the subjects dropped.
2. Students can better understand each other after meeting and playing together in physical education activities.
3. Physical education activities provide no chance for learning to control strong feelings, such as anger.
4. Taking part in lively physical activities gets one interested in using good health habits.
5. Physical education is one of the more important subjects in helping to teach and practice acceptable rules of behavior with other people.
6. Time spent in dressing, showering, and playing in physical education class could be more valuable if spent in other ways.
7. Very active play works off harmful strong feelings such as anger.
8. A person's body usually has all the strength it needs without taking part in physical education activities.
9. I would take physical education only if it were required.
10. Taking part in physical education activities tends to make one more likeable and better able to get along with other people.
11. Taking part in physical education gives no help in developing the ability to feel calm in strange situations.
12. Physical education in most schools does not receive the stress that it should.
13. Because physical skills seem very important in youth, it is necessary that a person be helped to learn and to improve such skills.
14. Physical education classes are poor in chances to learn how to get along with other people.
15. Exercises taken regularly are good for one's general health.
16. A person would be better able to control his feelings if he did not take part in physical education.
17. An average amount of skill in active games or sports is not necessary for leading the fullest kind of life.
18. It is possible to make physical education a valuable subject if a wide variety of useful activities is offered.
19. Physical education does more harm than it does good.
20. Developing a physical skill will relax your mind.

21. Meeting and playing with others in some physical education activity is fun.
22. Physical education classes provide nothing which will be of value outside of class.
23. Physical education classes provide no chances for learning to respect the rights of others which will help one to become a better citizen.
24. There should not be over two one-hour periods per week given to physical education in schools.
25. Physical education situations are among the poorest for making friends.
26. Belonging to a group, for which opportunity is provided in team activities is a desirable experience for a person.
27. Physical education is not valuable enough to make it worth the time spent.
28. Physical education is an important subject in helping a person gain and keep all around good health.
29. Physical education skills will add to the joy and pleasure of living.
30. No definite good results come from taking part in physical education activities.
31. People get all the physical exercise they need in just taking care of their daily work.
32. Taking part in team sports during physical education is helpful.
33. All who are physically able will profit from an hour of physical education each day.
34. Physical education activities tend to upset a person's feelings - for example, make him angry.
35. Physical education is helpful in building up enough extra strength and in improving the ability to keep going for daily living.
36. Physical education should be included in the program of every school because it helps a person to think better and to control strong feelings, such as anger.
37. Physical education makes one less friendly by encouraging people to be better than others in many of the activities.
38. I would advise anyone who is able to take physical education.
39. Taking part in sports, games, and dance makes for a better understanding of life, and increases the enjoyment of it.
40. Physical education class is a waste of time in improving health.

B. Diagnostic Statements

DIRECTIONS TO STUDENTS - Same as for Attitude Inventory (A)

1. Our physical education activities are fun.
2. Many of the games we play during physical education class are a waste of time.
3. I enjoy physical education class when team games are taught.
4. I enjoy physical education class when dance activities are taught.
5. I enjoy physical education class when individual games are taught.
6. Various physical education activities that we take part in have helped me develop leadership.
7. Many of our physical education activities may be played when not in school.
8. Our physical education activities will improve physical fitness.
9. I would like a greater variety of physical education activities to be offered.
10. I would like more health instruction.
11. We have enough indoor play space.
12. We have enough outdoor play space.
13. We have enough dressing room space.
14. We have enough shower room space.
15. We have enough clothes storage space.
16. Our gym is clean and pleasant.
17. Our shower room is clean and pleasant.
18. Our dressing room is clean and pleasant.
19. Our outdoor play space is clean and pleasant.
20. We have enough playing equipment.
21. Our physical education teacher is friendly.
22. Our physical education teacher teaches us a lot.
23. Our physical education teacher allows us to share in planning class.
24. Our physical education teacher treats everyone in class very fairly.
25. Our physical education teacher gives special help to those needing it.
26. We are given enough time for dressing and showering.
27. Our grading system in physical education is fair.
28. Our physical education class time is too short.
29. Our physical education classes are not too large.
30. Our physical education uniform is pleasant to wear and comfortable.

Elder, Haskell P. "Appraising the Motor Fitness of Junior High School Boys." Unpublished Doctoral Dissertation, Springfield College, Springfield, Massachusetts, 1956. (University of Oregon Micro Card Publications).

INSTRUCTIONS FOR ADMINISTERING

JUNIOR AND SENIOR HIGH SCHOOL MOTOR FITNESS TESTS

INTRODUCTION:

The following tests have been selected as a result of thorough and carefully executed research. Their individual and collective reliability and validity are established. Care should be given to insure their administration according to the rules set forth herein. The results will facilitate valid appraisal of the motor fitness of senior high school boys.

TEST PROCEDURES:

I. FLOOR PUSH-UPS

A. Equipment needed:

1. A clean, level floor or surfaced area space.
2. A 1" x 3" x 5" block of wood or a stack of used file cards of the same size held together with tape.

B. Description:

1. Subject, in complete physical education uniform, assumes a leaning rest position with hands shoulder width apart, fingers forward, weight resting on hands and toes and body straight. The back of the body from ankles to head must remain straight throughout the exercise.

2. From above position, subject bends his arms, keeping body straight and elbows close to sides, until his chest only (no other part of body except hands and toes) touches the 1" x 3" x 5" object placed on the floor underneath the center of his chest. Immediately upon contacting the object the subject extends his arms, still keeping body straight, and returns to the starting position.

3. The exercise is repeated as many times as possible.

C. Rules:

1. The subject's performance shall be recorded as the number of perfectly executed push-ups he is able to make to full extension of the arms.

2. No resting or undue shifting of hands and feet will be permitted.

3. No score is given if:

a. Arms are bent at top of movement.
b. Any part of body other than hands and toes touches floor.
c. Shoulders are pushed up first while hips are stationary near floor.
d. Hips are raised upward and backwards before shoulders are pushed up.

4. Examiner shall audibly count the subject's correct push-ups.

5. Modified push-ups for girls only

a. Prone position with weight on front part of knee. Hand directly under shoulders. Knees are flexed.
b. Push up with arms. Straight line from knees to top of head.
c. Record actual number completed consecutively.

II. STANDING BROAD JUMP

A. Equipment needed:

1. A mat properly marked to measure, to the nearest inch, the distance jumped beyond a given "take-off" line.

B. Description:

1. Subject, in complete physical education uniform, stands on both feet toeing the take-off line. He may swing arms, bend knees and rock forward and backward alternately in rhythmical

preparation for jump. He shall not touch the take-off line before or in process of jumping. He shall "take off" from both feet, land on both feet, and continue forward.

C. Rules:

1. Subject's best effort shall be recorded in inches to nearest inch.

2. Each subject shall be given successive trials until three legal jumps are made.

3. "Crow hopping," shuffling or preliminary hopping nullify the jump but do not count as a trial.

4. The distance jumped is the nearest point to the take-off line touched by any part of the contestant's body.

III. DODGE RUN

A. Equipment needed:

1. Ten folding chairs
2. Tenth second stop watch
3. Gym floor or equivalent area

B. Description:

1. Subject, in regulation physical education uniform, crouches behind the starting line (see diagram, next page).

2. On "GO" signal, contestant begins two complete trips along path indicated by dotted lines and arrows.

C. Rules:

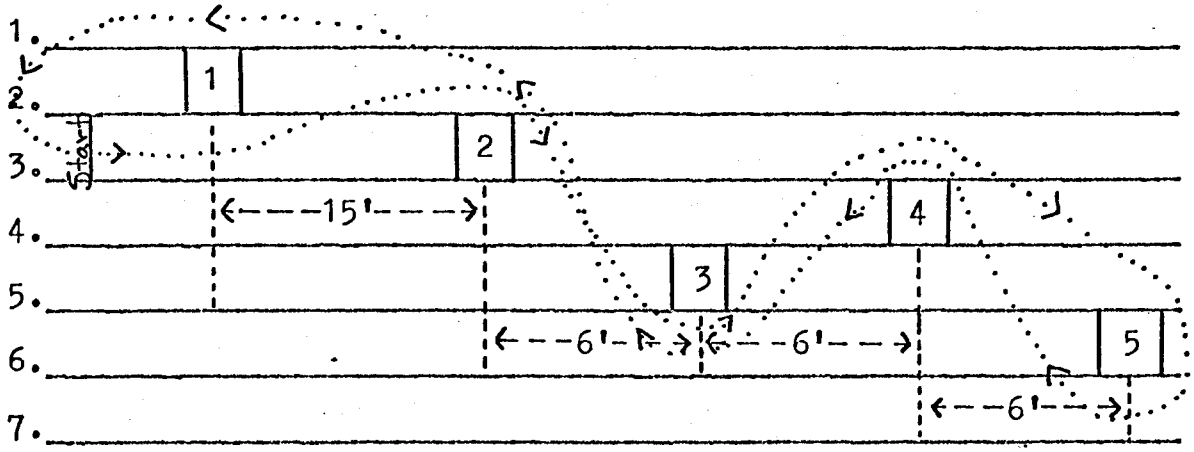
1. The subject's score is the best of two trials recorded in seconds and tenths.

2. At least five minutes rest shall be allowed between trials.

3. Subject shall be permitted to repeat any trial in which a foul is committed.

4. Fouls: (1) Touching a chair; (2) starting before "GO" signal; (3) following wrong route; (4) falling.

5. Start watch with "GO" signal. Stop watch when subject crosses finish line at the completion of second trip.



[ ] - two folding type chairs placed back to back.

Nos. 1 to 7 - three foot lanes

Measured from center to center of chair seats, the distance between [1] and [2] is 15 feet and all others, 6 feet.

IV. SQUAT THRUSTS:

A. Equipment needed:

1. A clean, level floor or surfaced area space.
2. Stop watch.

B. Description:

1. Subject stands "at attention."

2. On "GO" signal the following four part exercise is performed as rapidly as possible for 20 seconds: (1) Bend knees and hips and place hands on the floor within eight inches of the feet. (Squat-rest position) Fingers should point forward: arms may be between, outside, or in front of the bent knees. (2) Extend legs

backward until body is straight from shoulders to heels (front-leaning rest position). (3) Return to squat-rest position. (4) Stand up straight. In the upright position, the subject may lean forward, but his chest must be in front of an imaginary line drawn from chin to toes.

3. Subjects will make better scores on this test if they do not take a full knee bend but rather bend knees only to a right angle, and if they keep the shoulders in front of the hands when the legs are thrust back.

C. Rules:

1. Subject's score consists of four points for each complete exercise and one point for each quarter thereof completed in twenty (20) seconds. Best of two trials shall be recorded.

2. At least five minutes rest shall be allowed between trials.

3. One point shall be deducted for each foul committed.

4. Fouls: (1) Hands are not placed within eight inches of the feet; (2) Feet start backward before the hands are placed on the floor; (3) Hips are kept above the shoulder line when feet are back; (4) Subject does not straighten up on the fourth count.

V. TRUNK FLEXION

A. Equipment needed:

1. Plinth or long table
2. Sliding, wooden breadth caliper

B. Description:

1. Subject sits lengthwise on table with hands clasped at back of neck; legs are straight and spread (approximately 18 inches at ankles) to allow room for head to pass between knees during maximum forward trunk flexion.

2. Keeping knees straight, subject slowly bends forward and downward.

3. Examiner measures minimum distance achieved between subject's forehead and table top.

C. Rules:

1. Subject's score is the best of three trials recorded in inches and tenths.

2. Subject shall bend forward, rounding the back slowly and steadily, without any jerking motions.

3. Knees must be kept straight throughout the forward trunk flexion.

4. Hands must remain clasped at back of neck.

Acknowledgment is extended to Dr. Haskell P. Elder for the development of the above described test battery and the procedures for administering the tests.

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