ADMINISTERING THE USE OF INSTRUCTIONAL SPACE
IN TEXAS STATE-SUPPORTED COLLEGES
AND UNIVERSITIES

DISSERTATION

Presented to the Graduate Council of the
North Texas State College in Partial
Fulfillment of the Requirements

For the Degree of

DOCTOR OF EDUCATION

by

Robert E. Craig, B. S., M. Ed.

Denton, Texas
August, 1957
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CHAPTER I

Introduction

No question is more seriously discussed these days among people interested in the future of education in America than the prospects and consequences of the steeply rising enrollments of schools and colleges. In the next ten years, there will be a tremendous increase in the number of students seeking admission to college. It has been stated, "In 1946, more babies were born than in any other year in our history; and that record has been surpassed every year since" (3, p. 8). In addition to the higher birth rate, a greater percentage of adults are entering colleges.

Table I shows two projections of higher education resident enrollments for the years 1960-61, 1965-66, and 1970-71.

TABLE I


<table>
<thead>
<tr>
<th>Year</th>
<th>Projections of Higher Education Resident Enrollment</th>
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<tr>
<td></td>
<td>Projection I</td>
</tr>
<tr>
<td></td>
<td>Number</td>
</tr>
<tr>
<td>1960-61</td>
<td>3,214,076</td>
</tr>
<tr>
<td>1965-66</td>
<td>4,356,392</td>
</tr>
<tr>
<td>1970-71</td>
<td>5,443,932</td>
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</tbody>
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*Source: Educational Policies Commission, Higher Education in a Decade of Decision, p. 31.*
Table I is to be read as follows: In 1960-61, the higher education resident enrollments are predicted to be: (1) by Projection I, 3,214,075 students and 34.7 per cent of the total college-age population, and (2) by Projection II, 3,523,800 students and 38 per cent of the total college-age population.

Probably the most scientific predictions of future college populations are reported by the Educational Policies Commission:

Between now (1957) and 1970 the college-age group will increase in even greater proportion than the total population. In 1955 there were over 6 million youth aged 18 to 21; for 1970 the Census Bureau estimates a similar age group of more than 13 million. In 1955 this age group constituted 5.1 per cent of the total population; in 1970 it is expected to constitute 6.5 per cent of a much larger population (2, p. 28).

American colleges and universities face a challenge in securing good utilization of instructional space for these young men and women.

Some colleges and universities will be able to construct enough new buildings to house their educational programs. However, many of them will only be able to meet part of their needs as they will not be able to build because of inadequate finances. These institutions will have to limit their enrollment, to be more selective in their choice of students, or make greater use of the plant facilities they now possess.

The public is becoming more concerned over the nation's investments in college buildings. They are interested as to
whether the colleges are making maximum utilization of instructional space in college and university buildings. Even though the increase in students is great, the colleges cannot expect the public to furnish additional buildings until the present plant is utilized properly. Reeder says, "All that the public insists upon and the end which school officials should strive to attain, is capacity use, or near-capacity use, of the school plant during the school day" (10, p. 214).

Institutions with an increase in students and no additional buildings will have to improve the use of instructional space. Also, it appears to be advantageous to an institution possessing ample buildings to begin a study of utilization of instructional space.

The authors of *University Plant Facilities* express their viewpoint of this question in this manner:

It must be recognized that the provision of a larger amount of classroom space than is actually needed to house a given academic program is costly and involves an inefficient use of funds. The extra space must be heated, lighted, cleaned, and maintained in good repair; all of these expenses usually come out of the current budget. Furthermore, the provision of excessive space frequently means that gifts which might have gone into endowment have been used for building purposes, thus reducing the income available for the current budget. Since the principal elastic item in the budget consists of faculty salaries, and since this is the largest single item in the budget, the provisions of excessive space under ordinary conditions ultimately results in a reduction of the amount available for the payment of instructional salaries, and the faculty members themselves finally bear the burden of the cost of the excessive space provision (11, p. 59).
It is to the advantage of every institution of higher learning that the available instructional space be used in the most economical manner in securing the best educational returns. In every college, the matter of primary importance is the academic program, and it follows that the plant space must be adjusted and arranged to fit the program; rather than for the program to be warped and distorted to fit the space.

It is one of the major duties and responsibilities of college or university administrators to integrate the instructional space into the needs of the educational program. The integration consists of much more than the scheduling of rooms and classes, or of measuring the utilization. It is a complex process requiring much study, thought, and planning.

Nagman and Schwartz have said, "There should be a body of basic principles on which administrators might establish their activity" (4, p. 11). It is the intent of this study to find a body of basic principles and evaluative criteria that will aid in the administering of instructional space in institutions of higher learning.

Statement of the Problem

The problem of this study is to determine the administrative practices for securing the optimum use of instructional space in colleges. This necessitates the development of an instrument to evaluate these practices.
In solving this problem, certain sub-problems must be considered:

1. What factors influence the utilization of instructional space?

2. What are the criteria of good administration as related to space utilization?

3. What type of valid survey instrument based upon findings in sub-problem No. 2 can be constructed?

4. What are the administrative practices concerning space utilization in the Texas state-supported institutions of higher learning as determined by the survey instrument mentioned above?

Sub-divisions of this question are:

(1) Policies--Do the institutions have representative groups that formulate policies and procedures concerning space?

(2) Policies--What items affecting space are most often considered by policy groups?

(3) Policies--Is there one administrator or officer in each institution who coordinates most of the activities involved in efficient utilization of instructional space?

(4) Policies--What officers do this work?

(5) Policies--What is the usual approach to working out procedures and problems arising in connection
with the various factors involved in the utilization of instructional space?

(6) Maintenance—Are there periodic examinations of the physical fitness of the instructional areas made in cooperation with the maintenance supervisors?

(7) Maintenance—Who conducts these periodic examinations?

(8) Maintenance—How often are the examinations conducted?

(9) Special Equipment—Who coordinates the management and use of special equipment in these institutions?

(10) Scheduling—How many institutions have a schedule director or another officer who coordinates the scheduling process?

(11) Scheduling—This scheduling coordinator works with what groups primarily?

(12) Record Keeping—How many colleges and universities record and preserve current space statistics?

(13) Record Keeping—Who is responsible for these statistics?

(14) Communication System—The personnel and publics of the colleges are made aware of space needs by what systems?

(15) Non-professional Personnel—Who coordinates the work of the non-professional personnel with the
efficient use of instructional space in the various colleges?

(16) Extra-curricular Use of Space—Who is in charge of the extra-curricular use of instructional space in these institutions?

(17) Future Planning for Space—How many colleges have a group or a committee who specializes in future planning for space?

(18) Future Planning for Space—What are the names of the future planning for space committees? Who are the chairman of these committees?

(19) Future Planning for Space—What factors are considered in the planning for future space?

5. What are the total scores of the colleges on each part or division of the Evaluation Scale?

6. How do the colleges possessing a central space committee compare with those not handling their space matters centrally?

7. How do space utilization figures of these institutions compare with the administrative findings of the survey?

8. What recommendations for improvement of space administration can be made as a result of this survey?

Definition of Terms

College building administration is the exercise of leadership in the management, or supervision, of the operation, maintenance, and general use of college buildings.
It is proposed that instructional space be interpreted to mean the area that is occupied directly by classes in the processes of learning.

Administration of instructional space is the exercise of leadership in the management, or supervision of the area that is occupied directly by classes in the processes of learning.

Administering the use of instructional space in colleges is concerned with the following items:

A. Policies affecting space.
B. Maintenance of the instructional areas.
C. Management of special equipment.
D. Scheduling.
E. Recording of space data.
F. Maintaining a system of communication.
G. Supervision of non-professional personnel.
H. Management of the extra-curricular use of instructional space.
I. Future planning for space.

Space utilization is defined as the degree to which an area, classroom, or building is used.

Maintenance is the continuous process of cleaning and repairing of the instructional areas.

A principle is defined as a truth which is general and plain, and upon which other truths are founded and systematized.

Criteria or sub-principles are defined as: standards, norms, or judgments selected as a basis for quantitative and qualitative comparisons.
Sources of Data

In order to secure a proper background and a clear picture of the problem, a careful search was made in books, dissertations, reports, bulletins, and articles in well known educational administration periodicals. Schedules, policies, and other institutional literature were studied.

Individual college space utilization statistics were obtained through the Texas Commission on Higher Education.

Conferences were held with college officials who had a direct interest in administering space utilization.

Limitations of the Study

This study is interested in establishing the best administrative practices in securing the most economical use of instructional space. The study recognizes that the educational program should be the basis of the design of the school plant, rather than have the plant control the school program. The thesis of this study is that good space utilization will decide to what extent colleges can accept the great influx of students which will descend upon their doorsteps for admission in the near future. The dissertation places major emphasis upon the relationship of economy to instructional space.

The application of the survey instrument was limited to the Texas state-supported colleges and universities.

This study does not include a measuring of the utilization of space at these institutions; neither does it attempt
to devise a way to measure utilization. Several utilization measurements have been developed in previous studies that seem adequate for most colleges and universities.

Space standards and requirements are touched only briefly and discussed. Other dissertations have attempted to establish various space standards and naturally, space requirements must vary for different institutions.

Instructional space is the only type of space being considered since special areas and service areas appear to represent different problems of their own.

This study is interested primarily in the administrative aspects of the optimum utilization for instructional purposes of present buildings rather than in the planning, designing, and construction of future ones.

Related Studies

The most widely known of all utilization studies is that of Morphet's *The Measurement and Interpretation of School Building Utilization*. It is a study of room and student-station utilization in high schools. Morphet is one of the first writers to define space terms in a meaningful manner. His work gives a good background of understanding for all later space studies and offers a great many techniques and measures for evaluating the use of rooms and pupil stations.

In 1934, Hardesty made a study of the *Junior College Housing Programs in California*. He found ten steps that
should be taken in developing the classroom needs of the junior colleges. All of these steps are related to scheduling, or some other area of administering instructional space.

Hardesty also states:

A careful study of a number of junior colleges makes it apparent that the philosophy of the administration and the type of housing provided for student activities are very definitely related to the activity and morals of the junior-college student body. Administrative policies can and should be developed to improve the room utilization of the junior-college (5, p. 67).

Petrie's *A Plan for the Measurement of Room Use in Colleges and Universities* is related to this study. Petrie developed a plan for the measurement of room utilization. His plan included the measurement of pupil-stations in the over-all utilization evaluation. His study was centered mainly on an intensive evaluation of San Francisco State College room and pupil-station use. Petrie's study is related to this study by the result of some of his findings. These findings conclude that administrative policy and procedure greatly influence room and student-station utilization.

Neils conducted a study of instructional space in eleven institutions of higher education in California. This study was based upon actual room utilization and the distribution of student enrollments in these institutions in the fall semester of 1947. Neils developed techniques of obtaining measures of utilization applicable to colleges and universities. These also served as guides in planning additional space construction.
He identified some factors that were responsible for hindering most efficient room use and compared current utilization with attainable utilization in these colleges. He also developed an I. B. W. card to record and tabulate space utilization facts.

This study is not interested in developing new techniques of measurement, or in establishing space standards. It is concerned with the factors that hinder efficient space use and with the administering of techniques in desirable instructional space standards.

Another study based upon space utilization problems in one college is that of Bulger's *Administering the Use of Academic Space in Teachers College, Columbia University*. Bulger's study was limited to one college's administration of space; this dissertation extends its search by using material on several Texas state-supported colleges and universities. It is also unrelated to this study in that most of the volume is given to an account of the development and history of the space committee and its problems. There is some merit in the democratic evolution of a space administering committee but this study does not propose to trace the history of any existing committees. Another distinction is that Bulger gave seventeen statements of criteria for administering academic space based upon the practices of Teachers College, Columbia University. This study took established principles of administration, as
related to space utilization, and derived criteria of administering instructional space. From these criteria there was developed a rating scale to evaluate an institution’s administrative practices in instructional space utilization.

Another difference between the two studies is that Bulger’s study was on academic space, which is a wider classification than this study on instructional space.

Procedure and Treatment of Data

I. Literature in the field of school administration and school buildings, as related to space utilization, was reviewed to develop a background for the study. This presents a synthesis of the literature and provides a background of the problems involved in administering instructional space utilization in colleges. It also indicates the need for a study of this type.

II. In the establishing of criteria of good administration in instructional space utilization, it was necessary to use principles of good administration taken from research findings. Mort’s seven principles of school administration are based upon sound research and are recognized as covering the broad field of school administration. They were used as the framework for the criteria.

The development of administering instructional space utilization criteria involved four factors: (1) Mort’s seven broad principles of school administration (democracy, justice, equality, prudence, adaptability, flexibility, and stability);
(2) authoritative statements and research findings; (3) administrative classifications (policies, maintenance, special equipment, scheduling, record keeping, communication system, supervision of non-professional employees, extra-curricular use of space, and future plans for space); and (4) the principle which is actually a statement that has been blended from one of Mort's broad principles and an administrative classification which is under discussion. The work is departmentalized by Mort's seven broad principles. The development consists of stating a specific Principle and an Administrative Classification. Authoritative statements and research findings are then quoted. From the fusing of these factors, space administration criteria were logically derived.

When the criteria were completed, they were listed under one of Mort's seven principles. The criteria were then reassembled according to subject matter and a ten-point rating scale that defined each value of the ten points was added to complete a survey instrument.

With the cooperation of Texas state-supported colleges and universities, the survey instrument was used in determining and evaluating the administrative practices in these institutions.

The data were then classified, analyzed and summarized. The final phase of the report consisted of writing the summary, conclusions, and recommendations.
CHAPTER BIBLIOGRAPHY


CHAPTER II

FACTORS IN INSTRUCTIONAL SPACE UTILIZATION

Introduction

The elements that influence space utilization are many and varied, hindering and helping, and both implicit and explicit. Voluminous data could be collected on these elements. This study is interested in the administering of instructional space in colleges and cannot dwell long on the minor matters of space uses. It is concerned with the major factors in the administration of instructional space utilization and this chapter is intended to be a background reflection of these factors upon the administrative focus points.

Sizes and Types of Classes

The sizes and types of classes have a profound effect upon the utilization of instructional space. The type of class such as the science or home economics laboratory, narrows down the rooms that can be used for that particular subject. The more specialized the type of class, the greater is the chance that poor utilization will occur.

This reverse order of the "Law of Diminishing Returns" appears to continue until the enrollment is of sufficient size to have several classes studying the more specialized
subjects. Standards do have to be set in every college as to what the enrollment limitations of every class shall be. It is possible to have a few classes with so many enrolled that the room is utilized to exceed 100 per cent of its normal capacity.

Teaching Area

Methods of learning and of instruction vary as greatly as do the students and the teachers participating. The same course, taught by different instructors, may result in great differences in the physical instructional area needed. Many colleges allow the classroom square footage per student to increase steadily as the classification of the students increases from freshman to graduate student. The graduate student is allowed more classroom square footage per student than the upper classman just, as the upper classman is allowed more footage than the lower classman.

Class Sizes in Relation to Room Sizes

One of the greatest problems in space utilization is the adjustment of class-size to room-size, or perhaps it could be stated better as room-size adjusted to class-size. Colleges and universities are finding a great need for variety in the classroom areas to fit the different size of classes. Anderson says of the junior high school programs, "It is impossible to set up a standard list or even standard lists of room requirements which will fit the needs for any school of
given size in any locality" (1, p. 59). This statement also applies to colleges and universities because of the: (1) changes in social, economic, and political conditions in these institutions, (2) needs of various areas in the United States being different, and (3) programs, curriculums, and financing which will vary in each college. The needs for small rooms as compared to the needs for large ones is a variable item from one college to another. Students' needs vary from one department to the next, and from one semester students' interests to the next semester students' interests. There will probably always be this room-size to class-size adjustment weakness until perfect flexibility can be achieved in building spaces and in administrative scheduling of classes.

Student Instructional Facilities

A factor in any utilization study of a school is the use made of student instructional facilities. All space utilization studies have established capacity for each room, either in terms of optimum seating space or in so many square feet per student. Patrice and Neils (9, p. 46; 8, p. 107) refer to this seating space as student-station; Hardesty and Burzeh (5, p. 137; 3, p. 72) refer to it as pupil-stations. Smith (11, p. 287) sets the capacity for each room in terms of the square footage per student. If a room is used every period of a ten-hour day, but the pupil-stations are only used 40 per cent of the time, the utilization would only be 40 per cent
of capacity. This failure to use all of the pupil-stations would hinder efficient utilization and would probably necessitate the adjustment of class-size to room-size. The number and type of student-stations certainly influence the utilization of the designated rooms.

Personnel

Optimum utilization of instructional space is often hindered by personnel problems. When the classes and rooms are assigned to please the individual instructors or departments, the best space usage is not obtained. Departments or individuals who assume certain rooms or buildings to be their own hinder good instructional space utilization. When the instructors use classrooms as office space and when faculty members use a room for a preparatory period as well as for a teaching period, less than the desired maximum classroom utilization results. Fowlkes states:

Habit, or probably more accurately the capacity for changing one's habits, is a very real factor in plant utilization. Strong preference for rising hours, work hours, and quitting time, where possible, is the right of all human beings. The autonomy of college and university professors, however, imposes an implicit obligation to shift and change the personal practices of living if circumstances demand. Teachers have demonstrated in the past that they have such a capacity. It behooves administrative officers to be sure that the instructional staffs are aware of the utter necessity of such changes (4, p. 27).

One of the chief flexible items in college budgets is the salaries of the teachers. The expensive use of classroom space
very directly affects the amount of money available for faculty salaries. Reeves, Kelly, and Russell state the following:

... it must be recognized that the provision of a larger amount of classroom space than is actually needed to house a given academic program is costly and involves an inefficient use of funds. The extra space must be heated, lighted, cleaned, and maintained in good repair; all of these expenses usually come out of the current budget. Furthermore, the provision of excessive space frequently means that gifts which might have gone into endowment have been used for building purposes, thus reducing the income available for the current budget. Since the principal elastic item in the budget consists of faculty salaries, and since this is the largest single item in the budget, the provisions of excessive classroom space under ordinary conditions ultimately results in a reduction of the amount available for the payment of instructional salaries, and the faculty members themselves finally bear the burden of the cost of the excessive space provision (10, p. 519).

The instructors would benefit greatly by making the best use of classrooms and by changing their personal practices to achieve better space usage. Hollis and Goldthorpe have effectively expressed it this way: "Genuine economy requires that an effective use of the professor's time and energy be balanced against the efficient use of a classroom or a laboratory" (6, p. 519).

Faculty and Student Loads

Plant capacity is materially affected by the faculty's and students' loads. Some of the major aspects of the inter-relationships of plant capacity to faculty and student instructional loads include:
(1) class size
(2) student-instructor ratios
(3) instructional methods
(4) after-class activities; jobs held.

Petrie says:

... (4) The following factors were found to influence room and student-station utilization:
(1) class size
(2) method of instruction
(3) student-instructor ratio

Nails states,

Community factors may also play an important role in determining the number of instructional rooms needed to house a student body of certain size. ... If many students work in the afternoon, this will cause a need for more classrooms.

These factors must be considered in the humanistic approach to space utilization.

Maintenance

Bulger states, "To give efficient space to the personnel of the college, proper maintenance and repairs must be maintained. If the buildings get in bad shape, space assignment is hampered" (2, p. 143).

Proper classroom cleaning and care must be provided if instructional space is to be used to its maximum advantage. The cleaning and repairing functions should preserve the buildings with as little conflict as possible to the educational
program. Space assignment is greatly hampered when the plant is in a poor state of repair or is not clean.

Future Planning for Space

College buildings are generally constructed for many years of usage. The buildings may well serve their educational purposes for the first years of their existence. The educational programs do change and the buildings are left relatively the same. Although they may have been well designed originally, older buildings do not always serve the needs of the emerging curriculums. The inter-relationship of the space or arrangement of the plant may divide the work of a school or department of the institution to the extent that a crippling effect upon maximum utilization will occur. Many colleges are attempting to solve part of this result of poor planning by preparing master plans of the college's present and future spaces.

Very little planning can be done for future space needs unless accurate enrollment predictions are available. Bulger has said, "Space needs in a college or university vary primarily according to student enrollment" (2, p. 2). Neils says that a second element is "... the nature of the student population to be served" (8, p. 91). According to Millett, "The initial factor in estimating future plant requirements is prediction of enrollment trends. The continued confusion on this score has made all estimating especially hazardous"
Enrollment increases will vary from one institution to another; the many elements that affect the student populations are varied and individualized to each school. General enrollment predictions must be accepted until more exact measures can be tried and proven.

Special Equipment

Nells states, "While such factors as . . . inadequate instructional equipment operate to keep plant utilization below its potential maximum, . . ." (8, p. 3). An inadequate amount, or improper distribution of special instructional equipment may cause poor use of classroom facilities. This lack of needed equipment at the proper time may result in over-utilization of some rooms and under-utilization of others. Some rooms may lack the necessary electrical outlets, black-out curtains, or acoustical conditions, to make use of modern teaching aids. When this condition prevails, other rooms must be secured, resulting in disrupted schedules, strained personnel relations, and poor adjustment of room-size to class-size.

Scheduling

One of the biggest factors in building utilization is that of scheduling. Fowlkes says: "The prevailing daily schedule of an institution eventually becomes the operating limit for room utilization" (4, p. 26). It takes great skill to assign personnel to the right classes, classes to the proper rooms, pupil-stations and special equipment to the proper places.
The teacher and student loads directly affect the schedule. Some other elements in scheduling are: what type of period will be used, relation of laboratory to lecture class time, size of classes, professional personnel problems, habits and types of students, etc. The fact that many students and instructors prefer mid-morning classes to classes at other times, offers in itself many problems. "A management survey at one university revealed that there were unused class rooms of every size and type during every morning period. It was not unusual to find small classes meeting in rooms designed to accommodate far more students" (7, p. 171). A recent space utilization study by a state commission on higher education revealed these facts:

A detailed analysis of a complete classroom schedule furnished by one college showed that nearly 75 per cent of all classes were scheduled in the morning hours (that is, class periods beginning between 8 a.m. and 12 noon.)

Most of the remaining 25 per cent were scheduled between 1 p.m. and 3 p.m. The least use of classroom space was from 3 p.m. on.

The second fact is that 90 per cent of all classes were scheduled within a thirty-four hour period comprised of the hours 8 a.m. to 2 p.m. on Mondays, Wednesdays, and Fridays; 8 a.m. to 2 p.m. on Tuesdays and Thursdays; and 8 a.m. to 11 a.m. on Saturdays.

The schedule from which these facts were derived is believed to be fairly representative of current practice in State colleges and universities (12, p. 2).

The assignment of space is often handled through a central office director or committee. In some instances the schools or departments establish class and room use of schedules.
These are submitted to the room scheduling office and are subject to correction and completion by that office. Whether the scheduling be decided centrally, or generally, it will have profound effect upon the utilization of space.

Low Enrollments

Reeves, Kelly, and Russell state:

At the same time it must be recognized that the provision of a larger amount of classroom space than is actually needed to house a given academic program is costly and involves an inefficient use of funds (10, p. 59).

An institution possessing adequate instructional space but a low enrollment of students will usually have a poor percentage of instructional space utilization. Buildings cannot be properly used unless enough people are there to occupy them. There are many and varied reasons for the lack of students. Several of the previously mentioned utilization factors will encourage loss of students if they are not given consideration and if they are not solved to the students' satisfaction. This viewpoint of the under-utilization of available space is not as prevalent as the other causes, but it will have as great or greater effect upon good space usage. Some colleges attempt to solve this problem of extra heating, cooling, lighting, and maintenance by converting the excessive instructional space into other uses or by entirely abandoning the specified area for classroom purposes.
Over-Utilization

When is there over-utilization of instructional space?

Bursch says there are some common evidences that can be seen in over-utilized rooms. They are:

(1) seating so crowded that pupil and teacher circulation disturbs pupils at work at their desks; (2) lack of free floor space for large type projects; (3) inadequate storage because of insufficient floor area; (4) absence of essential instructional fixtures and equipment and; if provided, insufficient space for them; (5) less pupil stations than the average class size adopted by the school district for that activity and no space to add stations (3, pp. 72, 73).

These evidences could surely be applied to colleges as well as public schools.

During World War II, government regulations in some areas of the United States required that schools achieve 200 percent utilization before they could add new buildings or enlarge old ones. Certainly, over-utilization was in effect long before this percentage was achieved. Because of the various peculiarities of each school and its curriculum, no definite percentage can be set as a mark of over-utilization in any one case. Whenever the efficiency of the learning situation is hindered, crowding or over-utilization is present.

All of the previously mentioned factors have direct or indirect bearings upon the instructional space utilization in colleges. They are not individual problems, but are actually participating elements in the Gestalt of good space usage. Each one of them is merely a small stream leading into the
main channel; that of administering the use of instructional space. It is concerned with each element but yet, it is larger than the sum of these factors that influence space utilization.

Summary

1. Utilization of instructional space is affected by the sizes and types of classes. The more specialized the class, the greater is the chance that low utilization will result. Minimum and maximum standards for classes should be established in every college.

2. The per-student instructional area needs vary from institution to institution, from instructor to instructor. The graduate student is generally allowed more square footage than the undergraduate.

3. Adjusting the class sizes to the room sizes is one of the most difficult space problems. It is generally believed that it is impossible to establish standard lists of room requirements to fit the needs of any college in any locality.

4. Student instructional facilities, as well as classroom areas, should be properly utilized.

5. Instructional space utilization is often limited when classrooms are assigned to the convenience of the instructors, when classrooms are used as offices, and when faculty members assume certain classes and rooms to be their own.

6. Improved utilization of classrooms will allow more money to be spent on the salaries of instructors.
7. The humanistic approach to instructional space utilization must be considered. The working conditions, the inter-relationship of space, the types and amounts of work and the extra-curricular activities of the faculty and students should fit into the humanistic viewpoint of the utilization plans.

8. The cleaning and repairing of instructional space is a most necessary part of the utilization process, but it must not interfere with the educational program.

9. Accurate college enrollment predictions are difficult to obtain. Some type of general prediction will have to be used in planning for future instructional space.

10. Each college should have a master plan of the present and future instructional space.

11. Poor instructional space utilization may be influenced by an inadequate amount or the improper distribution of special instructional equipment.

12. Scheduling is one of the chief factors, if not the main factor, that affects the utilization of instructional space. Great skill is required in the proper scheduling of classes, rooms, faculty, pupil-stations, and special equipment.

13. Institutions possessing ample classrooms but a low enrollment of students, will generally have poor utilization of instructional areas.

14. No certain percentage can be set as a mark of over-utilization in all colleges. The economical part of instructional space utilization should never prevail to the extent that the educational part is hampered.
CHAPTER BIBLIOGRAPHY


CHAPTER III

THE DEVELOPMENT OF CRITERIA FOR ADMINISTERING INSTRUCTIONAL SPACE IN COLLEGES AND UNIVERSITIES

Introduction

The criteria for administering instructional space in colleges and universities were developed from four factors: (1) Mort's seven broad principles of school administration (democracy, justice, equality, prudence, adaptability, flexibility, and stability); (2) authoritative statements and research findings; (3) administrative classifications (policies, maintenance, special equipment, scheduling, record keeping, communication system, supervision of non-professional personnel, extra-curricular use of space, and future plans for space); and (4) the Principle, which is actually a statement that has been derived from one of Mort's broad principles and the administrative classification which is under discussion. The work is departmentalized by Mort's seven broad principles. The development of criteria consisted of stating a specific Principle and an administrative classification. Authoritative statements and research findings were then quoted. From the fusing of these factors, instructional space administration criteria were logically derived.
The Development of the Criteria

**Democracy**

**Principle.**—There is democracy in the establishment of policies concerning space utilization.

Administrative Classification: Policies.—The following authoritative statements and research findings bear upon this principle:

"The administrator is responsible for expediting a process which brings all the persons with legitimate interests in a program into effective collaboration in planning for it" (7, p. 3).

"It is essential that the general policies and conditions of use be established by the governing board" (1, p. 23).

"A third factor employed in the establishment of room capacity was called administrative policy. This is a complex factor and includes such items as the financial ability of the schools to provide faculty salaries; the student-instructor ratio; changes in room assignments; enrollments; the addition of new classes; dropping of existing classes; combining classes; affect room and student station utilization" (9, p. 137).

"11. Space administrative procedure should take into consideration the persons that will be affected by decisions" (3, p. 213).

"(4) The following factors were found to influence room and student-station utilization:
(e) local administration policy and procedure with respect to

(1) class size

(2) method of instruction

(3) student-instructor ratio

(e) changes in assignment of rooms and classes" (9, p. 145).

From the previous statements it would appear that the following criteria for democracy in policy establishment can be logically derived:

1. The faculty participates in the formulation of policies.

2. Administrators aid in the formulation of policies.

3. Students assist in the formulation of policies.

4. The departments or schools have their representatives in the policy forming groups.

5. Policies affecting space are established concerning:

(a) Student load

(b) Teacher load

(c) Course offerings

(d) Standards for class size and area

(e) Daily program

(f) Special equipment

(g) Maintenance

(h) An information system

(i) Future plans for space

(j) Extra-curricular use of space
6. Are the administrative representatives (board of regents, trustees, etc.) the final authority in policy formulation?

Principle.--There is a democracy in the scheduling process.

Administrative Classification: Scheduling.--The following authoritative statements and research findings bear upon this principle:

"The administrator is responsible for expediting a process which brings all the persons with legitimate interests in a program into effective collaboration in planning for it" (7, p. 3).

"11. Space administrative procedure should take into consideration the persons that will be affected by decisions" (3, p. 143).

From the previous statements it would appear that the following criteria for democracy in the scheduling process can be logically derived. The following groups receive satisfactory representation in setting up the schedule:

(a) Students
(b) Teachers
(c) Administrators
(d) Non-professional personnel

Principle.--There is democracy in the record-keeping system.
Administrative Classification: Record Keeping.—The following authoritative statements and research findings bear upon this principle:

"The administrator is responsible for expediting a process which brings all the persons with legitimate interests in a program into effective collaboration in planning for it" (7, p. 3).

"II. Space administrative procedure should take into consideration the persons that will be affected by decisions" (3, p. 143).

From the previous statements it would appear that the following criteria for democracy in the record-keeping system can be logically derived:

1. The facts to be recorded are obtained from the interests of:
   (a) Students
   (b) Teachers
   (c) Administrators
   (d) Non-professional personnel
   (e) Public

2. Data on space utilization are readily accessible for anyone connected with the college.

Principle.—The communication system is operated in a democratic manner.
Administrative Classification: Communication System.

The following authoritative statements and research findings bear upon this principle:

"The administration is responsible for expediting a process which brings all the persons with legitimate interests in a program into effective collaboration in planning for it" (7, p. 3).

"Il. Space administration procedure should take into consideration the persons that will be affected by decisions" (3, p. 143).

From the previous statements it would appear that the following criteria for democracy in the communication system can be logically derived:

1. The following groups contribute information to officers and committees dealing with space facts:
   (a) The student body
   (b) The faculty
   (c) The administrative staff

2. The following groups are informed about space facts:
   (a) The student body
   (b) The faculty
   (c) The administrative staff
   (d) The general public

Principle.—Democratic practices are prevalent in the supervision of non-professional employees.
Administrative Classification: Supervision of non-professional Employees.--The following authoritative statements and research findings bear upon this principle:

"The administrator is responsible for expediting a process which brings all the persons with legitimate interests in a program into effective collaboration in planning for it" (7, p. 3).

From the previous statement it would appear that the following criterion for democracy in the regard to the supervision of non-professional employees can be logically derived:

There is cooperative planning with non-professional employees to establish goals and standards.

Principle.--Future planning for space is conducted democratically.

Administrative Classification: Future Plans for Space.--The following authoritative statements and research findings bear upon this principle:

"The administrator is responsible for expediting a process which brings all the persons with legitimate interests in a program into effective collaboration in planning for it" (7, p. 3).

From the previous statement it would appear that the following criterion for democratic planning of future space can be logically derived:

Each department contributes a prediction of its future enrollment.
Principle.--There is democracy in the organization of the professional personnel.

Administrative Classification: Organization of the Professional Personnel.--The following authoritative statement and research finding bears upon this principle:

"Requests for changes in space assignments or for building alterations should be processed through the established channels of the organization of the college" (3, p. 139).

From the previous statement it would appear that the following criterion for democratic organization of the professional personnel can be logically derived:

All committees dealing with space matters offer their recommendations to the proper administrative channels (vice-president, president, and to the board of regents).

Principle.--Maintenance of space is conducted democratically.

Administrative Classification: Maintenance--The following authoritative statements and research findings bear upon this principle:

"It is essential that the general policies and conditions of use be established by the governing board" (1, p. 23).

"II. Space administrative procedure should take into consideration the persons that will be affected by decisions" (3, p. 1143).

From the previous statements it would appear that the following criterion for democratic maintenance can be logically derived:
Periodic examinations of the physical fitness of instructional areas are made jointly by some of the space administrators and maintenance supervisors.

**Principle.**—Special equipment is managed democratically.

**Administrative Classification: Special Equipment Management.**—The following authoritative statement and research finding bear upon this principle:

"It is essential that the general policies and conditions of use be established by the governing board" (1, p. 23).

From the previous statement it would appear that the following criteria for democratic management of special equipment can be logically derived:

1. Requests for use of special equipment are considered as to:
   (a) Time of the request
   (b) The need
   (c) The department quota

2. Equipment is allocated to aid the classes, not for the convenience of the distributor.

3. The responsibilities of the uses of this equipment is understood and complied with:
   (a) The instrument is used for the right purpose.
   (b) The equipment is cared for.
   (c) The equipment is returned at the proper time.

**Principle.**—Democracy is practiced in the extra-curricular use of space.
Administrative Classification: Extra-Curricular Use of Space.—The following authoritative statements and research findings bear upon this principle:

"It is essential that the general policies and conditions of use be established by the governing board" (1, p. 23).

"II. Space administrative procedure should take into consideration the persons that will be affected by decisions" (3, p. 143).

From the previous statements it would appear that the following criteria for democratic practice in the extra-curricular use of space can be logically derived:

1. All student organizations have the same opportunity to use the classrooms after the daily schedule is over.
2. Community organizations are allowed the use of school space after regular classes are over.

Justice

Principle.—The established policies are just.

Administrative Classification: Policies.—The following authoritative statements and research findings bear upon this principle:

"Space administration should take into consideration the humanistic aspects of academic living" (3, p. 143).

"A third factor employed in the establishment of room capacity was called administrative policy. This is a complex factor and includes such items as the financial ability of the
schools to provide faculty salaries; the student-instructor ratio; changes in room assignments; enrollments; the addition of new classes; dropping of existing classes; combining classes; affect room and student station utilization (9, p. 137).

From the previous statements it would appear that the following criterion for just policies can be derived:

There are policies or rules of procedures that will allow exceptions to the established policies in order to meet the needs of teachers and students having special problems.

**Principle.** — There is just use in the scheduling procedure.

**Administrative Classification:** Scheduling. — The following authoritative statements and research findings bear upon this principle:

"Space should not be permanently assigned" (3, p. 140).

"Space administration should take into consideration the humanistic aspects of academic living" (3, p. 143).

From the previous statements it would appear that the following criteria for justice in the scheduling process can be logically derived:

1. Faculty members do not claim certain courses or rooms as their own.
2. Individual traits and peculiarities are considered in the assignment of classes and rooms.
3. The class and room fit into the faculty member's overall teaching program.
4. The health of the faculty member is considered in the assignment.

5. The distance between succeeding classes is not too great to be traveled in the time between periods.

6. Teachers with similar positions and ranks are assigned similar teaching loads.

**Principle.**—The communication system is just in its informing the public of space facts.

**Administrative Classification: Communication System.**—The following authoritative statement and research finding bear upon this principle:

"It behooves administrative officers to be sure that the instructional staffs are aware of the utter necessity of such changes" (Changes necessary in space assignments.) (4, p. 27).

From the previous statement it would appear that the following criterion for justice in the communication system can be logically derived:

Teachers are conscious of space needs, problems, and changes.

**Principles.**—The non-professional employees receive justice in their supervision.

**Administrative Classification: Supervision of Non-professional Employees.**—The following authoritative statement and research finding bear upon this principle:
"The organization of the buildings and grounds service should recognize certain basic principles of effective administration such as:

(c) The establishment and maintenance of clear lines of authority.

(d) The limitations of the number of persons reporting to one individual" (1, p. 23).

From the previous statement it would appear that the following criteria for justice in the supervision of non-professional employees can be logically derived:

1. There is a clear division of labor, in order that each employee may understand the functions and requirements of his job.

2. The plant employees know to whom they are responsible.

3. The plant employees are not burdened by extra overseers.

**Principle.**—Justice is prevalent in the extra-curricular use of space.

**Administrative Classification:** Extra-Curricular Use of Space.—The following authoritative statements and research findings bear upon this principle:

"The administration is responsible for expediting a process which brings all the persons with legitimate interests in a program into effective collaboration in planning for it" (7, p. 3).
"Il. Space administrative procedure should take into consideration the persons that will be affected by decisions." (3, p. 143).

From the previous statements it would appear that the following criterion for justice in the extra-curricular use of space can be logically derived:

The custodial staff is consulted before "after regular hours" classes or activities are scheduled.

**Equality**

**Principle.**—Equality is achieved in the scheduling process.

Administrative Classification: Scheduling.—The following authoritative statement and research finding bear upon this principle:

"Space administration should take into consideration the humanistic aspects of academic living" (3, p. 143).

From the previous statement it would appear that the following criterion for equality in the scheduling process can be logically derived:

The daily programs are established with the students' needs and interests in mind.

**Principle.**—The equality idea is included in future plans for space.

Administrative Classification: Future Plans for Space.—The following authoritative statement and research finding bear upon this principle:
"While shifts in student interests over a long period of time will undoubtedly influence the above factors, they are, in all probability, the most reliable upon which to base any planning" (B, p. 81).

From the previous statement it would appear that the following criterion for equality in future planning of space can be logically derived:

Future planning of space is based chiefly upon predicted students' needs and interests.

**Principle.**—The records are kept and used and through this, equality is aided.

Administrative Classification: Record Keeping.—The following authoritative statement and research finding bear upon this principle:

"While shifts in student interests over a long period of time will undoubtedly influence the above factors, they are, in all probability, the most reliable upon which to base any planning" (B, p. 81).

From the previous statement it would appear that the following criterion for record-keeping equality can be logically derived:

Frequent studies are made to determine the students' needs and interests and to see if these two factors are being met by the present uses of instructional space.
Prudence

Principle.--The organization of the professional personnel manifests prudence.

Administrative Classification: Organization of the Professional Personnel.--The following authoritative statement and research finding bear upon this principle:

"As far as possible there should be centralization of the responsibility for space utilization" (6, p. 26).

From the previous statement it would appear that the following criterion of prudence can be logically derived:

There is an officer or a committee who is delegated the responsibility of utilizing space to its fullest.

Principle.--Prudence is evident in the space policies.

Administrative Classification: Policies.--The following authoritative statements and research findings bear upon this principle:

"It is essential that the general policies and conditions of use be established by the governing board" (1, p. 23).

"The following steps must be taken in developing the classroom needs of the junior college:

(3) Set up the standards for class size that are to be considered desirable, maximum, and minimum"

(5, p. 137).
From the previous statements it would appear that the following criteria for prudence in space policies can be logically derived:

1. Policies for the use, care, and administration of instructional space are established by the governing group.

2. There are policies or standards established for the number in classes:
   (a) Desirable
   (b) Maximum
   (c) Minimum

3. Policies are set up to avoid over-utilization as well as under-utilization of instructional space.

   **Principle.**—The maintenance procedure of space area is prudent.

   **Administrative Classification: Maintenance.**—The following authoritative statement and research finding bear upon this principle:

   "This function, (the scheduling of classes) should be performed in cooperation with the superintendent of buildings and grounds, whose duty it is to ensure that the classrooms are serviced properly" (1, p. 23).

   From the previous statement it would appear that the following criteria for prudence in maintenance procedure can be logically derived:
1. The maintenance of the classrooms does not hinder efficient use by the classes.

2. The instructional classes can regulate the heating, cooling, and lighting systems for their particular needs.

Principle.--Efficient records are kept concerning space data.

Administrative Classification: Record Keeping.--The following authoritative statement and research finding bear upon this principle:

"Records of meetings and communication should be kept" (3, p. 149).

From the previous statement it would appear that the following criteria for efficient record keeping can be logically derived:

1. Efficient, up-to-date facts are recorded concerning:
   (a) Type and quantity of pupil-stations
   (b) Conditions of rooms
   (c) Floor areas (general and specific)
   (d) Present degree of utilization
   (e) Low areas of utilization
   (f) Areas of over-utilization.

2. Instructional records are kept concerning:
   (a) Complaints
   (b) Requests
   (c) Decisions
**Principle.**—The communication system is prudent.

Administrative Classification: Communication System.---
The following authoritative statements and research findings bear upon this principle:

"Lines of communication should be considered when assigning space" (3, p. 148).

"Records of meetings and communication should be kept" (3, p. 149).

From the previous statements it would appear that the following criterion for a prudent communication system can be logically derived:

A two-way system of communication is functioning, concerning space facts to the following groups:

(a) The student body
(b) The faculty
(c) The president and board of regents
(d) The public

**Principle.**—Prudence is evident in future planning for space.

Administrative Classification: Future Plans for Space.---
The following authoritative statement and research finding bear upon this principle:

"The space committee or administrator should utilize the advise of experts" (3, p. 147).
From the previous statement it would appear that the following criteria for sound future planning of space can be logically derived:

1. The space officers or committees consult the registrar as to future enrollments.
2. The space officers consult the school architect and engineer as to future plans for space.
3. The reports from the various personnel and departments are consolidated and channeled into the proper divisions to meet the needs of predicted enrollments.

Adaptability

Principle.--The policies are adaptable enough to meet space needs.

Administrative Classification: Policies.--The following authoritative statements and research findings bear upon this principle:

"Requests for changes in space assignments or for building alterations should be processed through the established channels of the organization of the college" (3, p. 139).

"Since the academic program is the matter of primary importance, it follows that the plant space must be adjusted and arranged to fit the program, rather than the program warped and distorted to fit the available space" (10, p. 59).

From the previous statements it would appear that the following criteria for adaptable policies can be logically derived:
1. Requests for changes in classes or room assignments are processed through the established channels of the organizations of the college.

2. The school plant adapts to the academic program in a satisfactory manner.

**Principle.**—The schedule is adaptable enough to meet current needs.

Administrative Classification: Scheduling.——The following authoritative statement and research finding bear upon this principle:

"(2) Changes in room assignments; enrollments; the addition of new classes; dropping of existing classes; combining classes; affect room and student-station utilization" (9, p. 137).

From the previous statement it would appear that the following criterion for an adaptable schedule can be logically derived:

The schedule can be changed or altered without greatly hindering space utilization.

**Principle.**—The organization of the professional personnel is such that adaptations can be made to meet space needs.

Administrative Classification: Organization of the Professional Personnel.——The following authoritative statement and research finding bear upon this principle:
"The autonomy of college and university professors, however, imposes an implicit obligation to shift and change the personal practice of living if circumstances demand" (4, p. 27).

From the previous statement it would appear that the following criterion for professional adaptations can be logically derived:

The teaching staff is willing to accept assignments of classes at unpopular hours.

**Flexibility**

**Principle.**—The policies are flexible.

**Administrative Classification: Policies.**—The following authoritative statements and research findings bear upon this principle:

"A third factor employed in the establishment of room capacity was called administrative policy. This is a complex factor and includes such items as the financial ability of the schools to provide faculty salaries; the student-instructor ratio; changes in room assignments; enrollments; the addition of new classes; dropping of existing classes; combining classes; affect room and student station utilization" (9, p. 137).

"Several fundamental principles underlying the planning and organization of the school buildings have been fairly
well developed. A few of these have been in use for several years and have come to be recognised almost universally. They are: ... (2) flexibility" (2, pp. 37-38).

From the previous statements it would appear that the following criteria for flexible policies can be logically derived:

The policies are flexible enough to give adjustment to emergencies arising from needed changes in:
(a) The students' load
(b) The teachers' load
(c) The course offerings
(d) Standards for class size
(e) The daily programs

Principle.--The maintenance schedule is flexible.

Administrative Classification: Maintenance.--The following authoritative statement and research finding bear upon this principle:

"Several fundamental principles underlying the planning and organization of the school buildings have been fairly well developed. A few of these have been in use for several years and have come to be recognized almost universally. They are: ... (2) flexibility" (2, pp. 37-38).

From the previous statement it would appear that the following criterion for maintenance flexibility can be logically derived:
The maintenance schedules are adjustable enough to meet most sudden necessary changes.

**Principle.** -- The schedule is flexible.

**Administrative Classification: Scheduling.** -- The following authoritative statement and research finding bear upon this principle:

"Several fundamental principles underlying the planning and organization of the school buildings have been fairly well developed. A few of these have been in use for several years and have come to be recognized almost universally. They are: . . . (2) flexibility" (2, pp. 37-38).

From the previous statement it would appear that the following criterion for a flexible schedule can be logically derived:

The schedule is flexible enough to meet 5 to 10 per cent increases or decreases in the predicted enrollments of classes.

**Principle.** -- The extra-curricular use of space is flexible.

**Administrative Classification: Extra-Curricular Use of Space.** -- The following authoritative statement and research finding bear upon this principle:

"Several fundamental principles underlying the planning and organization of the school buildings have been fairly well developed.

. . . . . . . . . . . . . . . . . . . . .

They are: . . . (2) flexibility" (2, pp. 37-38).
From the previous statement it would appear that the following criterion for extra-curricular use of space flexibility can be logically derived:

The over-all program of the college can be adjusted so as to allow the community some extra-curricular use of instructional space, without upsetting the educational objectives.

**Principles.**—Future plans for space are flexible.

Administrative Classification: Future Plans for Space.—The following authoritative statement and research finding bear upon this principle:

"Space should be administered as to give flexibility for future space adjustment" (3, p. 476).

From the previous statement it would appear that the following criteria for flexibility of future plans for space can be logically derived:

1. Future plans for instructional space include classrooms that are flexible, or that can be used for multi-purposes.
2. Some of the future instructional space is so designed that the classrooms can be adjusted to fit the sizes of the classes.

**Stability**

**Principle.**—There is stability in the recording of space data.
Administrative Classification: Record Keeping.--The following authoritative statement and research finding bear upon this principle:

"Records of meetings and communications should be kept" (3, p. 149).

From the previous statement it would appear that the following criterion for stability of space data can be logically derived:

Space facts are recorded and preserved.

Principle.--Stability of space is evident in that consideration is given to the beauty, health, and safety factors. Administrative Classification: Maintenance.--The following authoritative statement and research finding bear upon this principle:

"The questions of health, safety, and beauty of space need to be carefully considered" (3, p. 149).

From the previous statement it would appear that the following criterion for stability in maintenance can be logically derived:

Health, safety, and beauty of space factors are considered in the maintenance of instructional space.

Principle.--Stability is included in future plans for space.
Administrative Classification: Future Plans for Space.

The following authoritative statement and research findings bear upon this principle:

"The questions of health, safety, and beauty of space need to be carefully considered" (3, p. 143).

From the previous statement it would appear that the following criterion for future space plans stability can be logically derived:

Consideration is given to the questions of health, safety, and beauty of space in future plans for instructional space.

Hypotheses

In an analysis of the developed criteria for the administration of instructional space in colleges and universities, certain hypotheses have been developed:

1. Colleges and universities should have space committees.
2. Definite instructional space policies must be developed.
3. All segments of the college personnel should be represented in the policy formulation.
4. A central office or officer should direct the administration of instructional space.
5. The administration of instructional space requires effective cooperation between professional and non-professional personnel in securing optimum use of instructional space.
6. Colleges must have an effective system of communication pertaining to instructional space data.

7. Instructional space data should be recorded and preserved.

8. Proper distribution and use of special equipment facilitates instructional space utilization.

9. Periodic examinations of cleanliness and physical fitness of instructional space should be made by both maintenance supervisors and space administrators.

10. Custodial staffs should be consulted before unusual classes or activities are scheduled.

11. Community organizations and student groups should be permitted to use instructional spaces when the use does not interrupt the schedule.

12. Colleges should have groups or committees that specialize in planning for future space.

13. The needs and interests of students should be the main factors in planning future space.

14. Future space should be flexible and adaptable to meet varying future needs.

Summary

1. The four factors in the criteria development were:
   (1) Mort's seven principles of school administration, (2) authoritative statements and research findings, (3) administrative classifications, and (4) the Principle that emerged from a combination of numbers (1) and (3).
2. Mort's seven principles of school administration are based upon sound research and are recognized as covering the broad field of school administration. The seven principles were used as a framework for the criteria.

3. The criteria for administering instructional space in colleges and universities were analyzed and fourteen hypotheses were developed.
CHAPTER BIBLIOGRAPHY


CHAPTER IV

THE DEVELOPMENT OF A MEASURING INSTRUMENT FOR DETERMINING
OPTIMUM INSTRUCTIONAL SPACE UTILIZATION OF
COLLEGE AND UNIVERSITY BUILDINGS

Introduction

The basic reason for this study was the need of an evaluation instrument to determine the practices in administering instructional space utilization in colleges and universities. Either an existing instrument had to be adapted to fit this need, or a new one had to be constructed. No appropriate instrument was found, and since no previously designed test was adaptable, a new one was constructed.

The measuring instrument was based primarily upon the developed criteria in Chapter III. This previous chapter was founded upon research and authoritative statements and was divided into departments by Mort's seven principles of school administration. In constructing a measuring instrument, the criteria were refined, arranged by subject matter, and fitted into an instrument patterned after the Evaluation Schedule of the American Association of Colleges for Teacher Education.

This survey instrument consists of three parts: (1) a general data paragraph, (2) Section I, the Information Section, and (3) Section II, the Evaluation Section.
General Data

The questions asked on page 1 concerning the date and the name and enrollment of the institution are quite necessary for classification purposes. The type of organization used in administering the institution and name of person answering the questionnaire were important for statistical purposes in this dissertation. These facts permitted the data to be classified as to the size of the institution and the varying positions held by people answering the survey. All of the data asked for on page 1 of the questionnaire are quite standard to this type of educational questionnaire.

The Information Section

The Information Section was designed to determine how each institution managed its space administration problem. To achieve this goal, extra care was taken to word the questions to fit most ordinary situations and methods. In most instances, blank space was provided so that uncommon answers or factors not listed could be stated.

The Evaluation Section

The Evaluation Section was so constructed as to provide an instrument that each college could use in appraising the effectiveness of its administering of instructional space utilization. The Evaluation Section was designed in the form of a rating scale.
Numerical Values

The criteria, or items, to be rated were evaluated on a numerical scale. The numerical values were defined. It was stated, "The major difficulty with numerical rating scales . . . is that the numbers which serve as standards are abstract in measuring; they bear no relation to reality" (3, p. 105).

This was not true of the present scale; each unit is defined. The scale is a progressive one starting with: 1 means no; 2 means nearly always no; 3 and 4 mean no, more times than yes; 5 and 6 mean yes, more times than no; 7 means nearly always yes; and 8 means yes. Each question is worded so as to be answered with yes, no, or some degree between the two. The items, 0 - the item does not apply in this institution, and N - no opinion or no basis for judgment, permitted the rater to avoid ratings where it was not possible to evaluate.

"The differences in amount of the trait or ability indicated by standards equally distant apart should be equal; otherwise the scale will not be a scale in the true sense" (3, p. 106).

The standards or units are balanced and are equidistant.

From a theoretical analysis, Symonds concluded that maximum reliability will be obtained when seven steps are used. . . . The results of an experimental investigation by Champney and Marshall on the relationship between the number of steps in a rating scale and reliability suggest that nine is the optimal number of steps for trained raters (3, p. 109).
This scale has eight points; the number between Symond's seven and Champney's and Marshall's optimal of nine numbers. "The number of steps yielding the highest reliability, however, probably will vary considerably with the nature of the trait being rated" (3, p. 109). Eight points balance this scale as it should be in keeping with the questions asked.

Raters

Rating scales place a premium upon the qualifications of raters and upon rating conditions because considerable subjective judgment is involved. Any rating scale is subject to the mistakes that are characteristic of the judgments of human beings. "Most rating methods suffer in accuracy because of the fact that some raters tend to be too lenient and others too critical" (5, p. 250). The authors of Education Research and Appraisal list five suggestions in selecting raters:

(1) The raters should be carefully selected.
(2) Raters should be trained for the particular job. (3) Overt behavior can be more readily rated than that which is hidden. (4) It is important to resist the "halo effect" of some strongly dominating characteristic of an individual; and (5) Many raters are inclined to prefer favorable to unfavorable statements (1, pp. 82-83).

It was difficult to decide what one college officer could best fit these raters' qualifications. The college presidents were chosen because: (1) they are in the best position to know the total program of the colleges, and (2) they could be more objective than the department heads or division leaders. In each case, the president of the college or someone
designated by him rated their institutions by the instrument. In a majority of the cases, where the president did not do the rating, he reviewed the rating made by the other person.

Certain other accepted standards should be observed in constructing measuring instruments. Some of the more important standards are: objectivity, discrimination, validity, and reliability.

Objectivity

Barr, Davis, and Johnson state:

In connection with testing instruments, objectivity in scoring may be contingent upon what is referred to as objectivity in the measuring of the items themselves. Is a particular item free of ambiguity, or can it be variously interpreted? If more than one relevant interpretation is possible, the item must be considered faulty. . . . Objectivity in meaning is dependent upon careful formulation of items of an instrument on appropriate populations is needed in order to determine whether it has been constructed to attain the highest objectivity possible in scoring and meaning (1, pp. 91-92).

Objectivity was obtained in this instrument by a careful formulation of the criteria items and by several revisions of the wording. An actual tryout or "pilot-study" was conducted by the vice-president of one of the institutions. Many of the criteria items were then revised in keeping with the findings of the tryout.

Discrimination

Good describes discrimination as:

The power of a test or test item to distinguish among good, mediocre, and poor students;
the distribution of scores, moreover, should show a range equivalent to the spread of ability among the students (4, p. 135).

Discrimination is a part of the developed instrument as proved by the great variety and range of the scores of the institutions on the Evaluation Scale. No two schools had the same score, and the fourteen scores ranged from 319 to 494.

Validity

Lindquist defines validity as "the accuracy with which it measures that which it is intended to measure, or as the degree to which it approaches infallibility in measuring what it purports to measure" (6, p. 215). Barr, Davis, and Johnson state: "An instrument is regarded as valid if it serves the purposes for which it is designed" (1, p. 93). Garrett adds these words, "a test is valid when the capacity which it gauges corresponds to the same capacity as otherwise objectively measured and defined" (2, pp. 394-395).

There are two methods for determining if a test is valid; by empirical validity and by logical validity. Empirical validity is achieved if an instrument correlates closely with a selected criterion. No reliable criterion was available to correlate with this instrument, so logical validity was used.

Barr, Davis, and Johnson state:

Logical validity is obtained when an investigator defines and describes the abilities, traits, concepts, or skills that he expects to be measured by an instrument of research; analyzes
them to identify the elements needed in a measuring instrument; and designs the instrument with the demands of the situation as his criteria (1, p. 93).

The author defined and described the administrative practices and criteria that were expected to be measured by the research instrument. The criteria were analyzed to identify the elements needed in the measuring instrument. The instrument was designed with the demands of the particular situation in regards to the efficient administrative plans and policies for the utilization of instructional space in colleges and universities. The important areas of sound and democratic practices in school administration, as found in literature, were analyzed in the construction of a measuring instrument. The items determined by logical analysis to be the most significant and important were identified and used as the criteria.

The measuring instrument when constructed, therefore acquired its logical validity from the identification of significant items of administration. These were taken from authoritative sources and by logical processes organized into the criteria for the measuring of administrative practices whose uses lead to optimal use of college and university instructional space.

Reliability

Barr, Davis, and Johnson said, "The fundamental concept of reliability resides in the assumption of consistency or stability in scores when there are repetitions of measurement
with an instrument" (1, p. 215). Lindquist states, "An important characteristic of any test, a characteristic which is essential to but not a guarantee of validity, is self-consistency or reliability in measurement" (6, p. 215).

According to Garrett there are three procedures in common use for determining the reliability of a test: "(1) the test-retest (repetition) method; (2) the alternate or parallel forms method; and (3) the split-half method" (2, p. 380). It was impossible to give this test more than once to the same institutions, so the test-retest method was not used. The alternate or parallel forms method was not used because no parallel form was developed or could have been given at a later date. Garrett says: "The split-half method is generally regarded as the best of the methods for determining test reliability" (2, p. 383). Since it was not feasible to use the other procedures, and since the split-half method is the superior method, it was used to establish reliability. Garrett further states,

In the split-half method the test is broken into two equivalent parts and the correlation of these half-tests is computed. From the half-test reliability, the self-correlation of the whole test is estimated by the Spearman-Brown formula . . . ." (2, p. 382).

The even-numbered items were correlated with the odd-numbered items of the test. The correlation was computed by using the raw score method of correlation. This correlation of the split-halves was .85. The Spearman-Brown formula (81)
was applied to this half-test reliability and the reliability of the whole test was computed to be $r = 0.92$. This degree of reliability of the instrument is very significant. The computation of the reliability is shown in the Appendix A.

The Administering of College and University Space Utilization Survey Blank

A copy of the developed measuring instrument follows:
THE ADMINISTERING OF COLLEGE AND UNIVERSITY

SPACE UTILIZATION SURVEY BLANK

Date of this report

Name of institution Location

Enrollment, September, 1956

Type of organization used in administering this institution (university, departments, divisions, etc.)

Name and position of person or persons whose viewpoints are expressed in this survey

Do you wish to have a copy of the conclusions of this survey?

This survey is divided into two sections: an Information Section and an Evaluation Scale. The Information Section is designed to determine how each institution manages its space administration problems. The Evaluation Scale is constructed to provide each institution an opportunity to appraise the effectiveness of its administration of space utilization.

Section I

The Information Section

Please put a check mark (\(\checkmark\)) or fill in the blanks where applicable.

A. Policies

I. Is there at this institution a group or committee which participates in the formulation of institutional policies under the broad outlines set out by the governing board?

Yes ______. No ______.
1. If yes, is the group representative of all major divisions of the institution? Yes___. No____.

2. If yes, what is its name, number, and composition?
   a. Name of group____________________________________________________
   b. Number in group___________________________________________________
   c. Presiding officer___________________________________________________
   d. Composed as follows________________________________________________

3. If yes, which (if any) of the following come within the scope of its recommendations? (Please check.)

   _a. student load _b. extra-curricular
   _c. teacher load _d. maintenance of
   _e. class size _f. instructional space
   _g. course offerings _f. future planning
   _h. scheduling _g. space assignments
   _i. daily program _h. to departments
   _j. space assignments _i. others
   _k. space assignments _j. others

4. If no, indicate in a general way how broad institutional policies are formulated.__________________________________________________________

II. Is there a special group or committee which is primarily concerned with policies having to do with the factors involved in the utilization of instructional space for the whole institution? Yes___. No____.

1. If yes, is the group representative of all major divisions of the institution? Yes___. No____.

2. If yes, what is its name, number, and composition?
   a. Name______________________________________________________________
   b. Number of members__________________________________________________
   c. Presiding officer____________________________________________________
   d. Composed as follows__________________________________________________

3. If yes, which (if any) of the following come within the scope of its recommendations? (Please check in left column.)

   Note: If an item is not checked please indicate in the right hand space what person or group establishes policies and procedures concerning that item.
III. Is there an administrative officer of the institution who coordinates most of the various activities involved in the efficient utilization of instructional space? Yes____ No____.

1. If yes, what is his title?__________________________

2. If yes, which of the following come within the scope of his activities? (Please check left column.)

   **Note:** If an item is not checked, please indicate in the right hand column who is responsible for that activity.

   a. student load
   b. teacher load
   c. class size
   d. course offerings
   e. scheduling
   f. daily program
   g. space assignments to depts.
   h. extra-curricular use of space
   i. maintenance of instructional space
   j. future planning for space
   k. others
   l. others

IV. If the answer to III above is yes, what is the usual approach to working out procedures and problems arising in connection with the various factors (a through j above) involved in the utilization of instructional space?
1. The coordinating officer works with:

___ a. Heads of major divisions of the institution primarily (i.e., deans of the various schools and colleges).
___ b. Heads of the various departments, primarily.
___ c. Both heads of major divisions and heads of departments.
___ d. Individual teachers.
___ e. Students.

B. Maintenance

I. Are there periodic examinations of the physical fitness of instructional areas made in cooperation with the maintenance supervisors? Yes____ No____.

1. If yes, who conducts the examinations?

___ a. dean
___ b. vice-president
___ c. space committee members
___ d. others (who)______________________________

2. If yes, how often are these evaluations made?____

C. Special Equipment

I. Who coordinates the management and use of special equipment (visual-aids, etc.) in this institution?

___ a. A central committee
___ b. The library
___ c. Departments
___ d. Schools
___ e. Others______________________________

D. Scheduling

I. Does this institution have a schedule director or someone who coordinates the scheduling process? Yes____ No____. Who______________________________

1. If yes, what are his primary duties? Does he work with:

___ a. Heads of major divisions of the institution, primarily
___ b. Heads of the various departments, primarily
__c. Teacher-administrator groups
__d. Individual teachers
__e. Students
__f. Others

E. Record Keeping

1. In this institution, are current space statistics recorded and preserved? Yes____ No____.

   1. If yes, who is delegated the responsibility for obtaining these statistics and making them available for use?

F. Communication System

1. What type of communication system is used to express space needs to the school personnel and to the public?

G. Supervision of Non-professional Employees

1. What officer or officers coordinate the work of the non-professional personnel with the efficient use of instructional space?

H. Extra-curricular Use of Space

1. In this institution, who is in charge of the extra-curricular use of instructional space?

I. Future Plans for Space

1. Is there a group or committee in this institution who specializes in future planning for space? Yes____ No____.

   1. If yes, what is the name, composition, and who is the chairman?

      a. Name ________________________________

      b. Composition ____________________________

      c. Chairman ______________________________

   2. If yes, which of the following are considered in the plans:

      ____a. students' needs and interests

      ____b. departments' predicted future enrollments
Section II

The Evaluation Section

Rating Scale Values and Explanation of Column Headings:

0 - The item does not apply in this institution.
N - No opinion or no basis for judgment.
1-2 - No, nearly always no.
3-4 - No, more times than yes.
5-6 - Yes, more times than no.
7-8 - Nearly always yes, yes.

This eight-point progressive scale can be used to answer questions of evaluative judgment about Instructional Space Administration in this college. Across from the items being considered are ten columns. Please put a check mark (✓) in the column that most nearly represents your evaluation of this item.

A. Policies

1. There are clear-cut institutional policies concerning the major factors involved in efficient utilization of instructional space:

   a. student load
   b. teacher load
   c. class size
   d. course offerings
   e. daily program

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(Continued on next page)
f. scheduling

g. space assignments to depts.

h. extra-curricular use of instructional space

i. maintenance of instructional space

j. future planning for space

k. others (specify)

2. In the formulation of policies concerning space utilization, all those directly affected by the policies are represented

- a. general administrative officers
- b. deans
- c. department heads or directors
- d. teachers
- e. students
- f. maintenance personnel
- g. others (specify)

3. Policies concerning the factors in space utilization are flexible enough to allow for adjustment to emergencies arising from:

- a. changes in students' loads
- b. changes in teachers' loads
- c. changes in course offerings
- d. changes in class size
- e. changes in daily program
- f. others (specify)
B. Maintenance

1. The maintenance of the classroom does not hinder efficient use by the classes.

2. The maintenance schedules are adjustable enough to meet sudden necessary changes.

3. The instructional classes can regulate the heating, cooling, ventilating, and lighting for their particular needs.

4. Health, safety, and beauty of space factors are considered in the maintenance of instructional areas.

C. Special Equipment

The management and use of special equipment (visual aids, etc.) do not hinder efficient usage.

D. Scheduling

1. In setting up the schedule all of those directly affected by the schedule are represented:
   a. teachers
   b. administrators
   c. students
   d. non-professional personnel

2. In assigning classes and rooms the individual faculty member is given consideration as to:
   a. His over-all teaching program
b. The distance between succeeding classes.

c. His health.

d. His personal traits and peculiarities.

e. Equal assignments as compared with other instructors of similar positions.

3. Space utilization is not hindered by faculty members "claiming" certain courses or rooms as their own.

4. In establishing the daily program the student is given consideration as to his:

   a. needs
   b. interests
   c. outside activities

5. The schedule can be changed or altered without greatly hindering space utilization.

6. The teaching staff is willing to accept assignments of classes at unpopular hours.

E. Record Keeping

1. Efficient, up-to-date facts are recorded concerning:

   a. Type and quantity of pupil-stations.
   b. Conditions of rooms.
   c. Floor areas (general and specific).
   d. Present degree of utilization.
   e. Low areas of utilization.
   f. Areas of excessive utilization.
2. Instructional space records are kept concerning:
   a. personnel complaints...
   b. personnel requests...
   c. decisions on a. and b.
      above...

3. Data on space utilization are accessible for personnel connected with the college.

F. Communication System

1. The following groups contribute information to the space officers or committee:
   a. student body...
   b. faculty...
   c. administrative staff...

2. The following groups are informed about space facts:
   a. student body...
   b. faculty...
   c. administrative staff...
   d. alumni...
   e. general public...

3. Teachers are conscious of space needs, problems, and changes...

G. Supervision of Non-professional Employees (Service employees: custodians, maintenance men, painters, carpenters, etc.)

1. There is cooperative planning with non-professional employees to establish goals and standards...

2. There is a clear division of labor, in order that each employee understand the functions and requirements of his job...
### Extra-curricular Use of Space

1. In most instances, community organizations are allowed the use of school space after regular classes are over.

2. The over-all program of the college can be adjusted as to allow the community some extra-curricular use of instructional space, without upsetting the educational objectives.

3. Student organizations have the opportunity to use classrooms after the daily schedule is over.

4. The custodial staff is consulted before "after regular hours" classes or activities are scheduled.

### Future Plans for Space

1. Frequent studies are made to determine the students' needs and interests and to see if these two factors are being met by the present uses of instructional space.

2. Some of the future instructional space is so designed that the classrooms can be adjusted to fit the sizes of the classes.
3. Future plans for instructional space include classrooms that are flexible, or that can be used for multi-purposes.

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4. Consideration is given to the questions of health, safety, and beauty in future plans for instructional space.

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</table>
Summary

1. Chapter IV was based upon the developed criteria in Chapter III.

2. The survey instrument was divided into three parts: (1) a general data paragraph, (2) an Information Section, and (3) the Evaluation Section.

3. The Evaluation Section items were constructed to be rated by numerical values.

4. The presidents of the colleges were asked to be the raters on the survey instrument.

5. Objectivity was obtained in this instrument by a careful formulation of the criteria items, and by several revisions of the wording. A "pilot-study" was also conducted.

6. Discrimination is present in the instrument as proved by the variety and range of the scores of the institutions on the Evaluation Scale.

7. The survey instrument acquired its logical validity from the identification of significant items of administration.

8. The degree of reliability of this measuring instrument was +.92. This reliability was determined by using the split-half method.
CHAPTER BIBLIOGRAPHY


CHAPTER V

THE SURVEY FINDINGS

Introduction

The eighteen Texas state-supported institutions of higher learning were asked to cooperate in this study of administering instructional space utilization. Fifteen colleges participated in the survey by using the instrument and returning the results in time to be used in this study. One of these institutions did not evaluate its administrative practices by using the rating scale. The colleges that cooperated were: Arlington State College, East Texas State College, Lamar State College of Technology, North Texas State College, Sam Houston State Teachers College, Stephen F. Austin State College, Southwest Texas State Teachers College, Tarleton State College, The University of Texas, Texas Agricultural and Mechanical College, Texas College of Arts and Industries, Texas Southern University, Texas Western College, Texas Woman's University, and West Texas State College.

These institutions were selected because:

(1) of the availability of the most reliable recent data concerning the space statistics of these colleges.

(2) of the variability of types, sizes, and sections represented and purposes of the colleges.
(3) of the interest of these colleges in instructional space utilization.

Table II lists the colleges alphabetically, giving their enrollments as of September, 1956, and lists the number of classrooms at the time of the latest space utilization survey in 1953.

**TABLE II**

**TEXAS STATE-SUPPORTED COLLEGES AND UNIVERSITIES' ENROLLMENTS AND NUMBER OF CLASSROOMS**

<table>
<thead>
<tr>
<th>College</th>
<th>Enrollment September, 1956*</th>
<th>Number of Classrooms, 1953**</th>
</tr>
</thead>
<tbody>
<tr>
<td>Arlington State College</td>
<td>4,157</td>
<td>51</td>
</tr>
<tr>
<td>East Texas State College</td>
<td>2,203</td>
<td>54</td>
</tr>
<tr>
<td>Lamar State College</td>
<td>3,800</td>
<td>37</td>
</tr>
<tr>
<td>North Texas State College</td>
<td>6,185</td>
<td>103</td>
</tr>
<tr>
<td>Sam Houston State Teachers College</td>
<td></td>
<td></td>
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<tr>
<td>Stephen F. Austin State College</td>
<td>2,830</td>
<td>62</td>
</tr>
<tr>
<td>Southwest Texas State Teachers College</td>
<td></td>
<td></td>
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<tr>
<td>Tarleton State College</td>
<td>2,257</td>
<td>46</td>
</tr>
<tr>
<td>The University of Texas</td>
<td>18,116</td>
<td>155</td>
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<td>Texas Agricultural and Mechanical College</td>
<td>7,187</td>
<td>196</td>
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<td>Texas College of Arts and Industries</td>
<td>2,701</td>
<td>45</td>
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<tr>
<td>Texas Southern University</td>
<td>2,892</td>
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<td>Texas Western College</td>
<td>3,839</td>
<td>45</td>
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<tr>
<td>Texas Woman's University</td>
<td>2,225</td>
<td>55</td>
</tr>
<tr>
<td>West Texas State College</td>
<td>2,500***</td>
<td>76</td>
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</tbody>
</table>

*Source: Evaluation Scale mailed to the Texas State-Supported Colleges, spring, 1957.

**Source: Financial Requirements of Higher Education in Texas. A Staff Report to the Finance Committee of the Texas Commission on Higher Education, Austin, Texas, July 26, 1954, Table III.

***Estimated Enrollment
Table II is to be interpreted as follows: Arlington State College had an enrollment of 4,157 students in September, 1956. The latest state college utilization study, in 1953, revealed this college with 51 classrooms.

The purposes for using this group of colleges and universities in the study were:

(1) These state-supported institutions and their instructional space administration are, in general, reasonably similar to other colleges. The administration of instructional space, both quantitatively and qualitatively, differs only in minor aspects between state-supported colleges and universities and privately financed ones.

(2) The information received through the evaluation instrument was compiled, recorded, and summarized for these and other institutions to use in improving administrative practices in instructional space utilization.

The survey instrument was divided into two sections, an Information Section and an Evaluation Scale. The Information Section, Section I, was designed to determine how each institution manages its space administration problems. The Evaluation Scale, Section II, was constructed to provide each institution an opportunity to appraise the effectiveness of its administration of space utilization.
In this chapter, the survey results of Section I and of Section II will be discussed. Other parts of this chapter are: an analysis of miscellaneous data and a chapter summary.

The Information Section Findings

Policies

Committees.--Fourteen of the fifteen Texas state institutions of higher education surveyed have space policies established by a representative committee. Table III reveals these facts.

<table>
<thead>
<tr>
<th>College</th>
<th>Policy Formulation Group</th>
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<td>Totals</td>
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</table>

TABLE III

TEXAS STATE-SUPPORTED COLLEGES AND UNIVERSITIES POSSESSING POLICY COMMITTEES
Table III is to be read as follows: College A has a policy committee.

Institution N, the only college without a policy formulation group, permitted the registrar and the department head concerned, to work out the policies on space. These committees recommended policies concerning: (1) student load, (2) teacher load, (3) class size, (4) course offerings, (5) scheduling, (6) daily program, (7) space assignments to departments, (8) extra-curricular use of space, (9) maintenance of instructional space, and (10) future planning of space.

Table IV lists these space items and shows the number of college policy groups that consider them.

**TABLE IV**

**SPACE ITEMS CONSIDERED BY THE TEXAS STATE-SUPPORTED COLLEGES AND UNIVERSITIES POLICY GROUPS**

<table>
<thead>
<tr>
<th>Space Items</th>
<th>Colleges Considering Items</th>
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<tbody>
<tr>
<td>Student Load.</td>
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<tr>
<td>Teacher Load.</td>
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<td>Class Size.</td>
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<td>Course Offering.</td>
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<td>Scheduling.</td>
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<td>Daily Program.</td>
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<td>Space Assigning to Depts.</td>
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</tr>
<tr>
<td>Extra-Curricular Use of Space</td>
<td>6</td>
</tr>
<tr>
<td>Maintenance</td>
<td>3</td>
</tr>
<tr>
<td>Future Planning of Space</td>
<td>11</td>
</tr>
</tbody>
</table>

Table IV is to be interpreted as follows: The space item, Student Load, was considered by the policy groups of eight colleges in the Texas institutions surveyed.
As revealed in Table IV, the policies most frequently considered by the groups were: (1) space assignments to departments, (2) future planning for space, (3) course offerings, and (4) scheduling. The one less often considered was maintenance of instructional space.

**Special space committees.**—Six of the fifteen colleges had a special group or committee which was primarily concerned with policies on the factors involved in the utilization of instructional space for the entire institution. This fact is shown in Table V.

**TABLE V**

TEXAS STATE-SUPPORTED COLLEGES AND UNIVERSITIES POSSESSING SPECIAL SPACE COMMITTEES

<table>
<thead>
<tr>
<th>College</th>
<th>Special Space Committee</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Yes</td>
</tr>
<tr>
<td>A</td>
<td>Yes</td>
</tr>
<tr>
<td>B</td>
<td>Yes</td>
</tr>
<tr>
<td>C</td>
<td>Yes</td>
</tr>
<tr>
<td>D</td>
<td>Yes</td>
</tr>
<tr>
<td>E</td>
<td>Yes</td>
</tr>
<tr>
<td>F</td>
<td>Yes</td>
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<tr>
<td>G</td>
<td>Yes</td>
</tr>
<tr>
<td>H</td>
<td>Yes</td>
</tr>
<tr>
<td>I</td>
<td>Yes</td>
</tr>
<tr>
<td>J</td>
<td>Yes</td>
</tr>
<tr>
<td>K</td>
<td>Yes</td>
</tr>
<tr>
<td>L</td>
<td>Yes</td>
</tr>
<tr>
<td>M</td>
<td>Yes</td>
</tr>
<tr>
<td>N</td>
<td>Yes</td>
</tr>
<tr>
<td>Totals</td>
<td>15</td>
</tr>
<tr>
<td></td>
<td>9</td>
</tr>
</tbody>
</table>
Table V is to be read as follows: College A has a special space committee.

These six groups were variously named: a committee on space allotment; a utilization of classroom, laboratory, and office facilities committee; a schedule committee; a building committee; and a committee on the utilization of instructional facilities. The number of members on these committees ranged from four to fourteen members. Three committees had seven members, one had four members, another had five, and one had fourteen members. Registrars presided over four of these space groups and the two other presiding officers were a dean and a superintendent of buildings and grounds. The composition of these committees was most often a representative of each division or department, a business manager, one or more administrators, and occasionally a faculty member.

Coordinators of space activities.—Fourteen of the institutions had an administrative officer who coordinated most of the activities involved in efficient utilization of instructional space. It will be noted in Table VI that the dean of the college was the coordinator in seven colleges (in one institution he was aided by the dean of the graduate school). In six colleges, the registrar, and in another, the assistant to the registrar were the coordinators.
TABLE VI
COORDINATORS OF INSTRUCTIONAL SPACE ACTIVITIES IN THE SURVEYED TEXAS STATE-SUPPORTED COLLEGES AND UNIVERSITIES

<table>
<thead>
<tr>
<th>College</th>
<th>Dean of College</th>
<th>Registrar</th>
<th>Assistant to Registrar</th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td>X</td>
<td></td>
<td></td>
</tr>
<tr>
<td>B</td>
<td>X</td>
<td>X</td>
<td></td>
</tr>
<tr>
<td>C</td>
<td>X</td>
<td></td>
<td></td>
</tr>
<tr>
<td>D</td>
<td>X</td>
<td></td>
<td></td>
</tr>
<tr>
<td>E</td>
<td>X</td>
<td></td>
<td></td>
</tr>
<tr>
<td>F</td>
<td>X</td>
<td>X</td>
<td></td>
</tr>
<tr>
<td>G</td>
<td>X</td>
<td></td>
<td></td>
</tr>
<tr>
<td>H</td>
<td>X</td>
<td></td>
<td></td>
</tr>
<tr>
<td>I</td>
<td>X</td>
<td></td>
<td></td>
</tr>
<tr>
<td>J</td>
<td>X</td>
<td></td>
<td></td>
</tr>
<tr>
<td>K</td>
<td>X</td>
<td></td>
<td></td>
</tr>
<tr>
<td>L</td>
<td>X</td>
<td>X</td>
<td></td>
</tr>
<tr>
<td>M</td>
<td>X</td>
<td></td>
<td></td>
</tr>
<tr>
<td>N</td>
<td>X</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>O</strong></td>
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<td></td>
<td></td>
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<td><strong>O</strong></td>
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<td><strong>O</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>O</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Totals</td>
<td>15</td>
<td>7</td>
<td>6</td>
</tr>
</tbody>
</table>

*Dean of the college is assisted by the graduate dean.

**No coordinator of instructional space activities was reported for College O.

Table VI is to be read as follows: In College A the Dean of the College is the coordinator of instructional space activities.

Procedures.—In the usual approach to working out procedures and problems concerned with the various factors involved in the utilization of instructional space, the coordinating officers worked with the heads of the departments,
or the division heads, or with both of them. In two cases, the coordinators worked with individual teachers and the department heads.

**Maintenance**

Periodic examinations of the physical fitness of the instructional areas, made in cooperation with the maintenance supervisors, were conducted in ten of the colleges. One institution reported that there was a continuous examination and another stated that it was the maintenance supervisor's function. These examinations were made by the deans, business managers, space committee members, college engineers, managers of the physical plant, and by the assistant to the president. These examinations were made annually or oftener in three colleges; and as was very generally stated, "Continuously or as needed," in seven institutions.

**Special Equipment**

Special equipment usage that may aid or hinder the use of classroom space was coordinated most often by, or in combination with, the departments of the various institutions. Three colleges had an audio-visual aids divisions or committee. The library assisted in caring for this equipment in three colleges. Table VII presents these special equipment data.
### TABLE VII

SPECIAL EQUIPMENT MANAGERS IN TEXAS STATE-SUPPORTED INSTITUTIONS OF HIGHER EDUCATION

<table>
<thead>
<tr>
<th>Institution</th>
<th>Instructional Departments</th>
<th>Central Committee or Division</th>
<th>Library</th>
<th>Combination of Library, Departments, and Schools</th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td></td>
<td>X</td>
<td></td>
<td>X</td>
</tr>
<tr>
<td>B</td>
<td>X</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>C</td>
<td>X</td>
<td>X</td>
<td></td>
<td>X</td>
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<tr>
<td>D</td>
<td>X</td>
<td>X</td>
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<tr>
<td>E</td>
<td>X</td>
<td></td>
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<td>X</td>
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<td>F</td>
<td>X</td>
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<td>X</td>
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<tr>
<td>I</td>
<td>X</td>
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<td>J</td>
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<td>K</td>
<td>X</td>
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<tr>
<td>L</td>
<td>X</td>
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<td></td>
<td>X</td>
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<tr>
<td>M</td>
<td>X</td>
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<tr>
<td>N</td>
<td>X</td>
<td></td>
<td></td>
<td>X</td>
</tr>
<tr>
<td>O</td>
<td>X</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Totals</td>
<td>15</td>
<td>8</td>
<td>3</td>
<td>1</td>
</tr>
</tbody>
</table>

Table VII is to be interpreted as follows: The special equipment in Institution A is managed by the central committee or division.

### Scheduling

A schedule director or an officer who coordinated the scheduling process was designated, or assumed this work in thirteen of the institutions. The registrars did this work in six colleges, the deans in four, and the vice-president and assistant to the registrar in one institution each. The answer from one college was not legible. Two institutions...
TABLE VIII

COMMUNICATION MEDIA USED TO EXPRESS SPACE NEEDS IN
TEXAS STATE-SUPPORTED COLLEGES AND UNIVERSITIES

<table>
<thead>
<tr>
<th>Systems</th>
<th>Number of Colleges</th>
</tr>
</thead>
<tbody>
<tr>
<td>News Stories</td>
<td>3</td>
</tr>
<tr>
<td>Memorandums</td>
<td>2</td>
</tr>
<tr>
<td>Presidential Releases</td>
<td>1</td>
</tr>
<tr>
<td>Biennial Requests to the Legislature</td>
<td>1</td>
</tr>
<tr>
<td>Written or Personal Communication</td>
<td>1</td>
</tr>
<tr>
<td>Letters</td>
<td>1</td>
</tr>
<tr>
<td>Needs Expressed to President, to Board, to Legislature</td>
<td>1</td>
</tr>
<tr>
<td>Usual Public Relations</td>
<td>1</td>
</tr>
<tr>
<td>A Study Initiated by the Adm. or Depts.</td>
<td>1</td>
</tr>
<tr>
<td>Personal Requests to Registrars</td>
<td>1</td>
</tr>
<tr>
<td>No Formal Approach to Communication</td>
<td>1</td>
</tr>
<tr>
<td>Negative Replies (No Answers, Doesn't Understand, Doesn't Apply)</td>
<td>4</td>
</tr>
</tbody>
</table>

Table VIII is to be read as follows: Three colleges used news stories to express their space needs.

**Non-professional Personnel**

The coordination of the non-professional personnel with the efficient use of instructional space in the colleges was conducted by various officers. Table IX reveals these coordinators in the several colleges.

TABLE IX

COORDINATORS OF NON-PROFESSIONAL PERSONNEL IN TEXAS
STATE SUPPORTED COLLEGES AND UNIVERSITIES

<table>
<thead>
<tr>
<th>Coordinators</th>
<th>Number of Colleges</th>
</tr>
</thead>
<tbody>
<tr>
<td>Business office personnel.</td>
<td>4</td>
</tr>
<tr>
<td>Business staff plus superintendent of buildings and grounds</td>
<td>3</td>
</tr>
</tbody>
</table>
replied that they did not have an officer who coordinated the scheduling processes. These coordinators in the thirteen colleges worked primarily with the heads of the various departments or in combination with the division heads and department heads. In one instance, the coordinator worked with these two groups and also with a teacher-administrator committee.

**Space Records**

Twelve of the institutions recorded and preserved instructional space statistics. In connection with his other duties, the registrar usually did this work. Two deans, one combination of a dean of the college and the graduate dean, one assistant to the registrar, and one business manager were responsible for these statistics in their different colleges.

**Communication System**

The personnel of the institutions and their publics were informed of the space needs by several different communication media. The leading ones were: (1) news stories, (2) personal communications, (3) memorandums, (4) requests to the president—to the board—to the legislature, (5) letters, and (6) presidential releases. Table VIII shows the great variety of communication media used to express space needs.
Table IX is to be read as follows: The business office personnel in four colleges are the coordinators of the non-professional personnel work.

The business office staff coordinated or assisted in this coordination in five colleges. In eight other institutions, this study was assigned to any one of several different offices. Business office personnel were responsible in four schools and the business staff assisted the superintendent of buildings and grounds in another one. The following officers were each responsible in one school: the registrar, the assistant to the president-personnel officer, the college engineer, the superintendent of buildings and grounds, the director of maintenance, the department heads, the manager of the physical plant, and an assistant to the president.

Extra-curricular Use of Space

The type of officers who supervised the extra-curricular use of instructional space was almost as varied as the
Institutions. Table X shows the supervisors of the extra-curricular use of space.

### Table X

**EXTRA-CURRICULAR SPACE SUPERVISORS IN TEXAS STATE SUPPORTED COLLEGES AND UNIVERSITIES**

<table>
<thead>
<tr>
<th>Officer</th>
<th>Number of Colleges</th>
</tr>
</thead>
<tbody>
<tr>
<td>Registrar.</td>
<td>3</td>
</tr>
<tr>
<td>Dean of students</td>
<td>2</td>
</tr>
<tr>
<td>College dean plus space committee</td>
<td>1</td>
</tr>
<tr>
<td>Physical training department</td>
<td>1</td>
</tr>
<tr>
<td>Dean of graduate school</td>
<td>1</td>
</tr>
<tr>
<td>Business office</td>
<td>1</td>
</tr>
<tr>
<td>College dean plus business manager</td>
<td>1</td>
</tr>
<tr>
<td>Deans of men and woman</td>
<td>1</td>
</tr>
<tr>
<td>Each department concerned</td>
<td>1</td>
</tr>
<tr>
<td>Director of personnel plus dean of college</td>
<td>1</td>
</tr>
<tr>
<td>Dean of women plus president plus assistant to the president</td>
<td>1</td>
</tr>
</tbody>
</table>

Table X is to be read as follows: The registrar supervises the extra-curricular use of instructional space in three Texas state colleges.

In the fifteen colleges there were thirteen different offices and officers who supervised or assisted in the supervision of extra-curricular use of instructional space.

**Future Planning for Space**

Eleven of these colleges had a group or committee which specialized in future planning for space. The names of the committees varied widely. They were the three executive committees, two campus planning committees, and one of each of the following: administrative staff and space allotment.
committee, building committee and departments, buildings and
grounds committee, committee on planning new buildings, special
building committee, and a faculty committee. These groups
were composed of administrative officers together with direc-
tors of divisions, department heads, and faculty members.

The presidents, or officers selected by them, were
usually the presiding officers of these committees. The future
space planning committees considered several factors in their
meetings. Table XI lists these factors and shows the number
of space planning groups who considered them.

**TABLE XI**

**FACTORs CONSIDERED IN THE PLANNING FOR FUTURE SPACE IN
TEXAS STATE-SUPPORTED COLLEGES AND UNIVERSITIES**

<table>
<thead>
<tr>
<th>Space Factor</th>
<th>Number of Space Planning Groups</th>
</tr>
</thead>
<tbody>
<tr>
<td>Students' needs and interests</td>
<td>11</td>
</tr>
<tr>
<td>Depts. predicted future enrollments</td>
<td>10</td>
</tr>
<tr>
<td>Registrar' predictions of future growth</td>
<td>10</td>
</tr>
<tr>
<td>Specialists' opinions (architects &amp; engineers)</td>
<td>9</td>
</tr>
<tr>
<td>Presidents', dept. heads', &amp; deans' predictions</td>
<td>1</td>
</tr>
</tbody>
</table>

Table XI is to be read as follows: The needs and interests of the students are considered by future planning for space groups in eleven colleges.

Each of the eleven committees considered the needs and interests of the students. Nine of them asked architects and engineers for advice on future space. Predictions of future enrollments were given by departments, registrars, presidents, and deans.
Results of the Application of the Evaluation Scale

Introduction

The percentage ranking of each Evaluation Scale division was computed by totaling the division score of the institutions and dividing by the total possible division score. The calculation of these rankings permitted the divisions to be compared on a percentage basis. In Figure 1 is shown the percentage ranking of the divisions in the Evaluation Scale ratings.

<table>
<thead>
<tr>
<th>Divisions</th>
<th>Percentage Rankings</th>
</tr>
</thead>
<tbody>
<tr>
<td>Policies</td>
<td></td>
</tr>
<tr>
<td>Maintenance</td>
<td></td>
</tr>
<tr>
<td>Special Equipment</td>
<td></td>
</tr>
<tr>
<td>Scheduling</td>
<td></td>
</tr>
<tr>
<td>Record Keeping</td>
<td></td>
</tr>
<tr>
<td>Communication System</td>
<td></td>
</tr>
<tr>
<td>Supervision of Non-Professional Personnel</td>
<td></td>
</tr>
<tr>
<td>Extra-curricular Use of Space</td>
<td></td>
</tr>
<tr>
<td>Future Plans for Space</td>
<td></td>
</tr>
</tbody>
</table>

Fig. 1—The evaluation scale ratings of the fourteen Texas state-supported colleges and universities based upon the percentage ranking of each division.
Figure 1 is to be interpreted as follows: The percentage ranking of the colleges' total score on the policies division was 81 per cent.

The rankings of the divisions were: Policies, 81 per cent; Maintenance, 76 per cent; Special Equipment, 76 per cent; Scheduling, 64 per cent; Record Keeping, 61 per cent; Communication System, 58 per cent; Supervision of Non-professional Personnel, 79 per cent; Extra-curricular Use of Space, 72 per cent; and Future Plans for Space, 78 per cent.

**Policies**

The policies division ranking was higher than that of any other division in the evaluation scale. Out of a possible 100 per cent, the policy division ranking of the fourteen Texas state-supported colleges was 81 per cent. The items that were rated the lowest were: the representation of teachers, students, and maintenance personnel in the formulation of policies concerning space utilization. These three groups were not represented in the policy formulation of the institutions.

The colleges rated themselves high on possessing policies that were flexible enough to allow for adjustment to emergencies arising in personnel loads and in scheduling processes.

**Maintenance**

The maintenance division rank was 76 per cent. In Table XII, the total scores of the institutions on each item in the
maintenance division are shown. The possible score of each criterion is 112.

TABLE XII

MAINTENANCE CRITERIA TOTAL SCORES OF THE TEXAS INSTITUTIONS OF HIGHER EDUCATION

<table>
<thead>
<tr>
<th>Criteria</th>
<th>Total Scores of the Fourteen Colleges</th>
</tr>
</thead>
<tbody>
<tr>
<td>The maintenance of the classroom does not hinder efficient use by the classes...</td>
<td>99</td>
</tr>
<tr>
<td>The maintenance schedules are adjustable enough to meet most sudden necessary changes...</td>
<td>102</td>
</tr>
<tr>
<td>The instructional classes can regulate the heating, cooling, ventilating, and lighting for their particular needs...</td>
<td>55</td>
</tr>
<tr>
<td>Health, safety, and beauty of space factors are considered in the maintenance of instructional areas...</td>
<td>86</td>
</tr>
</tbody>
</table>

Table XII is to be read as follows: Out of a possible score of 112, the fourteen Texas state-supported colleges and universities rated themselves ninety-nine on the criterion "Maintenance of the classrooms does not hinder efficient use by the classes."

The institutions reported that classroom maintenance did not hinder efficient use by classes. They felt that the maintenance schedules of the colleges could satisfactorily cope with most sudden changes. The institutions stated that classes could not always regulate the heating, cooling, ventilating, and lighting for their particular needs. Health, safety, and
beauty of space were considered in most cases in the maintenance of the instructional areas.

**Special Equipment**

The total ranking of this division was 76 per cent. Eleven of the colleges stated that the management and use of special equipment did not hinder efficient space usage. Institutions K, W, and O said that special equipment use and management did hurt instructional space utilization on their campuses.

**Scheduling**

This divisional ranking was 64 per cent. It will be noted in Table XIII the total scores of each criterion made by the institutions in the Scheduling division. The highest possible score on each criterion is 112.

**TABLE XIII**

**TOTAL CRITERIA SCORES OF THE FOURTEEN TEXAS STATE-SUPPORTED COLLEGES AND UNIVERSITIES IN THE SCHEDULING DIVISION**

<table>
<thead>
<tr>
<th>Scheduling Criteria</th>
<th>Criterion Scores of the Fourteen Colleges</th>
</tr>
</thead>
<tbody>
<tr>
<td>In setting up the schedule all of those directly affected by the schedule are represented:</td>
<td></td>
</tr>
<tr>
<td>(a) teachers.</td>
<td>81</td>
</tr>
<tr>
<td>(b) administrators.</td>
<td>98</td>
</tr>
<tr>
<td>(c) students.</td>
<td>41</td>
</tr>
<tr>
<td>(d) non-professional personnel.</td>
<td>34</td>
</tr>
</tbody>
</table>
TABLE XIII --Continued

<table>
<thead>
<tr>
<th>Scheduling Criteria</th>
<th>Criterion Scores of the Fourteen Colleges</th>
</tr>
</thead>
<tbody>
<tr>
<td>In assigning classes and rooms the individual faculty member is given consideration as to:</td>
<td></td>
</tr>
<tr>
<td>(a) his over-all teaching program</td>
<td>91</td>
</tr>
<tr>
<td>(b) the distance between succeeding classes</td>
<td>85</td>
</tr>
<tr>
<td>(c) his health</td>
<td>89</td>
</tr>
<tr>
<td>(d) his personal traits and peculiarities</td>
<td>63</td>
</tr>
<tr>
<td>(e) equal assignment as compared with other instructors of similar positions</td>
<td>87</td>
</tr>
</tbody>
</table>

Space utilization is not hindered by faculty members "claiming" certain courses or rooms as their own. 72

In establishing the daily program, the student is given consideration as to his:

| (a) needs | 92 |
| (b) interests | 89 |
| (c) outside activities | 68 |

The schedule can be changed or altered without greatly hindering space utilization. 81

The teaching staff is willing to accept assignment of classes at unpopular hours. 67

Table XIII is to be read as follows: The fourteen Texas state-supported colleges and universities rated themselves 81 out of a possible 112 points on the criterion, "In setting up the schedule all of those directly affected by the schedule are represented: (a) teachers."

The institutions stated that they were deficient in giving students and non-professional personnel representation in the establishment of the schedule. Teachers were not always represented in the scheduling process. The
colleges said consideration was given to the individual faculty member in the assignment of classes and rooms, but that he was not always considered as to his personal traits and peculiarities. Instructional space utilization was being hindered by faculty members assuming certain rooms and courses to be their own. The teaching staffs were not always willing to accept assignment of classes at unpopular hours.

Record Keeping

The Record Keeping division rated 64 per cent as the ranking of the division. Figure 2 shows the space data that are recorded and the number of colleges that record each space fact.

Space Data are recorded concerning:
Type and quantity of pupil station
Conditions of rooms
Floor areas
Present degree of utilization
Low areas of utilization
Areas of excessive utilization
Personnel complaints about space
Personnel requests about space
Decisions on complaints & requests

<table>
<thead>
<tr>
<th>Space Data</th>
<th>Number of Colleges</th>
</tr>
</thead>
<tbody>
<tr>
<td>Type and quantity of pupil station</td>
<td>0 1 2 3 4 5 6 7 8 9 10 11 12 13 14</td>
</tr>
<tr>
<td>Conditions of rooms</td>
<td></td>
</tr>
<tr>
<td>Floor areas</td>
<td></td>
</tr>
<tr>
<td>Present degree of utilization</td>
<td></td>
</tr>
<tr>
<td>Low areas of utilization</td>
<td></td>
</tr>
<tr>
<td>Areas of excessive utilization</td>
<td></td>
</tr>
<tr>
<td>Personnel complaints about space</td>
<td></td>
</tr>
<tr>
<td>Personnel requests about space</td>
<td></td>
</tr>
<tr>
<td>Decisions on complaints &amp; requests</td>
<td></td>
</tr>
</tbody>
</table>

Fig. 2—Number of Texas state-supported colleges and universities recording certain space data.
Figure 2 is to be interpreted as follows: Space data are recorded on type and quantity of pupil-stations in twelve state-supported colleges and universities.

Most of the colleges recorded data on pupil-stations, rooms, floor areas, present degree of utilization, and facts on excessive and low areas of utilization. Eight institutions did not keep records on personnel complaints. Six did not record personnel requests. Nine did not keep data about decisions on complaints and requests concerning instructional space. The colleges recorded data on their physical areas of utilization, but most of them were negligent about recording personnel problems concerning instructional space.

Communication System

This division had the lowest total ranking of any division. The ranking was 58 per cent. One factor that was rated low was the criteria concerning groups contributing space information. Table XIV reveals the extent that the student body, the faculty, and the administrative staff contribute information about instructional space to the college.

TABLE XIV

GROUPS CONTRIBUTING SPACE INFORMATION IN THE TEXAS STATE-SUPPORTED COLLEGES AND UNIVERSITIES

<table>
<thead>
<tr>
<th>College</th>
<th>Student Body</th>
<th>Faculty</th>
<th>Administrative Staff</th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td>No</td>
<td>Yes</td>
<td>Yes</td>
</tr>
<tr>
<td>B</td>
<td>No</td>
<td>Yes</td>
<td>Yes</td>
</tr>
</tbody>
</table>
TABLE XIV -- Continued

<table>
<thead>
<tr>
<th>College</th>
<th>Student Body</th>
<th>Faculty</th>
<th>Administrative Staff</th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td>No</td>
<td>No</td>
<td>Yes</td>
</tr>
<tr>
<td>B</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
</tr>
<tr>
<td>C</td>
<td>No</td>
<td>No</td>
<td>Yes</td>
</tr>
<tr>
<td>D</td>
<td>No</td>
<td>No</td>
<td>Yes</td>
</tr>
<tr>
<td>E</td>
<td>No</td>
<td>No</td>
<td>Yes</td>
</tr>
<tr>
<td>F</td>
<td>No</td>
<td>No</td>
<td>Yes</td>
</tr>
<tr>
<td>G</td>
<td>No</td>
<td>No</td>
<td>Yes</td>
</tr>
<tr>
<td>H</td>
<td>Yes</td>
<td>No</td>
<td>Yes</td>
</tr>
<tr>
<td>I</td>
<td>No</td>
<td>No</td>
<td>Yes</td>
</tr>
<tr>
<td>J</td>
<td>No</td>
<td>No</td>
<td>Yes</td>
</tr>
<tr>
<td>K</td>
<td>No</td>
<td>No</td>
<td>Yes</td>
</tr>
<tr>
<td>L</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
</tr>
<tr>
<td>M</td>
<td>No</td>
<td>No</td>
<td>Yes</td>
</tr>
<tr>
<td>N</td>
<td>Yes</td>
<td>Yes</td>
<td>No</td>
</tr>
<tr>
<td>O</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
</tr>
</tbody>
</table>

Totals: 11 3 2 12 1 13

#This college did not score itself on these questions.

Table XIV is to be read in this manner: In College A, the faculty and the administrative staff do contribute, but the student body does not contribute space information to the college. Eleven colleges stated that their students did not contribute information to the space officers or committees. The faculty contributed in twelve institutions. Information about instructional space was given to the colleges by the administrative staff in thirteen colleges.

In Table XIV, the groups that are informed of space facts and the colleges informing them are listed.
Table XV is to be read as follows: In College A, the following groups are informed of space facts: the faculty and the administrative staff. These groups are not informed of space facts: (1) the student body, (2) the alumni, and (3) the general public.

The alumni and general public were informed of space facts in only three institutions. The students were aware of space data in four colleges. The faculty in twelve and the administrative staffs in all fourteen colleges were aware of matters pertaining to space.
Supervision of Non-professional Personnel

This division had the second highest total score rank of the divisions rated by the Texas state-supported institutions. Figure 3 presents criteria of non-professional personnel practices and the number of colleges answering in the affirmative on each criterion.

<table>
<thead>
<tr>
<th>Criteria</th>
<th>Number of Colleges Answering Affirmatively</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cooperative planning with non-professional employees</td>
<td>11</td>
</tr>
<tr>
<td>Employees understand functions and requirements of job</td>
<td>11</td>
</tr>
<tr>
<td>Service employees know to whom they are responsible</td>
<td>11</td>
</tr>
<tr>
<td>Service employees are not burdened by extra overseers</td>
<td>11</td>
</tr>
</tbody>
</table>

Fig. 3—Non-professional personnel practices in the Texas state-supported colleges and universities.

Figure 3 is to be interpreted as follows: Eleven colleges and universities had cooperative planning with their non-professional employees.

Cooperative planning with the service employees to establish goals and standards was found in eleven colleges. With one exception, all institutions stated that their service employees knew to whom they were responsible. The employees were not burdened by additional supervisory personnel in thirteen of the colleges and universities.
**Extra-curricular Use of Space**

Out of a possible 100 per cent, the total ranking of this division of the Texas state-supported colleges and universities evaluation was 72 per cent. In Table XVI, the extra-curricular use of space criteria and the replies of the institutions are shown.

**TABLE XVI**

**EXTRA-CURRICULAR USE OF SPACE IN TEXAS STATE-SUPPORTED COLLEGES AND UNIVERSITIES**

<table>
<thead>
<tr>
<th>College</th>
<th>Community Organizations allowed extra-curricular use of space</th>
<th>Education objectives are not upset when outside groups use space</th>
<th>Student groups use space after class hours</th>
<th>Custodial staff is expected to patrol and keep areas of institution safe</th>
<th>Totals</th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>1/12</td>
</tr>
<tr>
<td>B**C</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>D</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>1</td>
</tr>
<tr>
<td>E</td>
<td>Yes</td>
<td>Yes</td>
<td>No</td>
<td>Yes</td>
<td>2</td>
</tr>
<tr>
<td>F</td>
<td>Yes</td>
<td>Yes</td>
<td>No</td>
<td>Yes</td>
<td>2</td>
</tr>
<tr>
<td>G</td>
<td>Yes</td>
<td>Yes</td>
<td>No</td>
<td>Yes</td>
<td>2</td>
</tr>
<tr>
<td>H</td>
<td>Yes</td>
<td>Yes</td>
<td>No</td>
<td>Yes</td>
<td>2</td>
</tr>
<tr>
<td>I</td>
<td>Yes</td>
<td>Yes</td>
<td>No</td>
<td>Yes</td>
<td>2</td>
</tr>
<tr>
<td>J</td>
<td>Yes</td>
<td>Yes</td>
<td>No</td>
<td>Yes</td>
<td>2</td>
</tr>
<tr>
<td>K</td>
<td>Yes</td>
<td>Yes</td>
<td>No</td>
<td>Yes</td>
<td>2</td>
</tr>
<tr>
<td>L</td>
<td>Yes</td>
<td>Yes</td>
<td>No</td>
<td>Yes</td>
<td>2</td>
</tr>
<tr>
<td>M</td>
<td>Yes</td>
<td>Yes</td>
<td>No</td>
<td>Yes</td>
<td>2</td>
</tr>
<tr>
<td>N</td>
<td>Yes</td>
<td>Yes</td>
<td>No</td>
<td>Yes</td>
<td>2</td>
</tr>
<tr>
<td>O</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>2</td>
</tr>
<tr>
<td>Totals</td>
<td>12</td>
<td>10</td>
<td>3</td>
<td>1</td>
<td>1/10</td>
</tr>
</tbody>
</table>

*Institution B did not answer the questions as stated in three instances but wrote in "Very limited use."

**This institution did not score itself on these questions.**
Table XVI is to be read as follows: Community organizations are permitted extra-curricular use of space in College A.

Twelve colleges permitted community organizations to use instructional space. Institution F reported that the community groups were not permitted use of this space and Institution B stated that there was very limited use of auditorium facilities. Eleven colleges reported that their over-all program of the college could be adjusted so as to allow the community some extra-curricular use of space without upsetting the educational objectives. Student organizations had the opportunity to use classrooms after the daily schedule was over in all except two institutions, B and M. B stated that they had limited use under supervision, and M reported that the students had a Student Union Building to use. In ten colleges, the custodial staffs were consulted before unusual classes or activities were scheduled.

**Future Plans for Space**

The total ranking of the institutions on the Future Plans for Space divisions was 78 per cent. Table XVII shows the number of colleges that were considering certain future instructional space items.
TABLE XVII

CONSIDERATION OF FUTURE SPACE FACTORS IN TEXAS
STATE-SUPPORTED COLLEGES AND UNIVERSITIES

<table>
<thead>
<tr>
<th>College</th>
<th>Studies on Students' Needs and Interests Being Met</th>
<th>Future Adjustable Classrooms</th>
<th>Future Flexible Classrooms</th>
<th>Health, Safety, and Beauty in Future Space</th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td>Yes</td>
<td>No</td>
<td>Yes</td>
<td>Yes</td>
</tr>
<tr>
<td>B</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
</tr>
<tr>
<td>C</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
</tr>
<tr>
<td>D</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
</tr>
<tr>
<td>E</td>
<td>Yes</td>
<td>No</td>
<td>No</td>
<td>Yes</td>
</tr>
<tr>
<td>F</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
</tr>
<tr>
<td>G</td>
<td>Yes</td>
<td>No</td>
<td>Yes</td>
<td>Yes</td>
</tr>
<tr>
<td>H</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
</tr>
<tr>
<td>I</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
</tr>
<tr>
<td>J</td>
<td>Yes</td>
<td>No</td>
<td>Yes</td>
<td>Yes</td>
</tr>
<tr>
<td>K</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
</tr>
<tr>
<td>L</td>
<td>Yes</td>
<td>No</td>
<td>Yes</td>
<td>Yes</td>
</tr>
<tr>
<td>M</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
</tr>
<tr>
<td>N</td>
<td>Yes</td>
<td>No</td>
<td>Yes</td>
<td>Yes</td>
</tr>
<tr>
<td>O</td>
<td>Yes</td>
<td>No</td>
<td>Yes</td>
<td>Yes</td>
</tr>
<tr>
<td>Totals</td>
<td>11</td>
<td>3</td>
<td>8</td>
<td>6</td>
</tr>
</tbody>
</table>

*This college did not score itself on these questions.

Table XVII is to be read as follows: In College A, the following factors are being considered in future plans for space: students' needs and interests being met; flexible classrooms; health, safety, and beauty of space.

In eleven colleges, studies were made frequently to determine the needs and interests of the students, and to see if these two factors were being met by the present uses of instructional space. Some of the future instructional space
will be so designed that the classrooms can be adjusted to fit the sizes of the classes in eight of the institutions. All except institution E reported that future plans for space include classrooms that are flexible, or that can be used for multi-purposes. Every college responded yes, or nearly always yes, to the item, "Consideration is given to the questions of health, safety, and beauty in future plans for instructional space."

An Analysis of Miscellaneous Data

**Classroom Utilization Data for Texas State-supported Colleges and Universities**

In December of 1953, the Texas Commission on Higher Education inventoried various aspects of educational physical plants. In 1954, the data were re-examined and organized into tabular form. The information in Table XVIII is part of these data.

**TABLE XVIII**

CLASSROOM UTILIZATION DATA FOR TEXAS STATE-SUPPORTED COLLEGES AND UNIVERSITIES, 1953*

<table>
<thead>
<tr>
<th>Institution</th>
<th>Percentage Room Utilization (Based upon 4 1/4 Class Periods per week)</th>
<th>Rank</th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td>42.3</td>
<td>9</td>
</tr>
<tr>
<td>B</td>
<td>69.9</td>
<td>2</td>
</tr>
<tr>
<td>C</td>
<td>32.8</td>
<td>1/1</td>
</tr>
<tr>
<td>D</td>
<td>75.2</td>
<td>1</td>
</tr>
<tr>
<td>E</td>
<td>19.9</td>
<td>15</td>
</tr>
<tr>
<td>F</td>
<td>58.1</td>
<td>5</td>
</tr>
</tbody>
</table>
TABLE XVIII --Continued

<table>
<thead>
<tr>
<th>Institution</th>
<th>Percentage Room Utilization (Based upon ( \frac{4}{7} ) Class Periods per week)</th>
<th>Rank</th>
</tr>
</thead>
<tbody>
<tr>
<td>G</td>
<td>61.6</td>
<td>3</td>
</tr>
<tr>
<td>H</td>
<td>44.8</td>
<td>8</td>
</tr>
<tr>
<td>I</td>
<td>34.5</td>
<td>12</td>
</tr>
<tr>
<td>J</td>
<td>45</td>
<td>7</td>
</tr>
<tr>
<td>K</td>
<td>36.2</td>
<td>11</td>
</tr>
<tr>
<td>L</td>
<td>32.4</td>
<td>13</td>
</tr>
<tr>
<td>M</td>
<td>40.5</td>
<td>10</td>
</tr>
<tr>
<td>N</td>
<td>50.9</td>
<td>6</td>
</tr>
<tr>
<td>O</td>
<td>61.3</td>
<td>4</td>
</tr>
</tbody>
</table>

*Source: Financial Requirements of Higher Education in Texas, A Staff Report to the Finance Committee of the Texas Commission on Higher Education, Austin, Texas, July 26, 1954, Table III.*

Table XVIII is to be read as follows: Institution A's classroom utilization was 42.3 per cent, and it ranked ninth among the fifteen colleges.

The absence of uniform definitions for "classroom" and other terms used in the original inventory report form, caused considerable misgiving as to the accuracy of the room utilization rates. One college could have interpreted "classrooms" as meaning only rooms constructed for that purpose. Another college could have understood that the term meant any space in which a class was conducted, whether it was a general classroom, a vocational shop, or an auditorium. One institution included off-campus space only. Despite its faults, these are the most reliable instructional space data available on the state-supported institutions of higher
Education in Texas. The utilization figures range from 19.9 per cent of Institution E, to 75.2 per cent of Institution D.

The Total Scores of Texas State-supported Colleges and Universities on the Evaluation Scale

Fourteen Texas state-supported colleges and universities used the Evaluation Scale instrument to rate their practices in administering instructional space. The criterion ratings were computed to give the total score of each college. Table XIX lists the letter representing the name of the institution, the total Section II rating scale points, and the rank number of each college among the fourteen institutions. Institution C did not evaluate its college by the use of the rating scale. The maximum possible score for each institution is 576.

**Table XIX**

**Texas State-supported Colleges and Universities Scores Section II Evaluation Scale, and Rank Order Among the Schools**

<table>
<thead>
<tr>
<th>Institution</th>
<th>Rating Scale Points</th>
<th>Rank on the Scale</th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td>395</td>
<td>8</td>
</tr>
<tr>
<td>B</td>
<td>424</td>
<td>6</td>
</tr>
<tr>
<td>C</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>D</td>
<td>374</td>
<td>12</td>
</tr>
<tr>
<td>E</td>
<td>462</td>
<td>2</td>
</tr>
<tr>
<td>F</td>
<td>379</td>
<td>11</td>
</tr>
<tr>
<td>G</td>
<td>494</td>
<td>1</td>
</tr>
<tr>
<td>H</td>
<td>370</td>
<td>13</td>
</tr>
<tr>
<td>I</td>
<td>391</td>
<td>10</td>
</tr>
<tr>
<td>J</td>
<td>452</td>
<td>4</td>
</tr>
</tbody>
</table>
TABLE XIX --Continued

<table>
<thead>
<tr>
<th>Institution</th>
<th>Rating Scale Points</th>
<th>Rank on the Scale</th>
</tr>
</thead>
<tbody>
<tr>
<td>X</td>
<td>319</td>
<td>14</td>
</tr>
<tr>
<td>L</td>
<td>445</td>
<td>5</td>
</tr>
<tr>
<td>M</td>
<td>459</td>
<td>3</td>
</tr>
<tr>
<td>N</td>
<td>405</td>
<td>7</td>
</tr>
<tr>
<td>O</td>
<td>392</td>
<td>2</td>
</tr>
</tbody>
</table>

*This institution did not complete this section of the survey.

Table XIX is to be interpreted as follows: Institution A had a total of 395 rating scale points. It ranked eighth among the fourteen colleges.

**Relationship of the 1953 Utilization Figures of the Texas State-supported Colleges and Universities and the Evaluation Scale Ratings**

The correlation between the 1953 utilization figures of the fourteen Texas state-supported colleges and their ratings on the evaluation scale was computed. Institution C could not be included in the group because this college made no evaluation of its administrative practices in instructional space utilization. The raw score method was used in finding the existing correlation. Appendix B presents the computation.

The correlation is -.15. There is no significant relationship between the Evaluation Scale ratings and the 1953 utilization statistics of the fourteen Texas state-supported institutions of higher learning.
Comparison of Colleges which Have Special Space Committees to the Colleges Having No Special Space Committees

The Texas institutions of higher learning were divided into two groups, those colleges having a special space committee and those colleges having no special space committee. The two groups of colleges were compared in three ways: (1) by the evaluation scale rank order of the colleges (the college with the most points on the evaluation scale ranking first, etc.), (2) by the college's rank order on the Texas Commission on Higher Education classroom utilization figures for 1953 (the college possessing the highest per cent of utilization ranking first, etc.), and (3) by the colleges with the most total points in each of the nine divisions of the evaluation scale.

These two groups were compared:

(1) by the Evaluation Scale total score rank of the colleges. In Table XX is shown the space committee colleges and their rank and the colleges without space committees and their rank on the evaluation scale.

Table XX

A COMPARISON OF TEXAS STATE-SUPPORTED COLLEGES AND UNIVERSITIES WHICH POSSESS SPACE COMMITTEES WITH THE COLLEGES OF THE SAME GROUP NOT POSSESSING SPACE COMMITTEES

<table>
<thead>
<tr>
<th>Space Committee Colleges</th>
<th>Rank</th>
<th>Colleges without Space Committees</th>
<th>Rank</th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td>8</td>
<td>C</td>
<td>-</td>
</tr>
<tr>
<td>B</td>
<td>6</td>
<td>E</td>
<td>2</td>
</tr>
<tr>
<td>D</td>
<td>12</td>
<td>F</td>
<td>11</td>
</tr>
</tbody>
</table>
Table XX is to be read as follows: College A, possessing a space committee, ranked eighth out of fourteen colleges. Institution C did not complete its evaluation scale and could not be compared.

By the total points scored in the evaluation scale, the six colleges with space committees ranked first, third, fifth, sixth, eighth, and twelfth. This was four out of the top six or five out of the top eight ranked colleges. There were six with space committees as compared to eight without them.

(2) by rank order of the utilization figures of the Texas Commission on Higher Education. In the fifteen colleges participating in the Higher Education utilization study, the space committee institutions ranked first, second, third, ninth, tenth, and thirteenth. Five of the six space committee colleges were in the top ranked ten. The three institutions with the best utilization of space did have space committees.

<table>
<thead>
<tr>
<th>Space Committee Colleges</th>
<th>Rank</th>
<th>Colleges without Space Committees</th>
<th>Rank</th>
</tr>
</thead>
<tbody>
<tr>
<td>G</td>
<td>1</td>
<td>H</td>
<td>13</td>
</tr>
<tr>
<td>L</td>
<td>5</td>
<td>I</td>
<td>10</td>
</tr>
<tr>
<td>N</td>
<td>3</td>
<td>J</td>
<td>4</td>
</tr>
<tr>
<td></td>
<td></td>
<td>K</td>
<td>14</td>
</tr>
<tr>
<td></td>
<td></td>
<td>W</td>
<td>7</td>
</tr>
<tr>
<td></td>
<td></td>
<td>O</td>
<td>9</td>
</tr>
</tbody>
</table>

Table XX --Continued
(3) by the colleges with the most total points in each of the nine divisions of the Evaluation Scale. Out of fourteen participating colleges, the six with space committees led in division total points in divisions A, B, D, F, H, and in division E. Colleges from each group tied on points in divisions C and G. The six space committee colleges were superior in six divisions; the eight colleges without space committees were superior in one division; and the groups were equal in two divisions of the Evaluation Scale.

**Coordinators or Leaders of the Instructional Space Activities**

In the discussions of Section I and II in this chapter, the leaders or coordinators of instructional space activities in many of the divisions were listed or given. These officers were the personnel who put the policies and practices into effect in achieving instructional space utilization. Table XXI shows the number and type of leader in each space activity, and the total activities that each officer or leader coordinated or supervised.

**TABLE XXI**

<table>
<thead>
<tr>
<th>Officer</th>
<th>No. of Leaders &amp; Space Activities</th>
<th>Totals</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>A</td>
<td>B</td>
</tr>
<tr>
<td>Dean of the College</td>
<td>1</td>
<td>7</td>
</tr>
<tr>
<td>Registrar</td>
<td>4</td>
<td>6</td>
</tr>
</tbody>
</table>
### TABLE XXI —Continued

<table>
<thead>
<tr>
<th>Officer</th>
<th>A</th>
<th>B</th>
<th>C</th>
<th>D</th>
<th>E</th>
<th>F</th>
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*A, Space Committee Chairman  
B, Coordinator of Space Activity  
C, Coordinator of Physical Fitness of Space  
D, Schedule Coordinator  
E, Recorder of Space Statistics  
F, Coordinator of Non-professional Personnel  
G, Coordinator of Extra-curricular Use of Space

Table XXI is to be read as follows: The Dean of the college was the leader in one college as Space Committee Chairman, in seven colleges as Coordinator of Space Activity, in four colleges as Coordinator of Physical Fitness of Space, in four colleges as Schedule Coordinator, in three colleges as Recorder of Space Statistics, and in three colleges as Coordinator of Extra-curricular Use of Space. He led in a total of twenty-two space activities in the colleges.
The registrar led in more space activities than did any other officer. The registrars led in twenty-seven space activities and the deans of the colleges were second with leadership in twenty-two space activities. The business managers and the business office personnel led in six space activities each. The assistants to the presidents were leaders in four space activities. The other leaders listed in Table XXI led from one to three space activities each. The registrars and the deans of the colleges coordinated and led in most of the instructional space activities in the surveyed Texas state colleges.

Comparison of the Colleges by Enrollment Sizes

The fourteen state-supported institutions of higher education who participated in this study were classified and compared according to the size of their enrollment. The purpose of this classification was to compare institutions of different enrollments and to determine whether various instructional space activities and practices were superior in one size institution to those colleges of another enrollment size. The fourteen colleges were divided into three classifications: large, medium, and small. The large institutions were those with enrollments from 6,000 to 19,000 students. The medium institutions were those with enrollments from 2,000 to 6,000 students. The small group included colleges with enrollments from 500 to 2,000 students. These three classifications of colleges were then compared: (1) by the mean space utilization
figures on each group, and (2) by the Evaluation Scale total score averages of the three groups.

The institutions were compared:

(1) by the space utilization means of the three groups. The means of the utilization scores for the three groups were: 57.2 for the large size group, 48.5 for the medium size group, and 32.4 for the small size group of colleges.

(2) by the Evaluation Scale total score averages of the three groups. The averages of the Evaluation Scale total scores for the three groups were: 425 for the large institutions, 406 for the medium size colleges, and 416 for the smaller institutions.

The large enrollment group had the largest mean of space utilization and the highest Evaluation Scale average score. The medium enrollment group had a higher mean of space utilization but a lower Evaluation Scale score average than did the small size enrollment group of colleges.

Summary

1. Fourteen of the Texas state-supported colleges and universities surveyed had space policies established by representative committees. These committees considered the following space factors: student load, teacher load, class size, course offerings, scheduling, daily programs, space assignment to departments, extra-curricular use of space, maintenance of instructional space, and future planning for space.
2. Six of the state-supported colleges and universities had a special space committee.

3. There was an administrator in fourteen of the institutions who was the central coordinator in the major part of the activities involved in efficient usage of instructional space. These administrators usually worked with the heads of the departments, or the division heads, or with both, when deciding procedures and problems in the utilization of instructional space. These administrators usually worked with the heads of the departments, or the division heads, or with both, when deciding procedures and problems in the utilization of instructional space.

4. In ten colleges, periodic examinations of the physical fitness of the instructional areas were made in cooperation with the maintenance supervisors.

5. In eleven of the fifteen colleges and universities surveyed, the instructional departments managed or aided in the management of special equipment.

6. Thirteen institutions had a schedule director or coordinator. This officer worked primarily with the heads of the departments or with both department and division heads.

7. Twelve of the state-supported institutions recorded and preserved instructional space statistics.

8. The personnel and publics of the colleges and universities were informed of instructional space matters by a number of different communication media.
9. The coordination of the non-professional personnel in the efficient use of instructional space in the colleges was conducted by several different officers. The business managers did this work more often than did other officers.

10. In the fifteen colleges there were thirteen different offices and officers who supervised or assisted in the management of extra-curricular use of instructional space.

11. Future planning for space committees were present in eleven of these colleges.

12. The needs and interests of the students were the factors that were considered by more future planning for space committees.

13. The colleges rated themselves higher on policies than on any other division of the Evaluation Scale.

14. The policies of the educational institutions were inadequate as far as the teachers, students, and maintenance personnel being represented in the formulation of policies concerning space utilization.

15. The colleges stated that maintenance of the classroom areas did not hinder efficient use by the classes.

16. Institutions K, M, and O reported management and use by the classes of special equipment hindered utilization of instructional space. The other eleven colleges stated that the opposite was true.
17. Teachers, students, and non-professional personnel were without representation in the establishing of many schedules.

18. Optimum instructional space utilization was hampered in the colleges by faculty members assuming certain rooms and courses to be their own.

19. Five colleges rated themselves especially low on their faculties being willing to accept assignment of classes at unpopular hours.

20. The colleges recorded data on their physical areas of utilization, but eleven were negligent in recording personnel problems concerning instructional space.

21. The communication system division was the lowest rated one of the nine divisions.

22. Eleven colleges stated that their students did not contribute information about space matters.

23. The faculty contributed space information in twelve institutions.

24. The alumni and general public were informed of space facts in only three of the fourteen colleges. The students were aware of space facts in four colleges. The faculty and the administrative staff were much better informed of space matters than were the students and the publics.

25. Non-professional personnel practices aided optimum instructional space utilization in the colleges.
26. Twelve of the educational institutions permitted community organizations and student groups to use instructional space. In ten colleges the custodial staffs were consulted before unusual classes or activities were scheduled.

27. The colleges were planning their future instructional space with these factors in mind: meeting students' needs and interests; adjustable and flexible classrooms; and health, safety, and beauty as a part of future space.

28. The Texas Commission on Higher Education surveyed the classroom utilization of these colleges in 1953. Their utilization figures, based upon a forty-four hour week ranged from 19.9 per cent to 75.2 per cent of total capacity.

29. Fourteen Texas state-supported colleges and universities used the Evaluation Scale instrument to rate their practices in administering instructional space. There was a possible score for each institution of 576. The scores ranged from 319 to 494.

30. There was no significant relationship between the Evaluation Scale ratings and the 1953 utilization statistics of the fourteen Texas state-supported colleges. The correlation was +.15.

31. Colleges with space committees were compared to colleges having no space committees.

   (1) In the Evaluation Scale total score rank of the colleges, the space committee colleges had four of the top six, or five out of the top eight ranked colleges.
(2) In the utilization figures, arranged in rank order, five of the six space committee colleges were in the top ranked ten. The three institutions with the best utilization of space did have space committees.

(3) In the nine divisions of the Evaluation Scale the space committee colleges led in division total points in divisions and tied for the lead in two more divisions.

32. The registrars led in or coordinated more space activities than any other officer. The deans of the colleges were in second place as leaders of space activities.

33. In a classification of the colleges by enrollment sizes, the large size institutions had the highest mean of utilization of space and the highest Evaluation Scale average score. The medium enrollment group had a higher mean of space utilization but a lower Evaluation Scale average score than did the small size enrollment group of colleges.
CHAPTER BIBLIOGRAPHY

1. Financial Requirements of Higher Education in Texas, A Staff Report to the Finance Committee of the Texas Commission on Higher Education, Austin, Texas, July 26, 1954, Table III.
CHAPTER VI

SUMMARY, CONCLUSIONS, AND RECOMMENDATIONS

Introduction

In the beginning, it was stated that this investigation might be considered a study of one of the many factors which comprise the general problem of optimum utilization of instructional space in colleges and universities. It is presented, therefore, as a contribution to the cumulative evidence available for a better understanding of the broad and complex problem of administering instructional space utilization in colleges and universities.

A review of the major findings of this study will furnish an appropriate introduction for the conclusions. After the conclusions are given, recommendations shall be listed.

Summary

From the foregoing chapters, it may be seen that:

1. Many factors influence the instructional space utilization in colleges and universities. Some of these factors are:
   (1) sizes and types of classes
   (2) adjustment of class-size to room-size
   (3) use of student instructional facilities
   (4) cooperation from college personnel
(5) maintenance of classrooms
(6) use and distribution of special equipment
(7) future plans for instructional space
(8) scheduling
(9) low enrollments
(10) over-utilization
(11) extra-curricular use of space

2. Criteria for the administering of instructional space utilization in colleges and universities were developed. From an analysis of these criteria, hypotheses were stated.

3. Criteria which were developed in Chapter III, were used as a basis to design a survey instrument. This instrument was constructed to determine and evaluate the practices in administering instructional space in colleges and universities. No similar instrument had been developed and it was difficult to design one that would rate items accurately. Standard statistical procedures were used to obtain as much as possible a substantial measure of the factors of objectivity, discrimination, validity, and reliability.

4. Six of the Texas state-supported colleges and universities had space committees.

5. Fourteen educational institutions had space policies established by representative committees. The institutions regarded their policies as being inadequate concerning the representation of the teachers, students, and maintenance personnel in the formulation of space utilization policies. The
committees considered definite space policies on: (1) student load, (2) teacher load, (3) class size, (4) course offerings, (5) scheduling, (6) daily programs, (7) space assignment to departments, (8) extra-curricular use of space, (9) maintenance of instructional space, and (10) future planning for space.

6. Fourteen colleges and universities had administrators who coordinated the instructional space activities. These coordinators worked with the department heads or chairmen of the divisions, or both, on space problems. Several institutions had more than one coordinator. In the fourteen institutions, there were nineteen different types of officers listed as coordinators.

7. In ten institutions, periodic examinations of the physical fitness of the instructional areas were made in cooperation with the maintenance supervisors. The colleges stated that maintenance of the classroom areas did not hinder efficient use by the classes.

8. Twelve of the institutions reported that the management and use of special equipment did not hinder utilization of instructional space. In eleven of the fifteen colleges and universities, the instructional departments managed or aided in the management of special equipment.

9. Thirteen institutions had a schedule director or coordinator. This officer worked primarily with the heads of the departments or with both department and division heads.
Teachers, students, and non-professional personnel were not often represented in the planning of schedules.

10. Twelve of the state-supported institutions recorded and preserved some instructional space statistics. The institutions recorded space facts on physical areas and equipment, but were negligent on recording: (1) personnel requests, (2) personnel complaints, and (3) decisions on these two factors.

11. The coordination of the non-professional personnel in the efficient use of instructional space was conducted by ten different college officers. The business managers did this work more often than did other officers.

12. In the fifteen colleges and universities, there were thirteen different offices and officers who supervised or assisted in the management of extra-curricular use of instructional space. Twelve of the colleges and universities permitted community organizations and student groups to use instructional space. In ten institutions, the custodial staffs were consulted before unusual classes or activities were scheduled.

13. Eleven colleges and universities had committees that specialized in planning for future space. The needs and interests of the students were the factors that were considered by all eleven committees. Thirteen of the institutions planned for flexibility in future classrooms.

14. Optimum instructional space utilization was hampered in the institutions by lack of cooperation from the faculties.
They assumed certain classrooms and classes to be their own; and they were not always willing to accept classes at unpopular hours.

15. The communication system of the educational institutions did not adequately give or receive space data from their publics. Twelve institutions rated themselves low on these items in the Evaluation Scale.

16. Fourteen Texas state-supported colleges and universities used the Evaluation Scale instrument to rate their practices in administering instructional space. There was a possible score for each institution of 576. The scores ranged from 319 to 494.

17. The Texas Commission on Higher Education surveyed the classroom utilization of these colleges and universities in 1953. Their utilization figures, based upon a forty-four hour week ranged from 19.9 per cent to 75.2 per cent. Uniform definitions of space terms were not used. Each institution evaluated itself.

18. There was no significant relationship between the Evaluation Scale ratings and the 1953 utilization statistics of the fourteen Texas state-supported colleges and universities. The correlation was .15.

19. Colleges and universities with space committees and those educational institutions without space committees were compared in three ways:
(1) by the Evaluation Scale total score rank
(2) by the utilization percentage rank order
(3) by each of the nine divisions' scores in the Evaluation Scale.

The institutions with space committees were superior in each of these comparisons.

20. In a classification of the colleges and universities by enrollment sizes, the largest institutions had the highest mean of utilization of space and the highest Evaluation Scale score average. The medium-sized enrollment group had a higher mean of space utilization but a lower Evaluation Scale average score than did the small-size enrollment group of colleges and universities.

Conclusions

Conclusions on the Hypotheses

In Chapter III, fourteen hypotheses were developed from criteria for administering instructional space utilization in Texas state-supported colleges and universities. As this was one of the first attempts to establish definite criteria which would provide for more effective administration for optimum utilization of instructional space, it was difficult to establish these hypotheses. This study was presented as evidence of the definite proof of the hypotheses. The workability of these hypotheses was shown. The workability of the hypotheses was established by two concepts: (1) a higher
number of institutions agreeing with the hypotheses and
(2) Evaluation Scale results. In the summary were listed
data which were used in an attempt to establish the workability
of these hypotheses.

1. Hypothesis.—Colleges and universities should have
space committees.

The high degree of workability of this hypothesis was
demonstrated by numbers four and nineteen of the summary. In
number four it is seen that six of the Texas state-supported
colleges and universities had space committees. In number
nineteen it is stated that the institutions with space com-
mittees were compared in three ways with the institutions
without space committees. The institutions with space com-
mittees were superior in each of these comparisons. These
three ways were:

(1) by the Evaluation Scale total score rank
(2) by the utilization percentage rank order
(3) by each of the nine divisions' scores on the
   Evaluation Scale.

The workability of this hypothesis was established by
the Evaluation Scale rating.

2. Hypothesis.—Definite instructional space policies
should be developed.

Summary statement number five revealed that space policies
were established in fourteen of the institutions. The extent
that these policies were definite was not clearly shown. The institutions had policies on general areas concerning space factors. The colleges and universities lacked definite policies concerning representation for teachers, students, and maintenance personnel in the formulation of policies. The workability of the hypothesis was not conclusively proved. The evidence indicated that these institutions did not have certain definite policies.

3. Hypothesis.—All segments of the college personnel should be represented in the policy formulation.

In summary statement number five it is stated that fourteen of the colleges and universities reported that they had representative committees that established space policies. The workability of this hypothesis was established by the fact that all of the institutions had representative committees.

4. Hypothesis.—A central office or officer should direct the administration of instructional space.

As shown in summary statement number six, fourteen of the colleges and universities had officers who coordinated the instructional space activities. These institutions stated that they had a central officer to coordinate space activities, but in reality, these officers only led in a few of the many instructional space activities. The fact that nineteen different offices and officers led or coordinated
the activities revealed the need for one central office or officer to coordinate the work of the other instructional space leaders.

5. Hypothesis.--The administration of instructional space requires effective cooperation between professional and non-professional personnel in securing optimum use of instructional space.

In summary statement number fourteen it is stated that the lack of cooperation from the faculties hampered the instructional space utilization. Also, the institutions recognized the importance of cooperation from every group as stated in number eleven. The colleges and universities had officers designated to coordinate the work of the non-professional personnel in the efficient use of instructional space.

These two facts, one showing the lack of cooperation and the other revealing the recognition by the institutions of the need for coordination of the work of the non-professional, indicated the workability of this hypothesis. The workability of the hypothesis was established by the high number of institutions who agreed with it.

6. Hypothesis.--Colleges should have an effective system of communication pertaining to instructional space data.

The Evaluation Scale ratings indicated that twelve of the institutions rated themselves very low on this aspect of
administering instructional space utilization (summary statement number fifteen). The two institutions with an effective communication system rated themselves high, therefore, it appeared that the workability of the hypothesis was established.

7. Hypothesis.--Instructional space data should be recorded and preserved.

The workability of this hypothesis was revealed in summary statement number ten. It was stated that twelve of the fourteen institutions recorded and preserved space data. By this high number of institutions agreeing, the workability of this hypothesis was established.

8. Hypothesis.--Proper distribution and use of special equipment facilitates instructional space utilization.

In summary statement number eight, twelve of the fourteen institutions reported that they were not hindering instructional space utilization by their management and use of special equipment. Since the largest number of institutions were in agreement with this hypothesis, and because of their high ratings on the Evaluation Scale, the workability of this hypothesis was established.

9. Hypothesis.--Periodic examinations of cleanliness and physical fitness of instructional space should be made by both maintenance supervisors and space administrators.
Ten of the fourteen colleges and universities made periodic examinations of the physical fitness of the instructional areas in cooperation with the maintenance. (Summary statement under seven.) Thus the workability of the hypothesis was established by the high number of institutions that agreed with the hypothesis.

10. Hypothesis.—Custodian staffs should be consulted before unusual classes or activities are scheduled.

In summary statement number twelve, it was stated that in ten institutions, the custodial staffs were consulted before unusual classes or activities were scheduled. By the high number of institutions that agreed with the hypotheses, the workability of this hypothesis was established.

11. Hypothesis.—Community organizations and student groups should be permitted to use instructional spaces when the use does not interrupt the schedule.

Twelve colleges and universities agreed with this hypothesis. In summary statement number twelve, it was stated that twelve institutions permitted these groups to use instructional space. It was concluded, therefore, that by the high number of institutions agreeing with this hypothesis the workability of the hypothesis was established.

12. Hypothesis.—Colleges should have groups or committees that specialize in planning for future space.
Eleven of the fourteen colleges and universities had groups or committees that specialized in planning for future space. (Summary statement number thirteen.) The workability of this hypothesis was established by the high number of institutions who agreed with the hypothesis.

13. Hypothesis.--The needs and interests of students should be the main factors in planning future space.

All eleven institutions with committees on future planning for space stated that they considered the needs and interests of students. No other space factor was considered by so many committees. (Summary statement number thirteen.) The high number of institutions that agreed with this hypothesis established the workability of this hypothesis.

14. Hypothesis.--Future space should be flexible and adaptable to meet varying future needs.

Thirteen of the institutions planned for flexibility in future instructional space. (Summary statement number thirteen.) Of the fourteen colleges and universities, thirteen was a large majority that agreed with the hypothesis. The workability of the hypothesis was established for the part of the hypothesis that stated that future space should be flexible. This part was established because of the high number of institutions that agreed with it. In summary there was not listed any data pertaining to the
adaptability of instructional space; therefore, the workability of the adaptability part of the hypothesis was not established.

Other Conclusions

15. It seems that any factor related to the instructional program influences the utilization of instructional space.

16. It appears that the insignificant correlation between the Evaluation Scale scores and the 1953 classroom utilization percentages does not prove the Evaluation Scale to be of negative value. The number of variables, including the lack of uniform terms and disinterested raters, in the 1953 utilization study and the fact that the Evaluation Scale was self-rated hindered a computation of the true correlation. At the time, these were the best data and methods available.

17. It seems that institutions with large enrollments generally have better administration of instructional space and a higher percentage of instructional space utilization than do institutions of medium and small size enrollments.

Recommendations for Improving the Administration of Instructional Space Utilization in Colleges and Universities

1. To obtain the optimum utilization of instructional space, permanent space committees should be established.

2. One of the major responsibilities of these space committees should be to recommend definite space utilization
policies to the presidents and governing boards for consideration and possible adoption.

3. All segments of the school personnel should be represented, directly or indirectly, in the space policy and schedule formulations.

4. Colleges and universities should designate a space utilization administrator. Large institutions should have a full-time officer for maximum utilization of space. In smaller institutions, a top-level administrator could be designated as the space administrator. More of the space activities should be centralized.

5. Uniform space terms and standards should be agreed upon and established.

6. Space data should be recorded and preserved.

7. The institutions should establish effective plans for communicating with their publics. These plans should include disseminating and receiving information on space.

8. The faculties and other personnel of the institutions should be encouraged to aid in space utilization.

9. Space should be considered in light of instructional needs.

10. The scheduling processes should be studied and changed to achieve better utilization throughout the whole day and week. The schedules should emphasize institutional maximum utilization of instructional space rather than the pleasing of certain individuals or special groups.
11. Examinations of the physical fitness of instructional space should be scheduled and the findings reported regularly.

12. Colleges and universities should have groups or committees that specialize in planning for additional instructional space.

13. The administration of instructional space utilization should be a continuous process.

14. This study suggests a number of related problems which should be investigated: (a) A study should be made to reveal the most efficient and desirable methods for measuring instructional space utilization. (b) Research should be conducted to show the effect of college personnel practices upon space utilization. (c) Colleges with two different types of space administration should be studied.

Colleges with central administration of space could be the control groups. The other group would have most space activities de-centralized. (d) Research could be conducted to further establish the hypotheses of this study. (e) Standards should be developed which would aid in the identification of the points where economy factors, as related to space utilization, become detrimental to the instructional program.
CORRELATION BETWEEN 1953 UTILIZATION Figure AND SECTION II EVALUATION SCALE Scores OF THE TEXAS STATE-SUPPORTED COLLEGES AND UNIVERSITIES

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\[ \rho = \frac{ \frac{\Sigma XX - (\Sigma X)(\Sigma X)}{(\Sigma X^2 - (\Sigma X)^2)} (\Sigma X^2 - (\Sigma X)^2) }{ \sqrt{\frac{\Sigma (X^4) - (\Sigma X^4)(\Sigma X^2)}{(\Sigma X^2 - (\Sigma X)^2)} (\Sigma X^2 - (\Sigma X)^2) } } = \]

\[ \frac{134(275493) - (672)(5761)}{\sqrt{134(35456) - 672^2)(134(2399039) - 5761^2) = 294.046 = +.15} \]

X is per cent of Utilization, Y is the Evaluation Scale Points
Correlation = +.15
Computation of The Reliability of The Instrument

1. Correlation of the split-halves, using the raw score method of correlation

X = odd numbered scores
Y = even numbered scores

\[ \bar{x} = 2.934 \]
\[ \bar{y} = 2.827 \]

\[ \bar{x}^2 = 622.610 \]
\[ \bar{y}^2 = 578.486 \]

\[ \bar{x} \bar{y} = 598.967 \]

\[ r = \frac{\bar{x} \bar{y} - (\bar{x})(\bar{y})}{\sqrt{\bar{x}^2 - (\bar{x})^2} \sqrt{\bar{y}^2 - (\bar{y})^2}} = \]

\[ r = \frac{8,385.538 - 8,294.418}{\sqrt{8,716.940 - 8,608.359} \sqrt{8,098.804 - 7,991.923}} = \]

\[ 0.9120 \]

\[ 0.927 = +.85 \] = correlation of split-halves

2. Spearman-Brown formula (Garrett, 81) applied to half-test reliability

\[ r_{11} = \text{the reliability coefficient of the whole test} \]

\[ r_{1/2} 1/11 = \text{the reliability coefficient of one-half of the test, found experimentally} \]

\[ r_{11} = \frac{2 r_{1/2} 1/11}{1 + r_{1/2} 1/11} = r_{11} = \frac{2(0.85)}{1 + 0.85} = 1.70 \]

\[ .92 = \text{the reliability of the whole test} \]
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