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Boys' Physical Education Leadership, Facilities, and Equipment in the Secondary Schools of North Dakota

James W. Gustafson

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BOYS PHYSICAL EDUCATION
LEADERSHIP, FACILITIES, AND EQUIPMENT
IN THE
SECONDARY SCHOOLS OF NORTH DAKOTA

A THESIS
SUBMITTED TO THE GRADUATE FACULTY
OF THE
UNIVERSITY OF NORTH DAKOTA

BY
JAMES W. GUSTAFSON
IN PARTIAL FULFILLMENT OF THE REQUIREMENTS
FOR THE
DEGREE OF
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This thesis, submitted by James W. Gustafson
in partial fulfillment of the requirements for the
degree of Master of Science in Education, is hereby
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CHAPTER I
INTRODUCTION

Physical education provides an excellent opportunity for molding health and character. North Dakota has recognized this importance and requires physical education by law. The law states:

"Physical education....shall be taught in the common schools, and taught as a regular branch to all pupils in all departments of the public schools of the state and in all educational institutions supported wholly or in part by money from the state....and to adopt such method or methods as will adapt progressive physical exercise to....the various grades and classes of schools and institutions receiving aid from the state."¹

Modern physical education programs with emphasis on games and sports require more extensive facilities and equipment, and better trained instructors than did the more formal type of programs. Included are such games as football, touch football, basketball, baseball, softball, volleyball, soccer, badminton, table tennis, shuffleboard, and many other individual games, with little emphasis on calisthenics, drills, and other formal activities.

A great deal of progress has been made in many sections of the country to provide adequate leadership, facilities, and equipment for a sound physical education program.

¹State of North Dakota Pamphlet Comprising the Laws in Force Pertaining to Public Schools, The State Department of Public Instruction, Edition of 1935, Section 361.

Leadership, facilities and equipment are basic to a good program in physical education.

"Problems of facilities, and equipment clearly indicate the inter-relationship of administration, supervision, and instruction, emphasizing the need for mutual understanding and respect between these professional groups in the total responsibilities of the department to insure appropriate tools with which to work."²

The Problem

The purpose of this study is to make readily available, in helpful form all information possible on leadership, facilities, and equipment in men's physical education in North Dakota schools. It was originally planned that this should be a study of women's physical education as well as men's, but inasmuch as the questionnaires were sent to men instructors, not much information concerning the women's program was reported. For this reason it has become necessary to limit this study to men's physical education only. It is hoped that this information and the manner of presentation will aid in determining what is needed to improve physical education in North Dakota and that it will be helpful to those who are planning the construction of physical education plants. Furthermore, data secured should aid in setting up better professional training requirements for physical education instructors in institutions of higher learning.

²Jesse Williams and Clifford Brownell, The Administration of Health and Physical Education, p. 253.

Purposes

To obtain adequate data pertaining to the following:

1. Training, teaching load, extra-curricular load, and experience of the physical education instructors in high schools throughout the state.
2. Equipment available for physical education in the secondary schools throughout the state.
3. Indoor and outdoor physical education facilities available to the secondary schools throughout the state.
4. Opinion of the physical education instructors as to the adequacy of the facilities and equipment available for teaching purposes.

Sources of Data

The data for this study were obtained from the following sources:

1. Returned questionnaires received from coaches and physical education instructors.
2. Periodicals covering the field of physical education.
3. Books and pamphlets related to the factors covered by this research.
4. Similar theses as related to the problem stated.

Method

Questionnaires³ were sent to the coaches or athletic directors of the 259 major and minor accredited schools of North Dakota. A short letter explaining the purpose of the study was enclosed along with a stamped, self-addressed envelope.

Table I

NUMBER OF QUESTIONNAIRES SENT OUT AND NUMBER OF RETURNS^a

Enrollment	Number Sent	Return	Per cent
A	16	9	56.2
B	22	14	63.6
C	72	26	37.5
D	149	87	57.7
Total	259	136	52.5

The factors selected for the study are:

1. Size of enrollment
2. Number of physical education instructors
3. Present degrees of instructors
4. Major subject of instructors
5. Minor subject of instructors

^aFor the sake of convenience, school enrollment will be represented throughout this report by the following letters: A--250 and up, B--150-249, C--75-149, D--1-74.

³Appendix B

6. Number of physical education instructors
7. Number of years of teaching experience
8. Hours per week teaching physical education
9. Type of gymnasium
10. Indoor facilities
11. Number of schools providing soap
12. Type of soap provided
13. Towel service and fee
14. Costume service and fee
15. Number of schools which divided gym and method
16. Type of seating in gymnasium
17. Floor markings
18. Outdoor facilities
19. Surfacing of tennis courts
20. Surfacing of athletic fields
21. Equipment

CHAPTER II

A REVIEW OF FINDINGS OF SIMILAR THESES RELATED TO THE PROBLEM

Grace O. Rhonemus¹ made a study of the physical education programs in 16 North Dakota high schools. Interviews were held with superintendents or principals, instructors and school board and recreational board members of schools visited. Opinions were obtained on relative values of different activities and on administrative practices. Facilities and equipment were inspected by the author. The data also included a collection of the program plans for each school.

The following conclusions concerning North Dakota's physical education programs were drawn:

1. Group and team sports are emphasized rather than dual sports which are more adaptable for adult life.
2. There is a noticeable trend toward health education with physical education teachers in charge.
3. Boys physical education classes meet more often than girls.
4. Intramural programs should be more extensive.

¹Grace Osbourne Rhonemus, Physical Education in North Dakota High Schools, Unpublished Master's Thesis of North Dakota University.

5. Teachers do not have sufficient time to devote to physical education work.

6. There is a lack of rhythmic training.

7. Girls physical education overdoes team play, especially basketball.

8. Girls are neater in gymnasium care than boys.

9. Men physical education teachers are better qualified by certification than women teachers.

10. There are no women working for advanced degrees in the schools of the state although several men are doing so.

11. As a whole, the physical education teachers of North Dakota are not sufficiently professional minded.

12. There is a shortage of women physical education teachers in the state.

13. Physical education in the grade schools of the state is in the hands of classroom teachers except in a few instances.

15. There is not as much activity in girls' inter-scholastic basketball as in former years.'

Mrs. Rhonemus studied only the larger schools of the state and placed the emphasis on curriculum.

Marlin McNeal² surveyed physical education leadership, facilities, and equipment in Minnesota High Schools. Mr. McNeal sent questionnaires to 490 secondary schools in Minnesota and reached the following conclusions:

1. Men teachers are more fully qualified to teach physical education than are women teachers.

2. There are more men teachers who have advanced degrees or are working toward them than there are women.

3. Boys and girls receive approximately the same number of hours of physical education.

4. Gymnasiums are very prevalent.

5. Dressing rooms are adequate but shower, toilet, and locker facilities for both sexes could be improved upon and increased in number.

6. Soap for showering is lacking in about one-fourth of the schools.

7. Instructors' facilities do not meet the National Facilities Standards.

8. Handball courts, bowling alleys, swimming pools, smooth walls, auxiliary teaching rooms,

²Marlin Clark McNeal, Physical Education Leadership, Facilities, and Equipment in the Minnesota High Schools, Unpublished Masters Thesis of North Dakota University.

health rooms, and equipment storage rooms are lacking.

9. Outdoor facilities, especially athletic fields, are adequate.

10. Turf, the suitable surface for athletic fields, covers about 75 per cent of all the fields.

11. Equipment for use indoors and outdoors is very much needed in a majority of the schools.'

Wherever possible the results of this study will be compared with those obtained from the neighboring state of Minnesota.

CHAPTER III

LEADERSHIP

The teaching of physical education formerly was considered a matter of teaching a few competitive sports or gymnastic exercises. It has come to include recreational games, outings, water sports, dancing, and many similar activities that help to develop leisure time interests and lead to sound physical development.

"The instructional functions related to these activities have a much greater scope than those of earlier programs, and demand that the teacher have a specific competence in meeting a variety of educational obligations."¹

The physical education teacher probably influences girls and boys more than any other teacher because of his close physical, mental, and social contact with pupils.

"The teacher is of the utmost importance in carrying forward a sound and successful school program of physical education. Elaborate facilities and equipment, a wide variety of activities, and a liberal time allotment for physical education classes are relatively insignificant in comparison with the importance of the teacher in making a successful school program."²

Since it is virtually impossible to have a good physical education program without teachers who are well trained in this field, it is important that we examine

¹Jackson Sharman, The Teaching of Physical Education, p. 3.

²Ibid., p. 47.

the training of the teachers of physical education in North Dakota.

Table II shows that the majority of the high schools have an enrollment of from 1 to 75 pupils, which represents 63 per cent of all schools reporting. This group employs 62.3 per cent of the teachers.

Table II

NUMBER OF PUPILS AND MEN'S PHYSICAL EDUCATION TEACHERS

Enroll- ment	Schools		Teachers	
	Number	Per cent	Number	Per cent
A (over 250)	9	6.6	13	9.1
B (150-249)	14	10.3	15	10.5
C (75-149)	26	19.2	26	18.1
D (1-74)	87	63.9	89	62.3
Total	136	100.0	143	100.0

It can be seen from Table III that over half of the physical education teachers have a B.S. degree while 81 per cent have either a B.S. or a B.A. degree. Seven and one-tenth per cent have masters degrees. Four teachers, or about three per cent, are teaching physical education with only a standard degree.

Table III
DEGREES OF MEN PHYSICAL EDUCATION INSTRUCTORS

Enroll- ment	Type of Degree					Not Given
	B.S.	B.A.	M.S. M.A. M.Ed.	Ph.B.	Standard	
A	8	5	0	0	0	0
B	10	5	0	0	0	0
C	17	7	1	1	0	0
D	42	22	9	1	4	11
Total	77	39	10	2	4	11
Per cent	53.9	27.4	7.1	.8	2.9	7.9

It is noted from Table IV that the smaller the school the smaller the per cent of instructors having majors and minors in physical education. In schools with an enrollment of 250 or over almost 54 per cent of the teachers have majors while 46 per cent have minors. By comparison, only about 25 per cent of the physical education teachers in schools of less than 75 students have majors. Only about 26 per cent of the class D school instructors have minors while 39 per cent have neither a major nor a minor. This is a very bad situation and shows a lack of trained physical education teachers in the smaller schools.

Table IV

TEACHERS WITH MAJORS AND MINORS IN PHYSICAL EDUCATION

Training	A	B	C	D	Total	Per cent
Major	7	7	10	22	46	32.2
Per cent	53.9	46.6	38.5	24.8		
Minor	6	6	10	23	45	31.5
Per cent	46.1	40	38.5	25.8		
No Major or Minor	0	2	6	39	47	32.9
Per cent	0	13.4	23	43.8		
Not given	0	0	0	5	5	3.4
Per cent	0	0	0	5.7		

On an over-all basis it may be seen from the table that about one-third of all the instructors have majors, one-third have minors, and one-third have neither a major nor minor in physical education. This means that approximately two-thirds of the teachers in physical education are qualified by training to teach in that special field. Stated in a different way, one out of every three physical education teachers in North Dakota high schools does not have sufficient training. In the schools of Minnesota, McNeal³ found that 62.6 per cent of the men instructors had majors in physical education and 25.3 per cent had minors in the field.

³Marlin McNeal, Physical Education Leadership Facilities and Equipment in the Minnesota High Schools, Unpublished Masters Thesis of North Dakota University.

From Table V it may be seen that of the 38 instructors who did not have either a major or a minor in physical education, 30 reported an average of 9.8 hours of physical education training in college. This would seem to indicate that the group has some training to teach in the field despite the fact that they do not have a major or a minor in physical education. Four instructors are teaching without any training in physical education whatsoever.

Table V

NUMBER OF SEMESTER HOURS OF TRAINING OF INSTRUCTORS
IN PHYSICAL EDUCATION WITHOUT A MAJOR OR MINOR

Number of Hours Training	Number of Instructors
0	4
2	1
4	2
5	1
6	4
7	2
8	4
10	3
12	1
15	1
16	1
18	2
20	1
26	1
34	1
36	1
Not Given	8
	38
Average Number of Hours	9.8

Table VI which follows shows the major fields of men with physical education minors. It may be seen by the table that social science is by far the most popular major for men with minors in this field. McNeal⁴ found that in Minnesota history was the most popular minor and social studies ranked second.

Table VI

MAJOR FIELDS OF TEACHERS WITH PHYSICAL EDUCATION MINORS

Major Field	A	B	C	D	Total	Per Cent
Social Science	3	3	3	5	14	31.2
Mathematics	0	0	4	4	8	17.7
Biology	0	2	0	3	5	11.1
History	0	0	2	3	5	11.1
Industrial Arts	1	0	0	2	3	6.7
Science	1	0	0	2	3	6.7
Commerce	0	0	1	2	3	6.7
Education	0	0	0	1	1	2.2
English	0	0	0	1	1	2.2
Chemistry	1	0	0	0	1	2.2
Economics	0	1	0	0	1	2.2
Total	6	6	10	23	45	100.0

⁴Marlin McNeal, op. cit.

From Table VII it may be seen that the smaller the school the fewer hours of physical education taught. The average teacher of physical education in schools of 250 and over teaches 15 hours of physical education and spends only 6.5 hours on other subjects but does spend more time 13 hours, on extra-curricular activities than does the instructor in smaller schools. The teacher in schools of less than 75 students spends little time in teaching physical education, but spends almost 20 hours per week on other subjects.

Table VII
TEACHING LOAD OF PHYSICAL EDUCATION INSTRUCTORS

Subject	Average Hours per Week of Teaching				Number of Schools Reporting
	A	B	C	D	
Physical Education	15	5.7	4.4	3.8	126
Extra Curricular	13	10.5	7.4	2.3	113
Other Subjects	6.5	15.9	19.4	19.9	123
Total	34.5	32.1	31.2	26.0	

The larger the school the greater the number of hours of teaching per week. A large proportion of these hours, 13 out of 34.5, are spent in extra-curricular activities; while in smaller schools less time is spent on extra-curriculars. Only 2.3 hours per week are spent on extra-curriculars by physical education teachers in class D schools. This may be accounted for in that

many superintendents, who do not have extra-curricular activities, teach physical education in the smaller schools.

Fourteen and seven-tenths per cent of all physical education instructors in North Dakota are superintendents, and 17.5 per cent are principals. In schools of less than 75 enrollment 22.4 per cent of the physical education instructors are superintendents. (See Table VIII.)

Table VIII

NUMBER OF SUPERINTENDENTS AND PRINCIPALS
TEACHING PHYSICAL EDUCATION

Enroll- ment	Number of In- structors	Superin- tendents Teaching	Per cent	Prin- cipals Teaching	Per cent	Not Given	Per Cent
A	13	0	0	0	0	0	0
B	15	0	0	0	0	0	0
C	26	1	3.8	6	23.1	1	3.8
D	89	20	22.4	19	21.3	7	7.9
Total	143	21	14.7	25	17.5	8	5.6

There are not any men physical education teachers in schools of more than 75 students who also teach girls physical education. In schools of less than 75 students 21.3 per cent of the men teachers also teach girls' physical education.

Table IX

NUMBER OF MEN TEACHERS TEACHING BOTH BOYS AND GIRLS
PHYSICAL EDUCATION

Enroll- ment	Number Instructors	Teaching Both	Per cent	Not Given	Per cent
A A	13	0	0	0	0
B	15	0	0	0	0
C	26	0	0	0	0
D	89	19	21.3	9	10.1
Total	143	19		9	
Per cent		13.2		6.3	

It is very difficult for a man instructor to do an adequate job of teaching and supervising girls physical education. To do a good job of teaching girls' classes it is necessary that the teacher have special training so as to understand the anatomical, physiological, and psychological differences in the sexes which exist and require special activities. Such things as shower supervision, towel and uniform inspection, as well as an understanding and direction of activities during menstrual periods, are impossible. If, however, in the smaller schools, it is necessary for various reasons to have a man instructor it is better to carry on the program in this way than not to have any program at all.

Summary

Chapter III shows the following results:

1. Sixty-three per cent of the high schools have an enrollment of from 1 to 75 pupils. This group employs sixty-two per cent of the men's physical education instructors.
2. Fifty-four per cent of the men instructors reporting had B.S. degrees. Eighty-one per cent have either a B.S. or B.A. degree.
3. Thirty-two per cent of the men instructors have a major in physical education.
4. Thirty-two per cent of the men instructors have a minor in physical education.
5. Thirty-three per cent of the men instructors have neither a major or minor in physical education and are not well qualified by training to teach in this field.
6. Forty-four per cent of the men instructors in schools of less than 75 students have neither a major nor minor in physical education.
7. Sixty-four per cent of the men instructors are qualified to a greater or lesser extent to teach physical education.
8. The smaller the school the less qualified the men instructors.
9. Social science is the most popular minor subject for physical education minors. Mathematics rates

second.

10. The larger the school the heavier the load for physical education teachers.

11. The larger the school the more hours of physical education taught by each instructor.

12. The smaller the school the more hours spent teaching other subjects.

13. Six per cent of the men instructors teach girls physical education as well as boys. Twenty-one per cent of the men instructors in schools of less than 75 students teach both boys and girls classes.

14. The average physical education instructor without a major or a minor in the field has 9.8 hours of physical education training.

15. Fourteen and seven-tenths per cent of the physical education instructors are superintendents.

16. Seventeen and five-tenths per cent of the physical education instructors are principals.

CHAPTER IV

INDOOR FACILITIES

"No other single subject in the secondary curriculum has been introduced so recently, has been subject to so much mandatory legislation, has cost so much for facilities and equipment in proportion to the per pupil use, or has such a variety of facilities considered essential for its proper development as has physical education."¹

The planning and construction of buildings to house the physical education program has been badly neglected.

"In the main, our public schools have inadequate gymnasium facilities; especially is this true in the elementary schools and in the high schools of the largest cities and of the very small towns."²

One of the chief factors which have caused this has been the change in the physical education program from a formal to a more natural activity program. This new type program demands more and different activities, which tends to make the older type of plan obsolete.

The rapid introduction of the subject, the fact that it is a required subject, the expense, as well as the demands of physical education leaders for still greater expansion, would seem to justify a comparison of the facilities of our state's high school buildings with what is being recommended by specialists in schoolhouse

¹Herbert Blair, Physical Education Facilities For The Modern Junior and Senior High School, p. 3.

²Mabel Lee, The Conduct of Physical Education, p. 129.

planning and by those who are responsible for the physical education program.

Gymnasiums

Physical education activities can, if necessary, be carried on in a small space. In many schools they are managed surprisingly well under such circumstances but, if at all possible, a full-sized gymnasium is needed. In early days gymnasiums were used mainly for apparatus work and drill. Now, with modern physical education, which includes competitive games, gymnasiums should be large enough to provide ample room for basketball courts and space for other sports and contests or activities.

It may be seen from Table X that only 5.2 per cent of the schools of North Dakota do not have any gymnasium whatsoever. McNeal in his survey for Minnesota³ found that 3.5 per cent of the schools in Minnesota do not have gymnasiums. Seventy-seven out of 134 schools reporting, or 56.6 per cent of the schools have combination gymnasium auditoriums. The combination style is most popular in schools of 150-250 enrollment, 71.5 per cent of these schools have this kind of plant. Gymnasium-auditoriums are least popular in the larger schools of 250 and over. (See Table X). This type of gymnasium

³Marlin McNeal, Physical Education Leadership, Facilities, and Equipment in Minnesota High Schools. Unpublished Masters Thesis of North Dakota University.

is not the most desirable kind.

"A combination auditorium-gymnasium attempts to conserve space and reduce construction cost. At best such arrangements seldom prove satisfactory. The combination stage-gymnasium offers similar drawbacks. The development of physical education parallels increased emphasis on auditorium periods and use of the stage for musical and dramatic purposes. During after-school hours, the modern school schedules all of these activities in an attempt to fulfill the educational demands of the average community."⁴

Table X
TYPE AND NUMBER OF GYMNASIUMS^a

	Enrollment				Total	Per cent
	A	B	C	D		
Total Schools	9	14	26	87	136	
1 Gym	4	3	5	30	42	30.9
Per cent	44.4	21.4	19.2	34.7		
1 Comb.	3	10	17	47	77	56.6
Per cent	33.3	71.4	65.4	52.8		
1 Gym	1	1	1	2	5	3.6
1 Comb.	1	1	1	2	5	3.6
Per cent	11.1	7.2	3.8	22.2		
2 Gyms						
1 Comb.	1	0	0	2	3	
Per cent	11.1	0	0	22.2		
No Gym	0	0	1	6	7	5.2
Per cent	0	0	3.8	6.7		
No Report	0	0	2	0	2	1.5
Per cent	0	0	7.7	0		

⁴Jesse Williams and Clifford Brownell, The Administration of Health and Physical Education, p. 267.

^aThe abbreviation gym. indicates gymnasium, and the abbreviation comb. indicates gymnasium-auditorium combination.

Dressing Rooms

Programs of physical education and health now stress the importance of well-equipped, sanitary, dressing rooms.

"In schools where physical education periods are 30 minutes or longer in length, a complete change of clothing is essential. Under such conditions the school must provide a cleansing bath after exercise and adequate means of caring for gymnasium costumes."⁵

It was found that 9.5 per cent of the schools reporting did not have dressing rooms. By comparison McNeal⁶ in his survey of Minnesota found that only 1 per cent of the schools are without dressing rooms. Seventy per cent of the schools have only one dressing room for boys' physical education.

Table XI
NUMBER OF DRESSING ROOMS

Enroll- ment	Total Number Schools	Number of Dressing Rooms					
		None	Per cent	Per 1 cent	Per 2 cent	Per 3 cent	Per 4 cent
A	9	0	0	5 55.5	3 33.3	1 11.1	0 0
B	14	0	0	11 78.6	3 21.4	0 0	0 0
C	26	2	7.7	18 69.2	4 15.4	0 0	2 7.7
D	87	11	12.5	62 71.3	13 14.9	1 1.2	0 0
Total	136	13	9.5	96	23	2	2
Per cent		9.5	70.6	16.9	1.5	1.5	

⁵Ibid, p. 274.

⁶Marlin McNeal, op. cit.

The number of dressing rooms ranges from 1 to 5. The larger the school enrollment the more dressing rooms. Eleven out of 87, or 12.5 per cent of the schools of enrollment of less than 75 students do not have dressing rooms.

Lockers

In general three types of locker systems are in common use. They are half-length lockers, full-length lockers, and basket-type lockers. While the half and full-length systems are most desirable they are not always practical for use in small schools such as we find in North Dakota. They take up considerable room and are rather expensive. Basket-type lockers, although they are not desirable, because they do not allow for hygienic care of dressing equipment, perhaps are best for use in smaller schools which are pressed for finances and space.

"....experience is showing that the basket system or a modification of it is eminently satisfactory and more economical, particularly of space, than others."⁷

"Wherever large numbers must be provided for and the space is limited, tote baskets should be used. Regardless of space and numbers, they are sufficient for all work where the class members need storage only for gymnasium shoes and wraps. They are much less expensive than lockers.... they represent a large saving in expense over the full and half-length locker."⁸

Lockers for dressing should also be provided. These

⁷Physical Education Health Education Series, State of Ohio Department of Education. p. 114.

⁸Mabel Lee, op. cit., pp. 138-140.

should be large enough to accomodate street clothes. The number should equal the peak load plus 10 per cent.

By consulting Table XII it may be seen that 22.8 per cent of the schools reporting do not have lockers of any type. McNeal⁹ found that in Minnesota, 29.4 per cent did not have lockers. This shows weakness in both states.

Table XII
TYPE AND NUMBER OF LOCKERS

Type of Lockers	Number of Schools With Lockers	Per cent
Basket	26	19.1
Half-length	56	41.2
Full-length	17	12.5
Combinations of above	6	4.4
None	31	22.8
Total	136	100

Half-length lockers are the most popular type with 41.2 per cent of the schools using this type. Only 26 per cent use basket-type lockers.

⁹Marlin McNeal, op. cit.

Shower Rooms

Relatively few standards are available on shower rooms. The shower room is recognized as an important factor in any well-planned and organized physical education program. It is an example of one of the many instances where health education and physical education are closely associated.

"Properly constructed and wisely administered shower rooms provide one of the best laboratories for inculcating certain health practices of personal cleanliness while youth enjoys the cleansing and invigorating properties of the bath. By unanimous agreement the shower bath after exercise constitutes an integral part of the physical education program."¹⁰

There seems to be some disagreement on the part of the experts as to the type of shower which is best. However, they seem to be in agreement in that the boys should have gang showers. Individual control showers are recommended rather than central control although the latter is cheaper to install.

From Table XIII it may be seen that the most popular type of shower is the individual control gang shower. Sixty-one per cent of the schools reporting had this type of shower.

¹⁰Jesse Williams and Clifford Brownell, op. cit., p. 279.

Table XIII
TYPE OF SHOWERS IN USE

Type Shower	Number of Schools with Showers by Enrollment									
	Per A cent		Per B cent		Per C cent		Per D cent		Total	Per cent
Individual Control Gang ^a	6	66.6	11	78.6	19	73.1	47	54.	83	61
Central Control Gang	1	11.1	1	7.1	2	7.7	8	9.2	12	8.9
Individual Stall	0	0	1	7.1	2	7.7	16	18.4	19	13.9
Combinations of Above	2	22.2	1	7.1	2	7.7	0	0	5	3.7
None	0	0	0	0	1	3.8	16	18.4	17	12.5
Total	9		14		26		87		136	

Twelve and one-half per cent of the schools have no showers at all. In schools of enrollment of less than 75 students 18.4 per cent do not have showers. McNeal¹¹ found that in Minnesota only 7.7 per cent do not have showers.

Toilet Facilities

The disposal of human waste should be accomplished in such a way as to prevent contamination of water supply

¹¹Marlin McNeal, op. cit.

^a"Gang showers" refers to several shower heads to one room. "Individual control" means each head has individual valves. "Central control" refers to control of all shower heads by one master valve.

or cause unsanitary conditions.

It is important that adequate toilet facilities in addition to the regular school facilities should be located in the dressing room.

"In addition to the main toilet room of the school building there should be one in connection with the gymnasium dressing room.... There should be one seat for each twenty in the largest class and one lavatory for each fifty. The floor should slant to drain so it may be flushed daily."¹²

"Provide enough to care for the peak load class; about one urinal for 25 boys and one stool for 15 girls; about one stool for 30 boys."¹³

By examining Table XIV we find that 48.6 per cent of the schools do not have urinals and 32.4 per cent do not have water closets in the dressing rooms.

¹²Mabel Lee, The Conduct of Physical Education, p. 151.

¹³Edward Voltmer and Arthur Esslinger, The Organization and Administration of Physical Education, p. 175.

Table XIV
TOILETS AND URINALS

Number	Urinals	Per cent	Closets	Per cent
1	43	31.6	52	38.2
2	18	13.3	17	12.5
3	4	2.9	13	9.5
4	0	0	4	2.9
5	1	.7	3	2.3
6	1	.7	2	1.5
7	0	0	0	0
8	0	0	1	.7
9	0	0	0	0
10	1	.7	0	0
None	66	48.6	44	32.4
No Report	2	1.5	0	0
Total	136	100.0	136	100.0

These facilities are very inadequate. Thirty-one and six-tenths per cent of the schools have only one urinal in the dressing room. This means that only about 18 per cent of the schools have more than one urinal in the dressing room.

Drinking Facilities

Table XV shows a grave inadequacy of drinking facilities. Eighty-nine or 65.5 per cent of the schools reported no drinking fountains whatsoever in the gymnasiums and 82 or 60.3 per cent of the schools indicated no drinking fountains in the dressing rooms.

Table XV

DRINKING FACILITIES

Number	Drinking Fountains in Gym	Per cent	Drinking Fountains in Dressing room	Per cent
1	38	27.9	50	36.8
2	8	5.9	3	2.2
3	0	0	0	0
4	1	.7	1	.7
None	89	65.5	82	60.3
Total	136	100.0	136	100.0

Instructors' Facilities

"Gymnasiums shall have the following auxiliary rooms: Directors office with dressing room and shower bath...."¹⁶

"A small 8 by 10 foot room should be provided for each physical director together with an outer office for the general public and students. The offices should be conveniently located from the standpoint of supervision,

¹⁶Frank Hart, A Standard State School Housing Code, p. 136.

service units, gymnasium floor and athletic fields."¹⁷

Only 28.7 per cent of the schools reporting in this survey have offices for physical education instructors. Only 20.6 per cent have dressing rooms while 8.1 per cent provide shower facilities for the instructor. These findings reveal that the various standards are not being complied with by a large majority of the schools. (See Table XVI).

Table XVI
INSTRUCTORS FACILITIES

Number	Type of Facility in Gymnasium		
	Offices	Dressing Rooms	Shower rooms
1	29	25	9
2	9	3	2
3	0	0	0
4	1	0	0
Total	39	28	11
Per cent	28.7	20.6	8.1

Storage Rooms

"Provide adequate service rooms for apparatus and equipment adjacent to the gymnasium and on the same floor level. The gymnasium floor should extend directly into

¹⁷Jay B. Nash, The Administration of Physical Education, p. 249.

the storeroom without break or threshold. Doors five feet in width connect the gymnasium and service room."¹⁸

Table XVII

STORAGE ROOMS

	Number							No Reply	Total
	1	2	3	4	5	6	None		
Storage Rooms	68	16	7	2	1	1	30	11	136
Per cent	50	11.7	5.4	1.5	.7	.7	22	8	

The above table shows that exactly half of the schools have at least one storage room. Thirty schools or 22 per cent do not have any storage room whatsoever. McNeal's¹⁹ work on Minnesota facilities shows that 13.8 per cent of the schools did not have storage.

Smooth Walls Available

Many games such as tennis, handball, and volleyball require the use of walls for vollying purposes while learning skills of the game and while practicing. It is essential that smooth wall surfaces for this purpose are available in the gymnasium.

"There should be large areas of wall space free of obstructions and with smooth finish for a height of at least twelve feet so they may be used for tennis practice, handball, etc. The

¹⁸Jesse Williams and Clifford Brownell, op. cit., p. 261

¹⁹Marlin McNeal, op. cit.

heating units should be recessed in the walls and placed six to eight feet above the floor."²⁰

Table XVIII

NUMBER OF SMOOTH WALLS AVAILABLE FOR GAMES

	1	2	3	6	Total	Per cent
Smooth Walls	20	15	1	1	37	27.2

Of the 136 schools reporting only 37 or 27.2 per cent had smooth walls available for games as mentioned above. This shows a lack of planning and organizing in the building of gymnasiums in the state.

Soap

It is essential that soap be provided by the school for shower facilities. A shower without soap is not likely to accomplish the whole healthful, refreshing, purpose of the bath.

"Approved plans suggest a central non-rust metal container for liquid soap, with metal pipes attached to the wall near the shower heads. Individual outlets should be controlled with an automatic shut-off device. Reasons of safety suggest that glass containers are unsatisfactory."²¹

Soap facilities are very inadequate. Forty-four per cent of the schools do not provide soap of any type. Only 36 schools or 26.5 per cent provide the recommended liquid

²⁰Mabel Lee, op. cit., p. 133.

²¹Jesse Williams and Clifford Brownell, op. cit., p. 284.

type soap. Next in popularity to the liquid kind in the schools reporting is the cake type.

Table XIX

TYPE OF SOAP PROVIDED

	Liquid	Type Cake	Type Powder	No Reply	None
Number of Schools Providing Soap	36	29	5	5	61
Per cent	26.5	21.3	3.7	3.7	44.8

Towel Service

Provisions should be made for clean towels for use following physical activity for hygienic, sanitary, and economic reasons.

"It is important that towels and laundry service be supplied by the schools so that each student may have a clean towel at the close of each physical activity hour."²²

Over eighty per cent of the schools do not have towel service. Here again, a lack of good practice is evident. Most towel services are free to the student. McNeal²³ found that of the schools reporting on this item for his survey of Minnesota, 37.9 per cent had towel services.

²²Mabel Lee, op. cit., p. 182.

²³Marlin McNeal, op. cit.

Table XX
TOWEL SERVICE AND FEE

Type of Service	Number of Schools	Per cent
Free service	18	13.2
Fee less than \$1.50	5	3.7
Fee more than \$1.50	0	0
No Reply	3	2.2
No service provided	110	80.9
Total	136	100.0

Costume Service

If the school provides and launders costumes for physical education it results in a more healthful and hygienic situation, as well as a more uniform, orderly one.

"It is highly desirable that suitable uniforms be worn by all pupils who attend classes in physical education....Beginning with the junior high school, it is commonly practical and reasonable for all pupils to wear a suitable uniform in physical education classes."²⁴

"....some type of uniform gymnasium costume is desirable....Although the plan of free textbooks and supplies has been accepted by most boards of education, few of them have extended this principle to the purchase of gymnasium costumes. ...Ideally such equipment should be provided at public expense."²⁵

²⁴Jackson Sharman, The Teaching of Physical Education, p. 74.

²⁵Jesse Williams and Clifford Brownell, op. cit., pp. 274-275.

It is evident from Table XXI that costume services in the state are very inadequate.

Table XXI

SCHOOLS PROVIDING COSTUME SERVICE

Total Schools	Have Costume Service	Per cent	No Costume Service	Per cent	No Reply	Per cent
136	11	8.1	116	85.3	9	6.6

Eighty-five and three-tenths per cent of the schools of North Dakota do not have costume service. McNeal²⁶ found the same inadequate situation in Minnesota. Ninety-two per cent of the schools of that state which reported did not have costume service.

Type of Seating

The recommended type of seating must depend, to some extent on the gymnasium in which seats are to be used. Permanent seats on the gymnasium floor, however, are not desirable because they interfere with the physical education activities.

²⁶Marlin McNeal, op. cit.

Table XXII
TYPE OF SEATING IN THE GYMNASIUM

Type of Seating	Number of Schools	Per cent
Permanent	23	16.9
Telescope	53	38.9
Knock Down	20	14.7
Combinations of Above	4	2.9
Other	6	4.4
Not Given	27	19.9
None	3	2.3

Permanent, telescopic, and knock-down type of seating seem to be most prevalent. Only three schools do not have any seating whatsoever.

Floor Markings

When asked if they had other floor markings than those for basketball in the gymnasium, 102 or 79.7 per cent of the schools reporting stated that they did not have other floor markings. This would seem to indicate that in these schools little is being done so far as games go, other than playing basketball. It also might indicate that the instructors are not permitted to mark the floor for other games.

Instructors' Opinion

The following question was asked all men's physical education instructors: "Do you consider indoor facilities adequate to conduct a good physical education program?" It may be seen by consulting Table XXIII that 74.3 per cent of the physical education instructors feel they do not have suitable facilities to provide a good program. The larger the schools the greater the per cent of instructors who feel they have adequate facilities. In no enrollment group does even half of the instructors feel they have adequate facilities.

Table XXIII

INSTRUCTORS OPINION AS TO THE ADEQUACY OF THE INDOOR FACILITIES

	A	B	C	D	Total	Per cent
Number of Schools	9	14	26	87	136	
No report	0	1	1	7	9	6.6
Per cent	0	7.1	3.8	8		
Adequate	4	2			26	19.1
Per cent	44.4	14.3	11.5	19.6		
Not Adequate	5	11	22	63	101	74.3
Per cent	66.6	78.6	84.7	72.4		

Summary and Conclusions

1. The number of gymnasiums is relatively adequate. Ninety-four and six-tenths per cent of the schools reporting have gymnasiums.
2. Over half (54.6 per cent) of the schools have combination-auditorium-gymnasiums. This is the least desirable type of gymnasium for physical education purposes.
3. Dressing facilities in many schools are inadequate. Nine and five-tenths per cent of the schools do not have dressing rooms for boys physical education.
4. Locker facilities are inadequate. Twenty-two and eight-tenths per cent of the schools reporting do not have lockers for boys dressing rooms.
5. Half-length lockers are the most popular type.
6. The most popular type of shower is the individual control gang shower. This is the recommended type of shower for boys' physical education. Sixty-one per cent of the schools reporting had this type of shower.
7. Shower facilities are inadequate. Twelve and five-tenths per cent of the schools reporting do not have showers in the boys dressing rooms.
8. Toilet facilities are very inadequate. Forty-eight and six-tenths per cent of the schools reporting

do not have urinals in the boys' dressing rooms.

9. Thirty-two and four tenths per cent of the schools reporting do not have water closets in the boys' dressing rooms.

10. Drinking facilities are not adequate. Sixty-five and five-tenths per cent of the schools reporting do not have drinking fountains in the gymnasium. Sixty and three-tenths per cent of the schools reporting do not have drinking fountains in the boys' dressing rooms.

11. Twenty-eight and seven-tenths per cent of the schools reporting have offices for physical education instructors.

12. Only 20.6 per cent of the schools reporting have dressing rooms for physical education instructors.

13. Only 8.1 per cent of the schools reporting provide shower facilities for the physical education instructor.

14. Storage facilities are not adequate; 50 per cent of the schools have at least one storage room.

15. Only 27.2 per cent of the schools reporting have smooth walls suitable for wall games.

16. Few schools measure up to standards on soap provision. Forty-four and eight-tenths per cent of the schools reporting do not provide soap for boys' physical education. Liquid soap is the recommended type and is

the kind used by most schools.

17. Few schools provide towel service. Eighty and nine-tenths per cent of the schools reporting do not have towel service.

18. Eighty-five and three-tenths per cent of the schools reporting do not have costume service.

19. Telescopic seats in the gymnasium are the most popular type in use by schools reporting.

20. Seventy-nine and seven-tenths per cent of the schools reporting do not have floor markings other than floor basketball.

21. Most of the instructors (74.6 per cent) feel their indoor facilities are inadequate.

CHAPTER V

OUTDOOR FACILITIES

Almost without exception, it is recommended that physical education classes, and athletic activity of all types, be carried on outdoors whenever possible. In North Dakota the many rural districts with small schools are usually much better favored than the congested urban area in the matter of outdoor space. However, too often this space is not developed and not used.

Long winters in our section of the country keep physical education classes indoors a great deal of the time; perhaps for this reason outdoor facilities have not been developed to a great extent. This, however, should not detract from the importance of providing proper outdoor facilities. Where adequate indoor space is lacking practically all activities can be transferred outdoors. Even in winter months these areas can be used for winter sports programs.

"In the words of Woods Hutchinson, 'better a playground without a school than a school without a playground.' The amount of play space a school needs depends upon the enrollment, the type of games the children play, or will play if space is provided, and the load the space must carry at one period."¹

¹Mabel Lee, The Conduct of Physical Education, p. 151.

Football Fields

Almost any large, open, space which is level is suitable for football fields. Since such areas are usually easily found in North Dakota without much expense involved, there can be little excuse for a school not having a field.

By consulting Table XXV, it may be seen that 99 schools had football fields; this is 72.7 per cent of the schools reporting. Only four schools had more than one football field.

Table XXIV shows that there is a shortage of lighted fields in the state. Fifteen and four-tenths per cent of the schools have lighted athletic fields. Thirteen and two-tenths per cent have only one lighted field. The larger the school the greater is the per cent that have lighted fields. Two-thirds of the schools of an enrollment of 250 and over have lights while only 3.4 per cent of the schools of class D enrollment have them.

Table XXIV

SCHOOLS HAVING LIGHTED ATHLETIC FIELDS

Enrollment	Number of Schools	Number of Fields					
		One	Per cent	Two	Per cent	Total	Per cent
A	9	4	44.4	2	22.2	6	66.6
B	14	6	42.9	0	0	6	42.9
C	26	6	23.1	0	0	6	23.1
D	87	2	2.3	1	1.2	3	3.4
Total	136	18		3		21	
Per cent		13.2		2.2		15.4	

Table XXV
NUMBER AND TYPE OF OUTDOOR FACILITIES

Type	Number					Total	Per cent
	1	2	3	4	7		
Football Fields	95	3	0	1	0	99	72.7
Cinder Tracks	9	0	0	0	0	9	6.6
Dirt Tracks	29	0	0	0	0	29	21.4
Jumping Pits	53	14	1	2	0	70	51.5
Softball Fields	61	29	8	0	1	99	72.7
Baseball Fields	79	4	0	0	0	83	61
Soccer Fields	27	1	0	1	0	29	21.3
Horseshoe Sets	16	6	0	0	0	22	16.1
Tennis Courts	15	8	4	2	0	29	21.4
Playfields	29	7	5	0	0	91	66.9

Jumping Pits

Jumping pits are of great value to the physical education program. They are easily constructed and cost nothing to make. Here again there seems to be little reason why schools should not have pits for the broad jump, high jump, and pole vault.

Table XXV shows that 70 schools or 51.5 per cent have jumping pits. Only 17 of these 70 schools have more than one pit.

Baseball and Softball Fields

Softball diamonds may be laid out with little work involved. All that is needed is a spot of level ground. There can be very little excuse for lack of softball facilities in any school in North Dakota as level ground is not a problem and other facilities necessary for the diamond are inexpensive and easy to provide.

Baseball presents a slightly more difficult problem in the provision of an adequate diamond.

"Baseball may be played on any level field 300 feet square although a larger area is preferable. A turf area is desirable although not essential, especially on diamonds where important games are played. The turf is usually removed from certain sections of the diamond in order to permit faster and more accurate play."²

In the schools covered by this study, 99 or 72.7 per cent had softball fields and 82 or 61 per cent had baseball fields. Only 37 of these schools have more than one softball field and only 4 schools had more than one baseball diamond.

Soccer

Soccer is a game requiring few facilities. The game may be played on a football field or any level field. Improvised goals may be used. Any school can lay out a soccer field with very little work and expense provided

²National Recreation Association, Play Areas, Their Design and Equipment, pp. 46-47.

a level space of ground is available. The field may be varied in size for physical education purposes.

Twenty-nine schools reported having soccer fields. This is 21.3 per cent of the schools reporting. It is evident that soccer facilities are lacking in the state. (See Table XXV).

Horseshoes

A small level piece of ground is necessary. The game should be set up away from other activities. This game can very easily be provided by most schools.

"Horseshoe courts--size 40 feet between pegs; iron pegs; pitch board frame around peg 6 feet by 6 feet; pitchers box filled with damp clay 6 inches deep; court on level ground; 10 feet between different courts; 10 feet extra space at end of each court."³

Twenty-two schools reported having horseshoe courts. This is 16.1 per cent of the schools. (See Table XXV).

Running Tracks

"The running track is an essential feature of an athletic field. Among the most important considerations in track construction are temperature, rainfall, and soil bed."⁴

The one-fourth mile track is the one recommended. A cinder track is usually better than a dirt track.

In Table XXV it may be seen that only nine schools

³Physical and Health Education Series, State of Ohio Department of Education, p. 119.

⁴A Guide for Planning Facilities for Athletics, Recreation and Health Education, The National Facilities Conference, pp. 5-6.

of those reporting had a cinder track; only 29 or 21.3 per cent had a dirt track. This shows a very definite lack of track facilities. McNeal⁵ found the situation in Minnesota even worse in that only 22.7 per cent of the schools reporting in that survey had tracks.

Tennis Courts

Facilities for tennis are more difficult to provide. Initial expense involved in construction and later expense of maintenance run high.

"Tennis court construction: Clay courts, from \$100 to \$500; asphalt, from \$600 to \$1500."⁶

In this section of the country because of climate cement or asphalt courts are a necessity.

"There are many regions in the United States, especially in the northern part, where hard surface courts are almost essential if tennis is to be played in the spring of the year. This is true to a limited extent in the fall of the year.... Grass courts for school will not stand up under the regular play which they will get during the tennis season. Clay or dirt courts are not only unfit for play after a rain but remain unfit until they are rolled and marked.... Cement is one of the most satisfactory surfacing materials. The cost is high but if properly laid out, it will last a long time."⁷

⁵Marlin Clark McNeal, Physical Education Leadership, Facilities, and Equipment in the Minnesota High Schools, Unpublished Masters Thesis of North Dakota University.

⁶Mabel Lee, op. cit., p. 309.

⁷Edward Voltmer and Arther Esslinger, The Organization and Administration of Physical Education, p. 184.

Table XXVI
NUMBER AND SURFACING OF TENNIS COURTS

Type	Number of Schools	Per cent
Concrete	10	7.4
Asphalt	6	4.5
Clay	4	2.9
Grass	9	6.6
Totals	29	21.4

The preceding table shows the deficiency of facilities for tennis in the state. Only 29 of the schools reported having tennis courts. Cement is the most popular type, while grass courts, which are the least desirable for our purposes, are second in popularity.

Playfields

"In general terms, a playground surface should be: (1) porous enough to permit rapid drainage; (2) compact enough to withstand hard use; (3) free from mud in wet weather; (4) free from dust in dry weather. A survey of various geographic sections of the country to determine the different types of play surfaces used reveals the following percentages: (1) natural earth, 37 per cent; (2) sand-clay, 21 per cent; (3) turf, 18 per cent; (4) bituminous substances, 13 per cent....Many authorities recommend turf as the best surfacing material....A concrete surface gives reasonably satisfactory service for playgrounds in constant use...."⁸

⁸Jesse Williams and Clifford Brownell, The Administration of Health and Physical Education, p. 308.

Table XXVII
NUMBER AND SURFACING OF PLAYFIELDS

Type	Number of Schools	Per cent
Turf	34	25
Gravel	4	2.9
Natural Earth	50	36.8
Clay	3	2.2
Totals	91	66.9

Sixty-six per cent of the schools contacted have play areas. Natural earth and turf are the most popular types. Thirty-six and eight-tenths of the schools have natural earth playfields; 25 per cent have turf playfields.

Instructors' Opinion

The following question was asked all men's physical education instructors: "Do you consider outdoor facilities adequate to conduct a good physical education program?" By consulting Table XXVIII it may be noted that 44.9 per cent of the teachers reporting felt that the outdoor facilities at their disposal were inadequate. Thirty-seven and five-tenths of them felt the facilities were adequate. Sixty-four and three-tenths per cent of the teachers in schools of enrollment of 150 to 250 students felt their outdoor facilities were sufficient.

This is the only enrollment group in which over half of the teachers were satisfied with their facilities.

Table XXVIII

INSTRUCTORS OPINION AS TO THE ADEQUACIES OF THE
OUTDOOR FACILITIES

	A	B	C	D	Total	Per cent
Number of Schools	9	14	26	87	136	
No Report	0	0	6	18	24	17.6
Per cent	0	0	23.1	20.7		
Adequate	1	9	8	33	51	37.5
Per cent	11.1	64.3	30.8	37.9		
Not Adequate	8	5	12	36	61	44.9
Per cent	88.9	35.7	46.1	41.4		

Summary

1. Few schools have lighted athletic fields. Fifteen and four-tenths per cent of the schools reported having lighted fields.
2. The larger the school the greater the number having lighted fields.
3. Of the schools reporting, 72.7 per cent had football fields.
4. Track facilities are very inadequate. Of the schools reporting only 6.6 per cent had cinder tracks; 29 per cent had dirt tracks; only 37 of the schools had any track at all, this is 35.6 per cent of the schools. Only 51.5 per cent had jumping pits.
5. Softball seems to be a popular sport in that 72.7 per cent of the schools reporting had softball fields. Only 61 per cent of them had baseball fields.
6. Soccer and horseshoe facilities are very inadequate. Twenty-one and three-tenths per cent of the schools reporting had soccer fields; 16.1 per cent had horseshoe sets.
7. Tennis courts are not abundant. Only 29 schools or 21.4 per cent have tennis courts. Cement is the most popular surfacing for tennis courts in the state.
8. Of the schools reporting, 66.6 per cent had playfields.

9. Thirty-six and eight-tenths per cent of the schools reporting had natural earth surfaces for playfields. Twenty-five per cent have turf surfacing.

10. Forty-four and nine-tenths per cent of the instructors felt their outdoor facilities were inadequate. Thirty-seven and five-tenths per cent felt their outdoor facilities were adequate.

11. Most of the instructors in the larger schools felt their facilities were adequate. Sixty-four and three-tenths per cent of the instructors in schools of 150 to 250 enrollment felt their facilities to be adequate.

CHAPTER VI

EQUIPMENT

In this paper such things as balls of various kinds, baseball and softball bats, and so forth, will be referred to as equipment although technically they are supplies.

The amount and type of equipment should depend upon the type of program and the number of students enrolled. Appropriate education must expose the individual to a great variety of physical activities. In order that these activities may be taught it is necessary that balls, bats, and other play equipment be provided for the various games. Gymnastic activities must be provided with horizontal bars, horses, bucks, and climbing ropes.

There can be little educational value in a baseball class that tries to get along with one ball, or the tumbling class that has only one mat.

"Balls, bats, nets; a piano or phonograph, and so forth are as essential to the educative situation in physical education as laboratory equipment, books, and materials are to academic subjects. They are the tools by which learnings are made possible under capable leadership."¹

¹Division of Physical Education, State of New Jersey, Standards in Physical Education, Published by the Commission of Education, 1932, Pp. 38-39.

Dual Sports

Dual sports have a greater carry-over value into adult life than do most group team games. Skills for these sports should be well learned in youth to assure participation in later years. For that reason dual sports should occupy an important part of the physical education program.

The small school, such as we have in North Dakota, is at a distinct disadvantage in putting these activities into the school program because the sports are difficult to administer, take up a great deal of space, and equipment expenses run very high.

In this study it was found that only 46.3 per cent of the schools had table tennis sets. Two schools or 1.5 per cent had tether balls. A lack of equipment in such games as badminton and paddle tennis was evident in that only 29.3 per cent of the schools had badminton racquets and 20.6 per cent had paddle tennis racquets.

(See Table XXIX).

The above information indicates that equipment for dual sports is not adequate.

Table XXIX

EQUIPMENT FOR DUAL SPORTS

Type	Number											Total	Per Cent
	1	2	3	4	6	7	8	10	12	15	20		
Table Tennis Sets	49	12	1	1	0	0	0	0	0	0	0	63	46.3
Tether Balls	1	0	0	1	0	0	0	0	0	0	0	2	1.5
Horseshoe Sets	14	10	0	2	0	0	0	0	0	0	0	26	19.1
Badminton Racquets	1	13	0	19	1	0	1	2	1	0	2	40	29.4
Badminton Nets	29	6	2	0	1	0	0	0	0	0	0	38	27.9
Paddle Tennis Racquets	0	9	1	10	4	0	3	0	1	0	0	28	20.6

Individual Sports

Individual sports have certain advantages in that the student is on his own and develops certain worthwhile traits such as self-confidence and dependence upon himself.

A student should not, however, take part only in individual sports as he will lose the benefits to be gained through participation in team games.

"Although these individual sports rank high in recreational value they do not offer the social training of the team sports and for that reason should not make up the entire physical education program."²

It may be seen from Table XXX that one-half of the schools reporting have boxing gloves. Box hockey sets are almost entirely absent in that only two schools have sets for this vigorous, interesting, game. Archery targets are found in 59.6 per cent of the schools.

The figures showing the large per cent of schools having archery targets looks very impressive at first glance; however, this is not a true picture in that only 5.1 per cent of the schools have arrows and 6.6 per cent have bows to use with the targets. Only 1.5 per cent of the schools have golf clubs. Track equipment was provided

²Mabel Lee, The Conduct of Physical Education, p. 28

in more schools than any other type of equipment. Eighty and nine-tenths per cent of the schools reporting had shots, 73.5 per cent had discusses, 47.8 per cent had javelins and vaulting poles, while only 24.3 per cent had hurdles and 11 per cent had starting blocks.

By comparison with McNeal's study on Minnesota³ it is found that 66.8 per cent of the schools of that state that reported had boxing gloves. Four and six-tenths per cent of the Minnesota schools had box hockey equipment while 49 per cent had bows, 41.3 per cent had arrows, and 47.6 per cent had targets for archery.

Some of the following might be reasons for the drastic lack of equipment in the above-mentioned activities:

1. There is considerable disagreement over whether boxing has a place in the physical education program.
2. Box hockey is a rather new game in this area and is not widely known.
3. Archery is a very expensive sport in that equipment costs a great deal and must be replaced often.
4. Golf also is expensive and the lack of courses in many small towns handicaps its entrance into the school program.

³Marlin McNeal, Physical Education Leadership, Facilities and Equipment in Minnesota High Schools, Unpublished Masters Thesis from North Dakota University.

Table XXX
EQUIPMENT FOR INDIVIDUAL ACTIVITIES

Type	Number															Total	Per Cent
	1	2	3	4	5	6	8	10	11	12	14	15	50	60	70		
Boxing Gloves (sets)	23	27	4	7	1	1	4	1	0	0	0	0	0	0	0	68	50
Box Hockey	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	2	1.5
Archery Targets	57	19	4	1	0	0	0	0	0	0	0	0	0	0	0	81	59.6
Archery Arrows	0	0	0	1	0	2	0	2	1	0	0	0	0	0	1	7	5.1
Archery Bows	5	0	1	1	0	0	0	0	0	1	1	0	0	0	0	9	6.6
Golf Clubs	1	0	0	1	0	0	0	0	0	0	0	0	0	0	0	2	1.5
Javelin	46	17	2	0	0	0	0	0	0	0	0	0	0	0	0	65	47.8
Starting Blocks	3	6	1	2	1	1	0	0	0	1	0	0	0	0	0	15	11
Discus	73	21	6	0	0	0	0	0	0	0	0	0	0	0	0	100	73.5
Shot	74	25	1	1	0	0	0	0	0	0	0	0	0	0	0	111	80.9
Hurdles	0	5	2	3	0	2	1	8	0	5	0	1	1	4	1	33	24.3
Vaulting Poles	44	16	5	0	0	0	0	0	0	0	0	0	0	0	0	65	47.8

Gymnastic Activities

Gymnastics includes calisthenics, apparatus work, tumbling stunts, and gymnastic marching. Gymnastic work at one time made up the entire program of physical education. In recent years the trend has been away from formal gymnastics. Despite this, gymnastic activities continue to hold an important place in the physical education program.

"The fundamental factors of physical fitness are agility, balance, strength, endurance, power, and flexibility. It is to be expected that certain activities lend themselves favorably to the development of such factors. Perhaps gymnastics has more to offer than any other single activity as regards all-round development, but it is perhaps least effective so far as endurance is concerned. Therefore, the gymnastic program should be supplemented with endurance-promoting activities such as running which demand sustained maximum effort."⁴

By referring to Table XXXI it may be seen that 81 or 59.5 per cent of the schools that reported have mats. Twenty-seven reported climbing ropes. Few of the schools had the other gymnastic equipment. In Minnesota, McNeal⁵ found a lack of most equipment but in all cases a greater per cent of the schools reported having equipment than did the schools in North Dakota.

⁴Gymnastics and Tumbling, Aviation Training Division Office of the Chief of Naval Operation, p. 10.

⁵Marlin McNeal, op. cit.

Team Activities

Team sports provide an outlet for the impulse of all people to compete against others. There can be little in the way of an adequate physical education program without team games of various types.

In this report the equipment for many games such as basketball and football was not surveyed. The objective of this study was to find the amount and type of equipment in use in the physical education classes and it was felt that equipment used in interscholastic activities should not be included.

Only 4.4 per cent of the schools have hockey sticks. Forty-nine per cent of the schools have volleyball standards. Seventy-eight and seven-tenths per cent had volleyball nets. This gives some indication of the popularity of the game and the extent to which it is taught. Softball seems to be even more popular as 91.2 per cent of the schools reported having softball bats. Seventy-two per cent reported that they had baseball bats. (See Table XXII).

McNeal⁶ found that 83 per cent of the Minnesota schools reporting had baseball bats and 95 per cent had softball equipment. Ninety-two per cent had volleyball nets.

⁶Marlin McNeal, op. cit.

Table XXXI
GYMNASTIC EQUIPMENT

Type	1	2	3	4	5	6	7	8	9	10	12	14	Total	Per Cent
Mats	15	34	8	13	3	1	1	1	2	1	1	1	81	59.5
Rings	0	8	0	0	0	0	0	0	0	0	0	0	8	5.9
Horses	2	2	0	0	0	0	0	0	0	0	0	0	4	2.9
Bucks	1	0	0	0	0	0	0	0	0	0	0	0	1	.7
Parallel Bars	13	1	0	0	0	0	0	0	0	0	0	0	14	10.3
Horizontal Bars	13	0	0	0	0	0	0	0	0	0	0	0	13	9.6
Climbing Ropes	19	6	1	1	0	0	0	0	0	0	0	0	27	19.9
Spring Boards	8	1	0	0	0	0	0	0	0	0	0	0	9	6.6
Stall Bars	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Trampolines	5	0	0	0	0	0	0	0	0	0	0	0	5	3.7

Table XXXII

EQUIPMENT FOR TEAM ACTIVITIES

Type	Number														Total	Per Cent
	1	2	3	4	5	6	7	8	9	10	12	15	20			
Hockey Sticks	0	2	0	0	0	0	0	0	0	0	0	1	3	6	4.4	
Volleyball Standards	0	61	5	1	0	0	0	0	0	0	0	0	0	67	49	
Volleyball Bets	71	28	7	0	0	1	0	1	0	0	0	0	0	108	48.7	
Softball Bats	7	7	8	22	9	24	1	5	0	19	12	6	4	124	91.2	
Baseball Bats	8	8	7	1	9	22	2	9	7	8	12	10	3	98	72	

Teaching Aids

Along with the increasing emphasis on rhythmic activities in the physical education program comes the necessity of having a phonograph available to provide music for dances, marches, and other rhythmic.

Motion pictures and slides are also of great aid to the physical education instructor in demonstrating various skills.

Table XXXIII
TEACHING AIDS AVAILABLE

Type	Number				Total	Per Cent
	1	2	3	8		
Phonographs	75	20	8	1	104	76.5
Motion Picture Projectors	104	9	5	0	118	86.8
Slide and Strip Film Projectors	37	3	3	0	43	31.6

Seventy-six and five-tenths per cent of the schools reporting had phonographs. Eight-six and eight-tenths per cent had motion picture projectors. Only 31.6 per cent had slide and strip film projectors.

Instructors Opinion

The following question was asked all men physical education instructors: "Do you consider your equipment adequate to conduct a good physical education program?"

By consulting Table XXXIV it may be seen that 63.3 per cent of the instructors reporting felt that their equipment for physical education was not adequate. The larger the school, the more adequate the equipment according to the opinion of the instructors.

Table XXXIV
INSTRUCTORS OPINION ON ADEQUACY OF EQUIPMENT

					Total	Per Cent
Number of Schools	9	14	26	87	136	
No Report	0	1	2	9	12	8.8
Per Cent	0	7.1	7.7	10.4		
Adequate	5	8	5	20	38	27.9
Per Cent	55.5	57.1	19.2	22.9		
Not Adequate	9	5	19	58	86	63.3
Per Cent	44.4	35.7	72.9	66.6		

Summary

1. Equipment for games of the individual team type was lacking. Schools reporting showed a lack of table tennis sets, tether balls, badminton racquets, and paddle tennis racquets. Track equipment was more nearly adequate than other types. Seventy-three and five-tenths per cent of the schools reporting had discusses, 88.9 per cent had shots, 47.8 per cent had javelins and vaulting poles. Only 24.3 per cent had hurdles.

2. Equipment for individual sports was also lacking. Half of the schools had boxing gloves, only two schools reported having box hockey sets, and while archery targets are reasonably prevalent, in that 59.6 per cent had them, only 5.1 per cent of the schools had arrows and 6.6 per cent had bows for archery.

3. Gymnastic equipment was very inadequate. Mats are to be found in the majority of schools; 59.5 per cent of the schools had them. Few of the schools had any of the other gymnastic equipment such as rings, horses, bucks, parallel bars, horizontal bars, climbing ropes, spring boards, and trampolines. Stall bars were not found in any gymnasium probably because they have very little use in the modern program.

4. Team sport equipment is more adequate than the other. Softball, a game which 91.2 per cent of the schools reported having equipment for, and volleyball, a game which 78.7 per cent of the schools reported having equipment for

seem to be the most popular team sports. Equipment for hockey is inadequate. Seventy-two per cent reported that they had baseball bats.

5. Teaching aids such as phonographs and motion picture projectors are found in most schools. Seventy-six and five-tenths per cent of the schools reporting had phonographs, 86.8 per cent had motion picture projectors, and only 31.6 per cent had strip film projectors.

6. Sixty-three and three-tenths per cent of the instructors felt that the equipment at their disposal was inadequate. In general, the larger the school the greater the per cent of instructors who felt the equipment was adequate.

CHAPTER VII
SUMMARIES AND CONCLUSIONS

The data assembled for this thesis revealed many facts; a few of which are commendable and many others which are not.

1. About one-third of the men physical education instructors have a major in physical education; one-third have a minor; and one-third are teaching the subject without either a major or a minor and are not qualified by training to teach in the field. The smaller the school the less qualified are the men physical education instructors. The larger the school the heavier the extra-curricular load. The smaller the school the heavier the load in teaching. Twenty-one per cent of the men instructors also teach girls classes, a very undesirable situation. In about 15 per cent of the schools reporting the superintendent is the physical education instructor.

Based upon these findings it would seem that some standard certification requirements should be set up for physical education instructors.

2. Gymnasiums are prevalent in that all but about five per cent of the schools reported gymnasiums of one type or another. Combination gymnasium-auditoriums, although the least desirable type, are most popular.

Dressing, locker, and shower facilities are not adequate. Toilet and drinking facilities are not sufficient. Instructors facilities including offices, showers, and dressing rooms do not meet standards. Soap for showering which is an essential for body cleanliness, is lacking in 45 per cent of the schools. The majority of the instructors feel that the indoor facilities at their disposal are inadequate.

It is evident from the above findings that indoor facilities for physical education in our state are not what they might be. The writer wishes to make certain recommendations as to improvements that should be made. All schools should provide adequate shower facilities, and all students should be required to take a shower following physical education periods. Soap should be provided in the shower room to maintain body cleanliness, as should towel and costume service. Toilet and drinking facilities should be provided in the dressing room. Some provision should be made for office, dressing and shower facilities for the instructor.

3. Seventy-two per cent of the schools have football fields. Track facilities are very inadequate, only 6.6 per cent of the schools had cinder tracks. Softball fields were available in three-fourths of the schools while soccer and horseshoe facilities were very poor.

The majority of the instructors felt the outdoor facilities available to them were not satisfactory.

The shortage of outdoor facilities, most of which are inexpensive, could easily be eliminated. Instructors who were qualified by training and interests, could, if given a reasonable teaching load, provide many of these facilities without a large financial outlay. Also, a state director of physical education might aid the situation in that he could help teachers in working out problems and see that the needed facilities are provided to some extent. A director might also be desirable in that he could see that the course of study is followed as nearly as possible.

4. Equipment for all of the games surveyed was not sufficient. Track, softball, and baseball equipment was more nearly adequate than any other type. Gymnastic equipment was very inadequate. Sixty-three per cent of the instructors felt the available equipment did not meet local needs.

Inasmuch as physical education is required by law, sufficient supplies and equipment should be at the disposal of the instructor so that the program outlined in the course of study may be followed.

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APPENDIX A

Letter of Transmittal

Box 637
Kenmare, North Dakota

Dear Coach or Physical Education Director:

Enclosed is a set of check questions pertaining to existing leadership, facilities and equipment in the high schools of North Dakota. These questionnaires have been sent to all major and minor accredited high schools in the state.

This study is an attempt to compare the leadership, facilities and equipment available with certain standards that have been set up.

In order to have a complete record of all schools assisting in this study, this check list has been so constructed that it takes but a few minutes to check and return. A self-addressed, stamped return envelope is enclosed.

This study is being made under the direction of Leonard R. Marti, Head of the Department of Physical Education for men at the University of North Dakota.

Your cooperation in completing and returning the check list at your earliest convenience will be greatly appreciated.

Sincerely,

James W. Gustafson (signed)

QUESTIONNAIRE

FACILITIES, EQUIPMENT, AND LEADERSHIP
IN PHYSICAL EDUCATION

Name of School _____
 Number of boys grades 9, 10, 11, 12 in High School _____.
 Number of girls grades 9, 10, 11, 12 in High School _____.
 Number of instructors in High School _____.

Leadership

Please fill in the following chart for both boys and girls physical education instructors. If more than one instructor for each sex, give information on each.

Instruc- tors	Degree Held	Major	Minor	Semester Hrs.P.E.	School Attended	Years Tch. Exp.
------------------	----------------	-------	-------	----------------------	--------------------	--------------------

Boys _____

1. _____

2. _____

Girls _____

1. _____

2. _____

Hours per week of Teaching

Instruc- tors	Physical Education	Extra Curricular	Other Subjects
------------------	--------------------	---------------------	-------------------

Boys _____

1. _____

2. _____

Girls _____

1. _____

2. _____

Indoor Facilities

In the space provided indicate the number of each in your school.

<u> </u> Gym Only	*	<u> </u>	Boys individual control gang showers
<u> </u> Combination gym-auditorium	*	<u> </u>	Boys central control gang showers
<u> </u> P.E. instructors offices	*	<u> </u>	Boys individual stall shower heads
<u> </u> No. boys dressing rooms	*	<u> </u>	Girls individual control gang showers
<u> </u> No. girls dressing rooms	*	<u> </u>	Girls central control gang showers
<u> </u> Basket-type lockers, boys dressing rooms	*	<u> </u>	Girls individual stall shower heads
<u> </u> Half length lockers, boys dressing rooms	*	<u> </u>	Urinal, boys dressing rooms
<u> </u> Full length lockers, boys dressing rooms	*	<u> </u>	Toilets, boys dressing rooms
<u> </u> Full length lockers, girls dressing rooms	*	<u> </u>	Toilets, girls dressing rooms
<u> </u> Basket type lockers, girls dressing rooms	*	<u> </u>	Health service or first aid rooms
<u> </u> Half length lockers, girls dressing rooms	*	<u> </u>	Storage rooms or closets
<u> </u> Drinking fountains, boys dressing rooms	*	<u> </u>	Basketball scoreboard (electric)
<u> </u> Drinking fountains, girls dressing rooms	*	<u> </u>	No. smooth walls suitable for wall games
<u> </u> Drinking fountains in gym	*	<u> </u>	Instructors dressing rooms
<u> </u> Size of gym (Width and Length in feet)	*	<u> </u>	

*"Gang showers" refers to several shower heads to one room.

"Individual control" means each head has individual valves.

"Central control" refers to control of all shower heads by one master valve.

Is soap provided by school yes no? Type used: Liquid cake , powder .

Is towel service provided yes no? Amount of fee .

Is costume service provided yes NO? Amount of fee .

Do you divide your gym yes no? By movable partition or net .

Type of seating: Knockdown , telescope , permanent , other .

Maximum seating capacity . List floor marking other than basketball (volleyball, etc.) , , .

Do you consider indoor facilities adequate to conduct a good physical education program? yes no. List facilities you feel are needed to meet requirements.

Outdoor Facilities

In the space provided indicate the number of each in your school.

_____ Total outdoor play area. (acres)

_____ Number of separate play areas.

List activities each area is used for. (football, baseball, etc.)

Area One	Area Two	Area Three
1. _____	1. _____	1. _____
2. _____	2. _____	2. _____
3. _____	3. _____	3. _____
4. _____	4. _____	4. _____
5. _____	5. _____	5. _____
6. _____	6. _____	6. _____

Facilities on these areas (indicate number)

_____ Football fields	_____ Baseball diamonds
_____ Athletic fields, lighted	_____ Soccer fields
_____ Cinder tracks, length _____	_____ Tennis courts
_____ Dirt tracks, length _____	_____ Horseshoe areas
_____ Jumping pits	_____ Field hockey fields
_____ Softball fields	_____ Playfields (fenced) size in
_____ Playfields (open) size in	acres _____.
acres _____.	

Type of surfacing of tennis courts: Clay _____, asphalt _____, grass _____, concrete _____, other _____.

Type of surfacing athletic fields: Turf _____, sand-clay _____, natural earth _____.

Type of surfacing playfields: Turf _____, sand-clay _____, natural earth _____, crushed stone _____, gravel _____, concrete _____, other _____.

Do you consider outdoor facilities adequate to conduct a good physical education program? _____ yes _____ no.

List facilities you feel are needed to meet requirements. _____

Equipment

In the space provided indicate the number of each in your school.

<input type="checkbox"/> Mats	<input type="checkbox"/> Tetherballs	<input type="checkbox"/> Javelins
<input type="checkbox"/> Rings	<input type="checkbox"/> Phonographs	<input type="checkbox"/> Discus
<input type="checkbox"/> Horses	<input type="checkbox"/> Archery targets	<input type="checkbox"/> Shot put
<input type="checkbox"/> Parallel bars	<input type="checkbox"/> Starting blocks	<input type="checkbox"/> Hurdles
<input type="checkbox"/> Horizontal bars	<input type="checkbox"/> Hockey sticks	<input type="checkbox"/> Bows
<input type="checkbox"/> Jumping standards	<input type="checkbox"/> Badminton racquets	<input type="checkbox"/> Arrows
<input type="checkbox"/> Climbing ropes	<input type="checkbox"/> Paddle tennis rac-	<input type="checkbox"/> Bucks
<input type="checkbox"/> Spring Boards	<input type="checkbox"/> quets	<input type="checkbox"/> Stall bars
<input type="checkbox"/> Boxing Gloves (sets)	<input type="checkbox"/> Volleyball nets	<input type="checkbox"/> Trampolinee
<input type="checkbox"/> Motion picture	<input type="checkbox"/> Badminton nets	<input type="checkbox"/> Golf clubs
<input type="checkbox"/> projector	<input type="checkbox"/> Horseshoes (sets)	<input type="checkbox"/> Slide and strip
<input type="checkbox"/> Box hockey	<input type="checkbox"/> Softball bats	<input type="checkbox"/> film proj.
<input type="checkbox"/> Table Tennis	<input type="checkbox"/> Baseball bats	<input type="checkbox"/> Vaulting poles
<input type="checkbox"/> Volleyball standards		

Do you consider your equipment adequate to conduct a satisfying program of physical education? yes no

List equipment you feel needed to meet requirements. _____

Do you wish a copy of tabulated returns? yes no

Name _____

Position _____