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An appraisal of the physical education facilities and equipment in the public elementary schools of Virginia

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AN APPRAISAL OF THE PHYSICAL EDUCATION FACILITIES AND EQUIPMENT IN THE PUBLIC ELEMENTARY SCHOOLS OF VIRGINIA

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by

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APPROVAL SHEET

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TABLE OF CONTENTS

CHAPTER PAGE

LIST OF TABLES

TABLE PAGE

LIST OF FIGURES

FIGURE PAGE

CHAPTER I

INTRODUCTION TO THE STUDY

Throughout the ages physical activity has played an important role in the developmental processes of man. The earliest caveman relied on his physical prowess as a means of supplying himself with food and averting danger. The awareness of the importance of physical training grew and developed in the early Greek and Roman civilizations. The Greek youth trained ardently as a part of their military training, and the Olympic games emphasized the importance of physical development. This awareness of the importance of physical activity which prevailed in these early civilizations continues to be a part of today's culture. The culture of the various nations of the world is reflected in their physical activity. The Irish are known for their boxing and the Irish jig, the French for ballet and fencing, the Spanish for the tango and bullfighting, and the Germans for gymnastics.[1] Just as the United States has become a melting pot of peoples from various countries and nationalities, it has also become a melting pot of physical activities by incorporating the culture of these nations into its own.

The origins of the development of physical education in the public school curriculum can be traced to the early goals of education. As early as 1859 Herbert Spencer listed health activities as one of the

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[1]Arthur G. Miller and Virginia Whitcomb, Physical Education in the Elementary School Curriculum (Englewood Cliffs, N. J.: Prentice-Hall, Inc., 1963), p. 3.

five aims of education. In 1928 Koos, in his aims of education, included the need for students to achieve physical efficiency.[2] The real impetus for increased recognition of the importance of physical education in the educational process came in July of 1947 when the Tenth International Conference on Public Education convened at Geneva under the joint auspices of the United Nations Educational, Scientific and Cultural Organization and the International Bureau of Education. The conference agreed that, in addition to intellectual development in the school, physical education is essential for students to round out their education and to enable them to develop harmoniously. They indicated that physical education has a real value for the development of human beings which is not merely physical but also moral and social.[3]

Concern about the United States physical education program was expressed when the results of the Kraus-Weber tests of minimum muscular fitness were reported in June, 1955. This study and other similar studies revealed disturbing deficiencies in the fitness of American youth. As a result, President Eisenhower convened a National Conference of Youth Fitness in June of 1956.

As a part of their report this conference recognized that:

1. Present facilities for physical education, sports and recreation are inadequate or nonexistent in many schools and communities throughout the Nation.

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[2]Edgar W. Knight, Education in the United States (Boston: Ginn and Company, 1941), p. 534.

[3]Jay B. Nash, Frances J. Moench, and Jeanette B. Saurborn. Physical Education: Organization and Administration (New York: A. S. Barnes and Company, 1951), p. 19.

2. The development of programs and the training of leadership to attain proper standards of fitness will gain little if the facilities and equipment are inadequate or unavailable.
3. Diversified facilities are required to meet various needs--different age group of boys and girls, those possessing lesser skills.
4. Because of overcrowding, many schools find it difficult to provide adequate space and equipment for physical education programs.
5. Present facilities in many schools are not being used to the fullest extent.[4]

Among the recommendations of this conference was a request that state and local surveys of present facilities and equipment be made to test their adequacy and extent of usage.[5]

As an outgrowth of this conference the President's Council of Youth Fitness was established by the executive order of President Eisenhower on July 16, 1956.[6] This council has evolved into the present President's Council on Physical Fitness and Sports, which was established on March 4, 1968.

I. STATEMENT OF THE PROBLEM

It was the purpose of this study to examine the physical education facilities and equipment as they existed in the public elementary schools in Virginia in light of their adequacy as reported by principals and as compared with the standards recommended by the Virginia State

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[4] Fitness of American Youth, A Report to the President of the United States on the President's Conference of Fitness of American Youth - June 18-19, 1956 (Washington: Government Printing Office, 1956), p. 6.

[5] Ibid.

[6] Ibid., p. 17.

Department of Education for an adequate physical education program.

II. DEFINITION OF THE PROBLEM

The definition of the problem includes an explanation of: a) the terms that were used in the study, b) the delimitations of the research, and c) the assumptions inherent in the study.

Definition of terms. The term "physical education facilities" as it applies to this study was interpreted as including those items which are of a more permanent or fixed nature. The term "physical education equipment" as it applies to this study was interpreted as including those items which are generally non-durable and of limited time of use.

Delimitations of the research. There are many factors which influence the elementary physical education program. Factors such as personnel, time allotment, facilities and equipment and type of program have a bearing on the success of the physical education program. This study is confined to the examination of one of these factors; namely, the physical education facilities and equipment. The scope of this study is delimited to the physical education facilities and equipment in those public elementary schools of Virginia which have a complete range of elementary grades extending from kindergarten or first grade through sixth or seventh grade.

Assumptions inherent in the study. Prior to conducting a study of the physical education facilities and equipment as they existed in

the public elementary schools of Virginia, two basic assumptions were made. The primary assumption made by the investigator was that all public elementary schools in Virginia have a program of physical education and therefore possess differing degrees of facilities and equipment which supplement this program. The validity of this assumption was supported by Title 22, Chapter 12, Article 2, Section 22-237 of the Code of Virginia which states, "Physical and health education shall be emphasized throughout the course by proper lessons, drills, and physical exercises set up by the State Board."[7] The second assumption made by the investigator was that the principals surveyed were knowledgeable regarding the types of facilities and equipment available in their school and their adequacy in meeting the needs of the school's physical education program.

III. AN EVALUATION OF THE STUDY

The evaluation of the study was made in terms of statements pertaining to: a) the need and value of the study and b) the objectives of the study.

Need and value of the study. In spite of the increased awareness of the need for continued progress in the development of elementary physical education programs, studies indicate that efforts to provide for the physical development of children have fallen short of the

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[7]Virginia School Laws, State Board of Education, (Richmond, Virginia: January, 1969), p. 142.

desired goals. The need for this study arose out of the lack of emphasis by professional educators on the development and implementation of a well-defined program of physical education in the elementary school. The type and adequacy of physical education facilities and equipment available for use are important factors in the development of the physical education program. The value of the study will be determined by its ability to offer to the State Department of Education and to educators concerned with elementary school education an accurate appraisal of the types, quantities, and adequacies of physical education facilities and equipment in the public elementary schools of the state of Virginia. By indicating where the inadequacies exist the study will emphasize areas of concentration for their improvement, and it will offer general direction for the improvement of the physical education program.

Objectives of the study. The objectives of the study were as follows:

1. To survey a representative sample of public elementary schools in Virginia in order to determine amounts and types of physical education facilities and equipment available for physical education programs.
2. To obtain from the principals of the schools surveyed an evaluation of the adequacy of the amounts and types of physical education facilities and equipment available.
3. To compare existing quantities of physical education facilities with the standards recommended by the Virginia State Department of Education.
4. To determine the effect of school size on the extent and adequacy of physical education facilities and equipment.
5. To determine the extent of usage of indoor activity areas used for physical education.
6. To determine the method of storage and distribution of equipment used most frequently by the elementary schools.

IV. REVIEW OF RELATED READINGS

In preparation for the study the investigator made an extensive examination on both a state and national level in an attempt to secure information similar in nature to that proposed in the study. Local resources and information obtained from Miss Frances A. Mays, Supervisor of Health and Physical Education, State Department of Education, indicated that no similar study had previously been conducted on a statewide basis. The investigator also communicated with John P. Wilbern, Administrator, President's Council on Physical Fitness and Sports, in order to determine if there had been any follow-up on the recommendation of the President's Conference of Fitness of American Youth (1956), which requested that state and local surveys of facilities and equipment be made to test their adequacy and extent of usage.[8] Mr. Wilbern replied that no survey of this type had been conducted through the offices of the Federal government.

A survey was made of literature concerned with physical education in elementary schools in order to provide the investigator with the background information necessary for construction of the instrument. The State Department of Education elementary school guide served as the main source of background information, and several other books offered supplementary information which pertained to the development of the study.

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[8] Fitness of American Youth, A Report to the President of the United States on the President's Conference of Fitness of American Youth - June 18-19, 1956 (Washington: Government Printing Office, 1956), p. 6.

CHAPTER II

PROCEDURE, METHOD, TECHNIQUE, AND INSTRUMENT

The procedure, method, technique and instrument used in this study of the physical education facilities and equipment in the public elementary schools in Virginia were as follows:

I. PROCEDURE

The investigator determined to make a study of the physical education facilities and equipment as they existed in the public elementary schools of Virginia. The selection of schools to be studied was based on the list of public elementary schools in Virginia as published in the Virginia Educational Directory for the year 1969-1970. A survey was devised and a response was solicited from principals of approximately one half of the public elementary schools in the state of Virginia. The principals were asked to provide factual data concerning the physical education facilities and equipment contained in their school. They were also asked to evaluate these facilities and equipment and state their preferences. The responses were then tabulated, and certain observations and conclusions were made.

II. METHOD

Two forms of methodology were instrumental to the development of the study. The descriptive research method was used to determine the status of the physical education facilities and equipment as they

existed in the schools surveyed. The descriptive method provided factual information essential to the comparison of existing facilities and equipment with recommended standards for facilities and equipment. The analytical method of research was also used to provide a basis for the correlation of the responses. Through the solicitation of valuational information the investigator was able to determine the preferences of the principals concerning the desirability of certain types of physical education facilities and equipment.

III. TECHNIQUE

The technique included an explanation of: a) the compilation of the sample of schools, and b) the administration of the instrument.

Compilation of the sample of schools. The selection of the sample was influenced by two considerations. The first of these was the recognition of the importance of selecting a sample which was representative of schools throughout the state of Virginia. In order for the results of the survey to be valid, it was essential that schools in the different regions of the state be included in the survey and that schools from both rural and urban areas be surveyed. The second consideration was the need to include schools with varying enrollment levels in the sample.

In order to obtain a sample which met both of these criteria, the names of all public elementary schools in the state of Virginia which had a complete range of grades extending from kindergarten or first

grade through sixth or seventh grade was obtained from the Virginia Educational Directory for 1969-1970. Through the facilities of the Division of Educational Research and Statistics of the State Department of Education, the investigator was able to determine the enrollments of each of these nine hundred and eighty elementary schools as of the fall of the 1969 school year. The schools were then grouped according to their enrollment level, and fifty percent of the schools were selected for inclusion in the sample. A proportionate number of schools was selected from each enrollment level, and schools were selected from each county and city school system in the state of Virginia.

Administration of the instrument. A copy of the survey was mailed to the principals of each of the four hundred and ninety elementary schools selected for inclusion in the study. Accompanying the survey was a cover letter (see Appendix A) which explained the purpose of the survey and requested the cooperation of the principals in completing it. A self-addressed, stamped envelope was included with the survey in order to facilitate its return.

Tabulation of the responses A total of three hundred and one valid responses was analyzed and tabulated. The responses of the principals were totaled in accordance with the arrangement of the information as it was presented on the survey. These totals were converted to percentages, which were represented in the form of charts and figures in order to illustrate the findings of the survey.

IV. INSTRUMENT

The instrument consisted of a three-page survey (see Appendix B), which was divided into several sections for clarity and in order to facilitate the ease of response. The first section of the instrument was designed to solicit general information concerning the school. This information was necessary in order to relate facilities and equipment to school size. The second major division of the survey dealt with the availability of space for physical education activities. This section was subdivided into the categories of indoor activity areas and outdoor activity areas. The inclusion of this section in the survey enabled the investigator to determine the extent and availability of indoor and outdoor activity areas, and it provided a basis for the comparison of the amount of available space with the standards recommended by the State Department of Education. The third section of the survey was concerned with the quantity and adequacy of physical education facilities. It was subdivided into the areas of outdoor facilities and indoor facilities. This area provided the information necessary for an appraisal of the amounts and types of physical education facilities available in elementary schools. This information provided the basis for a comparison of existing facilities with the recommendations of the State Department of Education. The principal's evaluation of the adequacy of these facilities in meeting the physical education needs provided another means of comparison. The final division of the survey was concerned with physical education equipment. It was subdivided into two areas.

The first area requested information dealing with the types of indoor and outdoor equipment available for use. The principals were asked to evaluate the adequacy of this equipment in terms of the needs of their school. The second area dealt with the method of storage and distribution of equipment used by the school. A space was designated at the end of the survey for comments by the principal of the school being surveyed.

CHAPTER III

REPORT OF THE STUDY

I. ACTIVITY AREAS

The adequacy of indoor and outdoor activity areas is important to the scope and success of a physical education program. "Without minimum playing space, teaching procedures are ineffective, activity offerings are limited and optimum growth and development of children are usually restricted."[1]

Indoor activity areas. In order to provide for an uninterrupted program of physical education, it is essential that indoor activity areas be available when the weather is inclement or when other conditions prohibit the use of outdoor facilities. The elementary schools surveyed made use of a variety of indoor activity areas, as is indicated in Table I.

TABLE I

PERCENTAGE OF SCHOOLS HAVING INDOOR ACTIVITY AREAS AND THE AVERAGE PERCENTAGE OF THE DAY AVAILABLE

Area	Percentage of schools having area	Average percentage of day available
Gymnasium	22.9	93.65
Auditorium	11.3	69.72
Cafeteria	15.9	49.60
Multi-purpose	31.2	64.62
Other	18.3	

[1]Glenn Kitchner, Physical Education for Elementary School Children (Dubuque, Iowa: Wm. C. Brown Company, 1966), p. 33.

The elementary school which has a gymnasium has an advantage over schools which must make use of other areas for indoor physical education activity, because a gymnasium is available for a majority of the day. In schools where the auditorium or cafeteria is used for physical education, the physical education program must compete with assembly programs, music and band schedules, lunch programs and a variety of other conflicting programs. The multi-purpose room has certain advantages over the use of auditoriums and cafeterias in that it is available on a more consistent basis. However, as its name implies, it too forces the physical education program to compete with other segments of the total school program. Some of the schools surveyed indicated that they made use of other areas for indoor physical education activities. These areas included hallways, vacant rooms and school basements. Of the schools surveyed, 82.7 percent indicated that individual classrooms were used when larger indoor activity areas were not available for physical education.

Figure 1 shows a comparison by enrollment level of the percentage of schools surveyed which had gymnasiums as compared with the percentage of principals who recommended that gymnasiums be included in plans for new elementary schools. The largest percentage of schools having gymnasiums occurred in schools having a pupil enrollment of eight hundred or more. It is interesting to note that the smallest percentage of schools having gymnasiums occurred in schools having a pupil enrollment of between four hundred and six hundred rather than in the smallest enrollment category of up to two hundred pupils. Figure I also shows that

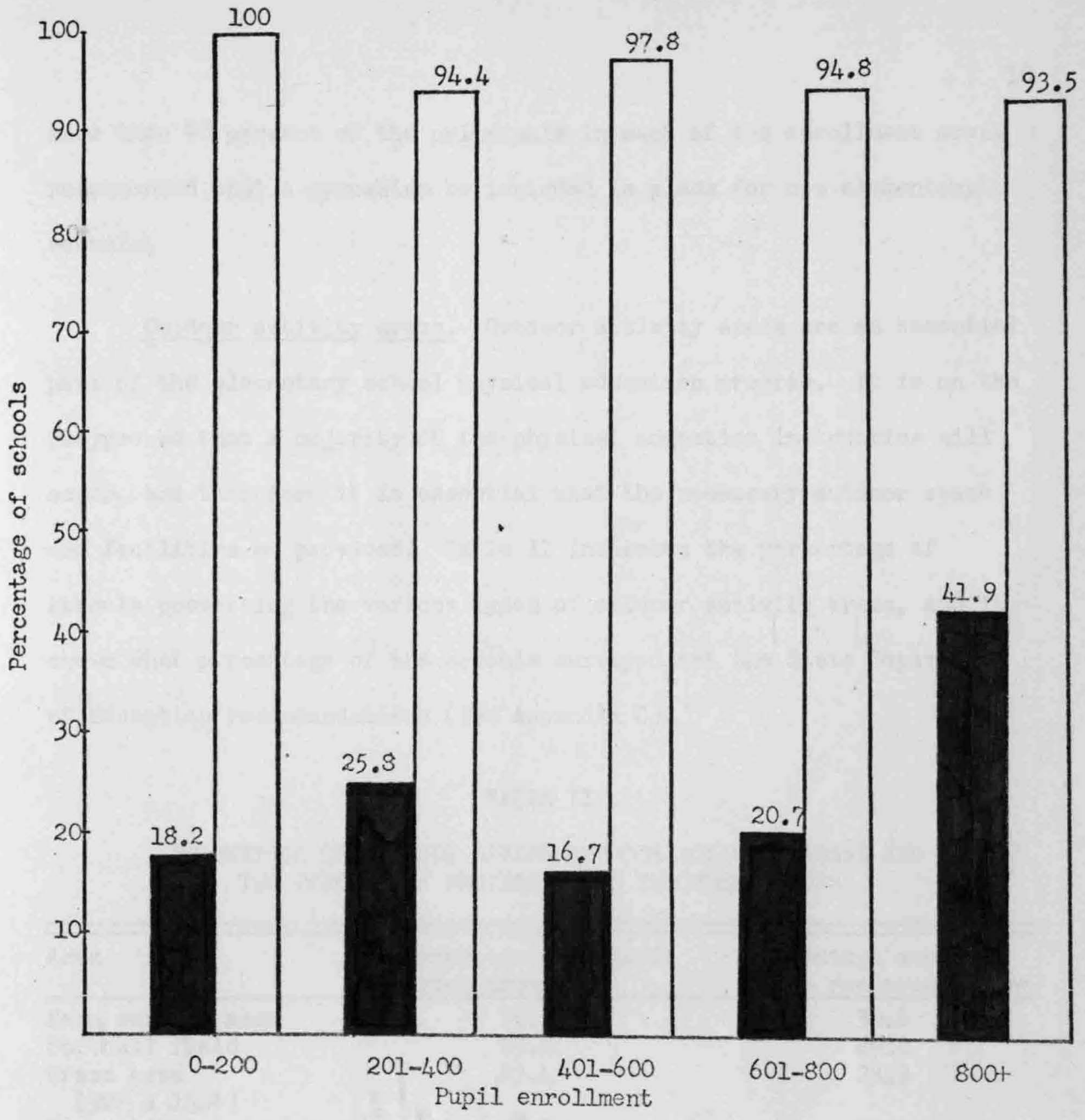

FIGURE 1

A COMPARISON BY ENROLLMENT LEVEL OF SCHOOLS HAVING GYMNASIUMS WITH THE PERCENTAGE OF PRINCIPALS RECOMMENDING GYMNASIUMS FOR NEW SCHOOLS

Percentage of schools having gymnasiums

Percentage of principals recommending gymnasiums

more than 90 percent of the principals in each of the enrollment areas recommended that a gymnasium be included in plans for new elementary schools.

Outdoor activity areas. Outdoor activity areas are an essential part of the elementary school physical education program. It is on the playground that a majority of the physical education instruction will occur, and therefore it is essential that the necessary outdoor space and facilities be provided. Table II indicates the percentage of schools possessing the various types of outdoor activity areas, and it shows what percentage of the schools surveyed met the State Department of Education recommendations (see Appendix C).

TABLE II

PERCENTAGE OF SCHOOLS HAVING OUTDOOR ACTIVITY AREAS AND THE PERCENTAGE MEETING STATE RECOMMENDATIONS

Area	Percentage of schools having area	Percentage meeting state recommendations
Hard surface area	75.7	30.6
Softball field	89.0	89.0
Grass area (90' x 140')	85.4	23.9
General purpose area (125' x 150')	78.1	78.1
Outdoor covered area	6.3	no state recommendations

The hard surface area is an important part of the playground because it can be used during most of the school year, and it remains suitable for physical education activities when the surrounding playground area may be unsuitable. It is also necessary for the performance

of various physical education activities. Although approximately 75 percent of the schools surveyed had hard surface areas, only 30.6 percent of them had a sufficient number of hard surface areas to meet the State Department of Education recommendations. This is due in part to the fact that the State Department of Education recommends that there be one hard surface area for each ten classrooms or fraction thereof. As can be determined from Table III, many of the larger schools were unable to meet this standard. The schools surveyed had similar difficulties in meeting the recommendations of the State Department of Education for grass areas. Approximately 24 percent of the schools surveyed met the recommendations of the State Department of Education, while over 85 percent of the schools had grass areas available. The State Department of Education recommends that there be two grass play areas for each ten classrooms or fraction thereof. Table III indicates that while the percentage of schools having grass play areas increased as the enrollment increased, the percentage of schools meeting State Department of Education recommendations decreased as the enrollment increased. In Table II, page 16, it is interesting to note that 6.3 percent of the schools surveyed had an outdoor covered area which would allow continuance of the physical education program in inclement weather. Schools having a softball field or general purpose area automatically met the State Department of Education recommendations of one per school.

II. FACILITIES

According to Dauer, "it is essential that sufficient facilities

TABLE III

A COMPARISON BY ENROLLMENT LEVEL OF THE PERCENTAGE OF SCHOOLS HAVING OUTDOOR ACTIVITY AREAS AND THE PERCENTAGE OF SCHOOLS MEETING STATE RECOMMENDATIONS

Area	Enrollment level	Percentage of schools having area	Percentage of schools meeting state recommendations
Hard surface	0-200	54.5	51.5
	201-400	73.0	34.8
	401-600	85.6	27.8
	601-800	90.6	17.2
	801+	96.8	29.0
Softball field	0-200	84.8	84.8
	201-400	94.4	94.4
	401-600	84.4	84.4
	601-800	89.7	89.7
	801+	90.3	90.3
Grass area (approx. 90' x 140')	0-200	75.8	48.5
	201-400	84.4	36.0
	401-600	82.2	16.7
	601-800	94.8	12.1
	801+	87.1	6.5
General purpose area (approx. 125' x 150')	0-200	81.8	81.8
	201-400	80.9	80.9
	401-600	72.2	72.2
	601-800	79.3	79.3
	801+	80.6	80.6
Covered area	0-200	6.1	no state recommendations
	201-400	4.5	
	401-600	8.9	
	601-800	8.6	
	801+	0	

for physical education be present so that an adequate program can be conducted."[2] A variety of facilities and equipment encourages group play on a level children can themselves organize and carry out successfully.[3] The results of the survey of facilities can be divided into two sections: outdoor facilities and indoor facilities.

Outdoor facilities. Sufficient outdoor facilities are essential in order to have a balanced program of outdoor activities and physical fitness. Outdoor facilities can be divided into the areas of primary outdoor facilities, outdoor climbing apparatus, and upper elementary outdoor facilities.

In Figure 2 the percentage of schools having primary outdoor facilities is compared with the adequacy of these facilities according to the evaluation of the school principal and as compared with the recommendations of the State Department of Education. The type of primary outdoor facility which was available in the largest percentage of the schools was swings (51.5 percent of the schools). Only 14 percent of the schools had sandboxes, but 18.3 percent of the schools surveyed indicated that the quantity of sandboxes which they possessed was adequate. This difference between the number of schools having sandboxes and those indicating adequacy of the number of sandboxes is the result

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[2]Victor P. Dauer, Dynamic Physical Education for Elementary School Children (Minneapolis: Burgess Publishing Company, 1968), p. 17.

[3]Winifred Van Hagen, Genevie Dexter, and Jesse Feiring Williams, Physical Education in the Elementary School (Sacramento: California State Department of Education, 1951), p. 86.

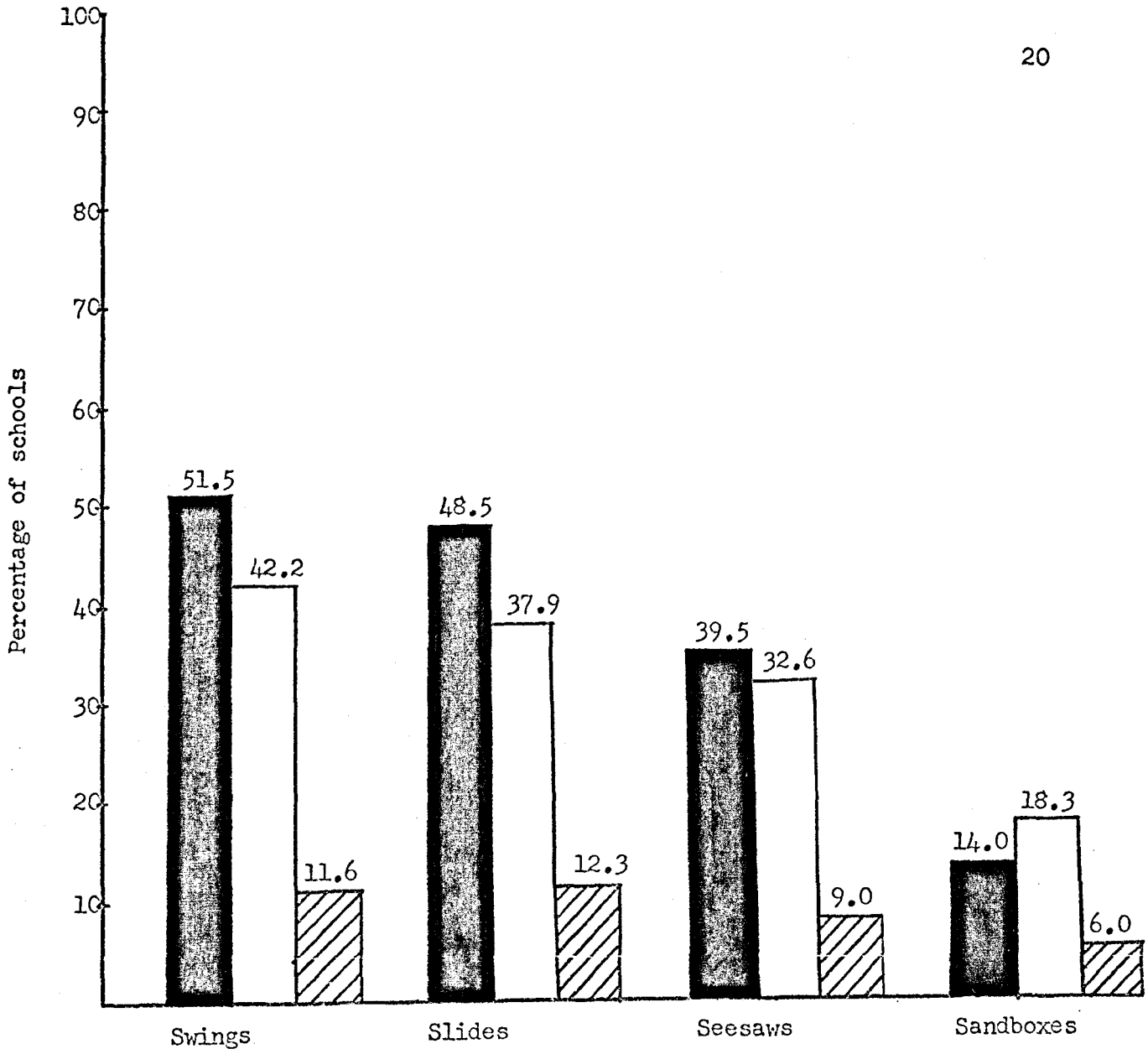

FIGURE 2

PERCENTAGE OF SCHOOLS HAVING PRIMARY OUTDOOR FACILITIES AS COMPARED WITH THE PERCENTAGE OF ADEQUACY ACCORDING TO PRINCIPALS AND THE PERCENTAGE MEETING STATE RECOMMENDATIONS

Schools having facility (percentage)

Adequacy of facility according to principal (percentage)

Schools meeting State Department of Education recommendations (percentage)

of indications by several principals that, although they did not have any sandboxes, they felt that they were not needed.

According to Van Hagen, Dexter, and Williams, "some of the simplest forms of play for younger children are sandbox activities. Valuable lessons are learned by the children as they fail or succeed in a given sandbox undertaking."[4] They also recommend that swings not be purchased until the more essential pieces of playground facilities have been purchased, because little physical activity results from the use of swings.[5]

Table IV offers a comparison by enrollment level of the schools having primary outdoor facilities with the adequacy of these facilities according to the principals. It also shows the percentage of schools meeting State Department of Education recommendations for primary outdoor facilities. In all areas of primary outdoor facilities except sandboxes, when the percentage of schools having the facility was compared to the enrollment level the lower enrollment levels had an equal or higher percentage of the facility. The comparison by enrollment level of the number of sandboxes shows that the percentage of schools having sandboxes increased as the enrollment increased. Table IV also indicates that only a small percentage of the schools surveyed in each enrollment level met the recommendations of the State Department of Education for primary outdoor facilities.

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[4]Van Hagen, op. cit., p. 87.

[5]Ibid.

TABLE IV

A COMPARISON BY ENROLLMENT LEVEL OF SCHOOLS HAVING PRIMARY OUTDOOR FACILITIES, THEIR ADEQUACY ACCORDING TO THE PRINCIPALS AND THE PERCENTAGE OF SCHOOLS MEETING STATE RECOMMENDATIONS

Outdoor facility	Enrollment level	Percentage of schools having facility	Adequacy according to principal (%)	Percentage of schools meeting state recommendations
Swings	0-200	69.7	48.5	36.4
	201-400	68.5	50.7	11.?
	401-600	37.8	37.8	7.8
	601-800	32.8	32.8	3.4
	801+	58.1	41.9	12.9
Slides	0-200	48.5	45.5	9.1
	201-400	58.4	44.9	11.2
	401-600	38.9	31.1	12.2
	601-800	41.4	32.8	10.3
	801+	61.3	38.7	22.6
Seesaws	0-200	39.4	36.4	9.?
	201-400	51.7	39.3	12.4
	401-600	32.2	31.1	8.9
	601-800	19.0	25.9	5.2
	801+	29.0	25.8	6.5
Sandboxes	0-200	12.1	15.2	6.1
	201-400	11.2	16.9	1.1
	401-600	13.3	17.8	4.4
	601-800	13.8	19.0	6.9
	801+	25.8	25.8	22.6

Climbing apparatus is an important part of the outdoor facilities. The physical education activities which are performed on climbing apparatus provide for the muscular and coordination development of young children. Figure 3 illustrates the percentage of schools having outdoor climbing apparatus as compared with the percentage of adequacy according to the principals of the schools surveyed. It also shows the percentage of schools surveyed which met the recommendations of the State Department of Education. A large percentage of the schools had chinning bars (80.7 percent), jungle gyms (73.1 percent), and horizontal ladders (70.4 percent); and a smaller percentage had low bars (35.9 percent). However, the number of schools surveyed which met the State Department of Education recommendations was under 5 percent for all types of outdoor apparatus. The adequacy of the outdoor climbing apparatus in meeting the needs of the school according to the principals of the schools surveyed was much higher than the adequacy according to the recommendations of the State Department of Education. These recommendations are that schools have two of each type of outdoor climbing apparatus for a school of ten classrooms or less, and for each additional ten classrooms or fraction thereof the specified number is increased by 50 percent.

A comparison by enrollment level of schools having outdoor climbing apparatus with the adequacy of the apparatus according to principals and the percentage of schools meeting state recommendations is found in Table V, page 25. An analysis of the data in this table shows that as enrollments increased the percentage of schools having climbing apparatus also increased, but at the same time the percentage of schools meeting

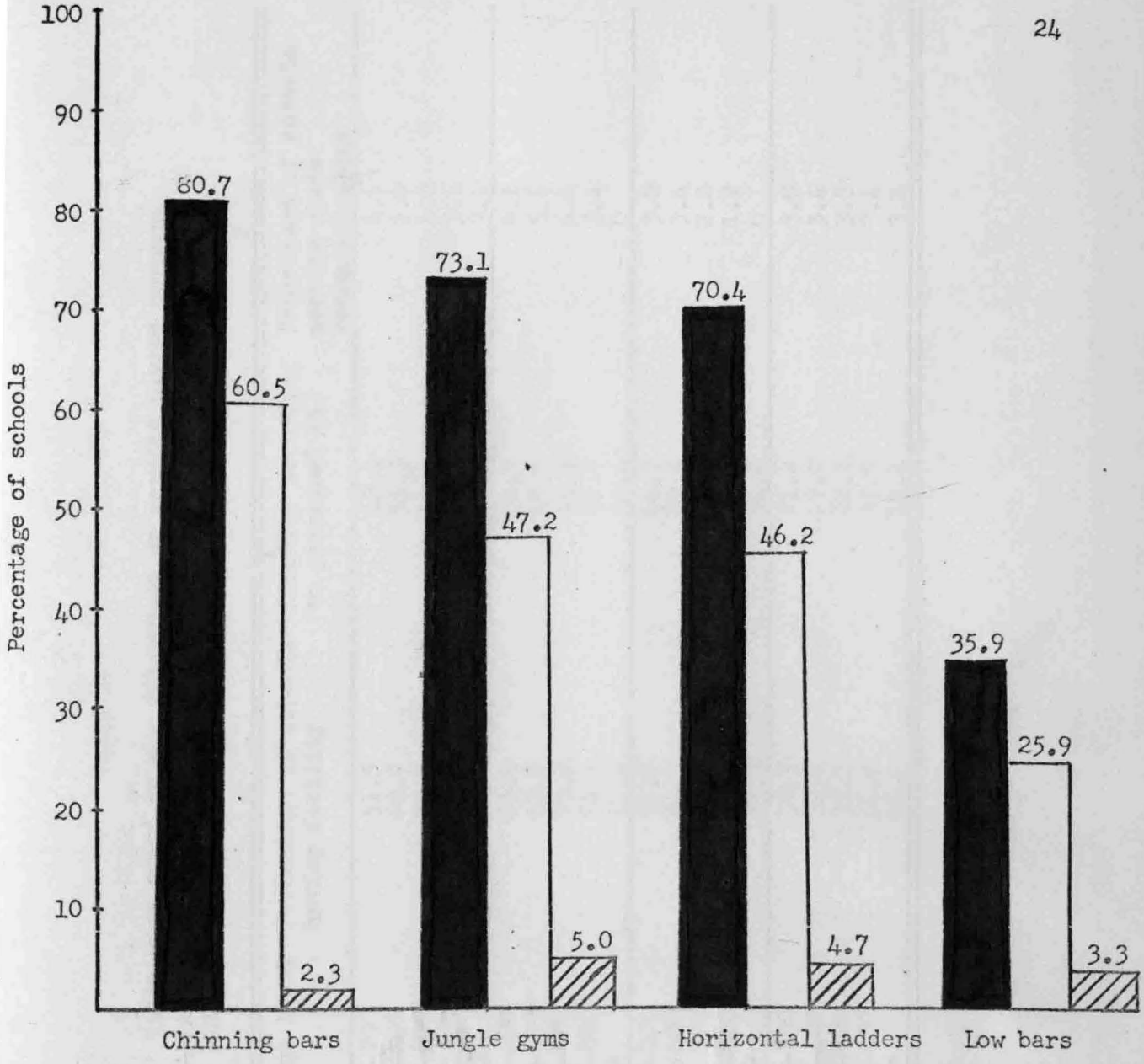

FIGURE 3

PERCENTAGE OF SCHOOLS HAVING OUTDOOR CLIMBING APPARATUS AS COMPARED WITH THE PERCENTAGE OF ADEQUACY ACCORDING TO PRINCIPALS AND THE PERCENTAGE MEETING STATE RECOMMENDATIONS

Schools having facility (percentage)

Adequacy of facility according to principal (percentage)

Schools meeting State Department of Education recommendations (percentage)

TABLE V

COMPARISON BY ENROLLMENT LEVEL OF THE PERCENTAGE OF SCHOOLS HAVING OUTDOOR CLIMBING APPARATUS, THEIR ADEQUACY ACCORDING TO THE PRINCIPALS AND THE PERCENTAGE OF SCHOOLS MEETING STATE RECOMMENDATIONS

Outdoor facility	Enrollment level	Percentage of schools having facility	Adequacy according to principal (%)	Percentage of schools meeting state recommendations
Jungle gyms	0-200	51.5	42.4	6.1
	201-400	69.7	55.0	5.6
	401-600	77.8	44.4	5.6
	601-800	77.6	43.1	3.4
	801+	83.9	45.2	3.4
Horizontal ladders	0-200	63.6	54.5	9.1
	201-400	62.9	48.3	5.6
	401-600	75.6	44.4	4.4
	601-800	74.1	39.7	3.4
	801+	77.4	48.4	0
Chinning bars	0-200	78.8	69.7	3.0
	201-400	84.3	67.4	3.4
	401-600	74.4	51.1	2.2
	601-800	84.5	62.1	1.7
	801+	83.9	54.8	0
Low bars	0-200	30.3	21.2	3.0
	201-400	32.6	27.0	3.4
	401-600	33.3	22.2	3.3
	601-800	44.8	37.9	3.4
	801+	41.9	16.1	3.2

state recommendations decreased. The adequacy according to principals remained fairly stable for all enrollment levels.

Figure 4 indicates that only a small percentage of the schools surveyed had horseshoe areas (16.6 percent), broad jump pits (13 percent), high jump pits (9 percent), and target boards (4 percent). This is probably the result of a lack of elementary school physical education instructors or teaching personnel who are adequately trained in physical education and can provide the necessary instruction for their proper and safe usage. The undesirability of this equipment without proper supervision and instruction is supported by the indication of a number of the principals that they considered not having these facilities adequate for their school's needs. The schools which had horseshoe areas, broad jump pits, and target boards automatically met the State Department of Education recommendations of one per school. A lesser number (6.3 percent) of the schools surveyed met the recommendation of two horseshoe areas per school.

Illustrated in Figure 5, page 28, is a comparison of the percentage of schools having basketball goals, volleyball goals and tether ball posts with their adequacy in meeting the needs of the school. A substantial percentage of the schools surveyed possessed basketball goals (87.4 percent). Only 54.5 percent of the principals surveyed indicated that the number of basketball goals was adequate for the needs of their school. Evidently, although most schools have basketball goals, the number available is not sufficient. A smaller percentage of schools had volleyball goals (66.4 percent) and tether ball posts (35.2 percent),

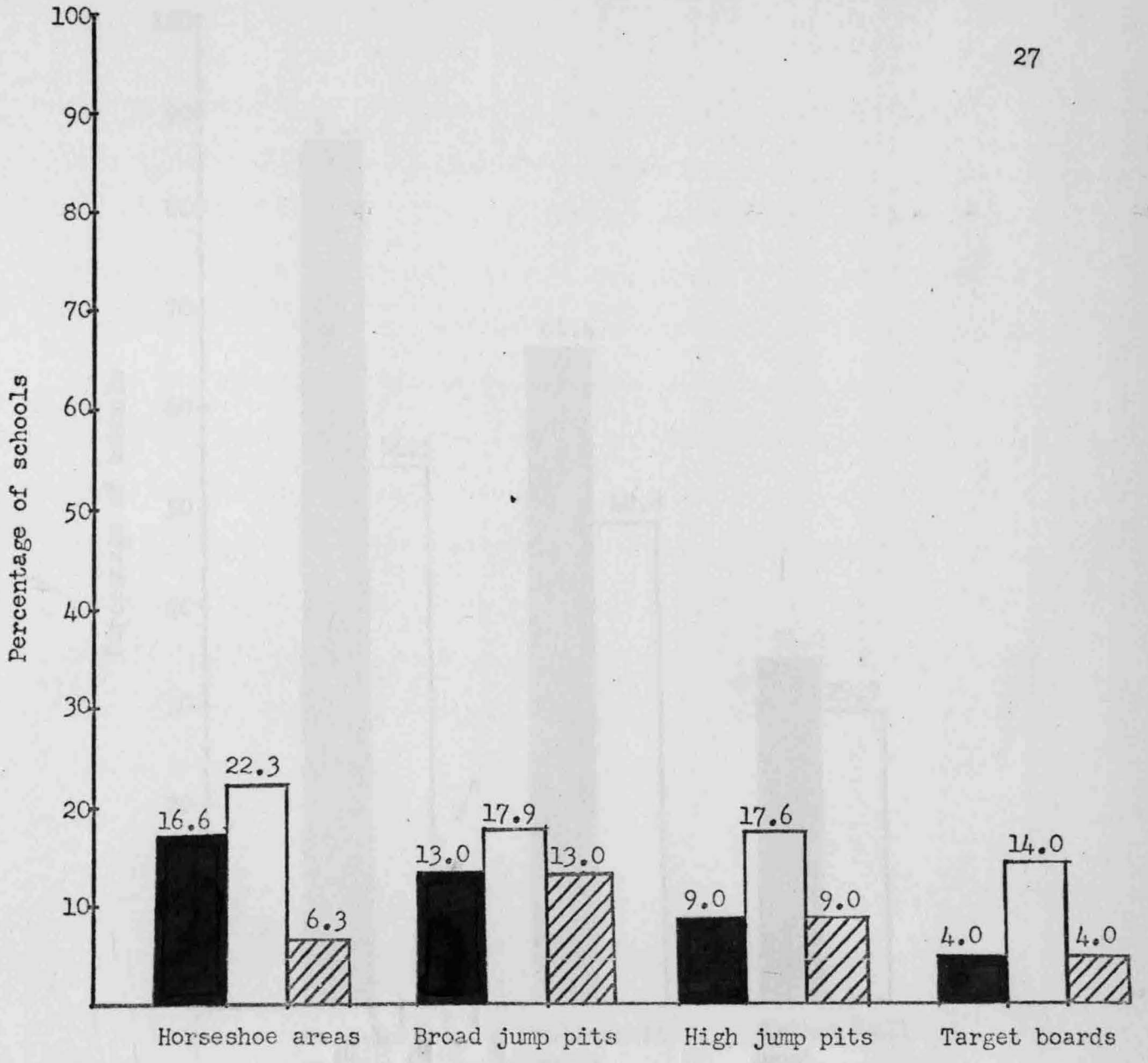

FIGURE 4

PERCENTAGE OF SCHOOLS HAVING UPPER ELEMENTARY OUTDOOR FACILITIES AS COMPARED WITH THE PERCENTAGE OF ADEQUACY ACCORDING TO PRINCIPALS AND THE PERCENTAGE MEETING STATE RECOMMENDATIONS

Schools having facility (percentage)

Adequacy of facility according to principal (percentage)

Schools meeting State Department of Education recommendations (percentage)

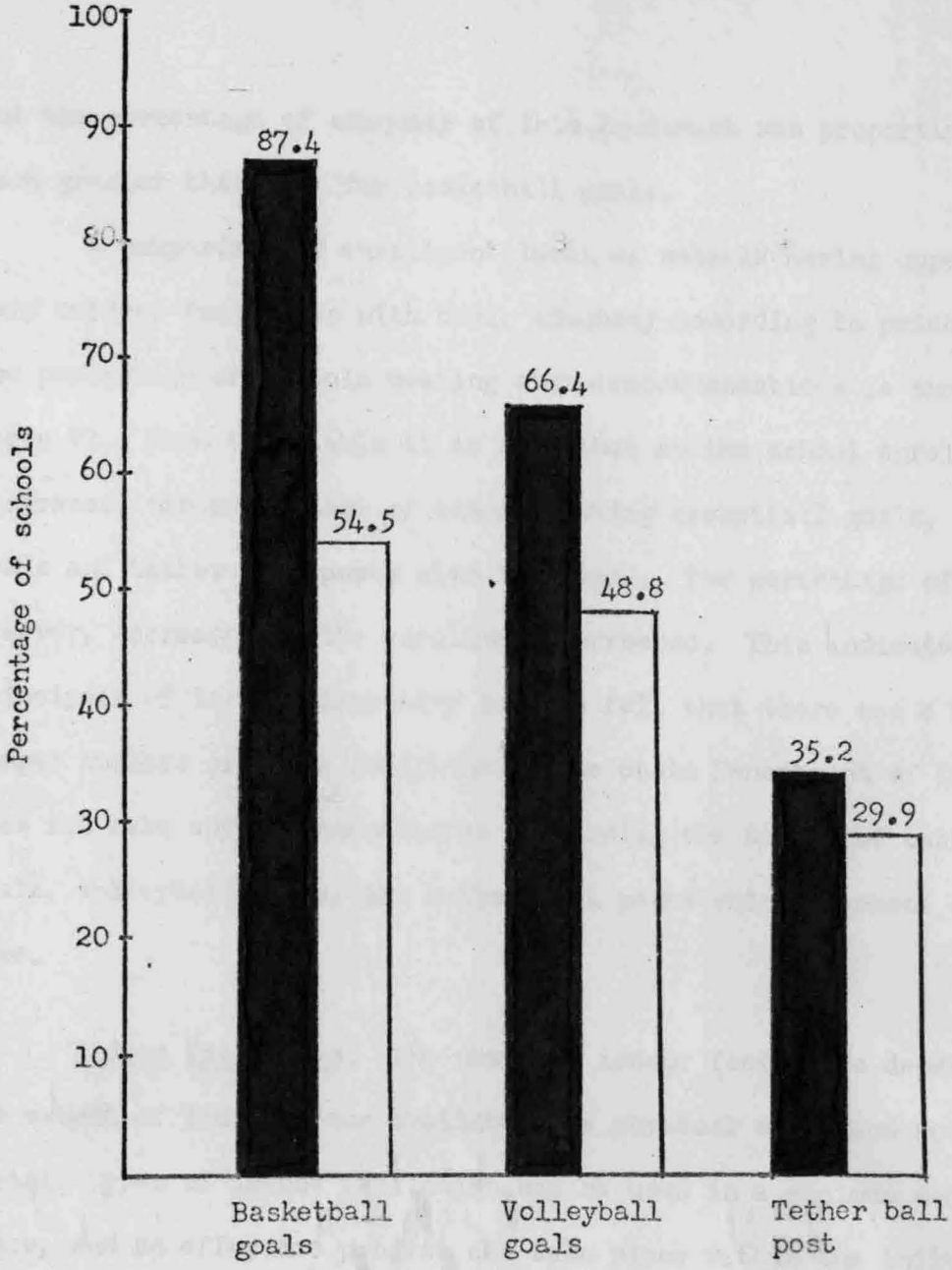

FIGURE 5

PERCENTAGE OF SCHOOLS HAVING UPPER ELEMENTARY OUTDOOR FACILITIES AS COMPARED WITH THE PERCENTAGE OF ADEQUACY ACCORDING TO PRINCIPALS

Schools having facility (percentage)

Adequacy of facility according to principal (percentage)

but the percentage of adequacy of this equipment was proportionately much greater than that for basketball goals.

A comparison by enrollment level of schools having upper elementary outdoor facilities with their adequacy according to principals and the percentage of schools meeting state recommendations is shown in Table VI. From this table it is seen that as the school enrollment increased, the percentage of schools having basketball goals, volleyball goals and tether ball posts also increased. The percentage of adequacy, however, decreased as the enrollment increased. This indicates that the principals of larger elementary schools felt that there was a need for larger numbers of these facilities. The State Department of Education does not make any recommendations concerning the number of basketball goals, volleyball goals, and tether ball posts which a school should have.

Indoor facilities. The need for indoor facilities depends upon the extent of indoor space available for physical education activities. Certain types of indoor facilities can be used in a minimum amount of space, and an effective program can take place within the individual classroom. The need for indoor facilities is becoming greater as an ever increasing number of elementary schools are including gymnastics as a part of their elementary school program.

Figure 6, page 31, and Figure 7, page 32, show the percentage of schools surveyed which had indoor facilities as compared with the percentage of adequacy according to the principals of the schools. Tumbling mats are a necessary part of a school's indoor facilities if gymnastic

TABLE VI

A COMPARISON BY ENROLLMENT LEVEL OF SCHOOLS HAVING UPPER ELEMENTARY OUTDOOR FACILITIES, THEIR ADEQUACY ACCORDING TO THE PRINCIPALS AND THE PERCENTAGE OF SCHOOLS MEETING STATE RECOMMENDATIONS

Outdoor facility	Enrollment level	Percentage of schools having facility	Adequacy according to principal (%)	Percentage of schools meeting state recommendations
Horseshoe areas	0-200	27.3	24.2	9.1
	201-400	12.4	15.7	3.4
	401-600	13.3	21.1	4.4
	601-800	19.0	29.3	10.3
	801+	22.6	29.0	9.7
High jump pits	0-200	12.1	18.2	12.1
	201-400	5.6	14.6	5.6
	401-600	13.3	22.2	13.3
	601-800	5.2	12.1	5.2
	801+	9.7	22.6	9.7
Broad jump pits	0-200	12.1	18.2	12.1
	201-400	12.4	12.4	12.4
	401-600	18.9	22.2	18.9
	601-800	8.6	19.0	8.6
	801+	6.5	19.4	6.5
Target boards	0-200	6.1	9.1	6.1
	201-400	3.4	10.1	3.4
	401-600	1.1	13.3	1.1
	601-800	8.6	20.7	8.6
	801+	3.2	19.4	3.2
Basketball goals	0-200	78.8	60.6	no state recommendations
	201-400	84.3	56.2	
	401-600	91.1	57.8	
	601-800	87.9	48.3	
	801+	93.5	45.2	
Volleyball goals	0-200	66.7	54.5	no state recommendations
	201-400	57.3	44.9	
	401-600	70.0	48.9	
	601-800	72.4	48.3	
	801+	71.0	54.8	
Tether ball post	0-200	39.4	30.3	no state recommendations
	201-400	33.7	33.7	
	401-600	33.3	31.1	
	601-800	41.4	31.0	
	801+	29.0	12.9	

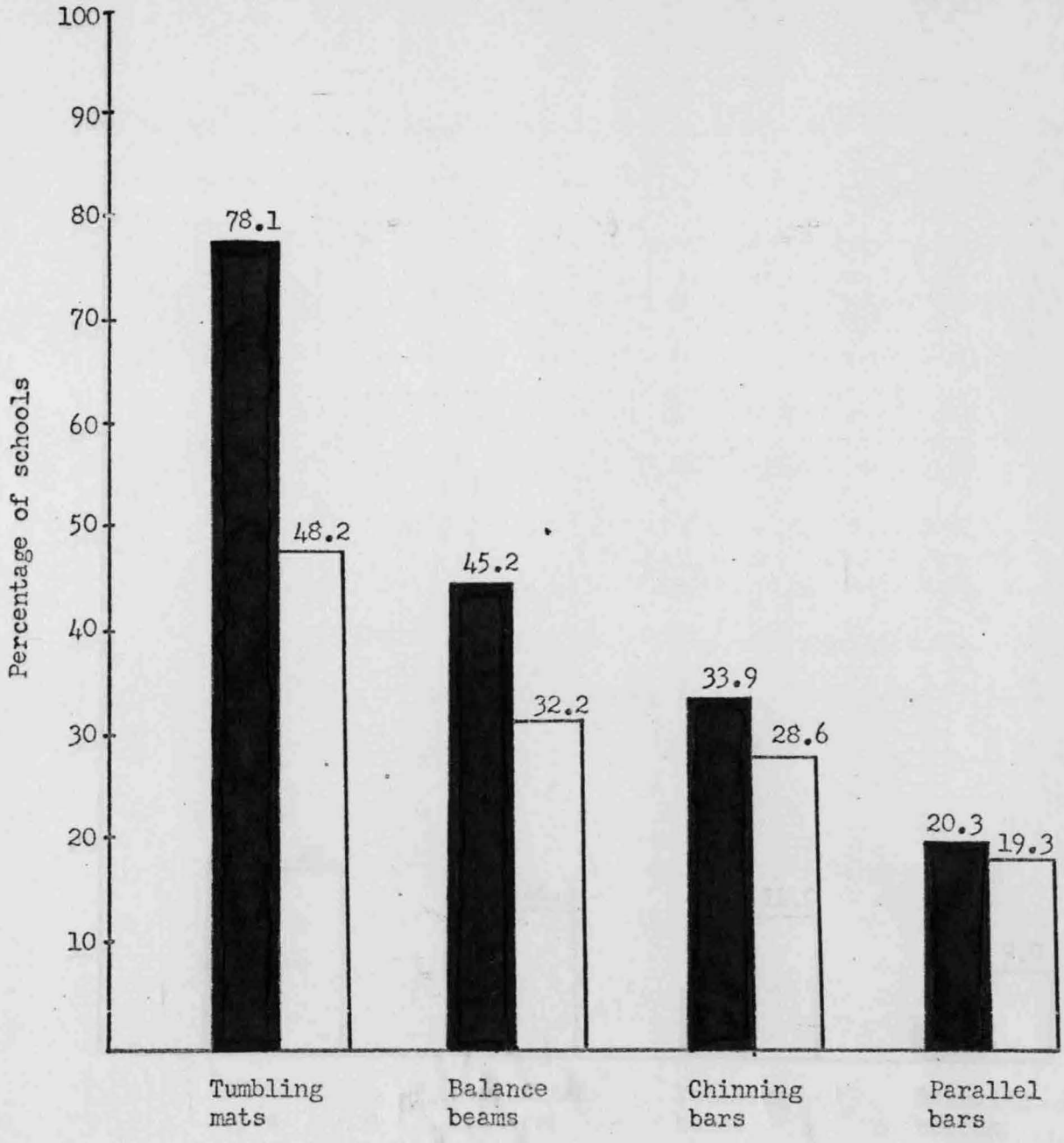

FIGURE 6

PERCENTAGE OF SCHOOLS HAVING INDOOR FACILITIES AS COMPARED WITH THE PERCENTAGE OF ADEQUACY ACCORDING TO PRINCIPAIS

Schools having facility (percentage)

Adequacy of facility according to principal (percentage)

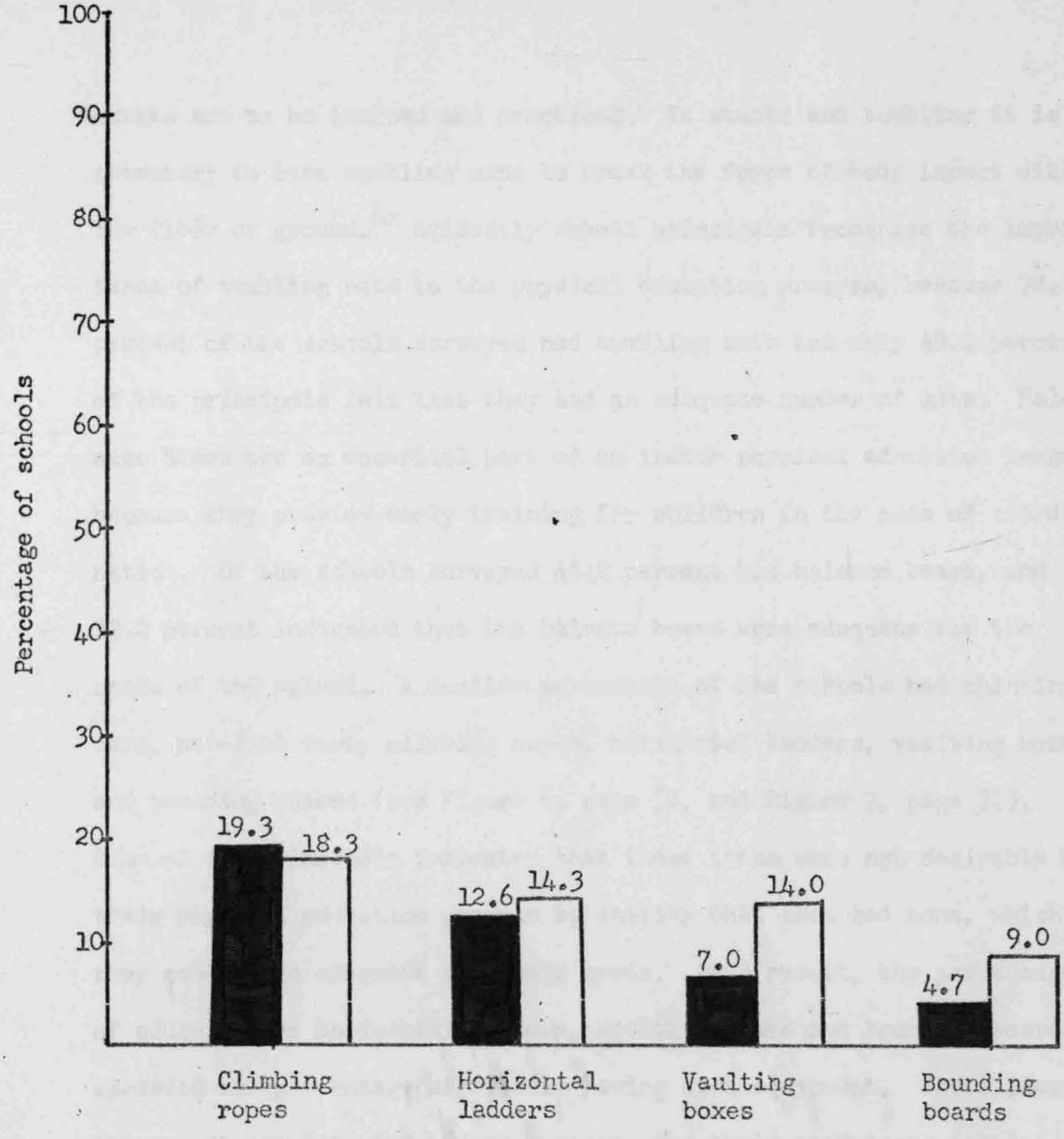

FIGURE 7

PERCENTAGE OF SCHOOLS HAVING INDOOR FACILITIES AS COMPARED WITH THE PERCENTAGE OF ADEQUACY ACCORDING TO PRINCIPALS

stunts are to be learned and practiced. In stunts and tumbling it is necessary to have tumbling mats to break the force of body impact with the floor or ground.[5] Evidently school principals recognize the importance of tumbling mats to the physical education program, because 78.1 percent of the schools surveyed had tumbling mats and only 48.2 percent of the principals felt that they had an adequate number of mats. Balance beams are an essential part of an indoor physical education program because they provide early training for children in the area of coordination. Of the schools surveyed 45.2 percent had balance beams, and 32.2 percent indicated that the balance beams were adequate for the needs of the school. A smaller percentage of the schools had chinning bars, parallel bars, climbing ropes, horizontal ladders, vaulting boxes and bounding boards (see Figure 6, page 31, and Figure 7, page 32). Some of the principals indicated that these items were not desirable for their physical education program by stating that they had none, which they considered adequate for their needs. As a result, the percentage of adequacy for horizontal ladders, vaulting boxes and bounding boards exceeded the percentage of schools having such equipment. These items are supplemental to the indoor program, and their usefulness often depends upon the availability of properly trained instructors.

Table VII compares by enrollment level the percentage of schools having indoor facilities for gymnastics with the percentage of adequacy of the facilities as determined by the principal. In general, as the

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[6] Van Hagen, op. cit., p. 111.

TABLE VII

A COMPARISON BY ENROLLMENT LEVEL OF SCHOOLS HAVING INDOOR FACILITIES FOR GYMNASTICS AND THEIR ADEQUACY ACCORDING TO THE PRINCIPALS

Indoor facility	Enrollment level	Percentage of schools having facility	Adequacy according to principal (%)
Climbing ropes	0-200	12.1	15.2
	201-400	15.7	15.7
	401-600	20.0	18.9
	601-800	19.0	20.7
	801+	35.5	22.6
Balance beams	0-200	36.4	30.3
	201-400	37.1	27.0
	401-600	50.0	32.2
	601-800	46.6	36.2
	801+	61.3	41.9
Vaulting boxes	0-200	0	0
	201-400	5.6	12.4
	401-600	9.0	16.7
	601-800	5.2	13.8
	801+	12.9	25.8
Parallel bars	0-200	6.1	12.1
	201-400	20.2	19.1
	401-600	22.2	18.9
	601-800	20.7	20.7
	801+	29.0	25.8
Horizontal ladders	0-200	3.0	6.1
	201-400	14.6	16.9
	401-600	12.2	16.7
	601-800	10.3	13.8
	801+	22.6	9.7
Chinning bars	0-200	33.3	24.2
	201-400	36.0	31.5
	401-600	38.9	26.7
	601-800	32.8	31.0
	801+	48.4	25.8
Bounding boards	0-200	3.0	3.0
	201-400	3.4	6.7
	401-600	5.6	11.1
	601-800	3.4	12.1
	801+	9.7	9.7
Tumbling mats	0-200	57.6	51.5
	201-400	71.9	48.3
	401-600	84.4	47.8
	601-800	86.2	53.4
	801+	83.9	35.5

enrollment of the school increased, the percentage of schools having indoor facilities for gymnastics and the adequacy of these facilities also increased. The State Department of Education does not make any recommendations concerning the amount of indoor facilities which a school should have.

III. EQUIPMENT

"If the objectives of physical education are to be fulfilled, there must be an adequate amount of equipment and supplies."[7] The availability of physical education equipment is essential to the development of the physical education program. A diversity of physical education equipment helps to insure a varied program of physical education.

Indoor and outdoor equipment. The percentage of schools having the various types of equipment recommended for physical education programs is listed in Table VIII. Included in this table is the percentage of adequacy of this equipment as determined by the principal. Playground balls, game balls and equipment, jump ropes and other equipment used on a daily basis were available in more than 90 percent of the schools surveyed. Other items of physical education equipment which are not as essential to the success of the physical education program were available to a lesser extent (see Table VIII). A substantial number of the principals surveyed indicated that the equipment which they had was sufficient for their needs.

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[7]Dauer, op. cit., p. 18.

TABLE VIII

PERCENTAGE OF SCHOOLS HAVING INDOOR AND OUTDOOR EQUIPMENT AND THEIR ADEQUACY ACCORDING TO THE PRINCIPALS

Equipment	Percentage of schools having equipment	Adequacy according to principal (%)
Softball bats	98.3	88.7
Softballs	97.7	86.0
Record player	97.0	85.4
Playground balls	96.7	77.1
Basketballs	96.0	77.7
Volleyballs	95.7	83.1
Jump ropes	94.4	72.1
Volleyball nets	93.4	79.7
Stop watch	92.7	66.4
Pump	92.4	77.7
Soccer balls	91.0	74.4
Rhythm records	88.0	67.1
Scales.	87.7	76.4
Softball bases	81.4	66.4
Footballs	80.4	68.4
Whistles	79.1	67.8
Bean bags	67.1	54.8
50' tape	66.1	62.5
Line marker	40.9	42.9
Tether ball	40.9	35.5
Horseshoes & stakes	33.2	30.9
Pinnies (team vests)	30.9	28.6
Deck tennis rings	26.6	23.6
Wands	26.2	23.9
Indian clubs	22.9	22.3
Tom-toms	21.9	22.9

Storage and distribution of equipment. The method of storage and distribution of equipment used in a school should be one which permits the greatest utilization of the equipment with the least amount of inconvenience to the individual teacher. The three different systems which can be employed in storing equipment are storage in the classrooms, storage in a central supply room, or a combination of the two.[8]

The storage of equipment in a classroom has the advantage of eliminating wasted time, making the teacher aware of what supplies are available, allowing the responsibility to be fixed for the loss or damage of equipment, and eliminating conflicting demands for equipment by different classes. The disadvantage of this method is the initial cost of supplying each classroom with sufficient equipment. The storage of equipment in a central supply room offers the advantages of a lower initial cost, the availability to teachers of all materials and the assurance of sufficient materials. The disadvantages of using the central supply room are the inaccessibility of the equipment, the loss of classroom responsibility, and the need to have someone in charge of the supply room in order that controls can be kept over the equipment. A combination of the two methods usually offers the best solution for elementary schools. In this way sufficient equipment for most daily needs can be kept in each classroom, and it can be supplemented by additional

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[8]Arthur G. Miller and Virginia Whitcomb, Physical Education in the Elementary School Curriculum (Englewood Cliffs, N. J.: Prentice-Hall, Inc., 1963), p. 24.

equipment which is available from the supply room as the need occurs.[9]

Figure 8 shows the percentage of the schools surveyed which used each of the three types of equipment storage and distribution. Only 11.4 percent of the schools stored their equipment in individual classrooms, while 22.9 percent of them used the central supply room method. The majority of the schools (65.7 percent) used a combination of storage in the classroom and a central supply room.

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[9]Dauer, op. cit., pp. 18-19.

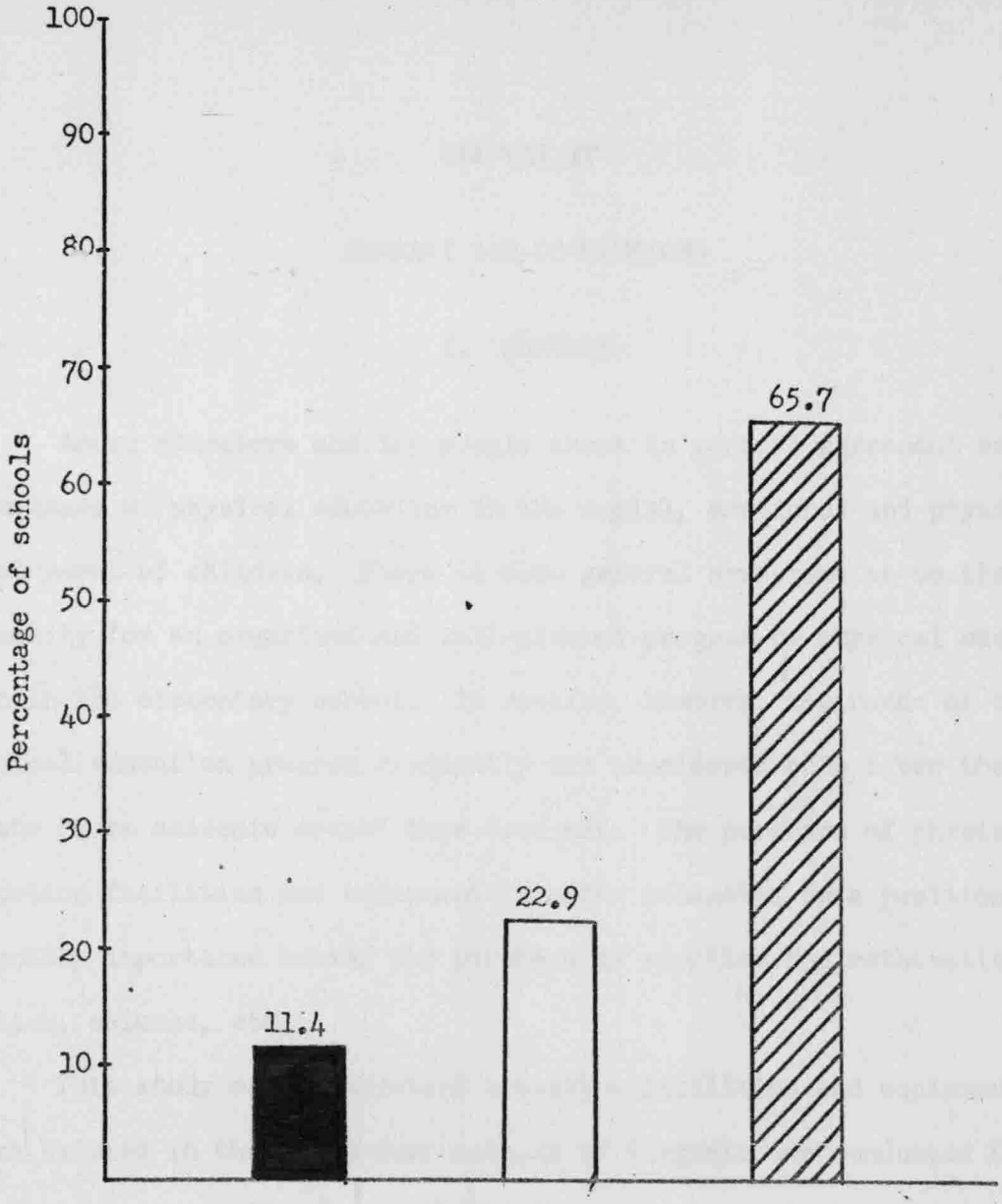

FIGURE 8

A COMPARISON OF THE METHODS OF STORAGE AND DISTRIBUTION OF PHYSICAL EDUCATION EQUIPMENT IN ELEMENTARY SCHOOLS

Storage in classrooms (percentage)

Storage in a central supply room (percentage)

Combination of the above (percentage)

CHAPTER IV

SUMMARY AND CONCLUSIONS

I. SUMMARY

Among educators and lay people there is general agreement on the importance of physical education in the social, emotional and physical development of children. There is also general agreement as to the necessity for an organized and well-planned program of physical education in the elementary school. In reality, however, the needs of the physical education program frequently are considered only after the needs of the "more academic areas" have been met. The purchase of physical education facilities and equipment is often relegated to a position of secondary importance behind the purchase of supplies for mathematics, English, science, etc.

This study of the physical education facilities and equipment which existed in the elementary schools of Virginia was conducted for the purpose of providing a basis for the comparison of those facilities with recommendations for adequacy of facilities and equipment. Two sources were selected as the means of evaluation of the adequacy of physical education facilities and equipment. The first source was the recommendation of the individual principals as to the adequacy of existing facilities and equipment in meeting the physical education needs of their schools. The second source of evaluation was the comparison of recommended standards for physical education facilities as developed by

the State Department of Education with the existing physical education facilities and equipment.

With this purpose in mind a survey was constructed and a sample of public elementary schools in Virginia was selected. The sample included schools with varying enrollment levels, and it was selected from schools in the different regions of the state. The survey was mailed to the four hundred and ninety elementary schools selected, and a response was elicited from three hundred and twenty five of the schools. A total of three hundred and one valid responses was analyzed and tabulated. Certain basic conclusions can be drawn from this data.

II. CONCLUSIONS

The results of the study emphasize certain basic inadequacies in the availability of physical education facilities and equipment. Significant emphasis was placed on the need for gymnasiums in elementary schools, since 96 percent of the principals surveyed indicated that they felt that gymnasiums should be included in new elementary schools. The significance of this finding should offer direction to those concerned with the planning of new elementary schools, especially the State Board of Education which approves and makes recommendations regarding plans for new school buildings. If schools are going to offer a complete program of physical education, it is essential that provisions be made for adequate indoor physical education space which is available on a full time basis.

The study also indicated a need for more space for outdoor

activity areas. The number of schools meeting the state recommendations regarding hard surface areas and grass areas was especially inadequate. The State Department of Education recommendations for hard surface areas and grass play areas place an excessive burden on the larger elementary schools. These recommendations specify that there should be an increase of one hundred percent of the number stated for each additional ten classrooms or fraction thereof. Therefore a school with forty two classrooms should have five hard surface areas (100 x 120 feet) and ten grass play areas (90 x 140 feet). This recommendation appears to be unrealistic and could act as a deterrent to the achievement of goals for physical education playground areas. Consideration should be given to the establishment of recommendations which would provide realistic goals for playground areas for schools of different sizes. Perhaps goals should be based on enrollment levels rather than on the number of classrooms, because classroom enrollment can vary substantially. School planners need to make provisions which will not only satisfy the immediate space needs of the school but which will also be adequate for the future needs as well.

Perhaps the most significant findings were in the area of facilities. Textbook sources constantly emphasized the importance of adequate outdoor and indoor facilities to the development of the physical education program. The majority of the schools surveyed had the essential outdoor facilities such as chinning bars, jungle gyms, horizontal ladders, basketball goals and volleyball goals; but only a small percentage possessed the supplemental physical education facilities which

help achieve a complete program of physical education. Although a significant percentage did have the basic outdoor facilities, only a small percentage of the schools was able to meet the State Department of Education recommendations regarding the adequate number of facilities. No State Department of Education recommendations were available for the adequacy of basketball goals, volleyball goals and tether ball posts; and therefore a comparison could not be made between the existing numbers of these facilities and state recommendations for adequacy. Because of the importance of these facilities to the physical education program, the State Department of Education should consider making recommendations for the adequacy of basketball goals, volleyball goals and tether ball posts.

The findings also indicated an apparent need for giving proper consideration to establishing priorities in the acquisition of facilities for playground areas. Outdoor facilities which were of less value from a physical education standpoint were possessed by a larger percentage of schools than were facilities of a greater physical education value. For example, a substantial percentage of the schools surveyed had swings and slides, while only a small percentage had sandboxes and low bars.

Except for tumbling mats and balance beams, indoor physical education facilities were extremely inadequate. Perhaps the demand for indoor facilities will increase as the number of schools with indoor physical education activity areas increases. The need for additional indoor physical education facilities also illustrates the need for State

Department of Education recommendations for indoor facilities.

The results of the study indicated a rather large discrepancy between the estimation of adequacy according to the principals surveyed and the adequacy of facilities when compared with the standards established by the State Department of Education. This may be the result of the high goals for physical education facilities established by the State Department of Education, or it may be the result of a tendency on the part of principals to be satisfied with the quantity of equipment that they possess. Principals throughout the state of Virginia should re-evaluate periodically the adequacy of their physical education facilities. A comprehensive study and evaluation also should be made by the State Department of Education to determine the effectiveness of its recommendations in supplying realistic goals for elementary school physical education programs. The State Department of Education should determine the extent to which new elementary school facilities are meeting state recommendations concerning the adequacy of physical education facilities.

The enrollment breakdowns for adequacy of physical education facilities often indicated that the number of schools having particular facilities increased as the enrollment increased, but the adequacy of the facilities often decreased. This is due, in part, to the recommendations of the State Department of Education, which state that the specified numbers of certain outdoor facilities should be increased by fifty percent for each additional ten classrooms or fraction thereof. Therefore a school with forty two classrooms should have six jungle gyms, six

horizontal ladders, six three-section chinning bars and six low bars. By scheduling the use of their outdoor facilities, larger schools could provide for their needs with less outdoor facilities. The State Department of Education should consider establishing goals for outdoor facilities which are based on enrollment levels rather than on the number of classrooms. Also, school administrative personnel need to be aware of growth in enrollment in elementary schools in order to provide additional outdoor facilities as the need arises.

In the area of equipment the results indicated that the majority of schools had the equipment essential to the physical education program. Items of a supplementary nature were possessed by a smaller percentage. The results also showed that a majority of the schools surveyed preferred to use the combination method of storage and distribution of equipment.

In conclusion, the results of the study indicated a need for a greater emphasis on and an awareness of the importance of physical education facilities and equipment in the development of the physical education program. School administrators and planners throughout Virginia need to re-evaluate the adequacy of their physical education facilities and equipment in terms of their goals for the physical education program.

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APPENDIXES

APPENDIX A

COVER LETTER FOR SURVEY

Box 717
Chester, Virginia 23831
April 17, 1970

Dear

The primary objective of elementary education is to provide for the complete emotional, social, physical, and intellectual growth of children. As educators we recognize the importance of physical education in the educational process. Yet recent studies indicate that efforts to provide for the physical development of children have fallen short of the desired goals.

The purpose of the enclosed questionnaire is to examine one of the factors which influences the physical education program; namely, the physical education facilities and equipment. The findings derived from this study will be used to compare, on a state-wide basis, the existing facilities and equipment with the recommended standards. No school or school system will be identified in the results of this study.

Although I realize that there are numerous demands on your time, I hope you will take a few minutes to answer some questions which may have some significance for the improvement of elementary school education in the state of Virginia. Your cooperation in completing and returning the enclosed questionnaire by May 4, 1970, is essential to the success of the study. A business reply envelope is enclosed for your convenience.

Thank you.

Sincerely,

Craig P. Organ
Principal
Enon Elementary School

APPENDIX B

A SURVEY OF PHYSICAL EDUCATION FACILITIES AND EQUIPMENT IN THE PUBLIC ELEMENTARY SCHOOLS OF VIRGINIA

I. GENERAL INFORMATION

A. School _____
B. Principal _____
C. Grade levels served by the school _____
D. Approximate pupil enrollment _____
E. Number of classroom teachers _____
F. Approximate acreage of school site _____
G. Date school building was erected _____
H. Date of latest addition _____

II. SPACE

A. Indoor Activity Areas

1. Please indicate which of the following large space areas you use for indoor physical education instruction by checking Column A. In Column B indicate the percent of the school day that the area checked is available for use.

	Column A	Column B
a. Gymnasium	_____	_____
b. Auditorium	_____	_____
c. Cafeteria	_____	_____
d. Multi-purpose area	_____	_____
e. Other (specify)	_____	_____

2. Are individual classrooms used for physical education when larger areas such as those above are not available? _____

3. Would you recommend that a gymnasium be included in plans for new elementary schools? _____

B. Outdoor Activity Areas

1. The following section is concerned with the amount of playground space available. Please estimate the number of each type of area available. Each area listed should be considered to be separate from the others and overlapping in counting should be avoided.

	Number Available
a. Hard surfaced play area (blacktop, etc.)	
b. Softball field	
c. Grass play area (approx. 90' x 140')	
d. General purpose area (approx. 125' x 150' - grass or clay)	

2. Indicate the number of covered outdoor areas available for physical education use. ____.

III. FACILITIES

Please indicate in Column A below the quantity of each type of facility available in your school. Indicate whether or not you consider this facility to be adequate for your school's needs by checking either Column B (adequate) or Column C (inadequate).

A. Outdoor Facilities	Column A No. Available	Column B Adequate	Column C Inadequate
Jungle gyms (or similar climbing structure)			
Horizontal ladders			
Chinning bars (no. of bars)			
Low bars (approx. 30" high)			
Swings (each - not sets)			
Slides			
Seesaws (each)			
Sandboxes			
Horseshoe areas			
High jumping pits			
Broad jumping pits			
Target boards			
Basketball goals			
Volleyball or Newcomb courts			
Tether ball post			
Other			

B. Indoor Facilities	Column A No. Available	Column B Adequate	Column C Inadequate
Climbing ropes			
Balance beams			
Vaulting boxes			
Parallel bars			
Horizontal ladders			
Chinning bars			
Bounding boards			
Tumbling mats			
Other			

IV. EQUIPMENT

Please check in Column A below those items of physical education equipment which are available in your school. Indicate whether or not you consider those items checked in Column A to be adequate for your school's needs by checking either Column B (adequate) or Column C (inadequate).

A. Indoor and Outdoor Equipment	Column A Available	Column B Adequate	Column C Inadequate
Rubber playground balls			
Pump for inflating balls			
Record player			
Rhythm records			
Jumping ropes			
Bean bags			
Soccer balls			
Softballs			
Softball bats			
Softball bases			
Volleyballs			
Volleyball nets			
50' steel measuring tape			
Stop watch			
Tom-tom			
Indian clubs			
Wands (wooden sticks)			
Scales (weighing)			
Deck tennis rings			

A. Indoor and Outdoor Equipment

Indoor and Outdoor Equipment	Column A Available	Column B Adequate	Column C Inadequate
Tether ball			
Set of horseshoes and stakes			
Line marker			
Whistle			
Pinnies (team vests)			
Basketballs			
Footballs			
Other			

B. Distribution of Equipment

Please check the means of storage and distribution of equipment which is used by your school:

1. Storage in individual classrooms _____
2. Storage in a central supply room _____
3. Combination of Numbers 1 and 2 _____

V. COMMENTS:

APPENDIX C

STATE DEPARTMENT OF EDUCATION RECOMMENDATIONS FOR ELEMENTARY SCHOOL PHYSICAL EDUCATION FACILITIES

"RECOMMENDATIONS FOR ELEMENTARY SCHOOL PLAYGROUNDS

The following areas are recommended for the establishment of a desirable playground for an elementary school. The areas suggested provide for a wide range of activities, make possible flexibility in the use of the playground, and enable the community to use the playground as a recreational center during the hours and days when school is not in session. The space recommended is established for a ten teacher or less elementary school. Following each type of area is a statement indicating how much additional space should be provided in case the school were to be larger than a ten teacher school. The minimum space recommended amounts to about 3 1/8 acres.

SPECIFIC RECOMMENDATIONS

"1. All-Weather Hard Surfaced Multiple-Purpose Area.--The All-Weather Area . . . should be 100 x 120 feet. It should be constructed of a suitable black top or concrete material. The space suggested makes it possible to conduct a number of physical education activities on the all-weather surface. Such an area can be used immediately after a rain, or when the playground is muddy. Space required equals .276 acre.

Number needed. One hard surfaced area of the size indicated should be provided for each school of ten classroom units or less. Additional areas should be provided for each additional ten classroom units or fraction thereof.

"2. Playground Equipment for Physical Development.

a. 2 jungle gyms
b. 2 horizontal ladders
c. 2 three-section chinning bars

d. 2 low bars, 30 inches high and 10 feet long.

These items should be placed in a space approximately 25 x 120 feet (.069) acre).

Number needed. The number indicated above represents the desirable quantity for a school of ten classroom units or less. For each additional ten classroom units or fraction thereof, increase the specified amount by 50 percent.

"3. Equipment for Recreation Use.

a. 1 set of six 8' swings
b. 1 set of six 10' swings
c. 1-6' slide
d. 1-8' slide
e. 6 seesaws, 30"-36" at fulcrum
f. 2 sandboxes, 8 x 12 feet

The above equipment should be placed in an area 50 x 120 feet (.138) acre).

Number needed. The numbers indicated above represent the desirable number needed for any school-ten classroom units or more.

"4. Additional Recreation Equipment.

2 horseshoe areas

Space needed. 50-60 feet (.069 acre).

Number needed. The number indicated above represents the minimum number needed for any school of ten classroom units or more.

"5. Field Areas.

a. 1 softball field--Overall dimensions 250 x 250 feet (1.435 acres).
b. 2 play areas (grass) each to be 90 x 140 feet (.538 acre). These two fields should be located side by side.

Number needed. Two such fields (90 x 140) are needed for each ten classroom units or fraction thereof.

"6. Auxiliary Facilities

a. 1 high jumping pit with standards.
b. Broad-jumping pit equipped with take-off board.

The area needed for these two units should be approximately 80 x 120 feet (.165 acre).

c. Target board--6 feet square. This board should be consrtucted [sic] by placing three 8 x 8 inch uprights in concrete and facing both sides with 2 x 12 inch planks which have been tongued and grooved. No specific area

is needed as this target may be placed at the end or side of one of the larger play areas.

d. General purpose area--An area of 125 x 150 feet should be provided as a general purpose area. This area should either be in grass or surfaced with a mixture of clay, sand, and fine gravel. (.435 acre).

Number needed. One such surface is all that is needed for any school. However, for an exceptionally large school, the area might be increased by 50 percent."[1]

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[1] Physical Education - Kindergarten Through Grade Seven, A Curriculum Guide Prepared by the State Department of Education (Richmond, Virginia: Commonwealth of Virginia, July, 1969), pp. 313-315.

VITA

Craig Paul Organ, son of Vernor C. Organ and Madeline Cook Organ, was born on October 30, 1942, in Pittsfield, Massachusetts. In 1946 he moved to Schenectady, New York, where he attended public school; and he was graduated from Niskayuna Senior High School in 1960.

From 1960 through 1964 Mr. Organ attended the University of Richmond and was graduated in 1964 with a Bachelor of Arts Degree in History.

Since graduation he has been employed by the Chesterfield County School Board. He taught grade seven at Enon Elementary School for two years (1964-1966) and at Chester Intermediate School for one year (1966-1967). He worked for one year as an intern principal (1967-1968), and he has been in his present position of principal of Enon Elementary School for two years (1968-1970).

Mr. Organ is married to the former Sandra Lee Carpenter of Winchester, Virginia; and they have two children, Craig, Jr., age five, and Scott, age 1.

He is a member of the Chesterfield Education Association, the Virginia Education Association, and the National Education Association. He is currently president-elect of the Department of Elementary School Principals of the Virginia Education Association for District C.

Mr. Organ is a member and deacon of the Rivermont Presbyterian Church. He is also a member and past officer of the Chester Jaycees, and he is a member of the Bermuda Optimist Club.