DETERMINING SOUND PRINCIPLES FOR
ADMINISTRATION OF THE SCHOOL
PLANT

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DETERMINING SOUND PRINCIPLES FOR
ADMINISTRATION OF THE SCHOOL
PLANT

THESIS

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By

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CHAPTER I

INTRODUCTION

Purpose of the Study

The purpose of this study is to determine sound principles for the administration of the school plant. Attention is given to the democratic, legal, psychological, and prudential principles underlying sound policies for the administration of the school plant, and to recommend practices and procedures for achieving these principles.

Importance of the Study

Within recent years there has been a growing recognition of the important part played by the physical plant of the school in the learning process. There has also come a new awareness that there must be sound administration policies of the school plant to make it most effective. Not a great deal of investigation, however, has been directed toward the study of what constitutes a sound administration policy of a physical plant. The growing movement for consolidation of a small school with consequent increases in the size of the physical plant makes it imperative that more study be made in this field. There is a definite need for improvement. Every administrator should understand the problem and its importance.
Limitations of the Study

This study is limited to an investigation of sound policies for the administration of a school plant and ground, and to recommended practices and procedures for achieving them.

Source of Data

The data for the study are documentary in nature. Various books and publications dealing with this particular field are utilized. The main source of information is material from the School Planning Committee of the National Education Association on the school plant with reference to the administrator as the guiding factor. Other sources utilized have been the opinions of various writers in the field of administration of school plants.

Definition of Terms

Some of the terms used in the study have such various shades of meaning that it is necessary to give the interpretations selected in this study.

Democracy will be referred to as the American way of life. Dewey's definition makes the meaning of this term more clear:

Democracy also means voluntary choice, based on an intelligence that it is the outcome of free association and communication with others. It means a way of living together in which mutual and free consultation rule instead of force, and in which
cooperation instead of brutal competition is the law of life; a social order in which all the forces that make for friendship, beauty, and knowledge are cherished in order that each individual may become what he, and he alone, is capable of becoming.¹

The School Superintendent will be referred to as the administrator, leader, delegator, and guide in all matters pertaining to the functioning of the school. The administrator, according to Strayer, must be prepared to do the following:

He must work in the complex industrial society which the schools are organized to serve. He must be able to appreciate the relationship of the schools to other social forces; he must understand the limitations which operate to define the area in which the school may work to best advantage. He must be forward-looking. He must be able to think and to plan in terms of the individuals who compose the school population and of the society which has set up this institution.²

The Physical Plant will be known as the building, grounds, equipment, teaching supplies, janitor and all janitorial services that the school superintendent must maintain a direct relationship with, or administer leadership over.

Method of Procedure

A definite plan is followed in the presentation of the study. In Chapter I, the introduction, attention is given to the purpose of the study, its importance, limitations,


source of data, definition of terms, method of procedure and some related studies in the field. In Chapter II, criteria for evaluating sound administrative policies are outlined. Attention is given in Chapter III, to practices and procedures favored by leading educators and writers to realize the sound administrative policies outlined in Chapter II. Chapter IV evaluates these practices and procedures in the light of the criteria. The findings, conclusions, and recommendations comprise the subject matter of Chapter V.

Related Studies

The part that the principal plays in the administration of the physical plant of the school was studied by Merrill E. Greer in 1922.3 An investigation of the rules and regulations of seventy-five representative cities distributed all over the United States, representing every geographical section, and ranging in size from 10,000 to 1,000,000 in population, disclosed that in fifty-five out of the seventy-five cities the principal was specifically required to supervise his buildings and grounds. In forty-seven out of seventy-five cities he was specifically required to supervise the janitors, in forty-two cities, to see that the buildings

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and grounds were kept in sanitary condition, in thirty-eight cities, to oversee all school property, and in thirty-seven cities, to supervise the use of school furniture and apparatus. This study by Greer was made more than twenty-five years ago. According to Otto, the scope and range of the principal's work has greatly increased within the recent years. It appears safe to assume, therefore, that the statistics presented by Greer would be increased if a similar study were made today. The investigation is related to the present one in that it emphasizes the responsibility of the principal or superintendent of a school for efficient administration of his physical plant.

Morphet, in 1927, made a study of the efficient utilization of the buildings and grounds by principals. In a survey of a selected number of schools, he found that in ten schools having enrollments of 800 to 1,000, the highest use of the building was seventy-eight per cent of its capacity, the lowest fifty-seven per cent, and the average, seventy per cent. These findings reveal an appreciable degree of waste in the utilization of building resources, and emphasize

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the necessity of the administration of the physical plant being based on sound educational policies.

Without an understanding of the school plant, the needs of the pupils, and the development, there could be no sound policies formulated. In this respect, some studies made by the National Education Association are pertinent to this investigation. An early study, in 1925, was made by the Association's Committee on School Planning and comprised an overall research of the complete process of planning and constructing a school building. Certain score cards and check sheets were set up regarding the desirable type of site, building plan, and many other items entering into plant construction. In 1948, a comprehensive report entitled "School Housing Needs in City-School Systems, 1947-48," was released by the Research Division of the Association. Two suggestions made in this study are pertinent to the present investigation. They are:

First, each community should make sure that it has accurate information as to just what additional school housing facilities it needs at the present time (and will need during the next few years) and when and where this additional housing must be provided. In this connection it should be kept in mind that a building program can be sound only when it is

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6 National Education Association, Committee on School House Planning, Planning and Constructing a School Building, 1925.

based on a considered educational program. Decisions as to type of organization and curriculum offerings are basic factors in determining needs.

Second, the people of the community should be told of these needs as clearly and as convincingly as possible. Public support of an extensive building program can be expected only when there is widespread community understanding of the needs and when the people themselves are given a share in the development of over-all plans for meeting them.8

These findings of the Research Division of the National Education Association further intensify the necessity of basing the administration of the physical school plant upon sound educational policies. They confirm the importance attached to school building problems by Strayer and Engelhardt, well-known students in the field of school buildings and plants. In a study entitled, School Building Problems, 9 these two educators made a comprehensive investigation of the many problems that arise in the construction of a school plant. Most of this work pertained to surveys made in the eastern portion of the United States on population studies, industrial movements, and other factors which very definitely affect the superintendent in determining what type of school building to erect.

8Ibid., p. 165.

9George D. Strayer and N. L. Engelhardt, School Building Problems, 1927.
CHAPTER II

CRITERIA FOR EVALUATING THE ADMINISTRATIVE POLICIES OF THE PHYSICAL PLANT

Purpose of the Chapter

The purpose of this chapter is to analyze the democratic, legal, psychological, and prudential principles underlying the sound administrative policies existing between the school administrator and his physical plant.

Relationship of the School Administrator to the Physical Plant

The administrator of a school performs many important functions in administering the physical plant of his school. If the plant is built after he assumes his position he has a part in planning the building, selecting the architect, and in supervising construction. If he takes charge of a plant already built, he is responsible for the most efficient utilization of the facilities furnished. He is responsible for the protection of the buildings and ground, and for prevention of plant defacement. He directs the school personnel in their use of the building. He reports hazardous conditions. He is responsible for equipment and supplies. He is responsible for the proper custodial care of his building and ground. He must initiate and direct some system for the use of the building and ground. The administration of
building and ground calls for the establishment of proper relations between pupils, teachers, and principal on one hand, and the custodial staff on the other. It is his duty to see that the school property is protected by insurance. All of these call for many contacts. Therein lies the need for some administrative policies based on democratic, prudential, psychological, and economic principles.

Democratic Principles Underlying Sound School Administration Policies of a School Plant

The main purpose of the schools of America is to train the youth of the land to the extent that they will be capable of assuming and carrying out the duties of citizenship in a democracy. The most recommended technique for achieving this aim is to use the principles of democracy in the school activities. Instead of the children reading how a democracy should be conducted, they learn by actual experience through practicing democracy in the classroom. This means that all phases of the school activities should be conducted in a democratic manner. The administration of the buildings and grounds by the school administrator is no exception. In setting up criteria for evaluating the school administrator’s policies in this respect, some attention should be directed to what constitutes democratic action.

The first and foremost principles of democracy are found in the Declaration of Independence:
We hold these truths to be self-evident: That all men are created equal; that they are endowed by their Creator with certain inalienable rights; that among these are life, liberty, and the pursuit of happiness. That, to secure these rights, governments are instituted among men, deriving their just powers from the consent of the governed.

These words state one of the most fundamental truths in a democracy: "All men are created equal", and "governments...derive their just powers from the consent of the governed". They simply mean that no one individual has the right to set himself up over others in a dictatorial manner or impose his will on them without their consideration and consent. The school administrator is the head of his school plant in the same way that the officials of the government direct the affairs of the nation.

The Constitution of the United States further asserts these rights of the individual. The Bill of Rights guarantees such liberties as:

2. Right of trial by jury.
3. Right of petition.
4. Right to vote.
5. Guarantee against dictatorial or military government.
6. Assurance that no cruel or unjust punishment will be inflicted.
7. Guarantee against unreasonable search or seizure.

When these rights are transmitted into school policies, they form the basis for a sound administration. Arthur D.

1. The Declaration of Independence.
2. The Constitution of the United States, Amendments I to X.
Hollingshead suggests the following principles of democracy by which to guide the administrator in setting up the policies which will make the public schools democratic in nature:

1. Democracy regards the individual as of inestimable value and his development as the sole objective of society.
2. Democracy guarantees an equality of rights to all individuals.
3. Democracy insures freedom to all individuals.
4. Democracy places the relations of individuals upon the plane of fraternity.
5. Democracy regards individual and group welfare as inter-dependent.
6. Democracy places its confidence in the experimental methods of science as a means of intelligently directing the course of its members.
7. Democracy achieves its common goal through the cooperative efforts of its members.
8. Government in a democracy is "of the people, by the people, and for the people".
9. Democracy depends upon education as a means of perpetuating and improving itself.\(^3\)

The National Education Association sets up the following principles as the hallmarks of democratic education:

1. Democratic education has as its central purpose the welfare of all the people.
2. Democratic education serves each individual with justice, seeking to provide equal educational opportunity for all, regardless of intelligence, race, religion, social status, economic condition, or vocational plans.
3. Democratic education respects the basic civil liberties in practice and clarifies their meaning through study.
4. Democratic education is concerned for the maintenance of those economic, political, and social conditions which are necessary for the enjoyment of liberty.

\(^3\)Arthur D. Hollingshead, *Guidance in Democratic Living*, pp. 11-12.
5. Democratic education guarantees to all the members of its community the right to share in determining the purposes and policies of administration.
6. Democratic education uses democratic methods in classroom, administration, and student activities.
7. Democratic education makes efficient use of personnel, teaching respect for competence in positions of responsibility.
8. Democratic education teaches through experience that every privilege entails a corresponding duty, every authority a responsibility, every responsibility an accounting to the group which granted the privilege of authority.
9. Democratic education demonstrates that far-reaching changes, of both policies and procedures, can be carried out in orderly and peaceful fashion, when the decisions to make the changes have been reached by democratic means.
10. Democratic education equips citizens with the materials of knowledge needed for democratic efficiency.
11. Democratic education promotes loyalty to democracy by stressing positive understanding and appreciation and by summoning youth to service in a greater cause.  

Merriam sets out a set of beliefs which form the democratic way of life. They are as follows:

1. Belief in the worth of the individual as a human being; belief in the essential dignity of man; faith in the potentialities of the individual man, respect for the personality of each individual; belief that every person can and should achieve a creative individuality.

2. Belief that everyone has the capacity to learn how to act on thinking; belief that everyone has sufficient capacity, or under favorable conditions can develop sufficient capacity, to manage his life with others through acting on thinking rather than through unguided and unrestrained impulse.

3. Belief that a person who must abide by decisions should have a part in making them; belief that taxation without representation is tyranny; belief

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that basic questions of policy can be decided by best mass judgment; belief that government rests on the consent of the governed.

4. Belief that the control and direction of democratic action lies in the situation, not outside of it...

5. Belief that the process of living is the interactive process; belief that each individual works with every other individual by sharing and evaluating individual experiences toward commonly recognized ends...

6. Belief that cultural change should be accomplished through the deliberative social action rather than by methods of uncontrolled violence; belief that change can best be brought about by the interactive process among individuals willing to study problems, to find out what is reasonable, in the light of all the circumstances; belief that conscious social change should be accomplished by methods of reasonableness rather than through methods of violence.  

Spears, another outstanding student of the democratic way of life, outlines his conceptions of American Democracy as follows:

1. Exalts individual worth and calls for respect for personality.
2. Grants the individual the right to free speech, free press, free worship, free discussion and criticism, and the right to think for himself; but asks him to examine with an open mind the facts before he speaks or acts.
3. Asks the individual to assume the responsibility for his own actions.
4. Asks the individual to share decisions and to cooperate with others for the common good.
5. Asks the individual to be tolerant of others, to respect their rights and opinions.
6. Asks the individual to be aware of society's problems, to be ready to act for the common good, and to be alert to the improvement of the common culture.

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7. Challenges the individual to improve conditions about him and to judge group action in the light of accepted social procedures.
8. Respects proper leadership and holds out to each properly qualified citizen the right to emerge as leader. Leadership is achieved rather than seized.
9. Cautions the leader that his successful action, in either personal or governmental affairs, is dependent upon enlightened public opinion.
10. Follows the will of the majority in determining the policy pertaining to the exercise of such rights as free speech, free press and free assemblage.
12. Holds faith that the masses of the people can be intelligent.

Quotations have been given in the foregoing discussions from six sources: two from government documents and four from outstanding students and writers of the democratic process. From the materials presented, it is believed that the democratic principles which govern democratic administration of any school may be summarized into specific statements.

In four of the sources quoted, there is complete unanimity of opinion regarding the principles of democracy which should operate in education. The two documents quoted make no mention of education, but the "welfare of all peoples," "equal opportunities for all children" and "the welfare of the whole" rather than the individual are implied.

The extent to which the sources consulted agree on these statements is shown in Table 1.

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### TABLE 1

**BASIC DEMOCRATIC PRINCIPLES FOR SCHOOL ADMINISTRATION AND EXTENT TO WHICH SIX SOURCES* AGREE WITH THESE PRINCIPLES**

<table>
<thead>
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<th>Democratic Principles</th>
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<td>1 2 3 4 5 6</td>
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<tr>
<td>The central purpose of education is the welfare of all people</td>
<td>X X X X X</td>
</tr>
<tr>
<td>All schools must offer equal educational opportunities</td>
<td>X X X X X</td>
</tr>
<tr>
<td>The rights and opinions of others must be respected</td>
<td>X X X X X</td>
</tr>
<tr>
<td>A person who must abide by decisions should have a part in making them</td>
<td>X X X X X</td>
</tr>
<tr>
<td>Cultural change should take place through thoughtful decision and not through mob violence</td>
<td>X X X X X</td>
</tr>
<tr>
<td>Each individual has the capacity to learn, to make his own decisions how to act on thinking</td>
<td>X X X X</td>
</tr>
<tr>
<td>Democratic education makes efficient use of personnel</td>
<td>X X X X</td>
</tr>
<tr>
<td>Democratic education uses democratic methods in classroom, administration, and student activities</td>
<td>X X X X</td>
</tr>
<tr>
<td>The welfare of the whole has precedence over individual welfare</td>
<td>X X X X</td>
</tr>
</tbody>
</table>

*Sources:
1. The Declaration of Independence
2. The Constitution of the United States
3. Hollingshead
4. Educational Policies Commission
5. Merriam
6. Spears
Legal Principles Underlying Democratic Administration of a School Plant

The Constitution of the United States made no provision for education, but left this matter along with many others, to the different states. State constitutions, however, provide for the establishment and support of schools. The State Constitution of Texas, for example, clearly defines the obligations of the state to its children:

A general diffusion of knowledge being essential to the preservation of the liberties and rights of the people, it shall be the duty of the Legislature of the State to establish and make suitable provision for the support and maintenance of an efficient system of public schools.\(^7\)

Education, therefore, is a state function. Education is a part, therefore, of the legal framework of the state and is administered and governed by laws made by the state. Mort describes a school district in this manner:

Any school district is an operating unit authorized by law, delegated certain powers by the state, and conditioned to its actions by defined procedures, regulatory machinery, and services from other governmental agencies. This we conceive as the legal setting.\(^8\)

Hamilton and Mort say:

Constitutional provisions, statutory enactments, and judicial decisions determine the structural pattern of education and the mode of its operation.\(^9\)

\(^7\)The State Constitution of Texas, Article VII, Section 1.
\(^8\)Paul R. Mort, Principles of School Administration, p. 280.
School governments differ from municipal government in that they operate almost entirely under general legislation while city governments are typically established by individual charters. Mort says:

Each school system must be thought of as operating in a general setting established by the legislature. The legislature is a state school board. The state department of education is an executive agent of the state school board; the state board of education is a sort of sub-committee with power to act usually in strictly defined areas.

No school district, large city, or village exists by and of itself. It is part and parcel of the system that ramifies throughout the state.10

The foregoing is the legal theory of the relation of school and state legislature. In reality, the community itself is a tremendous force in the molding of the school. Westley made a study which supports the theory that a vast amount of what "goes into the molding of the character of a school does not flow from the board of education or the state department".11 The culture of a community, its financial resources, and the needs of the community and pupils are determining factors as well as state legislation. In other words, there is dual control.

Douglass and Grieder say that in the legal structure of a school there is also the question of the scope of school

10Mort, op. cit., p. 301.

11Clore O. Westley, Local Autonomy for School Communities in Cities, p. 45.
district powers.12 Boards of education in most states have been granted rather wide powers by legislative authority. States have delegated most of the details of management to local boards, insisting only that they meet minimum state requirements. The state may require certain subjects to be taught, certain minimum salaries to be paid, specific number of days to be taught, and certain standards of teacher preparation, but beyond these requirements the local school boards have much latitude.13

Another legal aspect of school administration is educational control of the schools by the courts. Since the schools are set up by state legislation, the courts of the state have the power to interpret school statutes and to enforce their terms. Douglass and Grieder state:

Thousands of school cases have been argued before lower courts, and many decisions have been appealed to state supreme courts.14

Hamilton and Mort state:

"...the function of the courts is to interpret legislative enactments and constitutional provisions...When it is remembered that they have the power to interpret both the constitution and the statutes, and that in so many cases more than one interpretation is possible, the power of the courts in directing the course of the law becomes apparent. And power to interpret the law..."

13 Ibid., pp. 166-167.
14 Ibid., p. 142.
as it applies to educational matters means, to a very great extent, the power to direct the course of education...educators generally have failed...to recognize that reactionary courts may, through strict interpretation, practically nullify the most enlightened educational legislation.\textsuperscript{15}

The legal principles governing the administrative policies of a school plant may be formulated into specific statements from these discussions. Table 2 lists the statements and the number of the quoted sources agreeing with the principle.

\textbf{TABLE 2}

\textbf{LEGAL PRINCIPLES UNDERLYING SOUND SCHOOL PLANT ADMINISTRATION POLICIES}

<table>
<thead>
<tr>
<th>Principle</th>
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<tr>
<td>Education is a state function</td>
<td>X X X X X</td>
</tr>
<tr>
<td>Education is governed by legal statutes</td>
<td>X X X X X</td>
</tr>
<tr>
<td>State statutes set up general control provisions</td>
<td>X X X X X</td>
</tr>
<tr>
<td>Local districts set up provisions to meet specific needs of the community</td>
<td>X X X X X</td>
</tr>
<tr>
<td>The courts of the state, through interpretation of statutes and enforcement of law, are directing educational agencies</td>
<td>X X X X X</td>
</tr>
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\textsuperscript{15}Hamilton and Mort, \textit{op. cit.}, p. 15.
All of the sources consulted agree on these fundamental premises. The number of sources available, it might be mentioned, are few because not too many writers deal with this phase of school administration.

Psychological Principles Underlying Sound Administrative Policies of a School Plant

The aim of education is to produce a well-rounded institution that will insure the growth of children mentally and physically. In a democratic society, emphasis must be likewise placed upon the school’s obligation to improve social living. The physical plant of the school can be an agency in this work if psychological principles underlie the administrative policies. Kilpatrick implies that the school must be a place where pupils go, not only to learn, but to carry on a way of life.

The life of the school as a whole, the work of councils, committees, assemblies, organizations, groups of all kinds, constitute the very heart of the curriculum in this new school, instead of being extra-curricular as they have often been considered. Such clearing houses as forums, group discussions, and conferences at which young people exchange and validate opinions and the result of their research are a necessary part of the program of the new school. These are the activities which give practice in real cooperation. 16

If this value accorded varied school activities by Kilpatrick is accepted, it is clear that the physical plant of the school must provide proper facilities. There must be

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16 Department of Supervisors and Director of Instruction, Cooperation, Principles and Practices, Eleventh Yearbook, p. 43.
sufficient play area, a central auditorium, and adequate equipment. The school administrator, either through planning for new buildings or efficiently utilizing the ones in existence, is an important factor in realizing the aims of the new curriculum.

The prevalent basic theory of learning supports the psychological importance accorded the school plant in the learning process. The following is a summary of the laws of learning assembled by a reputable source:

1. Learning proceeds more rapidly and tends to be more permanent when the relationship between what is being experienced and the welfare of the learner is seen by him.

2. Learning proceeds more rapidly and tends to be more permanent when it is an outgrowth of, or a development from, the experience of the learner.

3. Learning proceeds more rapidly and tends to be more permanent in proportion to the amount of satisfaction the learner derives from the process of learning, and in proportion to the immediacy of the satisfaction.

4. Learning proceeds more rapidly and tends to be more permanent when it involves activity—physical and mental—on the part of the learner.

5. The probability that what is learned will later be recalled for use (and used) when needed increases in proportion as the learning situation resembles that in which the learning is used or applied.

6. The probability that what is learned will later be recalled for use when needed increases in proportion as the relationships between each element (skill, idea, fact, ideal) which is being learned and the other elements learned is understood by the learner.\(^7\)

Beaumont and Macomber set up the following concepts of learning:

1. Individuals differ greatly from each other in their ability to learn in any given learning field or situation.
2. Each child differs greatly within himself in his ability to learn in each of the several areas of the curriculum.
3. Learning is a growth process—a process of maturing through experiencing.
4. The child is a creative organism and, as such, capable of creativeness in his expression.
5. In situations of a problem-solving nature, effective learning is possible only if the learner is capable of gaining insight into the learning situation.
6. The learner is a goal-seeking organism and learns most effectively when proceeding toward goals recognized and accepted as his goals.
7. Motivation of the learner can be explained only in terms of multiple causation.
8. The ability to generalize forms the basis upon which transfer is made in problem-solving situations.
9. Security, success, and prestige are absolute essentials to mental health of all pupils.
10. Learning is emotional in nature as well as intellectual and physical.
11. The teacher is an integral part of the pupil's psychological environment.
12. Integration is essential to wholesome development of the individual and society.  

Crow and Crow assert that:

"... an individual is a developing and changing human being from infancy to old age... His wants and needs are many and varied, and they change with his changing nature. Moreover, every individual is both similar to and different from all other human beings."  

Wort sets up the following psychological concepts:

1. You can't train the mind like a muscle...
2. Individuals differ in all sorts of ways: capacities, past growth, points as which growth is now ready to


19 Lester D. Crow and Alice Crow, *Introduction to Education*, p. 129.
occur. To provide a wholesome growing situation a school must have a wide variety of open doors leading by varied paths toward the desired goals.

3. The more there is in common between the learning situation and the situation in which the learning is to be applied, the more likely will the learning be useful.

4. Learning is a process of individual unfolding. Each of us grows from where he is, not from some independently determined starting point held in common with others.

5. Interest is the phenomenon that indicates growth. Just as friction generates heat, learning generates interest. We don't teach to get interest, but when we don't get interest, our teaching isn't prospering. Interest is an index of where the organism is ready to go. No all interests need be followed any more than all limbs on a tree need be allowed to develop; we select and encourage the limbs that sprout in desirable places.20

The psychological principles underlying sound administrative policies of a school plant may be formulated into specific statements from these discussions. Table 3 gives these statements. As shown in the data, none of the five sources specifically mention that a school plant should have these principles as a sound basis. The opinions are statements of the laws of learning phrased in varying ways. If a school plant is to perform its function of training the young people, the plant itself must have the facilities for the kind of training deemed necessary. If a child learns better and can do better work in an attractive and convenient school plant, then the plant is an aid to education.

20Mort, op. cit., p. 43.
### TABLE 3

**PSYCHOLOGICAL PRINCIPLES UNDERLYING SOUND SCHOOL PLANT ADMINISTRATION POLICIES**

<table>
<thead>
<tr>
<th>Principle</th>
<th>Sources</th>
</tr>
</thead>
<tbody>
<tr>
<td>The physical plant of a school influences the learning outcomes</td>
<td>X X X X X</td>
</tr>
<tr>
<td>The school plant must provide proper facilities for carrying out an activity program</td>
<td>X X X X X</td>
</tr>
<tr>
<td>The school plant should provide opportunities for experience learning</td>
<td>X X X X X</td>
</tr>
<tr>
<td>The school plant should provide opportunities for meeting individual differences</td>
<td>X X X X X</td>
</tr>
<tr>
<td>The school plant should be attractive and convenient to increase interest of the learner in attending school</td>
<td>X X X X X</td>
</tr>
</tbody>
</table>

#### Prudential Principles Underlying Democratic Administration of a School Plant

Prudent management of school property is essential in order to derive adequate benefit from the great expenditure of money for building and maintenance of schools without considering the money spent for administering the school program.

The Twelfth Yearbook of the Department of Superintendence, National Education Association, lists seven basic principles of economy in education:
1. Education is a social function of such major importance as to require continuous financial support from public sources.

2. If education is to be effective in developing good citizens, it must be given financial support adequate for this purpose.

3. Economy is well established as an inseparable characteristic of efficiency in educational administration.

4. The allocation of specific amounts for particular fields of the educational program should be made by the board of education with the advice of the professional staff.

5. When retrenchment in government is necessary, education should be expected to take only its fair share of curtailment as determined by the volume and urgency of public demands for services.

6. Curtailment of education should be considered always with the educational welfare of children as the basic criterion.

7. All reduction should be considered in the light of a plan as to the future needs and development of public education.²¹

Mort gives the following definition of prudence in school administration:

Prudence is as old as the race...It implies the ability to regulate; to calculate; to employ skill and sagacity in the management of practical affairs; to exercise caution and circumspection; to use foresight, that is, give due regard to the future; to employ forethought...and to exercise wisdom as the outgrowth of experience.²²

Mort and Reusser state that the problem of efficient management of the physical plant is an important aspect of the educational process.²³ Too frequently when buildings

²¹Paul R. Mort and Walter C. Reusser, Public School Finance, p. 326.

²²Mort, op. cit., p. 161.

²³Mort and Reusser, op. cit., p. 328.
are erected or equipment is purchased, little attention is paid after the initial action is taken. Although the continued adequacy of the school plant contributes to the efficiency of the program, too little attention is often encountered in this phase of school administration. According to one source, a genuine economy in school administration has such characteristics as follows:

1. It must not require trained and skilled employees to do work which is within the capacity of other employees of lesser skill and ability.
2. It must utilize the school personnel as efficiently as possible.
3. It must not cause a temporary saving at the expense of a greater expenditure in the future.
4. When expenditures are made for equipment and supplies, the school must obtain the most for the labor or money expended.
5. If based upon the use of a less costly substitute, the substitute must serve the need as well as, or better than, the article customarily used.
6. If dependent upon the use of a makeshift device, there must be a definite assurance that this device will not impair more expensive equipment or other properties of the school.
7. It must not otherwise violate the principles of sound business procedure.
8. It must not destroy the aesthetic value of the educational environment.
9. It may represent a saving in money, supplies, equipment, or with the time of pupils, teachers, or other personnel.

The prudential principles governing the administrative policies of a school plant may be formulated into specific

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statements from these discussions. Table 4 lists the statements and the number of the quoted sources advocating this principle.

**TABLE 4**

PRUDENTIAL PRINCIPLES UNDERLYING SOUND ADMINISTRATION OF A SCHOOL PLANT AND GROUND

<table>
<thead>
<tr>
<th>Principles</th>
<th>Sources*</th>
</tr>
</thead>
<tbody>
<tr>
<td>Expenditure of large sums of the taxpayers' money for education demands careful handling of funds</td>
<td>X</td>
</tr>
<tr>
<td>Economy is an inseparable characteristic of efficiency in educational administration</td>
<td>X</td>
</tr>
<tr>
<td>Efficient management of the school plant is an important aspect of the educational process</td>
<td>X</td>
</tr>
<tr>
<td>School personnel must be utilized efficiently</td>
<td>X</td>
</tr>
<tr>
<td>Sound business procedures should characterize expenditure for education</td>
<td>X</td>
</tr>
</tbody>
</table>

Sources

1. The Twelfth Yearbook, Department of Supervision
2. Mort
3. Mort and Reusser
4. Henslik, and others

According to the data in Table 4, the four sources consulted here on prudential principles underlying the sound administration of a school plant are in agreement on the
major principles outlined. The same sound business procedures that are necessary in the field of business economy are applicable in the expenditure of public funds for education.

Criteria for Evaluating the Administrative Policies of the Physical Plant

Criteria for evaluating the administrative policies for the school plant, when based on the foregoing principles, may be summarized as follows:

Democratic:

1. The needs of all children should be met.
2. The school should be available to all children.
3. The building should be cooperatively planned.
4. The interests of the tax-paying public should be protected.

Legal:

1. The building should conform to all legal requirements.
2. The cost of building should not be beyond the financial resources of the community.
3. The financing of the building should be kept within legal requirements.

Psychological:

1. The school plant should provide for meeting individual differences.
2. The school plant should be large enough to meet the needs of the newer activity curriculum.
3. The environment of the school plant and the building itself should be attractive.

Prudential:

1. The school plant should be maintained so as to protect the investment of the taxpayer.

2. Adequate insurance should be carried on the school plant and equipment.

3. Custodian personnel should be utilized efficiently.

4. All funds expended should be safeguarded by the same business procedures as used in business establishments.
CHAPTER III

PRACTICES AND PROCEDURES RECOMMENDED
FOR THE ADMINISTRATION OF A
SCHOOL PLANT AND GROUNDS

Purpose of the Chapter

The purpose of this chapter is to make an analysis of
practices and procedures recommended by leaders in the field
of school administration for the administration of the
school plant and grounds. As in the criteria, attention
will be given to administration of the school site, the type
of building to be constructed, the architect, financing the
building, physical details of the school plant, and insurance.

Administration of the School Site

The National Education Association has a Committee on
School House Planning which employs constant research in its
efforts to aid administrators of school plants in their
problems. This Committee recommends the following practices
and procedures in the administration of the school site:

1. Adequate size
   (a) For the building and its future extensions.
   (b) For the proper setting of the building and
       its removal from the noise and dust of the
       street.
   (c) For outdoor games and physical education.
   (d) For school gardens if desired.
2. Orientation of building. Most classrooms should have sunlight part of the day. The result is obtained most readily if the site permits the long axis of the building to extend approximately north and south.

3. Freedom from noise and odors. Avoid proximity to railroads, gas plants, factories, and other sources of injurious noise and odors.

4. Suitability for construction. Avoid low, filled, and wet land. Avoid abrupt changes in grade unless the building can be readily adapted to them. Ledge rocks may increase cost of foundation.

5. Safety. Elementary schools, especially, should not be located on dangerous thoroughfares.

6. Healthfulness. Abundance of fresh air and sunlight and freedom from noise, dust, and odors are conducive to health.

7. Reasonable centrality to contributing area. Exact centrality is not as important as other factors.

8. Reasonable accessibility. When many children must come by railroad or trolley, the school should not be too distant from them.1

Leonard V. Koos is one of the outstanding writers in the field of school administration. In his most recent book, written in collaboration with other outstanding students of school administration, Hughes, Hutson, and Reavis, he states that many of the specific problems in utilization have their inception in inadequate school sites, improper placement of the building on the site and the architectural plans and building construction. They recommend:

1. Sites large enough for activity programs.
2. Efficient utilization of existing facilities.
3. Wise use of outdoor facilities.2

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2Koos, and others, Administering the Secondary School, p. 495.
In most cities the school sites are selected and purchased several years before the schools are to be built. Reeder suggests that the selection be made early for the following reasons:

1. It will help to assure the best available site. If the selection is delayed until a few weeks or months before the building is to be constructed, there may have to be a compromise between what is desirable and what is obtainable.

2. The site can usually be obtained at a much cheaper price. Land values tend to rise rapidly in a growing neighborhood.

3. It will enable the school authorities to protest the establishment, in that community, of any business which is detrimental to a wholesome school environment.\(^3\)

Reeder further listed some essentials of an adequate school site:

1. It should be within easy or walking distance of the pupils it is designed to serve.

2. The size, shape and topography should meet proper standards.

3. The soil should be quick-drying, free from decaying organic matter, and free from artificial construction.

4. Other things being equal, the cheapest site should be used for construction.

5. The drainage should be natural, or it should be possible to construct cheaply and easily an artificial drainage system.

6. The water supply should be sufficient and of a good quality.

7. The site should receive sunlight during the entire day.\(^4\)

Strayer and Engelhardt are noted names in the field of public school building construction. They have made a great

\(^3\) Reeder, Fundamentals of School Administration, p. 194.

\(^4\) Ibid., p. 195.
deal of research on the study and have investigated all phases of the building project. Their recommended practices and procedures for the schoolhouse site are part of a score card set up to be used in the selection of a school site as enumerated in the Strayer-Engelhardt-Womrath Score Card as follows:

A. Location.
   1. Accessibity.
      a. The geographical center of the district.
      b. The center of present and estimated future population.
      c. Types of streets leading to the school should be fully considered.
      d. Location may be sacrificed in the interest of adequate size of site and environment.

2. Environment.
   a. Gardens, trees, shrubbing in vicinity and on grounds are desirable.
   b. The sky line should not have an angle of more than 30 degrees from base of building. It is generally accepted that the distance of the school building from obstructing buildings or trees ought not be less than twice their height.
   c. Nearness of nonfireproof buildings becomes a source of danger.
   d. The neighborhood of railroad crossings and intersecting car lines should be avoided.
   e. The vicinity of sources of immoral influences should be avoided.
   f. Freedom from noises, dust, danger, polluted air, and malodors should be sought.

B. Drainage.
   1. Elevation.
      a. Freedom from surface drainage of contiguous ground, especially if such ground is exposed or has been recently exposed to pollution of any kind.
      b. If built on flat ground, tile drainage may be needed underneath cellar as well as about the grounds. Depth of tile should be determined by the character of the soil.
c. Where the contour of land makes it possible, the site should be located on high land. Abrupt difference in grade, which might appear to be disadvantageous, often furnish the very opportunity for a commanding setting of the building. Low ground should be avoided wherever possible. High land, at a reasonable distance from factories, stables, dumps, swampy places, and other objectionable surroundings should be sought.

   a. The soil should be nonerosive. Sandy loam is best with 15 to 25 per cent sand.
   b. Natural ground should be chosen in preference to artificially constructed land. Possible contamination of the soil and its accompanying menaces to the health of children are sufficient reasons for avoidance of the latter.
   c. The playground section should be dry and pervious. It should be constructed to drain very rapidly. Concrete or brick surface should be avoided.

C. Size and form.
   a. The site should be large enough and of good shape to allow for the proper placing of building. With the tendency toward the erection of large schools, sites of four to six acres should be provided.
   b. The playground, exclusive of lawns and gardens, should provide a minimum of 100 (one hundred) square feet per child.
   c. The playground should have adequate playground equipment.
   d. Provision should be made for a flagstaff on the school grounds in front of all school buildings. It should be at least 40 (forty) feet high and provided with halyards, truck, etc., complete. A suitable receptacle for the safe-keeping of the flag when not in use should be provided within the school building.

Otto states that the school is recognized as part of the

teaching facilities of the school. In the past, attention was given to the site mainly for the purpose of suitability for building purposes but within recent years the site is being considered as a potential factor in curriculum enrichment.

In the new school-leadership-community programs, plans are made for adults as well as pupils to use the school sites. If this practice is carried out, the usual small fenced-in plot is inadequate. Engelhardt and Engelhardt propose sites that would include twenty-five to one-hundred acres. These larger plots would include areas planned as play fields, picnic grounds, natural theaters, parking spaces, water areas, nature crafts, garden, and farms.

Attention is also being given to the landscaping of the school site. As people have become more interested in beautifying their own homes and in landscape gardening, they have transferred a part of the interest to beautifying the school grounds. Holway has identified the most common objections that people make to a landscaping program for the school grounds, and exposed the false ideas or notions inherent in these objections. He also provided many helpful

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6 Otto, op. cit., p. 525.
7 N. L. Engelhardt and N. L. Engelhardt, Jr., op. cit., p. 165.
suggestions for school leaders and the community on types of shrubs and trees suitable for planting on the school site.\textsuperscript{9}

Selection of the Building Architect

A number of the larger cities in the United States employ a school architect on a salary. By this method they are able to standardize many elements in their plans, to adapt their buildings progressively to local needs, to profit fully by past experience, and to secure continuing studies of school accommodations needed. Among the cities following this practice are: New York; Chicago; Philadelphia; Saint Louis; Cleveland; Minneapolis; Washington D. C.; Portland, Oregon; Seattle, Washington and Akron, Ohio. Only the larger cities can afford this policy and the smaller cities and rural communities must revert to the hiring of a skilled outside architect for all their plans and guidance. This is why it is so important to pick an architect who is experienced in the field of school construction. The selection of the architect is the most important step in the planning and construction of a school, for upon his skill and judgement will depend to the largest extent the success or failure of the building.

\textsuperscript{9}C. P. Holway, "Planting the School Yard," \textit{American School Board Journal}, CVII (March and May, 1943), 31-32, 39-41.
In the report, "High School Buildings and Grounds" prepared by the commission on the Reorganization of Secondary Education it was stated that there is a vital relation between the building plan of a school building and the operating plan. The following statement was made:

Owing to the many mistakes and the handicaps such mistakes are placing on educational progress, schoolmen are becoming alive to the fact that there is an intimate relation between the building plan and the operating plan of a modern school. Consequently, they are awakening to the importance of employing an expert in school planning. High school buildings are among the most complicated and difficult structures to plan and construct. They demand the highest type of architectural and engineering ability. Their success or failure depends, in a large measure, on the professional fitness and executive ability of the architect.\textsuperscript{10}

There are two methods of selecting an architect, according to the National Education Association on School Planning, the first of which is the only satisfactory method:

1. On the basis of ability and experience in school construction.
2. By competition.

The above report states further:

There is abundant evidence through many successfully executed high school buildings throughout the country to prove that the most satisfactory procedure is to select an architect who, by his professional attainments and executed work, has proven his fitness to handle school buildings. If competition is held, the following suggestions should be followed. The competition should be limited to persons who have demonstrated their ability to plan and construct satisfactory schools.

Moreover, a wide experience in school architecture is essential as every school involves new problems. The young practitioner should secure his experience in the employ of a firm doing school work, and never where his mistakes must be at the expense of the public and its youth. The winning of a competition, if not limited to competent persons, is no guarantee that the person is competent, since the competition plans do not include details of planning and do not reveal a knowledge of construction or executive ability.  

The following is a check chart compiled by the Committee on School Planning of the National Education Association that determines the essential qualities of a good school architect:

1. Familiarity with modern educational practice and the activities conducted in a modern school in so far as they affect planning. He must visualize the way in which the school and its classes carry on their work, in order to handle details satisfactorily.

2. Openmindedness to suggestions and willingness to revise plans so long as they can be improved. He must not cut short the consideration of educational features.

3. Originality and extended experience in school architecture. Every building presents new problems and both experience and originality are needed to cope with them.

4. Professional spirit shown by his desire to secure the solutions that are best for the community and its children.

5. Executive ability to keep all working harmoniously so as to secure the best results.

The architects organization should include someone who has demonstrated his ability through the planning and construction of a large number of schools that are really efficient when judged by competent persons. No building can be judged fairly without knowing its cost. Expensive buildings must be judged by high standards of construction and all buildings should be judged by high standards of planning, including safety.

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Ibid., p. 12.
His organization, including the experts he employs, should be masters of:
(a) Design as applicable to schools.
(b) Construction appropriate to schools.
(c) Heating and ventilating of schools.
(d) Engineering.12

Type of Building to be Constructed

In the traditional school with its simple subject-matter program, one and two room schoolhouses were adequate for the needs of the pupils in the majority of instances. Increasing attendance in schools and expanding curricula have changed the building concept. Modern school plants are far more complex and fill many more needs. However, the planning of new buildings is too frequently done as an emergency requirement. Koos, and others, state the building should be the outcome of "a carefully considered educational plan, checked and rechecked by present and estimated future needs and by current and future practices as revealed through trends".13 They state further, that the principal of a school often has little to say about the development of or the adoption of the plans, that the teachers are not permitted to offer suggestions about classroom needs, and that the community concerned knows only the urgency for a new building. Such procedures, they state, violate fundamental principles. The planning of a new school building should not be

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12Ibid., p. 16.
13Koos, and others, op. cit., p. 505.
done hastily. The head of the school should inform everyone concerned of the impending project well ahead of the emergency situation. There should be carefully prepared data on local building needs, and information should be available regarding current trends in high school programs and plants. The type of buildings to be planned will be determined by such factors as "the size and location of the site, the money available for the project, the character of the other buildings in the community, and the general plant needs of the local school."14

In the recent 1947-48 report of the Research Division of the National Education Association, it is stated that each community should make sure that is has accurate information as to just what additional school housing facilities that it needs at the present time and will need during the next few years. In this respect, it was reported that a "building program can be sound only when it is based on a considered educational program."15 Otto calls attention to the relationship of the type of plant constructed to the community. He states, "a significant trend in school plant planning is the clear-cut recognition that the facilities of the school should make ample and appropriate provisions for

14 Ibid., p. 506.
adult as well as children's uses". The factors which have brought about this trend in designing school buildings and grounds are described as follows:

The general economy demands that the large investments in school plants serve the community in multiple fashion. The changing nature of the culture, with changes in hours of employment, amount of leisure time, and people's social and recreational activities, calls for neighborhood facilities wherein these activities can take place. School plant facilities must serve these many needs.

The type of building to be constructed has also changed in modern trends. At one time schoolhouses were designed as "imposing buildings with impressive columns and ornate decorations." This type is no longer considered necessary and "simplicity in size, structure, arrangement, and ornamentation" characterize the new buildings. The Committee on School House Planning favors buildings that can be readily enlarged. No plan is acceptable unless it provides for economical expansion.

The nature of the construction to be used for the building will depend partly on the policy of the board of education and partly of the funds available for the project, since the cubage cost varies with the type of building materials used. Fireproof floors, ceilings, and stairways

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16 Otto, op. cit., p. 519.  
17 Ibid.  
18 Committee on Schoolhouse Planning, National Education Association, Report of Committee on Schoolhouse Planning, p. 16.
of fire-resistive materials are used only in walls, corridors, and stairs, and still further lowered if they are resisted to the walls. The cheapest type of construction, and the one that would involve the greatest maintenance cost and would present the greatest danger hazards, is frame. The climatic condition of the community, the nature of local building materials available, and the fire rating of the community might also have much to do with the final decision with respect to type of building to be erected.

Financing the School Building

Methods of financing school buildings vary from state to state because education is considered a state function. In Texas the obligation to support the public schools was recognized in the Constitution:

A general diffusion of knowledge being essential to the preservation of the liberties and rights of the people, it shall be the duty of the Legislature of the State to establish and make suitable provision for the support and maintenance of an efficient system of free schools.\textsuperscript{19}

However, specific provisions for financing school buildings have been placed on local boards by the legislature. In the third section of Article VII in the Constitution, authority was given the legislature to levy and collect an ad valorem tax within all school districts for the "maintenance of public free schools and for the erection

\textsuperscript{19}Constitution of Texas, Article VII, Section I.
and equipment of school buildings therein."20 School buildings in Texas, therefore, are the responsibility of each local school district, and they are financed by a property tax levied in each district. In case of a storm, the legislature has the "authority to make an appropriation out of the general revenue fund of the state to erect a school building in lieu of the one destroyed"21 if the storm also impaired the ability of taxpayers to pay their taxes. Unless a special case like this arises, the local district must finance the school building. The authority of the local district to levy school taxes, however, has been sharply limited by the legislature. The following limitations on tax rates are taken from the Public School Laws of Texas:

Section 1. Taxing Power. The commissioners court for the common school district in its county, and the district school trustees for the independent school districts incorporated for school purposes only, shall have the power to levy and cause to be collected the annual taxes and to issue the bonds herein authorized, subject to the following provisions:

1. In common school districts, for the further maintenance of public free schools and the erection and equipment of school buildings therein, a special tax; and in independent school districts for maintenance of schools therein, an ad valorem tax not to exceed one dollar and fifty cents ($1.50) on the one hundred dollars valuation of taxable property of the district.

2. In common school and independent districts, for the purchase, construction, repair or equipment of public free school buildings within the limits of such districts not to exceed fifty cents (50¢) on the one

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20 Ibid., Section III.
hundred dollars valuation, such tax to be for the payment of the current interest on and provide a sinking fund sufficient to pay the principal of bonds which said districts are empowered to issue for such purposes.

3. The amount of maintenance tax, together with the amount of bond tax of any district, shall never exceed one dollar and fifty cents ($1.50) on the one hundred dollars valuation of taxable property; and if the rate of bond tax, together with the rate of maintenance tax voted in the district shall at any time exceed one dollar and fifty cents ($1.50) on the one hundred dollars valuation, such bond shall operate to reduce the maintenance tax to the difference between the rate of the bond tax and one dollar and fifty cents ($1.50). 22

Taxable values differ from district to district and this results in many variations of the school buildings. A very wealthy district with a small school population will have funds for more than adequate buildings, while a poor district with a large school population has inadequate funds for building purposes. The point to be made from this discussion is aptly expressed by the Research Division of the National Education Association:

Local financial conditions should be thoroughly and accurately explored to ascertain how far the community can go on its own resources in providing the school buildings that it needs. This will include a study of the existing bonded debt, the safe limits of additional bonds for school building purposes, the legal limit for bonded debt—if one exists—as well as the sources and rates of local taxes. 23

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22 Public School Laws of Texas, Article 2784e, Section 1, p. 99.

An educational plan should be developed before the financing program is initiated. "A competent school administrator does not begin with a preconceived financial scheme and then attempt to fit his operational program to it." 24

Simpson, in his study, "A Sound Method of Financing Buildings for Texas Schools," set up six standards for a sound financial program. They can be applied to the study of any method of financing. The six standards are:

1. Is it legal?
2. Is it adequate?
3. Is it just?
4. Does it provide equality of opportunity?
5. Is it prudent?
6. Is it adaptable? 25

Physical Details of the School Plant

In this discussion, the general physical details of the school plant such as, number of rooms, auditorium, gymnasium, and laboratories, will not be given individual attention, but some physical details common to all buildings, large or small, will be studied. They are instructional space, healthfulness, safety, convenience, expansiveness, flexibility, and aesthetic fitness.


Instructional space.--Koos, and others state that the present and probable future need for instructional space should be known at the time a building is planned. The number of classrooms should not be arrived at by intuition or guess. These writers state:

The specifications of classrooms for the subject-matter fields should be arrived at through conference on the part of principal department heads, teachers, and architect. After the sketch drawings are prepared the type and the placement of equipment in the classroom space should be agreed upon, so that outlets may be most conveniently placed and equipment that is to be made a part of the room construction may be located to greatest advantage. Classrooms so planned will serve the functions for which they are provided and will contribute both to economy and to efficiency in learning and teaching.26

The Committee on School Planning states that a scientifically prepared schedule of rooms will greatly reduce the cost of the building and at the same time increase the educational efficiency of the school. The administration, therefore, should secure the advice of persons best qualified to assist. He should consult the principal and teachers who know the local needs.

Healthfulness.--The Committee on School Planning lists the following as some of the health requisites for any building:

1. Every room should have abundant natural light.
2. The toilets should be distributed conveniently

26 Koos, and others, op. cit., p. 507.
on each floor and should have windows opening directly to the open air.

3. There should be a sufficient number of bubblers for drinking purposes, located that their use will not block traffic.  

Safety.—Three provisions for safety are recommended by the Committee on School Planning:

1. The corridors and stairways should permit the building to be vacated in three minutes even if one stairway is made useless by smoke.
2. Each stairway should be continuous and connect directly with an exit on the outside of the building.
3. Each room should discharge its pupils to a corridor leading directly to a stairway.

Convenience.—Further recommendations were made by the Committee on School Planning for convenience:

1. The location of rooms with reference to one another should be carefully studied.
2. In high schools the various rooms used by a given department should be on the same floor and contiguous to one another.
3. Supply closets should connect with the rooms that they serve.

Expansiveness.—The building should be so planned that it may be enlarged at need and without unnecessary cost and without cutting off the natural light and ventilation of any of the existing rooms.

Flexibility.—Every school building should be so planned

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27 Committee on Schoolhouse Planning, National Education Association, Report of Committee on Schoolhouse Planning, p. 21.
28 Ibid., p. 16.
29 Ibid., p. 17.
30 Ibid.
and constructed that changes can be made, if necessary, in the length of the room.\textsuperscript{31}

Aesthetic fitness.--The interior of the building, likewise, should produce attractive and pleasing results.\textsuperscript{32} Otto states that the "drab and deadening uniformity of classroom appearance is giving way to attractive color schemes."\textsuperscript{33} Greater recognition is being given to the fact that color affects everyone more than is generally recognized and that schoolrooms should use more color.

The School Janitor

In the traditional school, the janitor, where there was one, made the fires and swept the floors. Often these services were performed by the larger pupils. In the modern school plant, the janitor or custodian is an important part of the educational process. Reeder, in the following discussion, outlines the main duties of a janitor or custodian:

\begin{quote}

The most complete, and probably the best, set of such rules and regulations which the writer has seen is that of Minneapolis. That set is published in a handbook of seventy-seven pages, and a copy of it is placed in the hands of each Minneapolis janitor. The Minneapolis rules and regulations are very specific; they treat in detail such items as the following: responsibility of the janitor; hours of duty; sweeping, dusting, mopping, window cleaning; care of toilets; care of storerooms, boiler and fan rooms; care of
\end{quote}

\textsuperscript{31}\textit{Ibid.}, p. 13. \hspace{1cm} \textsuperscript{32}\textit{Ibid.} \hspace{1cm} \textsuperscript{33}\textit{Otto, op. cit.}, p. 529.
sidewalks and yards; disposal of sweeping and rubbish; the use of electricity and water; the removal of snow; ventilation of classrooms, temperature to be maintained, and care of ventilating apparatus; precautions to be taken against fires; attention to give to school exits; etiquette of the United States flag; care of the clock; care of pupil's desk and of other furniture; the making of repairs; the taking of the inventory; care and use of supplies; cooperation of the janitor with the principal and teachers; messenger service; vacation duties; and contract of the janitor.\[4\]

The duties of the school janitor, it is indicated, are such that he must not only be an expert in the many responsibilities of his own position but he must be able to discuss the problems of the school with his superiors, give advice, and find a solution for many problems not commonly regarded as a part of his work.

The administrator of the school, as a usual practice, does not select the janitor, nor does he have any authority to discharge him. However, he has supervisory authority over the janitor in much the same way as he does the staff. The administrator is held responsible for the instruction in a school and he is also held responsible for the buildings and grounds. The principles that apply in the administration of building and ground are outlined by Reavis and others as follows:

1. The principal is responsible for intelligent use of recognized standards of both quantitative and qualitative character in the utilization and administration of his building.

2. The principal should strive to maintain his building and ground so that they contribute positively to the health, happiness, and aesthetic and civic development of the school and community.

3. Protective responsibility must be assumed and faithfully exercised by the principal, not only because the school property is entrusted to his care, but as a means of wholesome civic education of his children.

4. Through the efficient administration of building and ground the principal can produce a direct effect on pupils and teachers that will result in the improvement of the quality of education being carried on in the school.\(^\text{35}\)

The administration of the building and ground, therefore, calls for the establishment of proper relations between pupils, teachers, and principals on one hand and the custodial staff on the other.

The principal or administrator must take the initiative in establishing proper relationships. Teachers often make the janitor's task harder by being unduly critical. It is advisable to have all complaints about janitorial services made by the teachers, come through the principal's office. The janitor's grievances, likewise, should be made to the principal. The principal should acquaint both the teachers and janitor with the specific requirements laid down for janitorial services by the central offices.\(^\text{36}\) A good janitor is an asset to any school organization. The efforts of pupils, teachers, and janitor are alike necessary to the

\(^{35}\)Heavis, and others, \textit{op. cit.}, pp. 403-404.

\(^{36}\)\textit{Ibid.}, p. 402.
proper maintenance of a good educational plant. The principal is the one individual who can initiate and help establish such relationships as will insure good work by all.

Insurance for School Buildings

Too often the insurance of school property is considered a minor part of school administration. Few administrators understand the technical details of insurance problems and depend upon the advice and counsel of local insurance agents. Such practices may result in an adequate full-coverage economical policy, but the efficient school administrator equips himself with a practical working knowledge of insurance problems, and how to adequately protect his own school plant.

Mort and Reusser state that it is a very common practice for school boards to pay insurance premiums on amount greater than those that could be collected in case the property was destroyed. Such over-insurance represents a waste. On the other hand, many school boards fail to carry sufficient insurance coverage. Melchior found, in New York, that a common practice was to insure school buildings for approximately sixty per cent of their sound value. Moore found, in his study of insurance of school property in Texas, that

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37 Mort and Reusser, op. cit., p. 338.
38 William P. Melchior, Insuring Public School Property, p. 119.
some insurance companies have more economical rates than others. The assumption appears warranted from these discussions that a working knowledge of insurance is a decided asset to a school administrator.

In insuring school property, some device must be used to determine a sound value of the property. In common practice the sound value is the present replacement value, minus depreciation. Insurance companies can never be held responsible for an amount greater than the actual loss property, regardless of the amount of insurance carried. This means that school administrators must determine as accurately as possible the appraised value of their property.

There are several steps in the appraisal function. They may be described as follows:

The first step in making an appraisal is to establish the replacement cost of the property. In fixing this cost, it is necessary to determine the quality of the different materials that have been used in the building and to establish unit values for these materials in the particular locality in which the property is located. From these unit costs, values for the various parts of the building, such as floors, roof, excavation, foundation, walls, stairs and partitions, are established. The cost of labor enters into the establishment of these values. Then

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40 Ibid.
41 Mort and Resser, op. cit., p. 339.
the replacement values of the fixtures...is established in much the same manner as that employed in the case of the building itself. A detailed inventory of the furnishings is made, and the replacement values of these furnishings are fixed.\textsuperscript{42}

After the replacement values are established, the depreciation is deducted and the sound value of the property results. The sound value, however, does not include cost of excavations and foundations below the ground level. When these are deducted, the insurable value of the building is the sound value minus the value of excavations and foundations. Clearly, an accurate determination of this insurable value involves a thorough understanding of insurance and of the school plant itself.

The rates of fire insurance are usually determined by a number of factors, such as the location of the building or the type of construction. The school authorities, according to Engelhardt and Engelhardt,\textsuperscript{43} can modify insurance rates to some extent by erecting better buildings, by insistence on high standards of good housekeeping, and by giving fire-precaution instructions in the school.

The cost of insuring public school property will depend upon the amount of insurance carried, the rates of insurance, and the length of the term for which policies are taken. Moore, in his study, found:

\textsuperscript{42} Ibid., p. 340.

\textsuperscript{43} N. L. Engelhardt and Fred Engelhardt, Public School Business Administration, p. 397.
1. Local mutual companies are more economical than the stock companies for insurance purposes...
2. The mutual companies...offer the same amount of protection at a cheaper rate than the stock companies...
3. Insurance on a long term basis is more economical.  

Summary

The practices and procedures recommended by leaders in the field of school administration for the administration of the physical plant of the school may be summarized as follows:

School site

1. The activity programs of modern schools call for renewed study of the location of a school plant.
2. Essential qualities of a school site are adequate size, proper orientation, freedom from noise and odors, suitability of construction, safety, healthfulness, reasonable centrality, and reasonable accessibility.  
3. Many of the specific problems in utilization have their inception in inadequate school sites.
4. The site can provide as important resources for teaching as the building itself.

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46 Koos, and others, Administering the Secondary School, p. 495.
47 Otto, op. cit., p. 525.
Type of building to be constructed.

1. The building should be the outcome of a carefully considered educational plan checked and rechecked by present and estimated future needs and by current and future practices as revealed through trends.48

2. A building program can be sound only when it is based on a considered educational program.49

3. A significant trend in school plant planning is the clear-cut recognition that the facilities of the school should make...provisions for adult as well as children’s uses.50

4. Simplicity is size, structure, arrangement, and ornamentation characterize the new buildings.51

Selection of an architect.

1. The selection of an architect is the most important step in the planning and construction of a school.52

48 Koos, and others, op. cit., p. 505.


50 Otto, op. cit., p. 519.

51 Ibid., p. 522.

52 Report of Committee on Schoolhouse Planning, p. 10.
2. There is an intimate relation between the building plan and the operating plan of a modern school.\textsuperscript{53}

3. The only satisfactory method of selecting an architect is on the basis of ability and experience in school construction.\textsuperscript{54}

4. Essential qualifications of a school architect are: (1) familiarity with modern educational practice; (2) open-mindedness to suggestions; (3) originality and extended experience in school architecture; (4) professional experience; and (5) executive ability.\textsuperscript{55}

\textbf{Financing the school building.}

1. Education is a state function; it is the duty of the state, therefore, to provide "support and maintenance of an efficient system of free schools."\textsuperscript{56}

2. School buildings in Texas are the responsibility of each local school district.\textsuperscript{57}

3. The legislature places definite limitations on the amount of tax that can be levied for financing school buildings.\textsuperscript{58}


\textsuperscript{54}Report of Committee on Schoolhouse Planning, p. 11.


\textsuperscript{56}Constitution of Texas, Article VII, Section I.

\textsuperscript{57}Hinsley, op. cit., p. 1.

\textsuperscript{58}Public School Laws of Texas, Article 2784a, Section I, p. 99.
4. Local financial conditions should be thoroughly and accurately explored to ascertain how far the community can go on its own resources in providing the school building that it needs.\textsuperscript{59}

5. A competent school administrator does not begin with a preconceived financial scheme and then attempt to fit his operational program to it.\textsuperscript{60}

6. Six standards for a sound financial program are:
   (1) Is it legal? (2) Is it adequate? (3) Is it just?
   (4) Does it provide equality of opportunity? (5) Is it prudent? (6) Is it adaptable?\textsuperscript{61}

**Physical details of the school plant.**

The present and probable future needs for instructional space should be known at the time the building is planned.\textsuperscript{62}

The specifications of classrooms should be arrived at through conference on the part of principal department heads, teachers, and architect.\textsuperscript{63}

\textsuperscript{60}Holmstedt, \textit{op. cit.}, p. 2.
\textsuperscript{62}Koos, and others, \textit{op. cit.}, p. 507.
\textsuperscript{63}Ibid.
A scientifically prepared schedule of rooms will greatly reduce the cost of the building and at the same time increase the educational efficiency of the school. 64

Every school should have abundant natural light, sanitary toilets, and sanitary drinking facilities. 65

Each school should have adequate safety provisions for vacating building quickly in time of need. 66

Location of rooms should be planned with the idea of convenience of operation. 67

The building should be so planned that it may be enlarged at need and without unnecessary cost. 68

The need for changes should be provided for. 69

The interior of the school building should be attractive and pleasing. 70

The school janitor.

In the modern school plant, the janitor or custodian is an important part of the educational process. 71

64 Report of Committee on Schoolhouse Planning, p. 21.
65 Ibid.
66 Ibid., p. 16.
67 Ibid., p. 17.
68 Ibid.
69 Ibid., p. 18.
70 Otto, op. cit., p. 529.
71 Reeder, op. cit., p. 247.
The school janitor must be an expert in his own work and be able to understand and discuss problems of the school.\textsuperscript{72}

A good janitor is an asset to any school organization.\textsuperscript{73}

Insurance for school buildings.

The efficient school administrator equips himself with a practical working knowledge of insurance problems in order to protect his own school plant.\textsuperscript{74}

A working knowledge of insurance is a decided asset to a school administrator.\textsuperscript{75}

Insurance companies cannot be held responsible for over-insurance or under-insurance; school administrators should be able to determine as accurately as possible the appraised value of their property.\textsuperscript{76}

\textsuperscript{72}Ibid.

\textsuperscript{73}Reavis, and others, \textit{op. cit.}, p. 403.

\textsuperscript{74}Melchior, \textit{op. cit.}, p. 119.

\textsuperscript{75}Moore, \textit{op. cit.}, p. 29.

\textsuperscript{76}Mort and Reusser, \textit{op. cit.}, p. 339.
CHAPTER IV

EVALUATION OF THE RECOMMENDED PRACTICES AND PROCEDURES FOR ADMINISTERING THE SCHOOL PLANT AND GROUND

Purpose of the Chapter

The purpose of this chapter is to evaluate the recommended practices and procedures of administering the school plant and ground to determine the extent to which they meet criteria set up for sound democratic, legal, psychological, and prudential principles from professional literature in the field of school administration.

Evaluation of Recommended Practices and Procedures

In the study that was made of professional literature in the field of school administration, attention was given to recommended practices and procedures of administering the school site, the type of building to be constructed, the physical details of the building, and adequate insurance to protect the interests of the taxpayers.

School Site.—In considering the administration of the school site, it was found that the practices and procedures recommended by different writers in the field of school administration recommended that the school site be of adequate
size, in a location free from noise and odors, suitable for construction, and reasonably accessible to all the children attending the school. These practices and procedures meet sound democratic criteria because they recommend:

1. Considering the needs of all children.
2. Adequate space to meet the needs of all children.
3. Sites that are attractive, healthy, and safe, and which contribute to the development of better citizens.

The practices and procedures for the selection of a school site meet sound legal criteria because they recommend:

1. That all legal requirements of all governing agencies, local, state, or federal, be met and observed.
2. That the site selected be one which is most readily available to all children, and which is within the legal financial resources of the community.

The practices and procedures for the selection of a school site meet sound psychological criteria because they recommend:

1. That the site be adequate to care for the activity program accepted by present educational theory.
2. That the school site provide for meeting individual differences of children.
3. That the school site be healthy, attractive, and safe—one which the pupils will like to come to and on which they can enjoy themselves.
The practices and procedures for the selection of a school site meet sound prudential principles because they recommend:

1. That the site be one which the community is able to support from local funds,

2. That the site be taken care of to protect the interests of the taxpayers in their investment,

Type of building to be constructed.—Practices and procedures for the type of building construction were found to meet sound democratic principles because they recommended:

1. That the building be planned cooperatively by the community, the school staff, and the board of education.

2. That the building be constructed to provide for the needs of all the children.

3. That a responsible architect be employed in order to protect the interests of the taxpayers in getting a well-built plant meeting legal requirements, as well as providing for all the needs of the pupils.

4. That the school plant be designed for the use of all the people in the community, young people and adults.

These practices and procedures for the type of building to be constructed meet sound legal criteria because they recommend:

1. That the type of building selected conform to all legal requirements of all agencies concerned in the construction of the plant.
2. That a responsible architect be employed who is familiar with legal requirements for school buildings.

3. That a building be planned that will be within the financial resources of the community to pay for and support.

4. That the type of building to be constructed, be planned to conform with insurance requirements for adequate coverage.

The practices and procedures for the selection of the type of building meet sound psychological criteria because they recommend:

1. A building that will provide facilities for an activity program.

2. A building that will be adequate for meeting individual needs of the pupils.

3. A building that will be safe, healthy, and attractive to insure pleasant learning environment.

The practices and procedures for selecting the type of building meet sound prudential criteria because they recommend:

1. A building that the community is able to pay for and support.

2. A building that can be efficiently utilized.

3. A building that can be expanded or enlarged without undue expense or changing the general plan of the school plant.
Selection of an architect.--In considering the practices and procedures mentioned by writers in the field of school administration for the selection of an architect, it was found that they meet sound democratic criteria because they recommend:

1. That the architect be competent and able to protect the investment of the tax-paying public through his knowledge of legal requirements and needs of modern school plants.

2. That selection of the architect be a cooperative undertaking of school board and staff.

The practices and procedures meet sound legal criteria because they recommend:

1. That the architect know legal requirements of school buildings.

The practices and procedures for the selection of an architect meet sound psychological criteria for the administration of the school plant because they recommend:

1. That the architect be familiar with modern educational practices and theory in order that the building be planned to meet the new program in education.

The practices and procedures for the selection of an architect meet sound prudential criteria because they recommend:

1. An architect that is experienced in the planning of
school buildings and has proven his worth and ability in the field should be employed.

2. An architect who knows legal requirements in order to protect the community against financial loss in considering an unacceptable type of building.

3. An architect who can work cooperatively with all others and will lessen the expense of building by facilitating the operation.

Financing the school building.--The practices and procedures of writers in the professional literature of school plant administration meet sound democratic criteria because they recommend:

1. Equality in levying taxes to pay for financing the building.

2. Finances kept within the ability of the district to pay for the building.

3. Rights of all people considered in the taxing program.

The practices and procedures found in the literature of administration of the school plant and grounds meet sound legal criteria because they recommend:

1. Finances be kept within the legal requirements of all agencies supporting the school program.

2. Finances be kept within the legal limits of the district as established by state statutes.

The practices and procedures for financing a school plant meet sound psychological criteria because they recommend:
1. Finances should be adequate to meet varying needs of all pupils.

2. Finances should have a flexible base in order to meet changing conditions.

The practices and procedures meet sound prudential principles because they recommend:

1. Sound budgetary practices in the expenditure of funds for the building.

2. Finances be planned to provide for future growth of the plant as well as for present needs.

Physical details of the school building.—The physical details of the school building considered here are instructional space, healthfulness, safety, convenience, flexibility and aesthetic fitness. The practices and procedures recommended in professional literature on school administration for these physical details of the building meet sound democratic principles because they recommend:

1. Instructional space to meet the needs of all pupils.

2. That the school plant conserve the health of all the pupils.

3. Safety provisions to protect the lives of all the children and prevent injuries.

4. That the school plant be arranged for the convenience of all pupils.

5. That the interest of the taxpayers be protected through planning future expansion programs.
6. That the school plant environment contribute to the happiness and pleasure of all children.

The practices and procedures in professional literature of school administration meet sound legal criteria because they recommend:

1. That all legal requirements be met for all agencies supporting the school program.

The practices and procedures for administration of the physical details of the school meet sound psychological criteria because they recommend:

1. A school plant adequate to meet individual differences.

2. A school plant adequate for carrying out an activity program.

3. A school plant that is attractive, safe, and healthy in order to facilitate the learning process.

The practices and procedures for administration of the physical details of the school plant meet prudential criteria because they recommend:

1. That the school plant be efficiently maintained and administered.

2. The efficient utilization of all facilities.

Insurance of the school plant.—The practices and procedures for the administration of the school plant meet sound democratic criteria for an insurance program because they recommend:
1. That the interests of the taxpayers be protected in their investment through adequate insurance coverage of the cost of the school plant.

The practices and procedures meet sound legal criteria for the administration of the insurance on the plant because they recommend:

1. That the insurance policies be written in requirement with legal statutes governing such policies.

The recommended practices and procedures for administering the insurance program of a school plant meet prudential criteria because they recommend:

1. That insurance be carried on the sound value of a school plant—not over-insured or under-insured.

2. That the insurance be carried with a reputable firm that has an economical rate, or by the school itself.

Summary

This chapter has been an evaluation of the recommended practices and procedures in professional literature of school administration for the administration of school plant and ground. The following findings may be reported:

1. The recommended practices and procedures for the selection of a school site meet democratic, legal, psychological, and prudential criteria.

2. The recommended practices and procedures for the
type of building to be constructed meet the democratic, legal, psychological, and prudential criteria.

3. The recommended practices and procedures for administering the selection of an architect for the school building meet the democratic, legal, psychological, and prudential criteria.

4. The recommended practices and procedures recommended for financing the school plant meet democratic, legal, psychological, and prudential criteria.

5. The recommended practices and procedures recommended for administering the details of the physical plant of the school meet democratic, legal, psychological, and prudential criteria.

6. The recommended practices and procedures for administering the insurance program of a school meet democratic, legal, and prudential criteria.
CHAPTER V

SUMMARY, CONCLUSIONS, AND RECOMMENDATIONS

Summary

This investigation has been a study of some recommended practices and procedures for administering the school plant and ground as taken from recent professional literature in the field of school administration. Attention was first given to the sound democratic, legal, psychological, and prudential principles which should be the base of administration. Criteria for evaluating practices and procedures of administration of the plant and grounds were set up from a study of the literature on these principles. The practices and procedures recommended by various writers in the field of school administration for administration of the plant and ground were then studied. Evaluation was made on the basis to which these recommended practices and procedures agreed with the criteria set up for such procedures.

Conclusions

The following conclusions were reached from a study of the data developed in the research:

1. A sound administrative policy for the school plant and grounds needs to be based on democratic, psychological, legal and prudential principles.
2. An administrative policy based on these principles will meet the needs of all the children and the community, meet the legal requirements of all agencies supporting the schools, provide for meeting individual differences of pupils, and protect the interests of the taxpayers in their investment.

3. The practices and procedures recommended by various recent writers in the field of professional school administration conform very closely to the recommended principles upon which to base a program.

4. The school administrator has no alibi today in saying that he does not have adequate professional advice on solving his problems of administering the school plant and ground. The recommended practices and procedures are many, explicit in detail in some instances, and conform to accepted modern educational theory.

Recommendations

The following recommendations are made in the light of the data developed in the study:

1. Further study should be made in this field to determine to what extent these recommended practices and procedures are being put into effect in the administration of the plant and grounds.

2. Individual schools should make a survey of their
practices and procedures to determine the extent to which they conform to recommended practices and procedures.
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